

Learning to live with Health Economics

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**Chapter I
Introducing the learning materials**



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Key Words

HEALTH ECONOMICS
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HEALTH POLICY – economics
SOCIOECONOMIC FACTORS
HEALTH SERVICES ACCESSIBILITY
HEALTH CARE REFORM
COST–BENEFIT ANALYSIS – methods
OUTCOME ASSESSMENT (HEALTH CARE)
PROGRAM EVALUATION – methods
FORECASTING
TEACHING MATERIALS

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1.1 Background

This set of health economics learning materials has been prepared by the WHO Regional Office for Europe to assist health policy decision-makers, advisers, planners, managers, practitioners and other concerned groups. Health policy and practice is a large and complex area. It can benefit from a range of perspectives, including that of economics. Economics is particularly useful for decision-makers, since resource limitations and financial constraints apply in all health systems and at all levels. There are always more useful activities competing for priority than can be resourced; and this has significant implications for resource allocation decisions, health outcomes and equity. The purpose of this set of learning materials is to assist these various potential audiences to benefit from the valuable insights which can be afforded by the discipline of economics, broadly defined. It is intended to be complementary to other material on health economics, which is already available.

Together the modules cover various aspects of the public policy process, the dimensions of health policy content, and their sustainable implementation and effective practice. All of these matters would benefit from the application of the concepts and reasoning, as well as the analytical techniques, which economists can bring to the challenges of health policy, practice and performance. Often, these need to be practised in collaboration with other colleagues, both in terms of analysis and approach (e.g. epidemiology), and also in terms of application (e.g. policy-makers and practitioners).

Much of medicine focuses on individual patients, their problems and their treatment. Economics, however, tends to fit especially with those aspects of health care, health systems and health outcomes (such as sociology, political science or epidemiology) that are concerned with groups, for example people and patients and the contexts in which they live, work and play. Who should get priority in relation to the use of scarce resources? What alternative approaches or treatments are available? How do their costs, benefits and patterns of distribution vary? What implications follow for resource use and health outcomes? The economic approach fits particularly well with the “public health” view of the issues, problems and possible solutions, including the overall health for all strategy and specifically HEALTH21, the health for all policy framework for the WHO European Region, which was adopted by the World Health Organization Regional Committee for Europe in 1998.¹

The individual modules in the overall set of learning materials are concerned with a broad range of matters. For example, they consider: the general relevance of economic concepts and economic policy issues to the health field; health sector and related issues facing countries which are in economic

¹ *Health21: the health for all policy framework for the WHO European Region*. Copenhagen, WHO Regional Office for Europe, 1999 (European Health for All Series, No. 6).

and political transition, especially those in central and eastern Europe and in the newly independent states of central Asia; the challenges which face all countries in one form or another in restructuring and reorienting health care and related systems at the levels of policy, management and practice; the determinants of health outcomes (only some of which lie within the direct responsibility of health ministries); the concept of health as individual and social capital and wealth; and a range of specific topics, including financing systems, costing, economic evaluation, the development and diffusion of health technology, economic modelling and forecasting, frameworks for the systematic consideration of public health management, approaches to overall policy analysis, and privatization.

The learning modules have been prepared with a practical purpose in mind: to assist various groups of potential users. They are complementary to material available elsewhere, for instance through the World Bank or the wide range of textbooks and courses on offer. No attempt has been made to duplicate what is already available (although there is inevitably an overlap in relation to some topics) and nowhere else does there exist a set of learning materials equivalent to this WHO set. The range of matters addressed in these learning materials widens the scope for the productive application of economic concepts and tools. This includes broadening an earlier concern primarily with health care (such as hospitals or doctors) to an appreciation of a multisectoral field with many varied contributions to health outcomes and overall wellbeing at both the individual and societal levels. The hope is that the availability of these learning materials will enable the various potential users to make a more extensive and more prudent use of economic concepts and tools, to be better equipped to judge what are appropriate or inappropriate circumstances, and to appraise more perceptively the quality and relevance of advice they receive from economists.

Two related points are emphasized. First, the learning materials reflect the role and *modus operandi* of WHO. For example, they focus on stewardship, including public health and equity, because “ultimate responsibility for the overall performance of a country’s health system must always lie with government”.² WHO has increasingly emphasized the importance of adopting a multisectoral and interdisciplinary approach to the analysis of health issues and the development of appropriate solutions. WHO tends to adopt a medium-term approach, encouraging adaptation to varied situations and sustaining a coherent vision of improvement, while remaining realistic about current circumstances and the practical obstacles to achieving better health status outcomes and equity. Its close interaction with individual Member States helps it stay in touch with varying developments, appreciate the wide diversity of circumstances in different countries and regions, and facilitate comparisons, as well as temper its idealistic aspirations with a strong dose of realism. In current circumstances it is only appropriate that the learning materials are influenced by a deep sympathy for the difficulties being faced by many countries in central and eastern parts of the WHO European Region.

Secondly, there is a wide range of potential users of the learning materials. Section 1.2 of this Introduction considers in more detail who these are, and Section 1.3 looks at how they might use the material. It follows that the basic set of learning materials has to be capable of being effectively and relatively easily adapted to the background, circumstances and needs of different audiences. There is also an important role for those who will conduct the learning sessions (the tutors). The contribution of these tutors to the effective use of relevant material, including supplementing it with local knowledge and case studies wherever possible, is vital to the maximization of learning for participants (Section 1.4). Section 1.5 considers the use of web-based material, how it might be supplemented and how, in time, it might be updated.

² World health report 2000. Geneva, World Health Organization, 2000, p. 119.

1.2 Users of the learning materials

Who might use the learning materials, accepting immediately that these will need to be selected, assembled as appropriate, presented and supplemented (perhaps substantially) by the tutor for each individual audience? Four broad categories have been identified, although in each case further subcategories could be developed.

First, there are the most senior policy-makers – ministers, their advisers, concerned members of parliament and the most senior officials, such as the head of a country’s health agency, and their senior assistants. Such people are extremely influential in relation to health policy, the framework within which health practice occurs and the relationships with other important players (e.g. the finance ministry, other ministers, the private sector or the media). They are generally not economists, they are extremely busy, and they work in an oral environment, utilizing other people’s contributions but rarely writing much themselves (although they may rewrite a lot). They also tend to be interacting, on complex problems, with many stakeholders and audiences simultaneously; thinking in a range of time dimensions, and seeking to match the overall vision with the practical realities.

Secondly, there are the administrators and managers who work in health-related facilities or on health-related programmes. The culture of health care managers at this level differs significantly from the culture of the civil service. They tend to be more focused on action and practice, compared to the civil servant’s focus on policy and process. In decentralized health care systems, or where command and control systems permit some local discretion, managers typically are required to develop and implement appropriate policies rather than merely adopt central directives. In other circumstances their roles are more circumscribed and greater emphasis is given to carrying out instructions from superiors. The use by such people of the learning materials reflects their more circumscribed role. Their influence is more restricted to their own particular institution, region and area of activity or specialized sub-unit. However, within this restricted area they may nevertheless have significant power and the capacity to allocate and reallocate resources. They can also benefit from understanding more fully the wider environment within which their particular activities are embedded.

Thirdly, there are the health care professionals who deliver services to patients or groups of people. In the health system decisions are constantly being made by professionals, such as doctors, nurses, pharmacists, dentists and therapists. Indeed, the relationship between providers and patients in health care implies that decisions made by both users and providers affect health care processes and outcomes. This group is much larger than either of the two previous groups. In many cases, professional practitioners may believe that care of the individual patient is central and that economic considerations

are not important. In fact this is not so. Even the individual practitioner who treats one patient rather than another, or in one way rather than another, can affect outcomes, for example in terms of the cost-effectiveness of care or equity.

The fourth group is more diverse. During the preparation of the learning materials it was envisaged that this group would include people with an interest in, concern for and perhaps involvement with the health sector. Examples would include people who sit on the boards of management of health care facilities (hospitals, community health centres or old people's care facilities), or those who, while they do not have direct management responsibilities in relation to health, nevertheless have a continuing interest, such as trade union officials, many nongovernmental organizations, and religious and charitable organizations. It could also include media organizations, including TV, radio and print media journalists, presenters and opinion-formers; officials in consumer organizations concerned with health; members of lobby and special interest groups (e.g. importers, manufacturers of health technology or pharmaceutical firms); and officials in regulatory agencies, including those outside health but in related areas such as education, transport, occupational safety at work or the environment. This category of potential users of the learning materials is extremely heterogeneous. It may not be easy to gain access to them, and it will certainly require a diversity of approaches if they are to derive the maximum benefit from the learning materials. Often, they will be particularly concerned with one part of the health system, for example those who sit on the board of management for a hospital or community health centre. Others will have wider interests, for example county councillors with health responsibilities or concerns, members of regional advisory bodies or those who participate in the formulation of health policies in nongovernmental organizations, consumer groups, trade unions or political parties. Sometimes their concern with health issues will be episodic, such as for many TV, radio or print media presenters. In other cases it may be more continuous, including for specialized reporters and presenters.

1.3 Use of the learning materials

As Section 1.4 below emphasizes, the learning materials need to be carefully considered and customized for the different potential groups of users and for their particular circumstances and interests. Despite this, there are clearly broad differences between the four main groups of potential users outlined in Section 1.2. These differences relate particularly to the approach which is likely to be most appropriate for them, and the parts of the learning materials in which they are likely to be most interested.

The first group comprised the most senior policy-makers, at the political and bureaucratic levels. They seek to establish appropriate parameters for decision-making by practitioners, to manage intersectoral relationships, and to obtain sufficient resources. For them it is particularly important to know what the economics perspective can add to their knowledge or capacity. Where is it useful and where not? How does it interact with other issues of importance to them (e.g. in intersectoral relationships, in discussions with key stakeholders, in negotiations with the finance ministry)? How are they to appraise the economic component of the advice they receive or identify when it should be present but is missing? Given the multifarious other demands on their very limited time, firm choices will need to be made about priorities, taking account of how much they can be expected to absorb and retain and to avoid overload. Probably they will tend to be more interested in the “thinking” modules than in the “practical” modules (except, perhaps, when a current issue dominates their thinking). The conceptual framework adopted by health economists can be useful to them, for example in understanding the balance between costs and benefits, the differing values of individuals and groups (including for risk and uncertainty) or efficiency and equity, the distinction between the average and the margin, the discounting of future costs and benefits, the importance of who gains and who loses, and X-inefficiency where production possibilities are not fully realized.

In general, such people will be more interested in the economic way of thinking than in the minutiae of techniques and approaches. Clearly, this audience will not wish to work systematically through the full set of learning materials. The tutor will need to tailor the approach to their particular concerns, probably in a very limited time. Ideally, matters of pressing immediate interest to them can be used to develop the broader insights which will be of benefit to them in the longer term. For example, what are the incentives built into current arrangements or proposed changes, and how are these likely to alter the behaviour of important stakeholders and thus the health (or other) outcomes which emerge over time? It may be appropriate for the tutor to consult the users prior to the learning materials being used and ascertain where their special concerns lie. He or she can then develop a

programme which addresses them, but which leads into discussion of more fundamental concepts and related approaches.

The second group are the administrators and managers working in health care, the wider health system or in health-related programmes (e.g. reducing road traffic accidents through work in engineering and road construction, justice or police agencies). They could find it useful to know about such factors as the determinants of health, individual and social health capital, the framework for the analysis of public policy, and likely future developments as a broad background to their work. However, they tend to focus on current and possible future problems which affect them, where they have some influence and where they bear some responsibility. They are likely to be more interested in some modules, such as administration and management, or the bargaining and negotiation elements of the module on policy analysis, than the members of the first group. Like them, however, they will benefit from understanding the economic way of thinking, the criteria economists use (especially efficiency and equity), where economists' advice could be useful and how it can be most effectively used in their environment. For example, they may be interested in costing, having a better idea of the concepts underlying health outcome measurement, how health technology is developed and diffused, and how economic evaluation, modelling and forecasting are undertaken. They are unlikely to carry out studies themselves but will benefit from knowing how these are done, what are their strengths and weaknesses, when to use them, and what to beware of in any studies they consult or commission.

The third group covers the large number of health professionals who deliver services to patients and groups of people. The members of this group can benefit from the learning materials in two ways. First, they can gain a better appreciation of the broader context in which their particular contribution to health, costs, benefits and processes takes place. They may find this interesting in itself. More important, it provides them with possibilities for more effective practice in the future, including a more proactive approach, resulting in more efficient and equitable outcomes. Each individual has a contribution to make, even though it can seem very minor in a large system. These learning materials can assist professionals, both individually and in groups, to make their contributions more effective.

Specific modules can also help in more direct ways (depending, of course, on the particular work and circumstances of the individual practitioner). For example, costing could assist them, as could a better understanding of how health technologies are developed and diffused, economic modelling and forecasting, aspects of primary health care in a changing society, bargaining and negotiation, administration and management. At a more general level their practice with particular patients or groups might be informed, and subsequently improved, by a greater understanding of the basic determinants of health, individual and social health capital, and the respective roles for the individual, the family, the health care system and the broader society. To recognize that one cannot control everything does not mean that one can influence nothing.

The fourth category of potential users is very heterogeneous. If they have special interests (e.g. if they are representatives of pharmaceutical companies, manufacturers of health technology or members of hospital boards) or are concerned about a specific issue (e.g. general journalists, members of consumer groups or trade union officials with members who are affected), these will need to be emphasized in the presentations if the audience is to become involved and remain interested. For example, some users are likely to be especially concerned with financing issues. Even if wider aspects of the learning materials are to be included in the tutor's presentations, it may often be appropriate to start with the area or issue which is of immediate interest and only subsequently proceed to more general aspects. Secondly, even if their initial interest is relatively narrow, participants may realize the benefit of using

the opportunity of the learning sessions to explore the wider contributions which a health economics perspective can make to related matters. In such cases it may be desirable not to constrain the content of the discussions too tightly at the beginning. A more flexible approach can allow interests to develop among the group and be followed up in more detail, as appropriate. Thirdly, some individuals or groups may, from the beginning, see value in using the learning materials to develop a more coherent overall understanding of what health economics can contribute for them personally, the institutions with which they are involved, and the issues with which they are primarily concerned. Some will appreciate, even initially, that many of the matters considered in the learning materials are interrelated and that they can only be considered in isolation at some cost.

In general, it is desirable that all the members of this group who use the learning materials receive at least some idea of the broad approach of health economics, some of the tools and approaches it can offer (and where they are likely to be helpful), the challenges facing health systems in most (if not all) European countries, the special circumstances of their own country and sector, and the intersectoral and interdisciplinary nature of health change, and understand health outcomes in terms of individual and social processes. Clearly, the degree to which this broader use of the learning materials could be incorporated into the discussions for a particular group would vary, depending on a range of factors including the skill of the tutor.

1.4 The role of the tutor

The role of the tutor is critical if the learning materials are to be used effectively. Partly this is because the users will have a wide diversity of knowledge, backgrounds and interests. They will come from the health care sector, other parts of the health sector and other sectors. They will be drawn from various levels of both the public and private sectors, ranging from ministers to relatively junior professional workers. Some will be employed in health-related activities, other will be commentators on them, and others will be interested observers.

The learning modules do not purport to cover all possible relevant topics. Indeed, this would be impossible. Consequently, it is critical that tutors are aware of as many other relevant sources as possible and that they bring them to the attention of the users. Some material will relate to concepts and other topics which are either not covered in the learning materials, give a different perspective or provide complementary material. For example, there is extensive material available through the World Bank, textbooks, relevant journals and courses which could be useful in amplifying and extending, and especially complementing, the material presented here by WHO.

There are nearly 900 000 000 people in the countries included in the WHO European Region. They have some things in common. For example, 18 of the 20 countries in the world with the largest proportion of elderly people are located in the European Region. However, in other respects there are great differences. For example, in 1996 per capita gross domestic product ranged from US \$255 (in the Republic of Moldova) to US \$44 693 (in Luxembourg). Since 1996, the majority of countries in the Region have shown some increase in life expectancy at birth, but for the Region as a whole average life expectancy fell from 73.1 years in 1991 to 72.4 years in 1994. For every 1000 live births, an infant born in Finland has ten times the chance of survival compared to an infant born in Tajikistan. Even in western Europe there are concerns about increasing disparities in income, persistently high unemployment and a growth in the health gap between rich and poor. Armed conflicts, as in the Balkans, the central Asian republics and the Caucasus, have resulted in large numbers of displaced persons and refugees throughout the Region. Many of the 51 Member States continue to struggle with the consequences of economic, social and political transitions. In some cases progress has been halting, in others it has been negative. For example, there has been a re-emergence, particularly in the newly independent states of the former Soviet Union and in some countries of central and eastern Europe, of infectious diseases, such as tuberculosis, malaria, typhoid, hepatitis A and cholera. There has been a dramatic increase in sexually transmitted diseases, leading to a rise in the numbers of people infected with HIV and syphilis. Against the background of these differences it is a critical responsibility of

tutors to ensure that the learning materials are used in a way which is appropriate for the participants in their particular context. In many – if not all – cases the material should be supplemented with local experience and case studies and presented with sensitivity to local traditions, circumstances and values. Learning materials which have been developed against the background of north American or western European experience are not necessarily appropriate without adjustment to other countries in the European Region.

Indeed, it has been suggested that, for example for some countries in transition, there may be mindsets, attitudes and expectations derived from their recent experience which could lead to misunderstandings relating to material in some of the learning modules. These may change over time but be powerful at present, at least in some countries and in relation to some issues. A colleague from central and eastern Europe, commenting on an earlier draft of the learning materials, suggested that an exercise might help to articulate these matters, facilitate a more open discussion and, by confronting them directly, assist in removing the misunderstandings.

Exercise

To what extent are the following statements commonly expressed in your country, or other countries of which you are aware? To what extent are they accurate? If they are held, what implications do they have for health policy, health practice and health status outcomes? If they are not accurate, how can they be confronted in the minds of different stakeholders who hold them?

- The declining real value of public health expenditure is the cause of (all) our problems.
- An increase in health costs, as observed in many western European or north American discussions, would be a good thing. It would definitely be better than our present state of affairs.
- Individuals are responsible for their own decisions, including health decisions, in the new society which is emerging, with less central direction and control. Therefore, poor health outcomes are the individual's own responsibility and do not justify collective action.
- Politicians can decide freely whether they wish market forces to shape their health systems or not.

Tutors can use the learning materials at three levels: appreciation; appraisal; and analysis. They need to be sensitive to their audiences' skills, background and experience and to their prospective needs in choosing what level(s) to address and how to do it. *Appreciation* aims to help users gain a fuller understanding of where particular concepts, approaches or tools might be used in health policy or practice. *Appraisal* is concerned to assist users to assess critically particular studies or uses, including potential uses, of health economics in their work or the related work of others. *Analysis* is a more ambitious aim, to assist users to apply the techniques or tools. The learning modules are, in general, not intended to result in users being able to undertake competent economic analyses of health care policies or practice themselves. However, some of the modules, such as that on economic evaluation and that on citizens' participation, patients' rights and ethical frameworks, are closer to analysis than others. Increasing users' skills in analysis, even fairly rudimentary analysis, can hone their appreciation and appraisal capacities and thus enable them to apply the economic way of thinking more appropriately and more consistently.

Finally, finding and preparing tutors and learning from their experience in using the learning materials, are further tasks for the future. First, it is desirable that tutors are matched with the particular learning backgrounds, skills and expectations of the learners. For example, it would not generally be

appropriate for a recently appointed junior academic to use the learning materials with ministers or very senior bureaucrats. The needs of learners will differ widely, as will their capacity to benefit from particular aspects of the learning materials. Consequently, tutors will need to be drawn from a range of backgrounds, not just academics. Also, given the broad range of materials covered in the modules and their relevance for a wide range of audiences, not all the tutors will necessarily be economists. Secondly, there is a danger that the very areas where the learners' needs are greatest may correlate closely with the areas where competent tutors are hardest to find and retain. This could apply among the different learning module areas and in relation to different geographical regions. Thirdly, it would be valuable if the experience of the tutors (as well as those of the participants) could be collated on a consistent basis and retained for subsequent evaluation by WHO. This would also make it easier to advise tutors about how best to undertake their important task.

1.5 Further steps

A full set of learning materials is now available. The copyright rests with WHO. The Organization wishes the material to be used as widely as possible, but asks two things. First, it expects users to acknowledge that the originator of the learning materials was the Secretariat of the WHO European Region and to acknowledge the authors of the specific modules they use. Secondly, it asks that users provide feedback to the WHO contact officer (address below) who can supply a pro forma to guide responses on:

- who participated in the mission where the learning materials were used;
- how the material was used, and which module, when (as will frequently be the case) only a selection of the full set was used;
- what worked well and what worked badly;
- what has been (or should be) added or deleted; and
- any other suggestions.

The contact officer is situated in the WHO Regional Office (Scherfigsvej 8, DK-2100 Copenhagen Ø, Denmark, e-mail: postmaster@who.dk). It is the responsibility of this person:

- to encourage the widest possible use of the set of learning materials: to the extent that these are available through centres such as universities or other research and training institutions, the WHO contact officer would monitor where the materials were being offered, identify areas of need which were being inadequately met, and seek to facilitate greater use of the learning materials there;
- to ensure that those who seek to use the learning materials have a central point of contact so that they can know what is available elsewhere; liaise about other users and possible tutors, and collect and disseminate information on different groups' experience in using the materials;
- to collect the evaluation material from tutors and users, so that the evaluation task should not be too onerous for them.

WHO encourages the development of as many case studies as possible, especially those that illustrate matters important to users and illustrate significant aspects of the set materials in the context of individual countries or groups of countries. This is especially desirable for those countries that are making use of the materials, or that could be encouraged to do so if relevant case studies (or other local materials) were more readily available. Tutors and users who possess such case studies, or who develop them, are asked to contribute them to the WHO contact officer and authorize their widespread distribution. If other relevant modules are found and the authors are willing to have them included, it

would be appreciated if these too could be similarly sent to the WHO contact officer for distribution. The WHO contact officer is responsible for quality control of the case studies, extra modules and other material and authorizing any distribution of them as part of the expanded set of learning materials.

It is the responsibility of the nominated WHO contact officer to review the use of the learning materials two or three years after these have been put onto the worldwide web, in the light of reactions over the period from tutors, users and others, and to see whether the materials:

- are serving useful purposes;
- should be updated and developed (and if so, how?);
- should be revised so that an updated version could be put onto the worldwide web; and
- should also be published as a book.

Finally, it is a pleasure to acknowledge the valuable contribution to the development and finalization of the learning materials which has been made by the members of the Core Executive Group. In addition to the editors this included David Gunnarsson, Secretary-General of the Ministry of Health and Social Security in Iceland, and Professor Yannis Yfantopoulos, National and Compodistrian University of Athens in Greece.

The draft modules have been tried out by authors in their own teaching settings. They have also been applied in Kazakhstan (by Maksut Kulzhanov and Naila Zhuzzhanova) and Romania (by Victor Olsavszky), and have benefited from feedback on policy relevance from David Gunnarsson, Mihalyi Kökenyi (Hungary) and Yannis Yfantopoulos. Contributions were also made by some young scientists spending short periods at the WHO Regional Office for Europe (Antoine Danzon, Susanne Grosse-Tebbe, Claire Gudex, Rikke Olesen, Anna Skygge). Joy Bartrup, Janet Leifelt, Connie Petersen and Karen Taksøe-Vester arranged review meetings in Denmark, Greece, Romania and Sweden, chased up contributions and arranged the documentation. The WHO advisers Josep Figueras, Kees de Joncheere, Jibek Karagulova, Suszy Lessof and Nata Menabde peer-reviewed the technical content of the draft book, making valuable suggestions for publication. Rosemary Bohr edited the book on behalf of WHO and the layout was by Shirley and Johannes Frederiksen.

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Chapter II Economics of health



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2.1 Introduction

Chapter 2 is concerned with the economics of health, including how health is “produced” and how it relates to the broader economy and society. Section 2.2 is concerned with the determinants of health; Section 2.3 with differing viewpoints (illustrated by those of health ministries compared to economic ministries) and the allocation and reallocation of resources for health; and Section 2.4 with how the economic and social determinants of health interact with individual behaviour and public policy.

Section 2.2 consists of three modules, the first two by Professor Greg Stoddart of McMaster University in Canada and the third by Keith Barnard and Herbert Zöllner. Module 2.2.1 is concerned with the interrelationships between health, health care and the economy. It emphasizes that health systems and economic systems are not independent: they are interrelated in several significant ways, which are explored in the module. Health care is often an important influence on health, but it is only one of a broad array of determinants of health. Healthier populations tend to be more productive populations; conversely, richer societies tend to devote more of their resources to health care. The environments in which people live, work and play, including social, economic, cultural and physical environments, interact with more individual factors (such as genetic endowments) to influence how healthy people are and who gets ill. The interactions can be direct, as when rising living standards lead to improved diets. They can also be indirect, as when economic conditions influence the nature and quality of daily environments, for whole societies or for particular groups such as the unemployed, homeless or poor elderly people. Many of the interactions identified in the module are dynamic rather than static, and the factors can reinforce each other (either for good or ill).

Module 2.2.2 emphasizes that all activities and policies that have health *consequences* are the legitimate subject of health policy. Thus, health is everybody’s concern. The module is intended particularly to increase the awareness of those outside the health sector about the potentially pervasive effects of both public and private policies and actions on health outcomes. The corollary is that a broader view is required than is sometimes taken of what constitutes health policy and practice: this is relevant for both public and private decision-makers and leaders. It is also desirable that this broader view of health policy be communicated to the general public. More specifically, the module emphasizes that: health policy encompasses much more than solely health care policy; there are many activities and policies outside the health sector as commonly understood that nevertheless have very important health consequences; and these activities and policies can legitimately be viewed as the subject of health policy (indeed they should be so viewed if health outcomes for the overall population and for specific groups are to be maximized). The module reinforces the need for intersectoral collaboration and action to improve health.

Module 2.2.3 takes a rather different approach. The clarity of the first two modules could perhaps lead an inexperienced reader to conclude that the world is a simple place where simple solutions apply. Of course, this is not so, although analytical constructs can often assist decision-makers and other stakeholders to improve their understanding of aspects of complex situations and identify relevant aspects for alternative courses of future action. The third module explores this complexity with particular emphasis on possible futures, how their essential features can be provided in a helpful form and what implications they may have for developments in health policy and practice.

The two modules in Section 2.3 were written by Professor Greg Stoddart from McMaster University in Canada. Module 2.3.1 argues that officials in ministries of health and other agencies, including particularly economic ministries, need to improve their understanding of the complementary nature of health development and economic development. Of course, they may have very different perspectives on specific issues. Since many of the determinants of health lie outside the scope of health ministries (e.g. level of income, working conditions and social infrastructure), coordination and cooperation with other ministries, particularly economic ministries, are critical to improving health policy, practice and outcomes. The module also argues that, since health care has special characteristics, the health care industry cannot be analysed adequately by a thoughtless application of the standard economic approaches applied in other sectors and for other industries. The module seeks to foster increased understanding and appreciation between health and economic ministries of the viewpoints, constraints and objectives of the other. Ultimately, both health and economic ministries (and other agencies) share an overarching goal of contributing to improvements in the general wellbeing of their countries' populations. Improving health or health care (or improvements in other specific functional areas) are important routes for doing this, but they are not the only routes.

Module 2.3.2 provides a conceptual framework for considering the allocation and reallocation of resources for health. Resources are constantly being allocated and reallocated among alternative uses to achieve improved health outcomes. (The issues could also be considered in the context of declining rather than expanding resources.) Intersectoral collaboration for health improvements will frequently require reallocation of resources, including from one sector to another. The module categorizes reallocations of resources into five main types:

1. among health care activities
2. among non-health care activities within the health system
3. between health care and non-health care activities within the health system
4. between the health system and other systems, and
5. among other systems (e.g. from tourism or agriculture to education or transportation).

Three other important aspects of this module are noted. First, another important dimension of the conceptual framework concerns the type of resources to be reallocated. Although financial flows (budgets) are usually the focus of initial attention, it is important to remember that the resources themselves are the "real" things that go into health-influencing activities, e.g. individuals' time, skills, experience and reputation, equipment, supplies and the space provided by buildings. Secondly, decisions to reallocate resources for health improvement can be made at different decision-making levels, and in both the public and private sectors. Thirdly, the framework presented in the module has several possible applications, one of which is illustrated in a case study attached to the module.

Section 2.4 also contains two modules. These are concerned with how the economic and social determinants of health interact with individual behaviour and public policy, and are rather different

although complementary. Module 2.4.1 was prepared by Professor Béatrice Majnoni d'Intignano from the University of Paris and contains a number of challenging features. First she asks: "On what does the health of a nation, of a group, of an individual depend?" She explores the concept of health capital in terms of both individual and collective aspects, and identifies five critical factors: genetic endowment, life risks, the environment to which the individual is exposed, the behaviour of the individual and the social group in which he or she participates, and the health care system, including prevention and health promotion. She provides an illustrative application of these factors to the health trajectory over a lifetime for a man and a woman. Secondly, Professor Majnoni d'Intignano identifies certain industrially induced epidemics which play a key role in health status and health capital in modern societies, either developed or not. She argues that these epidemics are the consequences of the marketing activities and strategies of certain industries in terms of the morbidity, mortality and disability of the targeted groups. Thirdly, she identifies two broad groups among the populations of liberal capitalist economies. There is an apparent health divide between the two groups, which differ in their level of education; and there are elements of the strong social class gradient which are related to educational qualifications. The valuation of their own health, willingness to take risks and attitudes towards professional health services are very different between the two groups, with consequences for their health behaviour, including their use of health care. The module concludes that the divergence between the two groups seems to be universal, differences between them appear to be increasing, and existing inequalities are likely to increase further in the future.

The final module in Chapter 2 (Module 2.4.2), by Professor Björn Lindgren from the University of Lund, Sweden, is concerned with individual behaviour, health capital and public policy. The module argues that, although health is determined by many factors that are beyond the control of the individual (such as heredity, environmental factors and chance), people can still influence their health to a considerable degree. Thus, individual behaviour is one of the determinants of the incidence and prevalence of disease and the costs of ill health. Secondly, the module notes that the health status of an individual over his or her lifetime is significantly influenced by the fact that most individuals lead their lives in families. For example, family members typically care for the health and welfare of other family members. They may provide time and income to invest in health, so that the time and money budget constraints are extended for the individual who lives in a family compared to the individual who is living alone. The relationships between health outcomes for an individual and his or her family circumstances can differ systematically, for example by gender or age. There are interesting questions about the extent to which the factors are interrelated, cumulative and under the control of the individual. Also, what are the relative roles for the individual, other family members, the health care system and wider society? Thirdly, the module argues that public policy measures, assisted by economic analysis of individual health behaviour and the differences in health among people, can contribute to improved public health, either directly through improvements to the environment, or indirectly through changes in the regulation and incentive structures that influence individual health behaviour. Finally, the module emphasizes that the extent to which a society relies on individual or collective approaches to the "production" of health and the emphasis it puts on individual health (the "distribution" of health) depends on historical circumstances and values, economic and social development, and the distribution of income, wealth and other life chances.

2.2 Health and health action

2.2.1 The interrelationship of health, health care and the economy

Greg Stoddart¹

Key messages

- Health systems and economic systems are not independent. They are interrelated in several important ways.
- Although health care can be an important influence on health, it is only one of a broad array of determinants of health.
- The interaction between the environments (social, economic, cultural and physical) in which people live, work and play and individual factors (such as genetics) have a marked influence on who will suffer ill health. Economic conditions heavily influence the nature and quality of daily environments.
- Healthier populations are more productive populations.

Tutors' notes

This module is intended primarily for the **appreciation** level of skill development. Its goal is to provide a framework to broaden the perspective from which participants view both the health and economic systems.

It can be used with several different groups:

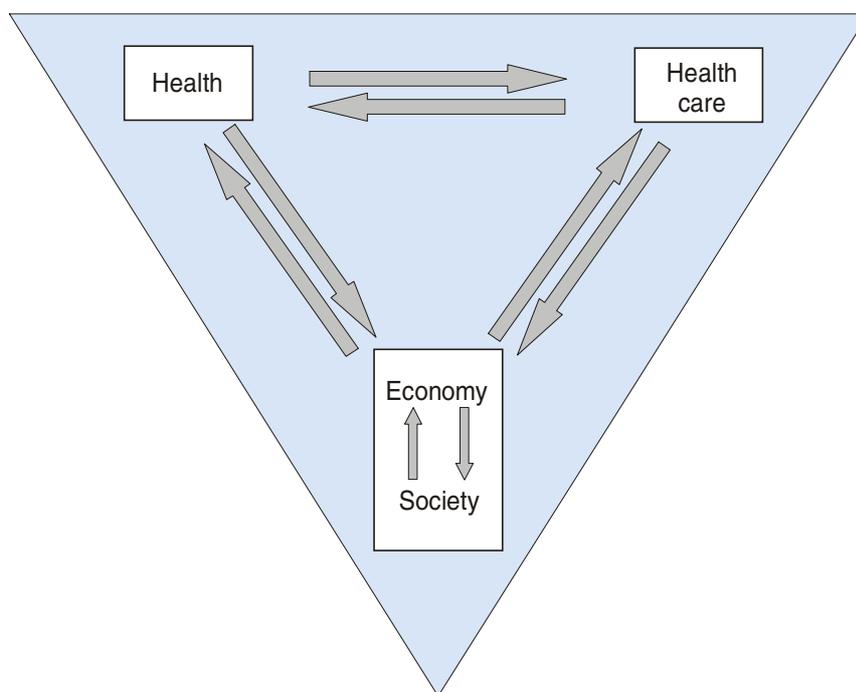
- health care providers – doctors, nurses, etc.
- health service managers and administrators
- civil servants with responsibilities in health or social care ministries
- civil servants with responsibilities in economic ministries
- business and labour leaders from the general economy
- elected politicians.

¹This module was prepared by Professor Greg Stoddart, Centre for Health Economics and Policy Analysis, McMaster University, Canada (e-mail: stoddart@mcmaster.ca).

An effective way to use the module would be to convene a workshop with participants from all of the above groups and ask them to undertake the exercises together. Much of the value in this module comes from the realization that social (including health) and economic policies are not separable. Each affects the other. This recognition will be enhanced by first-hand accounts of the importance of the economic sectors for health, and vice versa, delivered by people in those sectors.

In drawing out examples for use with this module, tutors may wish to pay attention to the dynamic nature of economic performance. The effects of contractions as well as expansions in the economy can be traced around the triangle in Fig. 1. Tutors might wish to consider case studies of central and eastern European economies in this regard.

Fig. 1. The macro triangle



It is suggested that tutors spend a few moments at the beginning clarifying the concepts in Fig. 1. Different definitions of “health” can be advanced. The range of activities included in “health care” can be identified. The various dimensions of “economic performance” should be specified (e.g. growth or contraction, inflation/deflation, employment/unemployment, productivity, income distribution, etc.).

In using Exercise 2 with a mixed group as suggested above, an interesting way to proceed would be to ask the participants to suggest policy changes in sectors other than their own, i.e. health sector participants to suggest policy changes in economic sectors, and vice versa.

Introduction

Health systems and economic systems are perhaps the two most complex systems in all countries. Too frequently they are seen as independent systems. In fact, they are closely related in numerous direct and indirect ways. The health of a country’s population is influenced dramatically by the level and

type of economic activity and economic policies. Health is also influenced, of course, by the availability of effective health care services, which require a commitment of national resources, both public and private. But health care is only one of the broad arrays of determinants of health, and spending on health care is only one type of investment for health.

Conversely, the health of a nation – defined broadly as its physical, mental and social functioning and ability to cope with life’s daily challenges – is one important determinant of national economic performance. Unhealthy societies do not prosper economically and often fail to achieve their economic potential, with adverse consequences for their citizens, including both present and future generations.

The interrelationship of health, health care and the economy is a major theme of WHO’s health for all strategy (1,2). This module supports the initiative by encouraging participants to explore possible direct and indirect relationships between health, health care and economic performance in their own countries. It begins with an exercise for participants, then provides some generic examples of the types of linkage between the three dimensions that participants might wish to consider. The examples are not intended to be exhaustive; participants are expected to add to and modify them. The module concludes with a second exercise in which participants are asked, in view of their increased awareness of the interrelationships, to select two policy changes in their own country which might simultaneously improve health and economic performance or at least improve one without adverse effects on the other.

Exercise 1

Identify as many distinct, and potentially causal, relationships as you can between health, health care and economic performance. Use the following questions as a guide for systematic discussion.

Questions

1. In what specific ways can a nation’s health influence the performance of its economy, including (i) the performance of private sector enterprises; (ii) overall economic performance as measured by common economic indicators such as GDP growth, unemployment, inflation or income distribution; and (iii) the level of public expenditure required for social programmes, including health care? economic indicators such as GDP growth, unemployment, inflation or income distribution; and (iii) the level of public expenditure on social programmes including health care?
2. In what specific ways can the provision of effective health care services improve the functioning of an economy and the health of a population? In what specific ways might the level and types of expenditure on health care services affect the economy?
3. In what specific ways can the health of citizens and the need for health care be affected by the functioning of an economy, including (i) the performance of private sector enterprises; (ii) overall economic performance as measured by common economic indicators such as GDP growth, unemployment, inflation or income distribution; and (iii) the level of public expenditure on social programmes including health care?

There are three other points in relation to Exercise 1. First, participants should feel free to add other economic indicators that they feel are important. Secondly, participants are requested to illustrate their answers to the above questions with examples, observations and statistics from their own countries. Thirdly, a conceptual framework is provided for this discussion in Fig. 1. This illustrates six distinct types of direct influence which may be explored. By following the arrows around the triangle it is also

possible to trace indirect influences and feedback loops between the three boxes labelled Health, Health Care, and Economic Performance. The following sub-sections provide brief illustrations of the six types of linkage in Fig. 1.

The influence of health care on health

This is the most straightforward of the six pathways. The provision of effective health care services in a timely manner can be expected to improve the health of individuals and populations. Attention must be paid, of course, to evidence-based decision-making in the delivery of services of proven efficacy and effectiveness, and emphasis must also be placed on cost-effectiveness, i.e. providing needed, effective services in the least costly way. It is important to note that the balance and structure of health care systems can have a significant influence on the health gains achieved. For example, systems that emphasize comprehensive primary care rather than highly specialized secondary and tertiary care may have a greater impact on population health. Similarly, the choice of financing method for health care systems can have a significant effect on the health of subgroups in the population, as well as on the overall cost of health care. For example, systems that rely on extensive private financing through out-of-pocket user charges or private insurance may restrict access to care and decrease health gains for lower-income groups, as well as increase health care expenditure relative to publicly financed systems.

The influence of health on health care

The arrows A and B in Fig. 1 may be seen as one subsystem or feedback loop. To the extent that a population's health improves and all other factors remain constant, the need for health care in future should in theory decrease. This is one argument in favour of the emphasis on preventive services, especially those for maternal and child health. In practice, it is seldom possible to make an analysis holding all other factors constant. Moreover, as the average level of health improves for a population, needs are redefined and new needs become apparent or rise to a higher priority. For example, if appropriate primary care services are established, or if life expectancy increases, the need for highly specialized acute, chronic or rehabilitative services will almost certainly be accentuated. This is in part due to the nature of health itself and the fact that there is always room for improvement (especially when social and emotional function as well as physical function are considered), and in part due to the dynamics of health care as an industry in which the momentum of providers as economic agents constantly pushes for more services – of all types – to be delivered.

The influence of health on economic performance

Healthier populations are more productive populations in general. Note that this is *not* a prescription to focus only on the health of those capable of contributing to an economy; social justice is an important policy objective for health in most jurisdictions, requiring that a much broader view be taken. But to the extent that the working-age groups in a population are healthier (e.g. longer life expectancy, lower morbidity, increased ability to cope with daily life and greater resiliency), both the overall output and the quality of output in an economy might be expected to rise. Lower absenteeism in the workforce would be one specific example of this. Good health may also have a feedback effect for individuals and families through higher incomes, which in turn permit higher standards of living and healthier lifestyles. Note also, however, that improvements in health that involve longer life expectancy as well

as, or instead of, improved quality of life will affect the sociodemographic profile of populations in ways that will have implications for public expenditure, on pensions for example.

The influence of economic performance on health

Both for individuals and societies, prosperity is consistently associated with better health through both material and psychosocial pathways, some of which are only recently beginning to be understood. Indeed, the socioeconomic gradient in health – i.e. the observation that groups at each successively higher step in the social and economic ranking of a population are healthier than those immediately below them – is one of the most important and complex research findings concerning the determinants of health. Part of the story is that well performing economies provide incomes to participants that allow higher material standards of living. Another part apparently involves complex psychosocial pathways between improved daily environments at home and work and decreased levels of stress (or increased resources and supports to cope with stress), which in turn affect health. Unemployment provides a vivid example: involuntarily unemployed individuals report more health problems, may be more prone to suicide and violence, and may engage in more health-detrimental lifestyles (e.g. consumption of tobacco and alcohol) than those in work. (This also feeds back through arrow B in Fig. 1 to increased health care expenditure.) Conditions of employment provide another example. How employers structure the workplace, for example to ensure the safety of their employees, or to allow workers flexibility to organize child care or care for older people, can be an important determinant of health. Yet another part of the story is that, aside from individual interactions in the workplace, prosperous economies afford their governments the capacity to improve supportive national programmes in health-determining areas such as education, income support or early childhood development.

Increased output and employment, prosperity, and increased income and wealth do not themselves guarantee health gains, however. For example, industrial production may contaminate the physical and natural environment if it is not monitored and regulated. Or increases in production and consumption may be associated with products that have potentially negative consequences for health, such as tobacco products or less nutritious foods. Furthermore, it is very important for health how the gains from economic growth are distributed. An economy which in the course of its “success” widens the income disparity between rich and poor, or polarizes or marginalizes subgroups, or destabilizes families and other social support networks can be expected to experience health losses instead of gains for significant segments of its population. These effects, and health losses, may be even more serious during periods of economic contraction rather than growth; and thus in certain countries or regions, and over certain time periods, rather than others.

The influence of economic performance on health care

In addition to those influences on the need for health care which may come about indirectly through the influence of economic performance on health (either positive or negative), as discussed above, other specific examples can be noted. Foremost is the observation that a prosperous economy provides the capacity to sustain the delivery of comprehensive and high quality health services to its population. This is especially so in systems which are predominantly publicly financed through taxes and social insurance contributions, but may also be the case in systems that rely on private insurance or direct payments by individuals. Another example is the interrelationship of prices and wages in the health care sector and the general economy. For example, it may be difficult to achieve control of health care expenditure if the overall economy is subject to high rates of inflation. General inflation may drive up

the cost of supplies and equipment and may raise the income demands of health care workers. The process could also operate in reverse: inflation in the health care sector could influence trends in the general economy. A third example might be the spillover effects on health care utilization and expenditure of an expansion in a country's domestic medical goods industry. Growth in a country's domestic pharmaceutical industry, for example, may put pressure on its health care system to make increased use of pharmaceutical products.

The influence of health care on economic performance

An important indirect influence of health care on economic performance is felt through its impact on health described above (arrows A and C). The commitment of resources to health care may also have direct effects on the economy which depend on the alternative uses to which those resources would have been put. Higher spending on health care may mean lower spending on economic infrastructure such as roads or hydroelectric systems, or on other health-enhancing social programmes such as pensions, education or pollution control. The way in which health care systems are organized and financed may also have important consequences. High tax rates or insurance premiums, for example, may lower the disposable income of the working population and affect both savings and consumption. The type of financing mechanism a country uses may also affect the operating costs of its commercial firms, making them more or less competitive internationally. This is the case even within systems which are almost entirely publicly financed but which rely more or less heavily on payroll taxes, for example. The health care system is also itself an industry and therefore a source of employment and incomes. Although this is of considerable importance to the individuals employed in it, and also to the local economies of communities (especially small communities), it is important not to overemphasize the employment creation influence of health care. The value of health care systems comes from what they produce – the maintenance or restoration of health – rather than from what they consume – resources, including the time and skills of talented individuals – that could have been used for other valued outputs in the economy. This is not to deny, of course, that health care systems can also contribute to other socially valuable outcomes, not just health.

Exercise 2

1. In view of the interrelationships among health, health care and economic performance shown in Fig. 1 and illustrated above, suggest two policy changes in either the health system or the general economic system of your own country which might simultaneously improve both the health of the population and the performance of the economy (or would at least improve one of the two, while not weakening the other one). Trace the effects of your suggested policy change around the arrows of the triangle shown in Fig. 1.
2. Why might these policy changes be difficult to implement? Discuss the potential barriers to policy implementation in your country. What can be done to make implementation more likely?

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2.2.2 Health is everybody's concern – a different view of health policy

Greg Stoddart²

Key messages

- Health policy encompasses much more than just health care policy.
- There are many activities and policies outside the health sector that nevertheless have very important health *consequences*.
- These activities and policies can legitimately be viewed as the subject of health policy. This view reinforces the need for intersectoral collaboration and action to improve health.

Tutors' notes

This module is intended as a “springboard” for tutors to take one main idea – that all activities and policies that have health *consequences* are the legitimate subject of health policy – and illustrate the far-reaching significance of the idea from their own experience or that of their students.

The module is primarily intended for participants from outside the health sector, such as:

- elected officials and bureaucratic staff from national ministries other than health
- executives of national and international corporations
- representatives of unions and other workers' associations

² This module was prepared by Professor Greg Stoddart, Centre for Health Economics and Policy Analysis, McMaster University, Canada (e-mail: stoddart@mcmaster.ca).

- officials in nongovernmental organizations outside the health sector, and
- the general public.

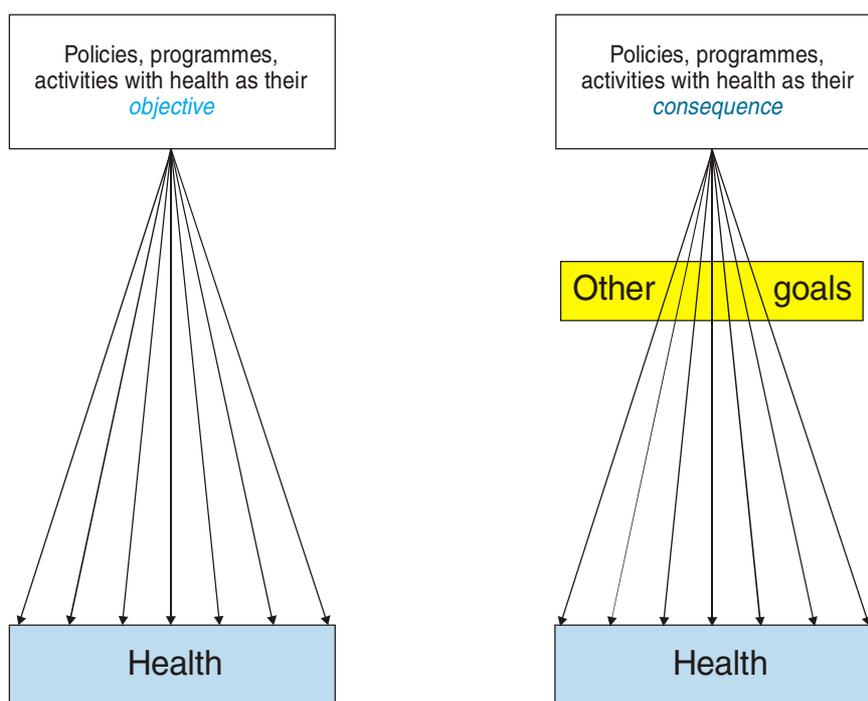
Although the general public is often a difficult audience to reach, it is worth keeping in mind that politicians and others can use and illustrate this idea in public speeches, discussions and other forums.

The basic idea in the module provides a different *appreciation* for actions and policies, where their health effects might otherwise be ignored. However, the topics which the module can lead into offer ample scope for both *appraisal* and *analysis* skills to be developed. For example, the subject of intersectoral action and healthy public policy, which is highlighted in the list of further reading at the end of this module, could generate a discussion of the skills that participants need to acquire. Another example highlighted in the list of further reading is health inequalities. This is a large subject in itself, which includes the idea of socioeconomic gradients in health status within populations, a concept that is central to the analysis of health determinants.

Tutors may wish to use this “springboard” in different ways. Some that were suggested during the development of the module were:

- to focus on the different settings (e.g. family, workplace, school, community, country) in which social policies affect health;
- to highlight dynamic aspects of Fig. 1, beginning with examples of interactions between ministries; and
- to start from an examination of differences between the life expectancies of populations in two or more countries, and try to link them to different policies relating to health, both public and private.

Fig. 1. A different view of health policy



Introduction

This brief module is intended to increase the awareness of those outside the health sector regarding the pervasive health effects of both public and private policies and actions. A corollary is that a broader view of what constitutes health policy may be required of public and private decision-makers and leaders, including elected politicians, bureaucrats, executives of national and international corporations, representatives of unions and other workers' associations, and officials of nongovernmental organizations. Although it is a difficult task, it is also desirable to communicate this broader view of health policy to the general public.

Discussion

It is perhaps not surprising that most people, on hearing the phrase "health policy", think of hospitals, doctors, nurses and the like. The health care system is a critical component of health policy, and in most countries it receives the largest share of resources directed to health as well as the largest share of media coverage about health issues.

But health policy is much more than health care policy. One way to see this is to envision all of the activities (actions, programmes or policies) that have health as their primary *objective*, or at least as one major objective. These go well beyond the activities of health care professionals and the walls of hospitals or clinics. For example, income support may be provided to low-income pregnant women to enable them to feed themselves better and make eating choices that are healthier for their babies. Programmes in which specially trained community volunteers operate telephone helplines for troubled adolescents aim to reduce the number of young people committing suicide. Meal delivery programmes and services that adapt dwellings for the special needs of the elderly contribute not only to their independence but to their health and safety as well. It is important, therefore, to include in health policy all activities that have health as one of their objectives.

Does this go far enough? Many observers would say that it does not. The reason is that there are many activities outside the health sector which, although they do not have health objectives, have very important health *consequences*. Consider the following list, for example.

- Because there are seldom economic incentives (public subsidies or tax concessions) for the recycling and reuse of solid waste, firms do not find it as profitable as they might to engage in it. Consequently, adverse health effects result from contaminated soil and water.
- Short-term contracts and temporary jobs instead of permanent employment help companies compete, but job insecurity is associated with serious emotional, social and physical health outcomes.
- A country's agricultural policies may encourage overuse of fertilizers or the production of high-fat milk, both of which can have health consequences.
- Public policies on taxes and income security may widen the income disparity between rich and poor, or steepen the income gradient in a society. Apart from the concerns this may raise about equity, international experience suggests that greater inequality of income is associated with poorer levels of overall population health.
- Inadequate preschool facilities and programmes for children are not just a barrier to parents participating in the labour market. They can also affect the health, development and life chances of the children.

Almost everywhere one looks – in different settings, in different sectors and at different stages of life – commonplace activities, actions, policies and programmes affect the health of individuals, groups and nations. These varied activities, actions, policies and programmes may not have health objectives, but they do have serious health consequences. And they may therefore legitimately be viewed as the subject of health policy. It follows that health policy-making must involve parties outside the health sector. In other words, health is everybody’s business.

This extended view of health policy is illustrated in Fig. 1, where the activities in the top box on the right have consequences that go well beyond the intended goals of the activities and affect health. They may do so to a greater or lesser degree, positively or negatively. Nevertheless, they are all relevant for health policy-making, health practice and potential health action.

Exercise 1

1. Identify the most important programme or policy decision with which you have been involved in the past year. Did it have health as an objective? If the answer is yes, explain the specific health target to be achieved. If the answer is no, consider whether this decision might have health consequences for any individuals or groups.
2. Using today’s local newspaper, select several major stories in the news concerning the policies or decisions of governments or private companies. Analyse the potential effects on health of these decisions or policies.

As an aid for this exercise, you may wish to look at Fig. 2. The rows of the chart ask the question, “Does this policy or action have health as an objective?” The columns of the chart ask, “Does this policy or action have health as a consequence?” The consequences could be positive or negative.

Fig. 2. The health objectives–consequences matrix

Does this policy or action have ...		Health as a <i>consequence</i> (positive or negative)?	
		Yes	No
Health as an <i>objective</i>	Yes	A	B
	No	C	D

Medical and hospital services would be in box A, as would other health care services such as pharmaceuticals, rehabilitation and public health. So too would be the examples considered earlier of income support to low-income pregnant women, telephone helplines for troubled adolescents, and services to preserve elderly people’s independence. Note that the effectiveness of health care and other health-promoting activities must always be demonstrated and requires constant monitoring and evaluation.

Box B, unfortunately, is all too often not as empty as one would hope or expect. When scarce resources are devoted to policies or practices that have health as an objective (especially when it is *the* objective) but there are no favourable consequences, remedial action is required and reallocation of resources may be appropriate. (Resource reallocation is considered in more detail in Module 2.3.2 below.)

The other examples given above, beginning with the example of economic incentives for recycling and reuse of solid waste, would be in box C, as might many of the examples that participants identify in this exercise.

It is difficult, in fact, to think of policies or actions in box D. This illustrates how pervasively health is interwoven with activities in all sectors.

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2.2.3 Looking ahead to the future

Keith Barnard and Herbert Zöllner³

Key messages

- The environment for taking decisions on health has become more complex, uncertain and stressful at all levels.
- Futures work (which goes beyond forecasting and prediction) is a useful approach to addressing complex issues and coping with uncertainties in policy-making.
- It includes the participative development of alternative scenarios and the scanning of developments for new opportunities and challenges.

Tutors' notes

This module is accessible to all audiences and can help to challenge current ways of seeing and doing things.

Emphasis is put on the scenario approach, and the tutor may wish to supplement with aspects of:

- health policy-making (policy environment, partnerships, management of change) from Module 4.2.2 on the political management of public health;
- quantitative modelling (scenario modelling, sensitivity analysis) from Module 5.4.1 on economic modelling and forecasting;
- economic choice (discounting and sensitivity analysis) from Module 5.3.1 on economic evaluation.

Role-playing may be involved in tackling the exercises.

Uncertainty and the policy environment

The policy environment is becoming ever more complex and stressful and is changing rapidly. Important transitions are simultaneously taking place in demography and epidemiology, in the economic, political and international scenes. Challenges range from decentralization to globalization, and time horizons tend to be too short with little room for reflection, critical assessment and longer-term view. Managing change requires new skills and clear vision about what is desirable and feasible. The involvement of and work with key stakeholders are paramount to successful policy development. Skills in consultation, advocacy, negotiation and persuasion as well as dealing with the media are needed. This is particularly so in the relations between the health and other sectors, where each can expect the other to treat its legitimate interests with respect and understanding.

Health is heavily influenced by the increasing pace of political, social and technical change. The challenges facing decision-makers in the health sector are to forecast the repercussions on health of such changes, to exert influence over them and to take decisions now to make them as favourable and harmless as possible in the long term.

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Pressures on high-level decision-makers often emerge in public view as crises when the public and parliamentarians are quick to perceive that ministers, civil servants or professional advisers do not appear to be in control. They often appear to have an imperfect understanding of how the issue is seen from other perspectives, and they have difficulty in reassuring a sceptical public that they are taking the right course of action.

In many cases, at least three stakeholders play out the principal roles in a crisis:

- *scientists*, whose research findings or interpretation of trend data cast doubt on a particular development, practice or policy proposal;
- the *media*, whose handling of the scientists' message is critical to public understanding of the issue and judgment of the government's subsequent handling of it;
- *decision-makers*, who have to weigh up the scientists' message (now in the public domain), the advice they receive from their own professionals and the likely public response to whatever action they might take.

In terms of taking action, since there are often many stakeholders and parallel action by different actors in different organizations (or even sectors) is needed, an old style command and control approach is typically neither feasible nor appropriate.

The challenge is to establish whether these situations necessarily need to become crises. If they can be anticipated, appropriate preparations can be made so that when they break into the public domain, they can be handled – and be seen to be handled – constructively and responsibly. The public and particular stakeholders can thus be assured that health and safety are the priority concern of the government or the agency legally responsible.

There are two types of area, each requiring courageous responses, choices and decisions now:

- areas in which there is political pressure to act right away, but where the long-term consequences are uncertain (i.e. in the case of new diseases);
- areas in which changes are occurring (or are about to occur) in the broader environment of health which are likely to influence health significantly in the long term (new ways of obtaining, processing and disseminating information, advances in biotechnology and changing values and expectations).

Futures work

Sometimes it is easier to foresee developments such as natural and biological phenomena and demographic change. But even in these cases, simple models of prediction and extrapolation may fail, especially when values and behaviour patterns are involved. John Coles, in speaking about foreign policy, says "... policy-making is hard. It needs intellectual rigour, a capacity for innovation, a grasp of political reality, a sense of the future and, quite often, a certain courage" (1). Advocating planning and futures work, he states that "... the purpose is not to predict confidently what will happen in the world – a task for which there is little science – but by concentrating minds on alternative scenarios and possible developments to make today's decisions sounder and more likely to stand the test of time."

The purpose of futures work is not to make predictions but to aim at foresight. It is to explore alternative futures so as to support innovative, long-term strategic thinking for pressing issues. Quantitative models are not a substitute but can be useful information components underlying specific aspects of futures work.

Futures work should ideally not be ad hoc events but part and parcel of scanning and foresight intelligence systems that are able to feed health policy-makers and actors with information on future challenges to health and access to health (i.e. both opportunities and threats).

We can best serve our own interest as a society:

- if, when faced with a picture of the future, we keep our minds open (like parachutes they operate best that way) and use them to explore possibilities further, i.e. it becomes an occasion for reflection on the future;
- if we can shake policy-makers out of their comfort zone of current assumptions and ways of responding to challenges and pressures;
- if we keep our sensors active, scanning for early warning signs and weak signals; and
- if we can build broad-based awareness of the significance of acting or not acting on the issues we have judged as demanding attention in our scan of possible futures.

The scenario approach

The preparation of scenarios is a well tried and proven means of addressing complex issues and coping with the inherent uncertainties in policy-making. The term “scenario” is used in various senses, but these only reflect levels of sophistication and detail, especially in the quantification and analysis of the different factors that are taken into account. The basic idea is that a scenario, as a picture of the future, is a synthesis of evidence, ideas and assumptions the nature of which should be immediately apparent to any reader. Scenarios are *not* predictions but products of the imagination of what the future might or could be.

The crafting of a set of scenarios can provide policy-makers with a sense of the range of possible futures. These scenarios would have different emphases and sets of assumptions. One mode of presentation is to write a scenario as if it were history, by projecting forward in time and developing an imaginative account of how history might unfold from the present. The simplest approach is to present two strongly contrasting scenarios which would serve to focus policy-makers’ attention and to provoke a response in terms of action to be taken either to create what is desired or to prevent what is to be avoided.

A picture of a desired future which mobilizes people to work together to bring it about can have great political power. In some organizations and settings this is presented as the “vision”. Among policy-makers it is also referred to as the “preferred scenario”.

The primary target audience for different types of futures work could be:

- the wider community or some groups within it – political activists, top managers and professionals in the health sector, and people in leadership positions in different sectors and civil society generally, who are attracted by an attention-commanding, plausible story or stories of the future;
- within government, policy analysts and advisers who would (or should) expect to see the detail set out transparently so that they could recover for themselves the trail from selection of evidence to argument to conclusions (assumptions about the future) to recommendations; and
- senior policy-makers who, given their limited attention span and absorption capacity (because of the pressures on them), will want simple, succinct statements with a hard content and with clear relevance to decisions they will have to make in the short term.

Scenario-writing is story-telling about possible future situations with a particular purpose: to help policy-makers and other decision-makers to engage with the choices they have to make, and to identify when they will be likely to have to make them and how they can best effect the changes they

elect to make. These decisions are never simple technical choices. They are made in a political, cultural and social, and economic context, and focus on action which ideally enjoys political support, cultural and social acceptability, and affordability with a defensible use of resources.

Scanning the present and the foreseeable future, to support the decision-making process, should therefore have a multiple focus. It must necessarily embrace these key interlocking dimensions of the key actors, context and time dimensions to ensure that the scenarios given to the decision-makers are based on the best possible intelligence.

Annex 1 to this module presents two scenarios that differ considerably regarding their opportunity for health gain. Neither scenario is presented as a prediction but they serve to signal different obstacles and facilitating factors. They differ considerably regarding the opportunities for better health and quality of life that they present. What makes the difference?

The “pathogenic” scenario signals the consequences of a lack of political will, a disregard of the evidence of the effects of present trends, and drift rather than a purposeful focus in policy-making. The “healthy” scenario takes development seriously. This requires the commitment of the whole government, all sectors and all parts of the community.

Developing a foresight capability for policy-making

An understanding of the origins, complexity and far-reaching implications of the changes in train in today’s Europe is a prerequisite for building policies that protect and promote health and wellbeing. It is essential that economists, sociologists and other social scientists join with public health experts to pool their perspectives and analyses in ways that will reveal fresh insights and possibilities for intervention.

This means that countries need individually and collectively to build up a foresight capacity that would include monitoring and analysing trends and picking up early warning signals relating to public health, i.e. a comprehensive health intelligence-gathering and analysis function, including multiple focus-scanning.

This is not a one-off effort. The challenge is to produce not a single forecast but alternative scenarios, to repeat the exercise at intervals in relation to key and emerging issues, and to scan and monitor the broader environment of health for change. In this way, evidence can be built up and tested regarding how far our assumptions are holding up and to assess the possible importance of new factors and phenomena (such as technological developments or changing fashions) or for spotting (as yet) weak signals and early warning signs. A judgement may then be made whether there is a need to develop scenarios of possible new futures.

Using research and evidence in looking ahead responds to the demand that policies, service development and professional practice should all be built on the strongest possible knowledge base. In developing a foresight capacity, it is important for evidence to be appropriate. It is particularly important that the evidence resulting from policy sciences and the broad range of social sciences, including that gleaned from appropriate case studies, is not neglected. Further challenges include the development of knowledge in all relevant areas, especially in relation to the demonstration and dissemination of findings as well as education and training.

For the economist, such repetitive scenario production is a form of iterative cost–benefit analysis (of options) under conditions of uncertainty. Whether its use is justified in particular cases will depend on whether it improves the quality of the decisions that are eventually made and implemented. Are

they taken more confidently? Are they seen as more equitable and respecting the values of solidarity and mutuality? Are they seen as feasible and capable of being implemented? Are only a few necessary decisions being taken now, leaving others to be made in the future, possibly in conditions of less uncertainty?

The quality of a foresight capability can be improved by encouraging an inclusive and participative process and discussion that serves (i) to explore the relevance of scenarios and other futures work to the decision-maker's operating environment, and (ii) to elicit the range of perceptions of the costs that would be incurred (and by whom) and of the benefits that might accrue (and for whom) from decisions that would be made under the conditions of different scenarios.

Exercise 1

How uncertain is the future for society in general, for particular groups and for the health care sector? Consider this question from the viewpoint of various stakeholders, such as a decision-maker in the health care system, a medical scientist, a social science researcher, a health care practitioner, a patient and a media commentator. To what extent would their perspectives and concerns be similar, and to what extent would they be likely to be different? Why?

Exercise 2

Please refer to Annex 1 and its two scenarios for 2030 (Business as usual – muddling on *versus* Making policy as though development really mattered).

What are one or two key actions now or during the next year that could tip the balance either towards the first or the second scenario in your country?

What kind of futures work (including scenarios and scanning) could facilitate action? How could this work be organized? Which key stakeholders should be involved? What incentives might they have, or need, to participate?

Exercise 3

In what ways does your country, region or institution attempt to foresee the future? Over how long a period of time?

How successful have such attempts proved to be? Could they be improved? If so, how?

Exercise 4

Choose a report in today's newspaper about a recent significant development, perhaps in health care or the wider health system, perhaps elsewhere.

Were the developments expected or a surprise, in whole or in part?

What were the antecedents of the current developments? How long ago did these antecedents arise? Looking back, could the current developments have been foreseen, wholly or in part? If they were not foreseen, why was that the case?

Looking forward, are there related developments which, although they seem relatively minor now, could be expected to result in major changes in the future? Could feasible adjustments now make a big difference to the course of their developments over the longer term?

Annex 1. Two scenarios

Below are two simplified fragments of “history scenarios”: alternative futures, in which people will use whatever health potential they have in attempting to lead satisfying lives that reflect the three dimensions of equity, level of living and social cohesion. They are written from the vantage point of 2030, far enough into the future for the effects of trends to have become clear and for the benefits of policy shifts and changes in culture to come through.

The contrast between them happens to reflect the tension found in the mass media and in public debate between optimistic and pessimistic views of trends and possibilities. They can be depicted as taking the United Nations system seriously as the voice of the world community versus muddling on in a reactive, passive mode to the trends and pressures.

Scenario 1. Business as usual – muddling on

In the early years of the twenty-first century, continuing migration, urbanization, chronic unemployment and falling birth rates were eroding family structures and established communities. Meanwhile the informal economy flourished and violence was endemic, despite strong private security and public law enforcement agencies.

Politicians were unable or unwilling to envisage any alternative to the existing economic and social order. A continuing lack of confidence in the ability of governments and the responsible international financial institutions to manage economic development ensured that the already existing momentum for globalization, privatization and deregulation not only continued but also accelerated. The basic law of capitalism – the obligation to protect and enhance shareholder value – determined that decisions on productive capacity were governed by opportunities to introduce automation and to relocate where labour costs could be minimized.

Virtually all controls on health hazards, whether in the environment or in the sale of goods known to be harmful to health, were relaxed under pressure to remove “unnecessary” production costs or restraint of trade. In health care the profit motive replaced the public service ethic; technological development was skewed in favour of innovations that offered the most promising returns on investment rather than improving the health of the population.

The fleetingly fashionable concept of an enterprise having responsibility for, or accountability to, multiple stakeholders was rejected by governments, industrial pressure groups and think-tanks alike as self-defeating and unworkable. It was deemed to be against individual freedoms. Now, thirty years later, the idea is barely even contemplated and then only by a few communitarian utopians. All the prevailing assumptions about what is best for the economy and society have been shielded from counter-argument by assertions, proclaimed as self-evident, that if the economy were allowed to grow unrestrained by political interference, human ingenuity, individual initiative and spontaneous voluntary action would take care of society’s problems.

The reality of our modern times is that only a few have prospered, the well connected, the natural entrepreneurs and perhaps also those with skills that for a time were in great demand. There are fewer and fewer people in regular employment and a growing proportion of those are on low wages. The real level of many benefits provided under social security systems has not been maintained against inflation. Changes in eligibility rules over the years have reduced the number of people entitled to benefits. Lack of income constrains people’s access to the potential benefits and conveniences

afforded to consumers by technology, and limits their participation in civil society. Increasing numbers of people are unable to meet their basic needs.

Rising unemployment, job insecurity, low pay and the deterioration of public as well as traditional family and other informal support systems have led to widening income gaps and to greater social inequality. Increased inequality imposes economic, social and psychological burdens which reduces the wellbeing of everyone, even the employed, and threatens social cohesion and solidarity. Social polarization and the marginalization and social exclusion of particular groups, such as young people who have never experienced steady employment, migrants, and minority ethnic groups, have resulted in increased levels of social conflict.

Low levels of remuneration also characterize most parts of the informal economy. While the informal sector may have been beneficial in offering earning opportunities to low-income groups that would not otherwise exist, such people work without the protection of employment legislation or safety standards or any entitlement to social benefits. There are also additional dangers posed by the involvement of organized crime in the informal sector.

For some time now there has been deep fear of the growing violence at home and in the streets, resulting from deteriorating social conditions and economic dislocation. There is also organized violence orchestrated by groups motivated by specific political, economic or social objectives, which includes racial or religious aggression and feeds off expectations that cannot be met.

Violence disproportionately affects women, children, older people, and various poor and socially marginalized groups, especially migrants who are invariably impoverished, unwelcome and reluctantly supported by the receiving countries and communities. As always in periods of economic difficulty, migrants provoke severe hostile reactions. In political terms the population demands even tighter surveillance and policing measures, paradoxically ensuring that despite the cuts in social expenditure, overall public expenditure remains unexpectedly high.

A profile of one family recently appeared in the *samizdat* newsletter of a proscribed radical reform group trying to mobilize support for a return to active democratic government. Its leaders are committed to re-instituting properly funded and organized public services. This profile, used in an edition brought out to mark World Health Day, was prepared by a journalist writing under the name Eric Blair.⁴

Scenario 2. Making policy as though development really mattered

We have seen a remarkable change over the past thirty years both internationally and in the societies of Member States. Closer cooperation between countries, within the United Nations system and within regional integrational institutions such as the Council of Europe and the European Union, has proved to be an effective strategy against any danger of international conflict. The international community has begun to move beyond its first concern with security to the United Nations' other concern, human development; it has been responding to the fundamental ethic of equity at the heart of the United Nations Charter.

⁴ Eric Blair was the pseudonym of a rising star in the BBC World Service, George Orwell, willing to put at risk his career in the mainstream media.

Box 1. Survivors' Tales – Dateline Metropolis, 7 April 2030

Anna and her family now live in a shanty town just outside one of the protected enclaves of our capital city. They have been successful in avoiding the violence and involvement in any of the shanty town gangs, but they're not sure how long it will be before they have to move on.

They recently lost their small flat in the enclave itself, that neighbourhood referred to with affection by some of its residents as Wigan Pier. After many months in which they had not found much work, even in the informal economy, they were no longer able to pay the fees to the private security forces.

She says they would have had to move out soon anyway, since the utilities had all been cut off and at least outside the enclave they can collect water more easily and forage for things to sell. In the shanty-towns there are still some United Nations aid points dispensing food rations. These rations are no more than basic, but Anna is grateful for what she gets when she can get it. Of course it means queues and coping with the intimidation of the "heavy boys" as she stands in line. They belong to the gangs of jungle capitalists who are attempting to corner the market in food. Fortunately in the past few weeks the gangs have been mainly engaged in fighting among themselves for control of this area. This has meant less harassment of the United Nations aid workers and those in the queue.

Anna and her family still consider themselves lucky. There are six adults, in reasonable health, none of them addicted to drugs or alcohol. Out of the ten children born, six survive. They have been discussing whether they should solve their cash problems, at least for a while, by selling a kidney or something else, assuming they could pass the health screening involved. There is a booming market in human organs now that medical science has solved the rejection problem – the "new prostitution" as this trade has been sardonically called, giving a new meaning to the idea of selling your body.

How different from Anna's is the life of the affluent few, quartered in luxury homes inside protected compounds seeking perpetual youth and perfect health. On the word of their equally affluent medical advisers, they will quite happily bid for replacement organs at the auctions held in the "transplant bordellos". This is the name cynics give to the tastefully appointed reception areas of the commercial surgical suites where these singular acts of exchange are completed. There are limits to how much of one's body one can sell off in this way. But perhaps more to the point in Anna's mind is that it may be better to act now before the biotechnology corporations develop safe maintenance-free artificial body parts at a price below that which human organs usually fetch at the auctions.

Anna has just buried her grandmother, who at fifty-five fell victim to what they assume was tuberculosis. There was no money to get a proper diagnosis, let alone treatment. Two of the younger children are now showing signs of illness. Anna and the other adults will soon have to decide whether they should sell a kidney or find the money some other way to be able to take them to the medical post; if not, they'll trust to luck.

Eric Blair

Many separate events and issues combined to effect this shift in focus. To cite one case, recognizing the significance of the globalization of the economy, some health policy-makers began to ask the question: can we make the healthy choice the competitive choice and use the market to turn the new global stakeholders into partners in the strategy for health for all? Such questions did not produce instant answers, but in the circumstances they helped to change the terms of debate.

The first visible signs were noted in the very early years of the century. The United Nations system as a whole had been dislocated by the end of the cold war. The learning of new approaches in the new United Nations system was not without difficulty and false starts. But eventually a critical mass of concerned people was formed who were keenly aware that the world was off course politically,

economically and ecologically. This happened in the developed countries in part as a consequence of the flow of information, made possible by global communications. Equally importantly, it resulted from continued pressure from people in developing countries who had understood the issues for a lot longer. In particular, rising ecological awareness and demands for the empowerment of less privileged groups led to the creation of many new interest groups and organizations.

Political leaders were paying much more than lip service when they acknowledged the severe challenges to the stability of the international order and the cohesion of societies. They saw the danger posed by gross differences between population groups in disposable incomes, employment opportunities, access to resources, and freedom from the threat of war or social disturbance. There was also a delayed but cheerful realization that the international community had in fact done the necessary preparatory work for attacking these problems in its various summits and conferences in the 1990s and in the detailed preparations of the individual United Nations programmes, funds and specialized agencies, not least WHO and its commitment to the renewal of the strategy for health for all.

Then many additional positive signs emerged, linked to changing perspectives on participation and governance and the still largely untapped potential in the use of technology in tackling problems. People began to picture how in the future people might use their health potential to lead satisfying lives in a healthy society that manifested high levels of equity, material and other resources for living, and social stability.

Governments taking a fresh look at problems saw that not all changes required massive expenditure. Lack of funds was no longer an automatic justification for taking no action. The intellectual and political paralysis that the preoccupation with funding had induced gave way to much more imaginative and participative responses to hitherto intractable problems. There was a new and beneficent opportunism in public policy, seizing on events and responding to other players, encouraging them to take new initiatives to improve people's quality of life. Governments came to see that there was no reason for making the false choice between greater equity and economic growth; investment in "social capital" and in reducing inequities increased efficiency.

The inequity debate was no longer seen as the politics of envy or the simplistic division of people into self-reliant individuals who were the deserving "haves" and the feckless underclass who were the undeserving "have-nots". The argument had got through to politicians that the phenomenon of differences in health, living standards and quality of life was better understood as a gradient involving a number of different social groups where (with the exception of the group at the top) each was worse off than the groups above them. Reducing inequities was now almost everybody's concern.

In the reshaping of the governance of social and public institutions, attention was given to fostering the development of "reflexive" social actors who could deal with risk and uncertainty and encourage changes in the behaviour of individuals and institutions so that they became more adaptive and self-monitoring.

The reshaping of governance implied new roles for the partners involved in the political process, including interest groups and nongovernmental organizations as well as individual citizens. There was growing political commitment to tapping the energy and resourcefulness of the entire community, and recognition that this would be facilitated by various developments in communications technology. This was seen as essential in moving towards greater democratic participation both in defining problems and priorities and in implementing solutions.

The political rediscovery of poverty in the midst of affluence fuelled the growing interest in strengthening social and economic structures. The importance of social support, the ability to cope

and maintain dignity and the sense of control over one's life were once more fully recognized. There was a readiness to address issues and to consider the implications for social policy. One example was the realization of how fragile social and family support networks had become in most countries in Europe, and a recognition of the diversity in family and community structures.

Policy analysts and political advisers and then politicians themselves came to see that there was a clear relationship between economic performance, income distribution and the health status of a nation; and that inequity in health was strongly associated with social position, occupation, ethnicity, gender and generation.

It was then remembered and fully acknowledged that the major improvements in mortality that had occurred in the developed world were strongly linked to social and economic development. The earlier reductions in infectious disease mortality had been brought about by changes in the environment, better nutrition, and better housing and sanitation. Policy analysts and researchers have been looking again at the connections between the physical environment, urbanization and health.

In recent years improvements in health have been more rapid in countries with smaller income differentials. It has been observed that greater equity is associated with faster economic growth. In social policy terms, education is now recognized as a key factor in promoting not only greater equity, but also greater personal fulfilment and health for individuals.

We can now see clearly that above a certain level of wealth, it is not the richest societies which have the best health but those that have the smallest income difference between rich and poor. Population-wide health improvement is predicated on widely shared economic prosperity, the development of a supportive community life and investment in people.

Public policy debate now focuses on the equity implications of different options, e.g. how to ensure that trends in the use of new technology do not selectively benefit only certain groups in society; and how to move towards a more equitable distribution of income and access to all resources that can help protect, promote and restore health.

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2.3 Structures, ministries and reallocation

2.3.1 The differing viewpoints of health and economic ministries

Greg Stoddart⁷

Key messages

- Officials in national ministries of health and other ministries would benefit from understanding better the complementary nature of health development and economic development, even though they may have very different perspectives on specific issues.
- Many of the determinants of health (e.g. level of income, working conditions, social infrastructure) lie outside the scope of health ministries. Coordination of policies and cooperation with other ministries, particularly economic ministries, are critical to improving health through investments beyond health care.
- Health care has special characteristics which have led the governments of most industrialized countries to remove essential health services from private market allocation, for the most part. Economic tools cannot, therefore, be used uncritically with the health care industry in the way that they are used in other industries and sectors.

Tutors' notes

This module is intended primarily for groups concerned with legislation, such as elected officials and/or bureaucratic staff in health ministries and other ministries, especially finance and other economic ministries. It will work best with a mixed group of participants whose specific examples can help each other to understand the pressures in their own and other ministries.

The main purpose is to foster an *appreciation* by both the health and financial/economic participants of:

- the breadth of the resource allocation problem for achieving wellbeing
- the interrelated nature of health development and economic development
- the specific distinguishing characteristics of the health care sector, and

⁷ This module was prepared by Professor Greg Stoddart, Centre for Health Economics and Policy Analysis, McMaster University, Canada (e-mail: stoddart@mcmaster.ca).

- the effects of the policies of each “side” on the other.

The challenge for tutors is to avoid polarization of the two sides and to facilitate discussion based on the premise that they share the common goal of improving wellbeing for the community, of which health is one important dimension.

The module may also be used with audiences of nongovernmental health care providers or administrators and representatives of the business sector, if the objective is to increase sensitivity to the issues. Again, the learning objective would primarily be at the *appreciation* level.

The subject of the distinguishing characteristics of health care affords the opportunity to approach some health economics concepts which are useful at the *appraisal* and *analysis* levels. Some of the material in the list of further reading at the end of the module might be a bit advanced for audiences with no prior exposure to economics. On the other hand, since concepts like market failure will be familiar to officials from finance and other economic ministries, it may be possible at least to appraise some proposals for health care reform in the light of the distinguishing features of health care that are presented in the module.

Introduction

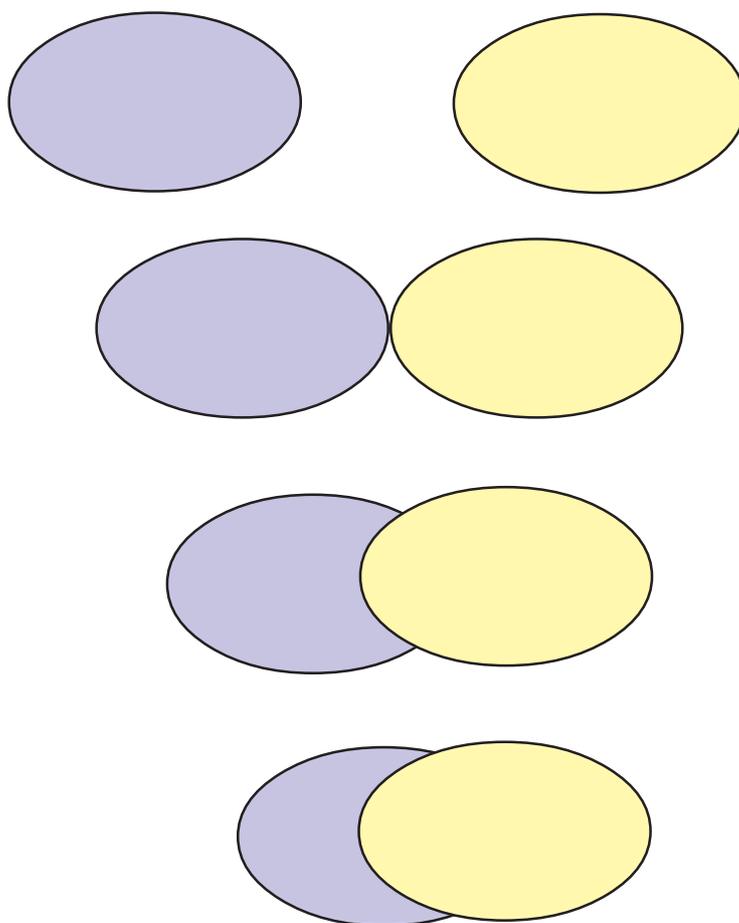
It is easy to lose sight of the complex interrelationship of health, health care and economic performance illustrated in Module 2.2.1 within the confines and pressures of any one sector. The complementary nature of health development and economic development is sometimes particularly difficult for national officials in ministries of health and ministries of finance to bear in mind, since each typically face serious problems within their own ministries. The issues raised in this module are relevant to the relationship between health and many other national ministries; the finance ministry is chosen for illustrative purposes.

The purpose is to foster an increased understanding and appreciation by both sides of the viewpoint, constraints and objectives of the other, and in the process to recognize some of the special characteristics of the health care sector that differentiate it from other economic sectors. After an initial exercise, the module examines some of the differences which often (although not always) characterize the perspectives of ministries on both sides. Other exercises are then suggested to increase mutual understanding and encourage insights regarding the need for increased cooperation in policy-making between the two sides. One important message of this module is that both need to have a common understanding of key analytic frameworks and concepts to facilitate cooperation. Fig. 1 in Module 2.2.1 is one example of such a framework; Fig. 1 below is another example.

Common perspectives and differences

Ministries of health and ministries of finance share one common, ultimate and over-arching goal: to improve the general wellbeing of their countries’ populations. Improving health is one important route for doing so, although it is not the only route. The provision of health services, in turn, is one important route for improving health, although again it is not the only one.

Conceptually, a good place to begin is with an examination of the overall resource allocation problem in any society. This is illustrated in Fig. 2, with special emphasis on the role of health services and other determinants of health. Scarce resources have many competing uses, divided here into three categories: health services, other determinants of health, and other determinants of wellbeing. Within

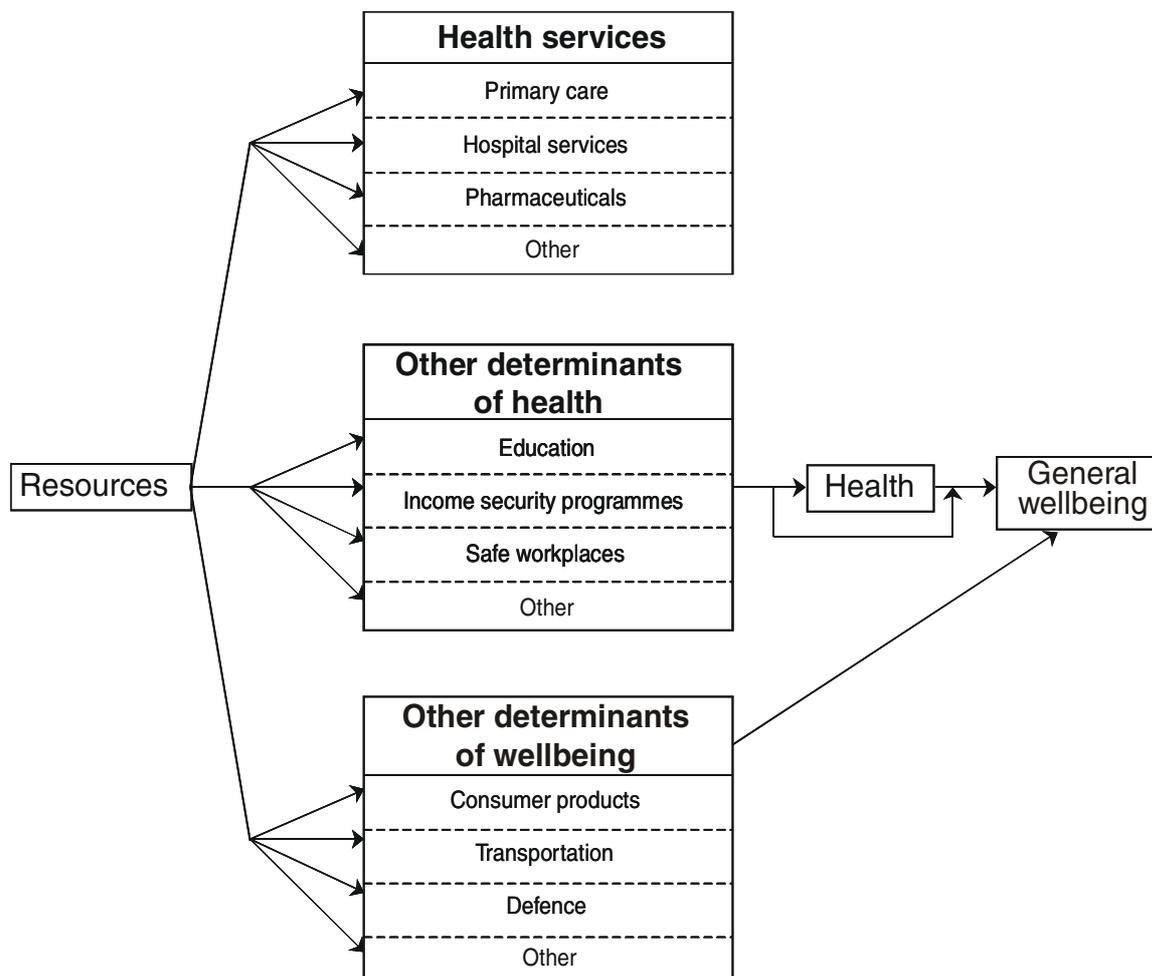
Fig. 1. How closely related are ministries of finance and health?

each category there are a multitude of competing uses, each important in its own right and each with its associated policies, advocates, critics and beneficiaries.

Exercise 1

1. How closely related are the ministry of health and the ministry of finance in your country? Which of the diagrams in Fig. 2 do you think best illustrates their relationship?
2. Explain your choice. Describe why you think they are or are not closely related in their daily function and policy-making.

In recent years, as a result of the efforts of those responsible for health promotion initiatives locally, nationally and internationally, and of a rapidly growing body of research evidence, the importance of a very broad range of determinants of health is increasingly being recognized. The determinants include both characteristics of individuals, such as their genetic endowments, personal health practices and coping skills, and characteristics of the settings in which these individuals live, work and play, such as the safety of physical and natural environments, stress in daily life at work and home, resources such as income, education and social support available to cope with daily life, availability of health services, and the degree of hope, control, respect, dignity and equity provided by

Fig. 2. The overall resource allocation problem

their societies. The characteristics of individuals and their settings are often not separable; they interact in critical ways – for example, it is now well known that the use of tobacco is socially conditioned. The determinants of health operate throughout the life cycle, again in complex interactions (for example, low birth weight is one of the best single predictors of future health), and early childhood development experiences can set the stage for both positive and negative health trajectories. Specific examples of the broad range of determinants and their significance for the harmonization and integration of health and economic policies can be found in *HEALTH21: an introduction to the health for all policy framework for the WHO European Region (1)* and *HEALTH21: the health for all policy framework for the WHO European Region (2)*.

Some of the most frequent differences of perspective between ministries of finance and of health concerning investments for health, policy focus and the role and organization of health care systems are described below, with reference to Fig. 1 and 2 in Module 2.2.1.

Investments for health

The breadth, complexity and interactive nature of the determinants of health mean that many investments for health do not fit neatly into only one sector. Because of this, it is frequently the case that neither ministries of health nor ministries of finance can or do take the broad perspective required by Fig. 2.

For example, tax or transfer policies to reduce the financial burden on low-income parents with small children may not be seen as a health investment by either ministry. The health ministry, preoccupied with issues of health service delivery and finance, may view the policy as well outside its scope, even though it may recognize income as a determinant of health. The finance ministry, although it deals with tax policy, will probably not characterize it as a health issue.

This highlights the need for interministerial mechanisms to address policies and investments for health which might otherwise fall neglected between sectors. One possible mechanism is interministerial committees composed of elected politicians or their senior deputies, charged with the responsibility of examining intersectoral influences on health and opportunities for intersectoral collaboration. Given the multiple demands on such officials, the creation of these mechanisms will depend on a recognition that the problems are substantial.

In fact, in the narrowest view of both ministries, it may seem that only arrows A and B in Fig. 1 in Module 2.2.1 matter for health policy. For most of this century, the primary health policy concern of governments in industrialized countries has been the development of health insurance and delivery systems to make available access to primary, secondary and tertiary medical and hospital care. Although this narrow view of what constitutes health policy has often been challenged by public health officials, most of the resources that societies commit to improving health are in fact still channelled through health services.

Policy focus

The two ministries differ significantly in this regard, which is to be expected given their mandates. The ministry of finance is concerned with fiscal indicators, and especially fiscal crises such as deficits and national debt. The ministry of health is concerned with indicators of the population's longevity and quality of life and with health crises such as the spread of infectious disease or inadequate medical facilities. The ministry of finance typically pursues expenditure control as one policy goal. The ministry of health is often seen as undermining the achievement of that goal through its objective of securing more resources to address what seem to finance officials to be ever-growing needs and demands from health care providers. And just as the ministry of finance does not routinely consider the effect of its macroeconomic policies on the health of individuals and groups, so the ministry of health often gives the impression that its use of resources is the most important possible use and that the ministry of finance should therefore accede to its constant requests for more.

In terms of Fig. 1 in Module 2.2.1, the ministry of health may be characterized as concerned primarily with arrow A (from health care to health) and to a lesser extent with arrow D (the effects of the economy on health), while the ministry of finance, if it is concerned at all, may focus on arrow F (the strain that health care spending places on national income).

Almost always the ministry of finance is more successful than the ministry of health in requiring other government ministries to adopt its ethos. Because fiscal crises are the highest priority (other than immediate threats to national security) of all governments, all ministries are typically required to consider in detail the revenue and expenditure consequences of their policy and programme decisions. By contrast, despite growing evidence that the determinants of health lie primarily in factors outside the control of health ministries, these ministries have usually been unable to persuade their governments to require that all ministries screen their policy and programme decisions for their potential impact on the health of individuals and populations.

Health care systems

Finance ministries often view health care as not being different from other products and services and therefore apply standard forms of economic analysis to the health care industry and the market for health services. These analyses frequently lead to recommendations to use market mechanisms such as prices (user charges), competition and consumer choice to structure health care delivery and allocate health services.

In contrast, health ministries are typically more aware of the special characteristics of health care which have led the governments of most industrialized countries, for the most part, to remove essential health services from private market allocation. This relates particularly to competitive, unguided, for-profit markets. In all countries there is use of market-like mechanisms within publicly financed systems to pursue public objectives, and there is further experimentation with this internationally.

Unlike most goods and services, health care is not consumed for its own sake but for the expected positive contribution it will make to an individual's health. It is the health that is of value to the individual, not the health care. Indeed, in the absence of illness or potential illness, individuals not only do not wish to purchase health care but actively seek to avoid it. Expenditure on health care, both individual and collective, is therefore in a category which might be termed "regrettables". Health care is not "demanded" in the economist's usual meaning of the concept of demand, like the demand for televisions or cars. It is consumed because it is needed, where need is defined by some external standard, both medical and social, to be the capacity for the individual's health to benefit from the consumption of the health service. Health care providers play a critical role in the setting of the external standard for need, through their expert judgements in diagnosis and provision and prescription of services. These providers occupy a special role as economic actors, unlike normal economic suppliers and firms, because the services that they demand, legitimize and prescribe on behalf of patients are often their own.

Most modern societies make the ethical judgement that need should be the basis on which essential health care is distributed. Whether or not totally unregulated markets could perform this function, they are largely rejected because they use ability to pay and willingness to pay rather than need as their allocation criteria, which frequently excludes individuals in need from receiving important services.

A second fundamental characteristic of health care is that the need for it is uncertain. Although the need for some health care such as preventive services may be foreseen, for the most part need is unpredictable because the incidence of illness or injury for an individual is itself unpredictable. It is much more predictable for groups and populations. Therefore some forms of insurance can be effective and efficient economic mechanisms for seeing that individuals in need receive services. Although private insurance is one policy option for governments, in most societies health care insurance is wholly or partially in the public sector, due to the extensive and well known market failure associated with private insurance for health services. One of the most serious types of market failure of private health care insurance is if low-income and/or unhealthy individuals (often the ones who most need care) cannot afford or are denied insurance coverage.

A third characteristic of health care which reinforces the case for a significant national role in the financing of health services is that there are more of what economists call external effects associated with the consumption of health care and the health of individuals than is the case for many other

consumer products. An individual may be concerned about others' health for selfish reasons, as in the case of infectious diseases, because another person's ill health or failure to consume health care pose risks to him or her. But this type of externality is only part of the story. The almost universal observation is that people genuinely care about others' health and ability to afford health care independent of selfish motives, in a way that they do not care about others' consumption of televisions or cars. The identification of need therefore establishes a collective ethical obligation that something should be done, which in turn leads to a significant role for the state in monitoring, regulating and financing health care systems, and sometimes providing services directly.

A fourth and final distinctive characteristic of health care is that, unlike many other products, consumers are generally poorly informed about their need for specific health services and unable to evaluate in advance what the services will do for them. For this they require and consult health care providers, who act as their agents in deciding what they need to consume. Health care providers, although they are the suppliers and not the consumers, in fact often possess a much greater degree of knowledge about the consumer's needs, the services available, and the effectiveness of the services in meeting the consumer's needs than do the consumers themselves. Indeed, to call the buyers of health services consumers in any conventional economic sense of that word is questionable. Although advances in information technology and the increased availability of consumer information (e.g. self-help guides, and "report cards" on hospitals) may improve the amount and flow of useful information to prospective patients, they will not alter significantly the fundamental asymmetry in information between providers and patients in relation to the content of a particular episode of care, which is highly specific to the individual.

This asymmetric possession of knowledge by the providers of care, and the influence it gives them over the utilization of health services, have far-reaching implications for the organization of health care systems and the use of market mechanisms. For example, the licensing of providers and a reliance on professional self-regulation to protect consumer-patients against misleading claims and poor quality or harmful services are necessary features of health care systems. The case for market mechanisms, such as user charges, to allocate services or control expenditure is considerably weakened, since health service utilization is not primarily consumer-driven. And the strong economic and political position accorded to health care providers, when coupled with the observation that it is they who define need, means that there will always be pressures for expansion of health care systems. The health care industry has much less in the way of internal equilibrating mechanisms than most other industries.

Exercise 2

1. (a) *For participants from the ministry of finance or other economic sectors.* What do you see as the biggest single problem that the health sector poses for your national economy? If you were minister of health, how would you propose to solve it? (Participants from the health sector to comment and respond after all answers have been given.)
- (b) *For participants from the ministry of health or health sector.* What do you see as the biggest single problem that the economic sectors and the general functioning of the national economy pose for the health of the population? How would you propose to solve it if you were minister of finance?

2. Read the script of the brief role-play (Annex 1) entitled “Panel of ministers: economic policies and health care reform”, written by Keith Barnard and Professor Béatrice Majnoni d’Intignano for the WHO Ljubljana Conference on Health Care Reform in 1996. Alternatively, two participants could be assigned in advance to familiarize themselves with it and read the script to the group. If so, a participant from the ministry of finance should read the part of the minister of health, and a participant from the ministry of health should read the part of the minister of finance.
 - (a) In the play, Barbara Luke, the minister of health, is concerned about the percentage of national income spent on health. Discuss the factors that you think should be considered when this is being decided. Do these factors differ from those you would consider when deciding the percentage to be spent on education, telecommunications on agricultural subsidies?
 - (b) In the play, Robin Matthew, the minister of finance, is concerned that important health problems are not being tackled rigorously. Discuss improvements which could be made in health programmes in your own country which might appeal to the minister of finance because they would help the national economy.

Annex 1. Panel of ministers: economic policies and health care reform⁵

Introduction by moderator

Ladies and gentlemen, ministers of health, I am delighted to welcome you to Ljubljana for an extraordinary session to exchange experience on health care reform. Before we get down to business, just imagine, that we are moving to EUROPIA, a country psychologically if not physically near the heart of the Region. We are privileged to observe Robin Matthew, the rising star of the government, as the clever minister of finance, who is waiting in a restaurant for a private meeting with a colleague ... Here she comes, the seasoned minister of health, Barbara Luke. Just listen to what they are saying.

Scene: In the restaurant: a dialogue on health policy between colleagues

Robin: As you know, we might become a candidate country to join the European Union. Therefore, we will look carefully at things like the European monetary system and other criteria by which our case will be judged. Frankly speaking, it will be a big headache for any finance minister.

Barbara: How so? I thought it was supposed to be a big opportunity.

Robin: Well, we need to slim down public expenditure, cut taxes and remove some of the costs which are now falling on employers. I am just giving you a chance to look at the issues from my perspective. I think that you will have to rethink ideas in your sector.

Barbara: But surely we cannot cut health expenditure any further. The percentage going to health is already way below our neighbours’, and our doctors and nurses continue to be relatively poor.

Robin: I am sorry I must be blunt. How could I explain to other ministers why I should treat you differently? Why are you so special, this is what they will say. These are tough times for all of us, even if there was no economic decline.

⁵ This role-play was prepared by Keith Barnard of Gothenburg, Sweden and Professor Béatrice Majnoni d’Intignano, University of Paris, France.

Barbara: Well, I don't see myself behaving differently from any other health minister. When I meet my fellow health ministers from other countries, they all ...

Robin: Exactly! When I look at your colleagues in the other countries, they are also having a hard time making the health industry more efficient and competitive.

Barbara: I am sorry, Robin, you are quite wrong there. You are ignoring all the serious reform initiatives that have taken place in countries across Europe. In our different ways we are trying to find the balance – the public/private mix, as some of us call it. Everyone of us, we are trying to bring expenditure under control. Precisely because health is not an industry, we have to think about the quality of care people get and how it meets their needs.

Robin: Look, in education, they tell me how many schools and teachers they need, and why. They tell me how many university places, and we all agree that we are investing in education and training. In social security, they tell me how many elderly people there are, how many disabled, how many long-term employed, and I work out what we can afford. But you ...

Barbara: Wait a minute!

Robin: You tell the public that we are getting healthier, and yet every year you tell me that you need more money. Is your budget supposed to be open-ended upwards? You lead people to think that their care is free, but someone must be paying the bill.

Barbara: No, no, I do not mean that everything needs to be free. There is a lot of self-care in families and among friends. People buy drugs over the counter. There is a tremendous interest now in things like nutrition and promoting health. None of this comes into your calculations. The fact is that whenever we maintain or restore someone's health, we have helped the individual as well as the economy. We have enabled a disabled person to go on living an independent life, we have a schoolchild who can study uninterrupted and we have made workers become more productive.

Robin: That I do not doubt. My job is to get public expenditure under control. Consumer goods improve the standard of living, remove household chores, maximize people's leisure possibilities. They give them the chance to get on with the kind of lives they want to live. The health sector only drains resources away from the nation. Where is the profit?

Barbara: Of course we do not have profit in the health care sector, nor are we trying to turn our health care into a trading company. We have health gain, but it is also clear that family doctors and community nurses reduce and prevent the need for expensive services.

Robin: If it's that straightforward why are you always asking for more money and expecting the health insurance people to hike up their premiums? Or is it because some important health problems are not tackled vigorously, for example accidents, suicides and heart attacks, especially among young men?

Barbara: On the contrary. We have made a good start with making people more aware of how to use appropriate services appropriately and how to look after themselves. The quality of services is constantly being improved.

Robin: I have not tried to cut your budget for its own sake. Anyhow, I cannot get this country's economy on the right track unless all ministers are seen to exercise restraint. For example, there are several countries which use fewer beds and doctors. And let me remind you that we have closed quite a number of old-fashioned industrial plants in other sectors.

Barbara: I don't think that you have grasped my message. Good social policies, including health, will make people believe that this is the country they want to live in. People will then truly make our country a place worth living in. Good social policy supports economic policy. I need your help to provide our people with a set of decent essential services. Do that for us, and we can assure you, you will eventually see the economy grow, as we all want to see it grow, and that will lift the pressure off

both of us when we come to talk about budgets in the future. You see, really you should ask me what I would do with a 5% increase in my budget. I have plenty of practical ideas.

Robin: I have to rush now. It was nice talking with you. We can discuss this again when the economy has recovered.

The scene fades ...

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2.3.2 Reallocation of resources for health – a conceptual framework

Greg Stoddart⁶

Key messages

- The optimum use of scarce resources to improve health involves continuing consideration of the possibilities for allocating and reallocating resources within the health care sector. This can involve both existing resources and additional resources that become available. However, intersectoral collaboration for health improvement will frequently require reallocation of resources from one sector to another.
- Reallocation of resources can be categorized in five main types: reallocations among health care activities; reallocation among non-health care activities within the health system; reallocations between health care and non-health care activities within the health system; reallocations between the health system and other systems; and reallocations among other systems.
- Another important dimension of the conceptual framework for resource reallocation is the type of resources being reallocated. Although financial flows (budgets) are usually the focus of attention, it is important to remember that the resources themselves are the “real” things that go into health-influencing activities, i.e. the time of individuals, their skills and know-how, equipment and supplies, and the space provided by buildings and the land which they occupy.
- Decisions to reallocate resources for health improvement can be made at different decision-making levels, and in both the public and private sectors.

Tutors' notes

Although this module can be used to help achieve an *appreciation* of the complexity of intersectoral reallocation of resources, its primary purpose is to assist in the *analysis* of such reallocations. Analyses may include measurement of changes in actual resource flows. However, they may also include assessments of the potential resource flows that are implied by policy changes under consideration. The cube in Annex 1, Fig. 5 (relating to an application of a conceptual framework in the Canadian province of Prince Edward Island) may therefore be used in a discussion of the opposition that is likely to be encountered in the implementation of policies involving reallocation of resources.

The framework can be used by several groups, identified on the vertical axis of Fig. 5, including elected politicians, bureaucrats in health and other ministries, managers in regional authorities (at either the level of the overall authority or at the level of specific programmes) and service providers.

An interesting exercise suggested during the development of this module was to use it to prompt comparison of the effects of spending money in different areas, including outside health care. In Fig. 2 (under Discussion), this means asking what could be done with a specified amount of money if it was reallocated along any of the five arrows A–E. In terms of economic concepts, this would be a vivid illustration of measuring the opportunity cost of resource use in real terms. For a simple example of this, see Labonte (1), who asks what else could have been done with a specific amount of new funding which was given to hospitals in the Canadian province of Ontario.

⁶ This module was prepared by Professor Greg Stoddart, Centre for Health Economics and Policy Analysis, McMaster University, Canada (e-mail: stoddart@mcmaster.ca).

A different exercise, more planning-oriented, would be to select some policy examples from *HEALTH21: an introduction to the health for all policy framework for the WHO European Region (2)* and *HEALTH21: the health for all policy framework for the WHO European Region (3)* and ask what actions would have to be taken within the cube in Fig. 5 to implement these policies in the specific jurisdictions of the students.

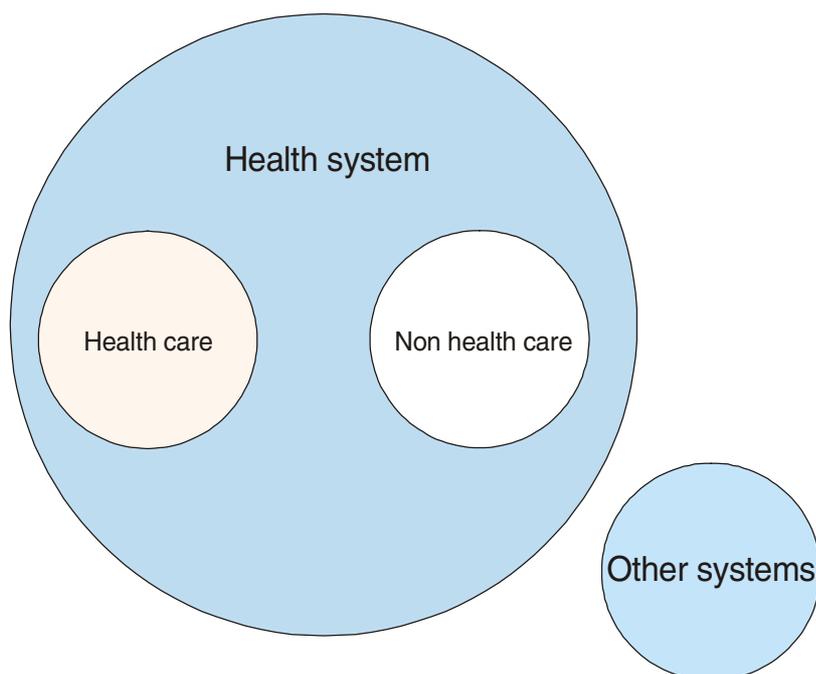
Introduction

Intersectoral collaboration for health improvement has been one of the main themes of recent health promotion initiatives internationally. It has figured prominently in the WHO health for all strategy, in WHO activities such as the Healthy Cities project, and in the 1986 Ottawa Charter for Health Promotion. It is also an integral component of HEALTH21 (3).

Intersectoral collaboration encompasses numerous activities – partnership, advocacy, regulation, demonstration and negotiation among them – and has led to several general policy strategies, such as the creation of supportive environments (physical, social, economic, cultural and spiritual) for health, strengthening community action, the development of personal coping skills and health competencies, building healthy public policy, reorienting health services, and fostering public participation.

Many of these involve, indeed require, significant reallocation of resources either implicitly or explicitly. Yet it is difficult to find a conceptual framework within which to plan, monitor or evaluate such reallocations. This module develops one possible conceptual framework for the reallocation of resources for health improvement. The framework is illustrated with a brief case study concerning the Canadian province of Prince Edward Island, where a team considering a range of possible health reforms used the framework to evaluate the extent of resource reallocation which would be involved and the barriers to achieving this.

Fig. 1. Conceptual framework: components



Discussion

Allocations and reallocations take place whenever plans are established, budgets are formulated or action is implemented.

The conceptual framework makes use of an important distinction between the *objectives* and *consequences* of resource-consuming activities (policies, programmes or other actions). Many activities explicitly have the improvement of health as their primary objective. Health care is the leading example, but other “non-health care” activities, such as nutrition programmes and counselling services not provided through the health care sector or by health professionals, also have health improvement as a primary objective, or at least as one of several important objectives. Occupational or road safety programmes, in both the public and private sectors, are other examples of activities outside the traditional health care system which are nonetheless directed toward health.

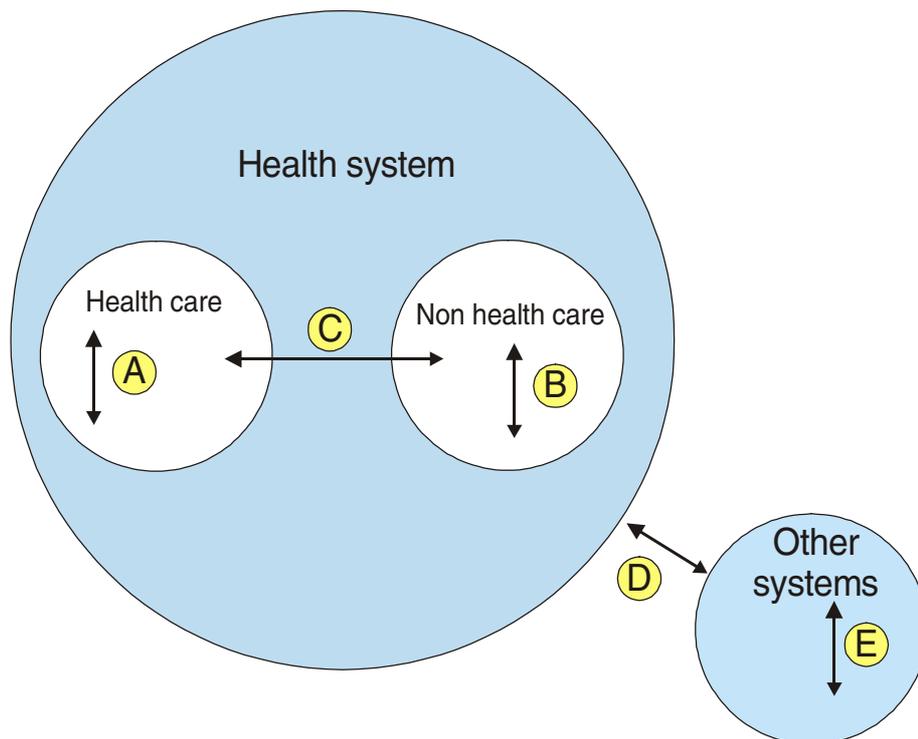
The combination of largely separate sets of health care and non-health care activities is shown in Fig. 1 to comprise the health system, defined as activities undertaken with health improvement as a primary, or one main, objective.

Of course, the health system is only one system whose activities have health *consequences*. The energy, agricultural or tourism policies of both public agencies and private firms, for example, may directly affect health. So too may activities as diverse as the tax policies of governments, the working conditions provided by private employers, the availability of special educational programmes for preschool children or adolescents in socioeconomically disadvantaged groups, and the effectiveness of law enforcement systems in assuring personal security. Therefore a large number of other systems, often not seen as directed primarily toward health objectives, produce significant health consequences. These other systems are grouped together in Fig. 1, but individual sectors could be displayed depending on the analysis being conducted.⁴

The activities of both the health system and other systems consume resources. Of course, close attention is given to the allocation and possible reallocation of resources for continuing activities within a given sector, which relates to the discussions in the module on efficiency. In reality, constant adjustments are being made and changes do not have to be large to be useful. However, the focus here is on attempts to *change* activities, which will require resource reallocations. Five principal types of reallocation, i.e. resource flows, can be identified in the framework:

- A. reallocations between health care activities (for example, from hospital to community-based services);
- B. reallocations between non-health care activities within the health system (for example, from counselling for adolescents to housing adaptation for older people);
- C. reallocations between health care and non-health care activities within the health system (for example, from medical clinics to shelters for homeless persons);
- D. reallocations between the health system and other systems (for example, to hospitals or non-health care programmes for adolescents or older people from education or transportation);
- E. reallocations between other systems (for example, from tourism or agriculture to education or transportation).

These principal analytical types of reallocations are shown by arrows in Fig. 2 corresponding to the letters A–E above. Resources may flow in either direction along these arrows. In practice, the placement of a specific activity within the circles of Fig. 1 and 2 may sometimes be difficult, as

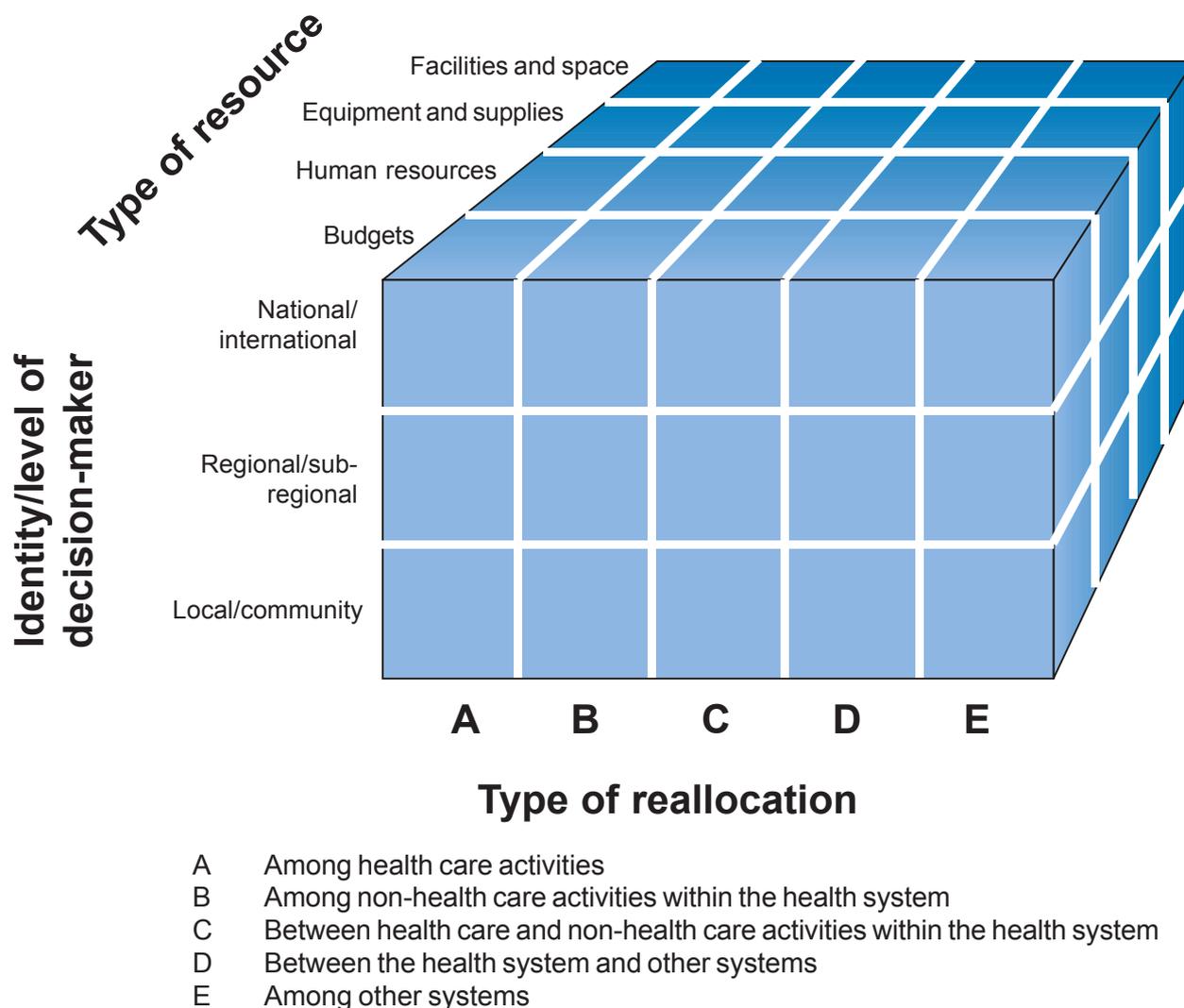
Fig. 2. Conceptual framework: flows of resources

boundaries can be blurred. Nevertheless, the analytical distinction between objectives and consequences on which the framework is based is a useful place to begin.

The framework can be enhanced by considering two additional dimensions beyond the type of resource reallocation. The first is the type of resource being reallocated; the second is the identity of the decision-makers responsible for the changes in activities affecting resource allocation.

Although money (most often represented by budgets of both public and private enterprises) is not a resource in itself, financial flows are often a useful and reasonably accurate marker of changes in priorities and resource allocation. To economists, money and budgets represent and convey *command* over resources, but the resources themselves are the “real” things that go into health-promoting or health-affecting activities – i.e. the time of individuals, their skills and know-how, equipment and supplies, and the space provided by buildings and the land which these occupy. If these real resources are used for one purpose, they are not available for another purpose, from which comes the economist’s concept of “opportunity cost”. By asking questions such as “What are the opportunity costs of the current allocation of resources?” or “Are there health gains to be made by using resources differently?”, opportunities for intersectoral reallocation can often be identified. Note that it is not always necessary to change financial flows and budgets to accomplish a reallocation of resources. Significant changes in the allocation of individuals’ time, or the uses of equipment, supplies and facilities can sometimes occur without appearing as official budget changes. This may be an advantage in implementing reallocations in some circumstances.

Regarding the identity of decision-makers, it is important to realize that decisions to reallocate resources for health improvement can be made at different levels of influence and in both the public and private sectors. Elected politicians or senior officials of government ministries are often associated with high profile, national policy decisions. But regional or community authorities often play significant

Fig. 3. Conceptual framework: three dimensions

roles as well, and at lower levels programme managers or even individual service providers can make reallocations through decisions on how their time is spent, or upon which activities and groups they choose to focus their efforts. Again, in the private sector, although many decisions are made at the (perhaps multinational) senior executive level, there is often scope at much lower levels of management or programming for decisions to be taken which affect the health of both workers and individuals outside the firm.

The three dimensions – type of reallocation, type of resource, and identity/level of decision-maker – are combined in Fig. 3 to extend the conceptual framework of Fig. 2. The result is a cube within which intersectoral reallocation of resources for health can be conceptualized and discussed. Actual or potential reallocations can be positioned according to their key characteristics.

The framework has several possible applications. It might provide a useful planning tool, or be an important starting point for developing intersectoral strategies that rely on resource reallocation for effective implementation. It may also be useful as a monitoring or auditing mechanism, or for evaluation

of progress toward reallocation objectives. Specific subcomponents or “slices” of the cube may be more useful than others for some purposes. For example, the focus at higher levels of decision-making may be on budgets and financial flows, while at middle or lower levels the focus may be on human resources or facilities. The framework can be used prospectively as well as retrospectively. Each specific application will require its own adaptation and development of the framework for the local context.

Note also that there may be a need to prepare the ground for reallocation decisions, if they are to be broadly accepted and implemented on an effective and sustainable basis, especially if they are likely to affect significantly key stakeholders, including the general public. Changes, especially if they are outside the health sector (or not wholly within it), generally cannot be commanded by health authorities. Other stakeholders have to be convinced that they are in their interest, or at least acceptable, bargaining and negotiations tend to be involved, and win-win situations are more likely to be implemented. Such changes may be easier to achieve in a growing economy, where resources are available to ease the concerns of others, than in a declining economy with fierce competition to retain existing levels of resources. These matters relate to discussions elsewhere in the learning materials, including in Module 4.2.2 on the political management of public health.

Exercise 1

Considering the conceptual framework presented in Fig. 2 for intersectoral reallocation of resources, assume that a given bundle of resources, say US \$5million per annum (represented by so many doctors, so many nurses, so much in the way of facilities, equipment and other inputs) is available in the health care sector.

- Could the resources be used in other ways within the health care sector to produce more health gain (or other desirable outcomes)?
- Would your response be altered if the time period being considered was longer or shorter?
- Would the resources produce more health gain if used elsewhere (e.g. in the non-health care component of the health system or in other systems)?

Would you apply the conceptual framework in the same way if the decisions were being considered prospectively or evaluated retrospectively? If not, what would the differences be and why would they occur?

Would your approach be affected by whether the resource allocation and reallocation decisions were being taken:

- in a declining rather than a growing economy?
- by decision-makers at different levels?
- in the private sector rather than the public sector?
- with or without prior preparations among the stakeholders and the general public?

An application of the framework

Annex 1 to this module provides an application of the conceptual framework in the Canadian province of Prince Edward Island. The provincial government sought to evaluate progress towards intersectoral reallocation of resources for health improvement using the framework, having devolved decision-making for many health care and social services from the provincial level to regional health authorities. The health care services and programmes included hospitals, home care, mental health, public health,

dental public health, community health centres, laboratory services, ambulance services, rehabilitation services and long-term care. (Pharmacy and direct payments to physicians were not decentralized.). The non-health care services and programmes included housing, child and family services, addiction services, job creation programmes, community development, youth centres, services for older people, income security programmes, and adolescent group homes. Among regional authorities, those in Prince Edward Island have budgetary and management responsibility for the broadest scope of health and social services in Canada. Since an important policy objective of the reforms was to encourage a focus on preventing illness and promoting health by addressing the social and economic determinants of health, the regional authorities were given integrated “block” budgets for all of the above services combined. How to allocate the budgets (and the command they provide over real resources) among the array of services and programmes was largely left to the discretion of the authorities.

Exercise 2

Using the material on Prince Edward Island presented in Annex 1 (or another case with which you are familiar from your own experience or in your own country) consider the following.

- What was the overall pattern of reallocation; and what was the process through which it took place?
- Was the process controlled by the health ministry (or another ministry), or did it involve negotiation, bargaining and compromise?
- Have some of the reallocations been offsetting ones?
- How frequent are the reallocations between the health system and other systems (and between the health care and non-health care components of the health system)? Do such reallocations tend to become more prevalent over longer periods of time?

Annex 1. Making resource shifts supportive of the broad determinants of health: the Prince Edward Island experience (summary)⁷

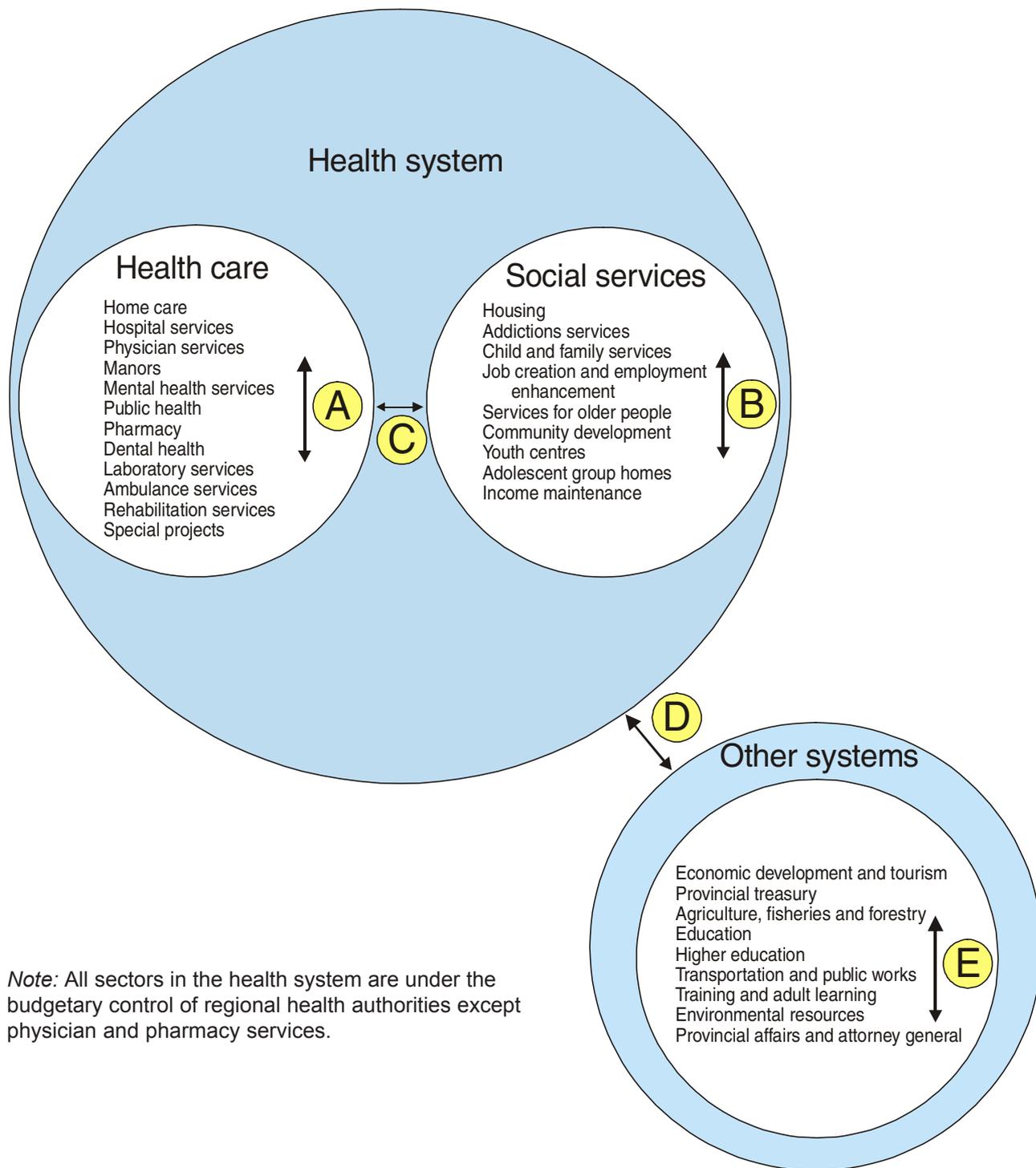
This report presents the results from a case study of cross-sectoral resource allocation (CSRA) in the human services system in Prince Edward Island (PEI). The research builds on previous research that examined the role of block funding as an instrument for implementing health reform, based on a population health approach. It therefore extends and elaborates the pictures we have of CSRA in PEI from 1993 to 1999.

Fig. 4 and 5 reproduce Fig. 2 and 3 in the context of the Prince Edward Island reform.⁸ The specific programme, service and system entries within the circles of Fig. 4 represent those of relevance there, with the titles that apply in this particular set of government departments and agencies.

⁷ Annex 1 to Module 2.3.2 was prepared by John Eyles, Greg Stoddart, John Lavis and Colin McCullan (McMaster University), and Tina Pranger and Laurie Molyneaux-Smith (PEI Department of Health and Social Services). The principal investigator was John Eyles (McMaster Institute of Environment and Health, e-mail: eyles@mcmaster.ca).

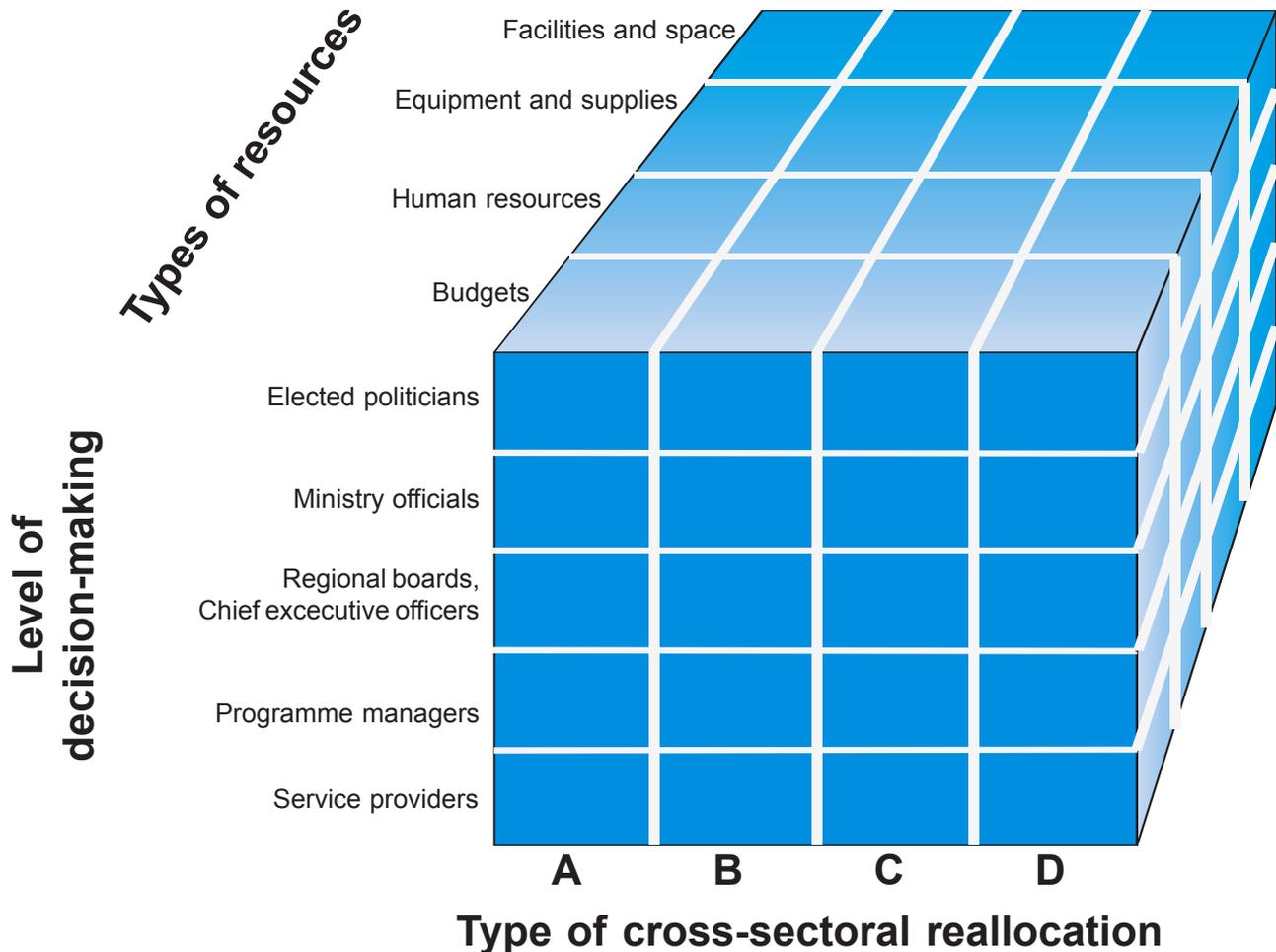
⁸ In this case, only four of the five types of (“cross-sectoral” – the term used locally) reallocation are examined. Reallocations within other systems (arrow E from Fig. 2) are outside the scope of reform. The decision-making focus is also restricted to the public sector, as is evident from the vertical axis of Fig. 5 (Annex 1).

Fig. 4. An application of the conceptual framework to the Canadian Province of Prince Edward Island



The health reform of the early 1990s in PEI emphasized the broad determinants of health, a client focus in service delivery, the pooling of human services, the integration and coordination of services and the establishment of regional governance. PEI created five health regions to provide hospital care, social services, income security, public housing and a range of other services, but excluded physician and pharmaceutical resources and education. Each health region was provided with block funding to enable resources to be moved to address the broad determinants of health. These changes largely survived a change of government in 1996.

Fig. 5. The intersectoral cube applied in Prince Edward Island



This research set out to discover if CSRAs had been made in line with the broad determinants of health and if the mechanisms put in place to assist this process, particularly block funding and regional governance, had been successfully applied. To these ends, 58 interviews with key informants holding different positions in all five health regions and the Department of Health and Social Services and in various sectors were carried out during the winter of 1998–1999. The interviews were taped and transcribed for analysis and interpretation. In spring 1999, a focus group reported back on the preliminary findings. This provided a useful data collection tool as well as an opportunity to confirm researchers’ interpretations. A dissemination meeting held in winter 2000 served similar purposes.

The key informants identified 74 CSRAs, two thirds of which had involved staff, space, equipment and information. Twenty-five had involved financial transfers, mainly within sectors. Some of the financial transfers reallocated money from community programmes to hospital care. In fact, most respondents believed that the acute sector had gained most in recent years in PEI both through CSRAs and increases provided through the provincial budget. While most CSRAs occurred within the broadly defined human services system, some involved partnerships and resource-sharing with other sectors, particularly education.

Of the instruments put in place to assist moves towards the broad determinants of health, regional governance was seen primarily as a facilitator. It helped ensure intraregional integration and coordination and could provide local, accountable services to the regional community. It had, however, appeared to lessen interregional cooperation and made such programmes more difficult to fund and put into

operation. Many respondents felt that regional governance required the presence of a strong standard-setting central authority to ensure equity of provision between regions. Block funding was viewed less positively. Some saw it as facilitating CSRAs through providing one budget for a range of services whereas others saw some of its features – no carry-over, programme surpluses going to pay down programme deficits in the same health regions, and line-by-line accounting and accountability – as detrimental to population health resource shifts.

Three times as many barriers as facilitators were mentioned by the key informants. Among the facilitating mechanisms was the development or emergence of an organizational culture supportive of population health. Important features of this culture included committed leadership, big picture thinking, and motivated and enthusiastic staff who were willing to work together to integrate services for clients. In fact, greater integration was seen as one of the most positive outcomes of the changes in the human services system. The barriers were seen to be structural in nature, involving the political nature of health care, public perceptions and preferences, union agreements, opposition from physicians and level of funding. In fact, the nature and context of funding were seen as vital by most informants and they frame many of the implications identified in this report. Budgetary practice and culture shape what can be achieved: if there is no budget line, there is no activity. For those wishing to advocate, nurture and implement CSRAs in line with the broad determinants of health, recognition of the limits of what is possible (and how the CSRAs may be increased in scope) is an important policy implication.

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2.4 Individuals, groups and health capital

2.4.1 Economic and social determinants of health

*Béatrice Majnoni d'Intignano*⁸

Key messages

- Industrially-induced epidemics play a key role in health status and health capital in modern societies, either developed or not.
- These industrially-induced epidemics are the consequences of the marketing activities and strategies of certain industries in terms of the morbidity, mortality and disability of the targeted groups.
- There is an apparent health divide in the population between the two groups of educated and non-educated people.
- Valuation of their own health and attitudes towards professional health services are very different in these two groups, with consequences for their health behaviour, including their use of health care.

Tutors' notes

Students could discuss the key messages with the following two questions and the four exercises set out at the end of the module.

First, explore the concept of industrially induced epidemics in your country or environment. Which industries are involved? Are they national, foreign or international businesses? Which are more dangerous for young people/for men/for women? Are women less sensitive to the efforts of these businesses to promote risky products or services? Are the messages which are being promoted different according to sex? How can the companies' behaviour be regulated? Think of tobacco abuse. Should tobacco be banned? Should the price of tobacco be increased? What is the price elasticity of the demand for tobacco according to age and socioeconomic status in your country?⁹ Are there ways in which “disinvestments” in health are systematically related to industrial epidemics?

⁸ This module was prepared by Professor Béatrice Majnoni d'Intignano, University of Paris XII, France (e-mail: bmajnoni@wanadoo.fr).

⁹ Price elasticity is a measurement of the degree to which the demand for a product will respond to changes in price. If a product is price-inelastic then the demand does not change so much with the price (e.g. bread). The demand for a product that is price-elastic changes substantially even with small changes in price (e.g. a particular brand of washing powder).

Secondly, explore the differences in behaviour towards health in your society between those with poorer health status and those with better health status. Are these differences linked to salaries, to information, to education or to something else? Should those making less rational use of information and the available health services be seen as victims or as culpable of wilful self-neglect?

The module is appropriate to several different groups:

- the general public;
- health care professionals (doctors, nurses, etc.);
- civil servants in health or social care ministries and in local government;
- representatives of nongovernmental organizations and other grass roots, voluntary and community groups;
- elected politicians.

Introduction

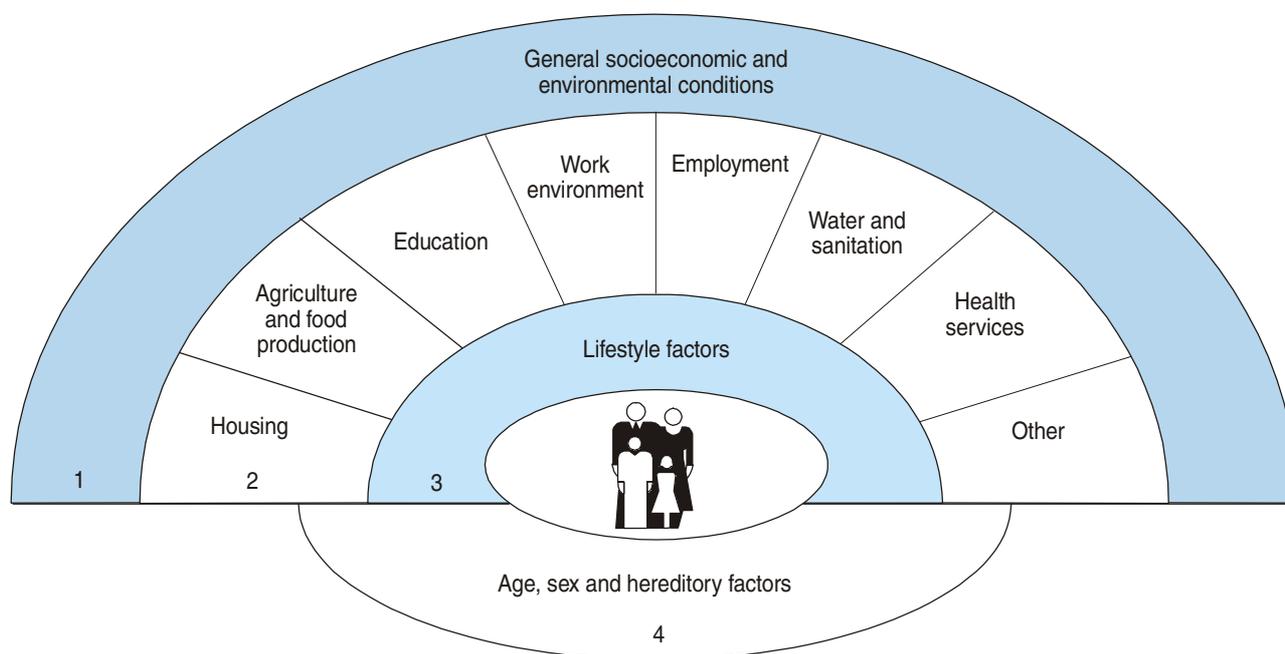
On what does the health of a nation, a group or an individual depend? What makes the difference? Where are changes occurring? The main factors are changing, as are the reactions of modern populations to those factors. The first part of this module analyses the concept of health capital and its main socioeconomic determinants. Health determinants include biological as well as economic, social and behavioural factors, and the concept of industrially-induced epidemics. The first part of the module includes the distinction between individual and collective aspects of health capital and contains an application of this approach to the United States.

The second part of the module explains why modern societies are more and more divided into two groups regarding human capital, and wonders whether inequalities are likely to increase or decrease in the future. It is important to be aware that social stability in a society is affected by the general level of health which, in turn, is due to many different factors, including education and income. Finally some advice is proffered on policy to regulate or curb industries which are responsible for induced epidemics.

The socioeconomic determinants of health capital

The concept of health capital is derived from Becker's concept of human capital, introducing qualitative aspects into the economic concept of labour (1). Human capital depends both on professional skills and on health status. The idea was developed by Grossman in the 1970s (2,3), and presented both as an individual and as a collective investment, because health brings output benefits and utility benefits to human beings and their societies perhaps to a greater extent than any other goods or services currently consumed. Investment in the human being and overall society is the input to health capital and the output is consumption.

HEALTH21 (4) states the various determinants of health and how they interact (Fig. 1). Differentials in income and in access to education and employment are closely linked to differences in health and the quality of life between countries and between socioeconomic groups. Socioeconomic circumstances alone do not determine health. A person's state of health depends on the interplay between health determinants, life events and individual choices. Being poor means that people are at a disadvantage when it comes to making choices and coping with stressful events.

Fig. 1. Main determinants of health

Health is highly sensitive to socioeconomic circumstances, even in the most affluent societies, and therefore to socioeconomic policy and action. The main determining factors include income, education and employment. Multisectoral action is required to create sustainable health and development, by encouraging all sectors to identify and achieve mutual gains in terms of health and economic development. Such action should make it easier for people to make healthy choices, and empower individuals, local communities, and private and voluntary organizations to facilitate health gains in different settings, including homes, workplaces, schools and cities.

HEALTH21 proposes certain strategies:

- policies to ensure more equitable distribution of income and wealth (such as progressive tax systems), social security benefits for specific age groups or low-income families – all important elements;
- a guarantee of free health care and education, as well as subsidies for housing;
- nurturing of parental interest in and enthusiasm for education;
- allocation of economic resources to educational programmes according to clients' needs and the requirement of social equity;
- setting higher educational standards and ensuring smaller class sizes;
- promotion of training and employment, especially of those who have experienced less favourable conditions in early life;
- flexible arrangements for sharing work;
- alternative forms of social and community work, to avoid long-term structural unemployment;

- adjustment of labour market policies to diminish the risk of discrimination on the basis of gender, age or ethnicity.

Individual aspects

To focus particular attention on the quality of the health outcome produced by health programmes it is valuable to do the evaluation by a cost–utility analysis. This measurement counts utility in terms of healthy years or quality-adjusted life-years (QALYs). Any human being is born with an individual stock of health capital and at any year of life, health status can be measured by a quality of life weight- or index-rated from 0 (death) to 1 (perfect health). The advantage of the QALY as a measure of health outcome is that it can simultaneously capture gains from reduced morbidity (quality gains) and reduced mortality (quantity gains), and combine these into a single measure.

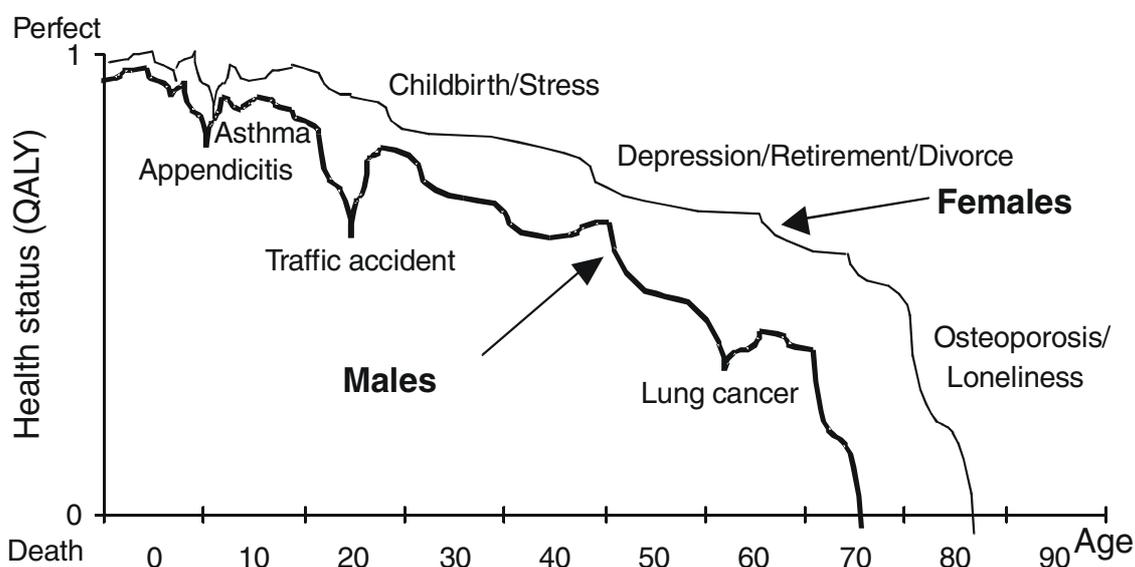
Health can be measured either on the operational level, by demographic indicators such as life expectancy, or by negative indicators such as infant mortality, disability rates, specific standardized mortality rates (from cancer, heart diseases, accidents, etc.) and avoidable death rates (from childbirth or from asthma, etc. which could be avoided with proper prevention or health care intervention). These indicators can be objectively measured. Other indicators are more subjective, such as self-perception by the individual of his or her own health, stress or anxiety. When gender is taken into account, differing pictures can emerge from the various indicators. For example, if health is measured through physical and objective morbidity or mortality rates, women appear to enjoy much better health than men. They live longer (6 to 8 years in France, a bit less in other countries), and they suffer less from cardiovascular diseases and cancer (except specific feminine cancers). If, on the other hand, social and physical self-perceived indicators are taken into account, such as stress and depression, contrary results are often observed. Women say that they suffer more than men. Many studies recording self-perception of health reveal apparently poorer health among women than men.

Life contains a series of critical transitions, which are marked by particular life events (4,6). Adopting a life course approach to developing policies for health recognizes the complex interactions between such life events, biological risks and health determinants. Health can decline (or improve) at any point during a person's life through chance, circumstances and choice. A life course approach tends to ensure better health outcomes for the entire population in the medium and longer terms. At each transition point throughout life, supportive action at both the macro and micro levels can enhance health and wellbeing. For example, since parental poverty and ignorance can start a chain of social risk that damages health over the entire life course, investing in the socioeconomic wellbeing of parents and families is crucial to the promotion of health and development.

Fig. 2 shows how, at any age, individual health capital is influenced by several factors.

General socioeconomic and environmental conditions

Since the nineteenth century, increasing living standards have had a determining influence on health status and the increase in life expectancy, especially on the main illnesses that used to kill the young, such as tuberculosis (7). Nowadays, the influence of wealth on health can still be seen by comparing life expectancy in western and eastern Europe. In the Russian Federation, as an example, life expectancy has decreased since 1990 from 70 to 65 years for men, partly due to increasing poverty. According to the United Nations report on human development in 1997 (8), poverty rates increased from 4% to 40%

Fig. 2. The individual's health capital

Source: Majnoni d'Intignano, (6).

of the Russian population. Another example concerns the differences in diet between Nordic and Mediterranean populations, which have a major influence on cardiovascular diseases.

Housing, education, health services, etc.

The effectiveness of the health care services and the overall health care system, specifically curative medicine, exerts an important influence on individual health capital. Other important factors include public health policies and collective illness prevention, and the priority given to information, disease prevention and research. Individual health capital can be affected, either positively or negatively, by services in sectors other than health, e.g. in education, housing, income support and public order.

Lifestyle factors and gender

Industrially-induced epidemics, including those arising from tobacco, speed, noise, alcohol, drugs and arms, and excess weight, explain much of the excess mortality of men as compared to women and among poorly educated people. They also (partly) explain the decrease in life expectancy for men in the newly independent states caused by accidents, violence and suicide. Such epidemics are the consequences of the marketing activities of certain industries in terms of the morbidity and mortality of the target groups. These industries take advantage of risk-taking people. Again, gender makes a major difference regarding life expectancy and health status because of attitudes towards risks (Table 1). The gender difference appears to be reduced in highly educated populations such as teachers.

Table 1. Probability of dying at the age of 35–60 years, France (%)

	Men	Women
Unskilled workers	28.0	7.5
Industrial workers	21.0	7.5
Employees	18.0	6.0
Teachers	7.5	5.0

Source: Institut National de la Santé et de la Recherche Médicale (9).

Taking risks is still in modern societies often regarded as typically masculine behaviour. The promotion of products such as cars and motorcycles, tobacco and arms encourages such behaviour. This phenomenon is universal, observable in the United States, in Europe and in developing countries. Differences towards risk, arms abuse and drug consumption are apparent among ethnic minorities and the well-to-do population in the United States (and appear in death rates by cause). The promotional efforts of the tobacco industry are especially important in the countries of central and eastern Europe.

The lung cancer epidemic began in the 1950s among men and reached a climax around 1965 in the United Kingdom and around 1990 in the United States. It began later among women and is still increasing, whereas it is stabilizing or decreasing among men in most countries.

There are two periods in life when men suffer from an excess mortality rate compared to women. In France, at the age of 20 years, men have a mortality rate that is 3.5 times higher than women. This is due to accidents, drugs, violence and taking risks, which have an immediate effect on their lives. The second period is around 60 years old, when the mortality rate of men is 2.5 times higher than that of women, due to factors such as tobacco-dependent cancers and alcoholic liver cirrhosis. These are illnesses that kill about thirty years after the risky behaviour was adopted.

Age, sex and heredity factors

Some people suffer from genetic illness and some have specific risk factors, so that their probability of suffering from, say, diabetes or colon cancer is higher than for people who do not suffer from these disadvantages. Health also declines with age, but differently for men and women.

Fig. 2 illustrates the changing pattern of health capital for individuals, by gender, over the life cycle, when the health capital of the individual depends on five factors:

1. genetic endowments
2. life risks
3. the environment and the industrial epidemics to which the individual is exposed
4. the behaviour of the individual and the social group to which he or she belongs, and
5. the health care system, including prevention and health promotion.

The man and the woman start life with a higher or lower genetic endowment (1), which can be favourably affected by preventive health measures (5) and health education (including dental care and diet). Young children of both sexes are affected by appendicitis (2), are treated by the health care system (5), and suffer from diseases resulting from pollution (3). The boy suffers from an accident (3), which results in significant disabilities for all his life. The young woman has three children (1), which disadvantages her in her professional career and results in depression, causing a deterioration in her

health (1) and (4). The man is a smoker, which causes lung cancer (3) and after 65 years of age a further sharp fall in his health status (5). He dies of the disease at 75 years. The woman lives for another nine years but suffers from osteoporosis in her later years and depression brought on by her isolation. Her health capital declines very sharply after 80 years of age. During his or her life, either the man or the woman causes a traffic accident (3), which does not appear on their own body but results in someone else becoming handicapped for life. The influence of particular health care services and the overall health care system is only responsible for about 20–30% of the individual's health status (7). The rest is determined by all the other factors which have just been examined.

Grossman (2,3) has presented improving individual health capital as an investment. People invest in better health so as to improve their working capacity and their future income. Other authors present it as a pure consumption of wellbeing, comparable to consumption of any other goods and services. Different lifestyles and attitudes towards health influence greatly the health status outcomes for individuals and social groups, as illustrated in Table 1; this shows the different probabilities of dying between 35 and 60 years in France according to socioeconomic status and gender, under the same health care system. The worse-off suffer mainly from more digestive, cardiovascular and cancer injuries and fewer preventive activities, and only partly from more work accidents.

Collective aspects

Many societies take into account their health capital and treat it as a collective investment. Bismarck tried to avoid social revolution when he introduced a new type of professional health insurance during the 1880s. Lloyd George thought of strengthening the work force of British industry and the capacity of the Empire's army when he did the same in the years after 1910.

Nowadays, in developing countries, according to the World Bank, improvements or deterioration in health (particularly women's health) is a major determinant of human capital, specifically that of children. A striking example is the damage from AIDS in Africa (6).

In old industrialized countries, as in Europe, with high unemployment and little progress in the health capital of the young, health capital is mainly improving among the retired. It may then be considered more as a cost and as a pure consumption of wellbeing rather than as an investment in the productivity of the nation.

The value of young people both to their families and to society, in terms of the investment made in their education and health and their future wealth-creating power, explains why some countries are trying to prevent or to stop industrially-induced epidemics, for example, in Scandinavia. These are spreading fast in the countries of central and eastern Europe, where tobacco, speed, violence, drugs and noise are destroying part of the human capital.

Where are the gains for American health capital?

Cutler & Richardson (10) have evaluated the change in health capital of the American population between 1970 and 1990. They add the life expectancy of the population, weighted by a QALY index, taking into account the prevalence of the most important causes of illness and a QALY weight for each disease.

As an example, they take into account decreasing illnesses such as vision problems, and increasing illnesses such as cardiovascular diseases, cancer, diabetes and orthopaedics. They also take into account

the improvement of health status in the case of vision, and cardiovascular diseases or orthopaedic disabilities, and the stability of the quality of life in the case of cancer or diabetes. Table 2 illustrates some of these data.

Table 2. Disease incidence and quality of life in the United States

	Prevalence		QALY	
	1970	1990	1970	1990
Vision	48	30	0.84	0.93
Cancer	11	19	0.70	0.70
Cardiovascular diseases	65	99	0.57	0.71
Diabetes	46	54	0.65	0.66
Orthopaedic conditions	102	135	0.70	0.88

Source: Cutler & Richardson (1998) (10).

The results are interesting. The authors show that not only did the health capital of the American population increase during the period, mainly for elderly people (+65 years), but it increased more than the costs of the health care system. Between 1970 and 1980 it was increasing for the black population faster than for the rest of the population but has been decreasing relatively since. Finally, the health capital of women was much higher than for men.

Different attitudes towards health

Two groups can be distinguished in the populations of countries with liberal and capitalist economies, according to level of education. There is a strong social class gradient in educational qualifications. Children who have completed pre-university education or higher technical training or above have much better chances in terms of their health, as well as in occupation and income. Furthermore, education is a very strong predictor of making healthy choices. Higher and other forms of education foster innovation, which in turn sustains economic development. This section draws on research from the Institut National de la Statistique et des Etudes Economiques (INSEE) and the Institut National de la Santé et de la Recherche Médicale (INSERM) summarized in Majnoni (6).

People in the first group (the integrated group) accept the democratic and individualist values of modern societies. They are on the whole educated people, of the younger generations, families with two working parents, or women. They have a positive attitude towards health capital and a voluntary and strategic behaviour pattern in their lives. They try to improve their health capital, or at least to protect it, through avoiding risks (women driving slowly, for example) or practising prevention (teeth brushing, cancer detection, sport). Their demand for health is shaped by their life-cycle, first of all to reproduction, i.e. birth control, safe delivery, child screening, therapeutic abortion and genetic medicine. Then there are demands linked to adult wellbeing, such as stress control and improvements in their working capacity. Finally, there are demands linked to ageing and dying, such as prevention of dependency and suffering, final care at home, and sometimes a conscious choice between a longer life or a better life.

Information and their own decisions influence the demands of this group on the health care system. More and more there is a demand for ambulatory care, or day care in hospitals, partly because of their more and more qualified familial environment. These people will benefit in the future from radical changes in medical technologies which will be increasingly oriented towards prevention, genetic

medicine and changes in individual behaviour (e.g. nutrition, sport, stress management, risk avoidance). They are willing to pay for more information and prevention and for better health care services. A sort of health consumerism is arising, sometimes even medical tourism (to Switzerland or to the French seaside for thalasso-therapy, for example). These people increasingly get their information from the media and the internet. Their consumption of pharmaceuticals is increasing.

The second group consists of poorly educated people, young males, single mothers and their children or broken families (probably about 10–20% of the population). They often have a fatalist attitude regarding health and relatively little perception of the importance of health capital. Sometimes they even have a destructive attitude towards life and their own life expectancy, as when they behave as risk lovers: driving too fast, abusing drugs, alcohol and tobacco, and using arms, for example. More and more families in this group consist of unemployed people who are supported by the welfare state, so they do not perceive any link between their health status and their future income. They are the main sufferers from industrially-induced epidemics, particularly young men aged around 20 years, who die from homicide among gangs, and men around 60 years, who die from lung cancer or liver cirrhosis. A dramatic example is the difference in life expectancy between black and white males in the United States (6 years). The demand for health care facilities from this group is for emergency services, hospital treatment or treatment for catastrophes such as war.

The differences in health service consumption between these groups is well documented (6). The first group asks for more prevention, dental care, specialized medicine and outpatient hospital care; and highly specialized hospital care in the case of severe disease. The second group asks for more general practitioner care, hospital care for any disease or emergency care in case of accident.

Undesired pregnancies are more frequent among poorly educated young women than among middle-class and well educated girls. It often leads to dependence on the welfare state and to the poverty trap, i.e. future poor health status for the woman as well as for her child.

The divergence between the two groups seems to be universal. It is specifically noticed between men and women in the United States and France, but also in the rest of Europe. Either in liberal and regulated capitalist societies such as the United States or those of western Europe, or in transition economies such as the countries of central and eastern Europe, society is increasingly divided into such two groups mainly defined as (i) an educated, qualified and working population, or (ii) an uneducated, poorly qualified and unemployed population. The differences between the two groups are increasing with technical progress, competition and the internationalization of production and trade. Consequently, inequalities are likely to increase. There is a risk of segregation in the response of the health care system to the demands of these groups. One solution to the problem of the failure of poorer people to invest in their own health or that of their families is to give them a realistic and positive future. People who do not see a future for themselves will not invest in it (and the other way around). To reach these people the strategy should be to give them suitable information about the health system and their rights to use it. Everybody should have the possibility, and be provided with the capacity, to gain access to the health care system and to use what it can offer, and to look forward to good health.

This is consistent with target 2 of HEALTH21 (4) which is concerned with equity in health. It states that “By the year 2020, the health gap between socioeconomic groups within countries should be reduced by at least one fourth in all member states, by substantially improving the level of health of disadvantaged groups.”

Exercise 1

Which factors have changed between the nineteenth century and the end of the twentieth? In your opinion, which factors will dominate the twenty-first century?

Exercise 2

How would you build a QALY index? Would you ask physicians to provide the data? Patients? Do you think the result would be the same? What factors would you take into account: lifestyle, working capacity, family life, suffering, the risk of dying, or others? How would you weight and aggregate them?

Exercise 3

In your country, do you consider improving the health status of young people and of the working-age population as a productive investment that could improve the global productivity of the economy, or as an individual concern? Give examples. Is your answer linked to unemployment?

Exercise 4

Suppose your country is poor or the health services are constrained by cash limits. This means that the amount of money available for costly surgery is strongly limited and there are waiting lists. Should surgeons consider tobacco and alcohol abusers as culpable or victims? Who should be first on the list for treatment? Are the poorer alcoholics or smokers victims of their social condition or responsible for self-neglect? Should they be first on the list, or last? Should the physicians ask them to promise to stop smoking or drinking in excess after the operation? How would you solve this moral conflict yourself if you had to decide and control the physicians' choice?

What kind of resources or action could solve the dualism of modern populations? Better information? Price policies which increase the price of tobacco and alcohol? Policies which ban smoking or drinking among the young population?

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2.4.2 Individual behaviour and public policy

Björn Lindgren⁹

Key messages

- Although health is determined by many factors beyond the control of the individual – heredity, environmental factors and chance – a person can still influence his or her state of health to a considerable degree.
- Thus, individual behaviour is one of the determinants of the incidence and prevalence of disease and the costs of ill health.
- Economic analysis can be used to understand individual health behaviour and differences in health among people.
- Many agents, besides the individual, have incentives for investing in the health status of an individual – family, neighbours, friends, schoolmates, employers, local organizations, the health care sector and society at large – but their extent, ways, possibilities and impact are different.
- Public policy measures can improve health either (i) directly through improvements in the environment, or (ii) indirectly through changes in the regulation and incentive structures that influence individual health behaviour.
- Population health depends both on the health of individuals and its distribution.

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- The extent to which a society relies on individual or collective approaches to the “production” of health and the emphasis it puts on individual health or the distribution of health depend on historical circumstances and values, economic and social development, and the distribution of income, wealth and other life chances.

Tutors' notes

A wide range of groups within the health system would benefit from understanding more about individual behaviour and health, the impact on individual health of family and society at large, and policy options for increasing population health – an objective which includes improving both individual health and its distribution among the population generally.

This module may be of particular interest to those involved in designing direct regulations and financial incentives to encourage healthy lifestyles and promote healthy environments, including:

- health (and health care) policy-makers
- civil servants and other governmental technical staff
- public health officers
- health service managers
- health care practitioners
- consumers.

The module contains boxes illustrating the issues presented in the text, several questions for discussion in a country-specific context and an exercise designed to illuminate possible contradictions and the conflicts of interest between different agents in society when it comes to solving a particular health problem.

Introduction

The consequences of good health for the national economy have been recognized by economists for a long time. The American economist Irving Fisher was one such: in 1906 he wrote:

The true “wealth of nations” is the health of its individuals. A nation consisting of weak, sickly, and short-lived individuals is poor compared with a nation whose inhabitants are of the opposite type. (1)

The objective of cost-of-illness studies has been to quantify these economic consequences, or rather the consequences for the national economy of ill health. Economists may still be occupied with such issues, but the main interest of modern health economics is with the individual's health as such, with its determining factors, with the distribution of health among individuals, and to what extent health can be affected by public policy measures. This is the topic to be analysed in this module.

For a long time good health was considered to be a gift of God and ill health to be God's punishment or just bad luck. Modern medicine has taught us, however, that good health may often be restored if the appropriate measures are taken. Modern genetic research proves more and more the importance of hereditary factors. Epidemiologists have identified risk factors in the environment which may damage the health of the individual. Public health scientists emphasize the importance of the individual lifestyle. So, nowadays health and its determining factors are regarded as a rather complex phenomenon. Chance, bad luck or uncertainty is still there though.

Box 1. The opportunity cost of illness to society

There is an opportunity cost to society due to the existence of diseases and injuries: the *opportunity cost of illness*. Table 1 shows some estimates for Sweden. Conceptually, the opportunity cost of illness can be considered as consisting of two separate parts:

- *direct costs*, which reflect the value of the resources shifted from other sectors of the economy into the health care sector due to the presence of illness, thus representing the sacrifice of other goods and services required in order to obtain health care;
- in addition, if there were no diseases or injuries, more could be produced of every good or service; the *indirect costs* of ill health reflect the value of those goods and services that could have been produced if people had not fallen ill, and thus they represent the loss of potential productivity, an opportunity gone forever.

There are, of course, welfare losses, besides the loss of desirable goods and services. Such negative effects as pain, suffering, insecurity and grief associated with illness are sometimes called *intangible costs*. Since there is no realistic possibility of estimating the size of the total intangible costs, there has been no attempt so far to do so.

Table 1. Cost of illness in Sweden, 1991. The six most costly disease categories. Lost future earnings discounted at 5%.

	Swedish kroner (billion)	Percentage of total
Diseases of the musculoskeletal system	60.9	23
Mental disorders	41.0	15
Diseases of the circulatory system	32.5	12
Diseases of the respiratory system	22.1	8
Accidents, poisonings, and violence	21.3	8
Neoplasms	16.0	6
All diseases	269.8	100

Source: Lindgren (2).

Health economists are very interested in the role of the individual as a key decision-maker. There are several good reasons for adopting this approach when it comes to health. Even though other family members, friends, neighbours, and fellow citizens may care for an individual, at the same time both feeling some responsibility for that person's health and enjoying his or her good health, it is undoubtedly the individual himself or herself who primarily benefits from his or her own good health. It is also the individual who has the primary responsibility for his or her own health, who is the ultimate "producer" of his or her own health. Certainly – as emphasized above – much of the recovery and healing from an illness can be attributed to the physician and to the use of various health care resources, but without the cooperation of the individual mentally and physically, the healing process will slow down or even fail. The notion of "producer of health" does not, however, mean that the individual (with or without the help of a doctor) determines his or her state of health – heredity, environment and chance are three factors which may interfere – but rather that the individual can and does influence it quite substantially.

This module consists of four parts:

1. the individual as producer of health
2. individual, health and family
3. individual and health in a wider social context
4. individual health, public policy and population health.

The individual as producer of health

As Irving Fisher emphasized, health is a form of capital. Health and education are the two types of human capital in which the individual can invest. Wealth is a third type of capital, but one which can be physically distinguished from its owner. As a consumption good, good health is desired because it makes people feel better. As an investment good, good health is also desired because it increases the number of healthy days available to work. As such, good health increases the possibilities to earn income. A fourth type of capital has been introduced recently as a new analytical concept: social capital, in which the individual can invest (social interactions, social network, etc) or society (policies and institutions which improve social cohesion). Social capital can be demanded both for its own sake and for its positive effects on health (see Box 1). At an aggregate level, investments in all four types of capital are preconditions for economic growth, which in turn is a prerequisite for improvements in the health and welfare of the population.

Individual health is produced by choosing a particular lifestyle, making better or worse health states more or less probable, and by using medical advice, pharmaceuticals, hospital treatment, etc. in order to restore good health. How well this transformation of health inputs into health outcomes goes depends on (i) the present state of *health technology* and (ii) the individual's knowledge of how to use the technologies available. However, even if the individual had the best knowledge in the world about health technologies, he or she would not necessarily choose the one which maximizes his or her own health. Why?

One reason is that there are various constraints which the individual faces, including time, money, prices and government regulation. No man or woman will have more or less than 24 hours a day as long as they live; thus, in a way, *time* is one of the more equally distributed assets there is. But time could be used for so many interesting and pleasant activities other than those related to health. *Money*, i.e. income and assets, certainly tends to be more unequally distributed than time, but even a millionaire in money terms will notice that there is an upper limit to what it is possible to do with his or her money. *Prices* introduce a barrier, almost no matter how low they are, and *regulation* imposes constraints. Individuals are often not allowed to buy pharmaceuticals in a pharmacy, for instance, unless they have got a doctor's prescription. There may also be restrictions on where pharmaceuticals are supposed to be sold. The finance and delivery of health care is heavily regulated in more or less all countries.

So the individual has to choose what to do and how to spend his or her money during his or her lifetime. This individual decision-making process can formally be thought of as an optimization problem, in which the individual's objective is to maximize his or her *preferences* while taking all the previously mentioned constraints into account. The solution to this optimization problem determines a lifetime plan of how time and money will be used and distributed among various activities and periods of time. The economist takes for granted that the individual knows best about his or her own preferences – that is a cornerstone of economic theory. Economists also claim that preferences are stable.

But individual preferences differ. We have all heard about the advantages of not smoking, of getting regular exercise, and of avoiding all kinds of risky activities. Some people take more notice of this advice than others, not because of ignorance or inability to pay but (i) because of differences in their willingness to trade off health risks for the various pleasures and conveniences of daily life, and (ii) because of differences in their willingness to make sacrifices in order to reduce the probability that they might later regret not having acted in a certain way. This means that individuals can choose quite differently despite the fact that they may meet exactly the same constraints, and that maximizing individual preferences is not at all the same as maximizing individual health.

However, even if individual preferences really are stable, individual behaviour can be affected in various ways by changing the constraints that individuals face. For example, the price of health services can be more or less subsidized; risky consumption can be more heavily taxed; or the borderline between prescription and over-the-counter drugs can be changed. If one of these constraints is changed, then the old plan may no longer be optimal for the individual. If so, his or her whole planned lifetime pattern of activities will change as a result. Moreover, since the only constraint which is the same for everyone in every all country is the number of hours in the day, whereas incomes, prices and regulations differ, individuals will have quite different optimization problems – and solutions – depending on the country in which they live.

Age and investments in health

In biological terms, ageing occurs as a consequence of cells slowing down their replication rate. The function of the bodily system deteriorates. The physiological changes also have negative effects on the function of the brain. To the economist, ageing can be interpreted as depreciation of the individual's health capital. The rate at which an individual's health stock depreciates generally varies over his or her life-cycle. It may decline during some (early) periods of life, but eventually, as the individual ages, the depreciation rate increases. Thus, the health capital of older people is likely to deteriorate faster than the health capital of younger people, at least after some years. This depreciation in health capital can be totally or partly offset by gross investments in health. The higher the depreciation rate, however, the larger the costs of health investments. This means that the optimal health capital is greater for an individual younger person than an older one. Thus, an individual will generally increase his or her gross investment in health as he or she ages, while at the same time his or her health capital declines. As the health capital declines, eventually the costs will be prohibitively high for a health investment to prevent his or her death. In this sense the individual chooses not only his or her health status while alive, but also the expected time of death.

Income and investments in health

Income (or wealth) is highly interrelated with health. Good health improves productive capacity, and wealth makes it possible to invest in health. So, there is a strong correlation between the two, but the direction of causation seems to be two-way. At the national level, wealthier countries (in terms of GDP per capita, for instance) are usually also healthier (e.g. in terms of life expectancy). At the individual level, poverty is the largest single determinant of ill health. Living in poverty is correlated with higher rates of substance use, depression, suicide and violence. An increase in the wage rate increases the benefits from health (in terms of increased consumption possibilities of all kinds) and implies, *ceteris paribus*, a higher optimal level of health stock and larger health investments.

Education and investments in health

People with more education are significantly healthier than those with less. This observation can be explained both from the supply side and from the demand side. On the one hand, education is one factor making people more efficient in “producing” their own health. The more educated people generally know more about health, health risks, healthy lifestyles and the potential effects of medicines. This lowers the cost of investment in health and the optimal level of health capital will be higher, other things being equal, for educated people. Educated people may also enjoy eating nutritious food or doing physical exercise; they may enjoy a glass of wine instead of half a bottle of vodka a day; they may enjoy feeling and looking good. This raises the benefits of investment in health, so that the optimal level of health capital will also be higher for educated people from this point of view. Empirically, the demand effect would, of course, be difficult to distinguish from the supply effect.

Uncertainty, risk aversion and investments in health

Uncertainty does abound in health. An individual may face three types of uncertainty in health. First, there is uncertainty as to the current size of their health capital. Second, there is uncertainty about the rate of depreciation of their health capital. Third, there is uncertainty about the effects of the various inputs in the health production function on the health capital. In an uncertain world, risk-averse individuals make larger investments in health and have greater expected health stocks than they would in a perfectly certain world. The first type of uncertainty induces a demand for information. To some degree uncertainty may be reduced by check-ups by a doctor, but no diagnostic tests are perfect and the doctor may sometimes be just as uncertain as the individual about the latter’s health status. Uncertainty, especially of the second type, also induces a demand for health insurance. Since there is uncertainty about the effects on health capital of various measures intended to improve health (the third type of uncertainty), the individual should diversify his or her health investment activities. For example, physical activity may not be the only way an individual needs to try to maximize his or her health; it could be better to reduce those activities and at the same time stop smoking, reduce drinking and reduce the intake of fats.

However, people do have different attitudes to uncertainty. Some like to take risks, some do not and others are neutral. Most people seem to prefer not to take risks, but the degree of risk-aversion varies both between people and over the lifetime of a person. The stronger an individual’s aversion to risk, the less will he or she take part in activities which may damage his or her health. It should be noticed that it is the individual’s own subjective risk or uncertainty which matters. Perceptions about risks may, of course, be correct, even if they differ from objective risks which are calculated for a larger, heterogeneous group. More information about objective risks may change behaviour. Thus, an individual perceiving that he or she has underestimated his or her own risk will reduce the level of risky activity. Conversely, an individual perceiving that he or she has overestimated the risk will tend to increase the level of risky activity.

Time preferences and investments in health

Most people have a positive rate of time preference, i.e. a preference for receiving benefits today rather than in the future and for incurring costs in the future rather than today. There are a number of reasons why this is so. The individual may have a very short-term view of life, living for today rather than caring about an uncertain future. Such a person may also think it unnecessary to care too much,

Box 2. Education and health

People with more education are significantly healthier than those with less. Why? Does increased education cause better health, or are health and education correlated for other reasons? The answer to this question has obvious policy implications.

On the one hand, education may increase the individual's efficiency in producing good health. Educated people have got the know-how needed to stay healthy, and they know better how to use various market inputs and their own time in order to produce good health. If this is true, it should also be expected that a father's or a mother's education would make them more efficient producers of good health in their children as well.

On the other hand, the correlation found between education and health may be related to a common factor, such as the individual's time preferences. Since the benefits of education lie in the future, individuals with low discount rates will be more likely to invest in education. Also health investments have distant payoffs, such as extended life years towards the end of the individual's life. So, individuals with low discount rates will invest more both in education and in health. It might also be the case that education changes people's time preferences with similar results.

Most empirical studies have used formal education (schooling) when investigating the relationship between education and health. There are studies supporting the hypothesis that schooling directly improves health status, but there is also conflicting evidence. Because of its important policy implications, this will certainly continue to be an area of extensive applied health economics research.

However, schooling in general may not *per se* raise the efficiency of health production, since it is often concentrated on issues other than personal health. A policy that emphasizes investment in education specifically devoted to health information – to health production technologies – may thus be relevant, regardless of the causal links between schooling in general and health.

Sources: Berger & Leigh (3), Fuchs (4) and Grossman (5).

because he or she will probably be wealthier by the time the future comes anyhow (as the long-term trend in economic growth indicates). Money will be worth more today than in the future for the individual. That most people actually have a positive rate of time preference is obvious, since it is possible to obtain a positive rate of interest on relatively risk-free investments. People also have different time preferences, however; some care more for the future than others – they have lower rates of time preference. This affects health investment decisions. The lower the rate of time preference, the less would it cost to invest in health and the larger would the individual's health capital be. Thus, differing time preferences may be a reason for differences in two persons' levels of health. If two people are equal in all characteristics but time preferences, the individual with the lower rate will have better (expected) health status. He or she will engage in health-promoting and preventive activities, avoid hazardous jobs and workplaces, look for safe housing areas, and consume little alcohol, tobacco, drugs and other goods and services which may damage his or her health in the future.

Questions for discussion

1. "Individual behaviour is one of the determinants of the incidence and prevalence of disease and the costs of ill health." Explain.
2. What are the main factors contributing to the health capital of an individual, and to what extent are these factors subject to control by the individual?
3. How do these factors vary among individuals and over time?
4. In what ways does an individual's health capital depreciate?

5. Even though older people make greater use of health care services, their stock of health capital decreases. Why?
6. “The individual chooses not only his or her health status while alive, but also the expected time of death.” Discuss.
7. What is the effect of risk and uncertainty on individual investment in health, and to what extent are risk factors interrelated and cumulative?
8. What is the relationship between education and health, and to what extent may decisions to invest in education and health be interrelated and cumulative?
9. Which factors determine observed differences in health among individuals?
10. Will information about the health risks of smoking increase or decrease inequities in health?

The individual, health and family

Most people live in families. The health status of an individual during his or her lifetime is largely influenced by this fact. Family members typically care for other relatives' health: this may include devoting time and income to that person in order to make investments in his or her health. Thus, the time and money budget constraints are extended for people who live in families in comparison with those who live alone. Since uncertainty prevails in this area, the family may also be seen as a form of health insurance. Conflicts between parents, among children and between parent(s) and child(ren), on the other hand, as well as parent(s) favouring one child may in varying degrees be harmful, or at least not beneficial, to health.

The early years of life

The child typically grows up in a family, which may take various forms, of which two parents and siblings or just one parent are only examples. Within the family, factors and decisions determining the child's present and future health status are not influenced directly by the child. Family-related factors are vital for a healthy start in life for individuals. For instance, the better a mother's state of education, health and nutrition, and the higher her income or wealth, the greater is the chance of a successful pregnancy. Birth weight, which is an important indicator for the development of physical and psychological health during childhood and later in life, is related to family income, but also to the smoking behaviour of parents.

Childhood and adolescence are also mostly spent in families. Later, individuals start to live on their own, at least for some time, until they form new families. These are periods of intellectual and physical development in a person's life during which lifelong social and health skills are acquired. Young people make their own decisions about behaviour which directly or indirectly affects their health, but these decisions are influenced to a large extent by their families. Their psychological health is also closely linked to whether they have a caring and supportive family. Families with better education and higher incomes are often also better informed about both positive and harmful health behaviour and facts which influence present and future health behaviour. Family habits and attitudes are key to forming healthy (or, for that matter, unhealthy) lifestyles regarding, for instance, eating, physical activity, smoking, drinking and the taking of drugs by young people. Also, the material and cultural resources of a family have a major influence on a child's educational attainment. Children who attain higher levels of education have much better chances in health, as well as in occupation and income.

Adult life

The health status of an individual at the start of adult life is partly determined by health investment decisions taken or induced by his or her parents. Family background is also likely to have influenced his or her preferences for healthy or unhealthy life choices or for particular activities. The allocation of time and money for health investments within a family (with or without children) also affects adult people. Marriage means pooling resources and knowledge as well as specialization according to comparative advantages. This increases the consumption possibilities in comparison to living separately and improves the incentives for investing in health. Health will thus be better among married than unmarried persons. The distribution of health may not be equal, however, for a number of reasons.

The single most important reason for specialization is the presence of children. Typically, specialization means that the wife specializes in household activities and, hence, invests in household-related human capital, while the husband invests in market-related human capital. This increases the husband's wage-rate and, as a result, the family's interest in investing in his health. The wife's position in marriage and the incentives for investing in her health could be strengthened by increasing her external options. Overall, the incentives for investing in the health of the other spouse may not be strong enough to be efficient, since human capital cannot be part of what is divided in case of divorce or constitute grounds for alimony.

Divorce is detrimental to both children's and adults' health. However, the way in which divorced parents are treated by legislation will affect the distribution of health capital not only for divorced parents and their children but also within marriage. Thus, if regulation does not promote investment in the health of children living in separated families, this might lead to a situation in which the health of children that have not experienced divorce may also be reduced. Since divorce rates have risen in most countries during recent decades, it has become increasingly important – also for the sake of health – to analyse the institutions that regulate divorce.

Ageing

In later years, when children have left home, the family will again consist of just two people. In many cases this means growing old together, but with increasing divorce rates many old people will spend the rest of their lives alone. Eventually, even married elderly people will lose their life companion. Children and friends can partly compensate for the loss of support, but divorce and widowhood are important health risks. Other major threats to the health of older people are dementia, depression and suicide, cancer, cardiovascular diseases, osteoporosis, incontinence and injuries.

On the other hand, many older people remain active and fully independent until very close to the end of their lives. There are many opportunities for elderly people to stay active and interested in life. Education levels are gradually rising and there are new opportunities for older people to continue education. In Sweden and in several other countries, older people have established political pressure groups in order to voice their demands in relation to the development of social and health policies and services. Not enough is being done, however, to meet the changing needs and expectations of older people and to prepare for an increasingly ageing Europe.

Human capital for health, in terms of its consumption elements, is highly relevant for older people (in terms of social cohesion from the viewpoint of the overall society and in terms of personal consumption from the viewpoint of the individual). Human capital for health, in terms of its investment

elements, may appear to be less relevant, once older people have left paid employment. However, it may still retain some relevance, for example, in relation to voluntary or other contributions, and also since a social determination to deny much care to older people may provide incentives for them to act differently (perhaps less productively) earlier in their lives, for example, when they are still in employment or raising children.

Older people are a resource for their families and for society at large. They can make important contributions to the quality of life, health and wellbeing of the family. Their experience and accumulated wisdom are essential assets in child-rearing and for other adults in the family. The efficient use of this capital would benefit society as a whole long after regular employment has ceased.

Questions for discussion

1. What are the relationships between the health status of an individual and his or her family circumstances?
2. To what extent do they differ systematically by gender and age?
3. To what extent are the factors determining health within a family interrelated and cumulative?
4. To what extent are they under the control of the individual?

The individual and health in a wider social context

The individual is also part of a wider social context. He or she usually has relatives and friends and may meet and know many other people while taking part in various, more or less daily, activities. He or she may go to school, be a university student, be in paid employment, or be unemployed. The social networks and the relations to school and workplace are factors that directly or indirectly influence an individual's health status during his or her lifetime. So do the physical and social environments in which the person lives.

Social network

There is ample empirical evidence that belonging to a social network is beneficial to health. The existence of a network can be seen as an extension of the individual's resources and knowledge and may, hence, ease the tensions in critical periods of an individual's lifetime, such as leaving the parental home, job insecurity, onset of chronic illness, or loss of spouse and close friends. The social network can also exercise some regulation and control over individual health-related behaviour such as eating, drinking, smoking and exercise habits. (This kind of influence on individual behaviour towards what is the socially acceptable norm within the network does not necessarily have to be positive, of course. In some cases, it might be detrimental to health.)

To a large extent the health benefits of a network may come as an extra bonus for an individual who loves good company, enjoys taking part in sports or cultural activities, or is an active member of a religious organization. So investments in a social network may most often be made for other purposes than health. The investment is never without a cost, however. It takes time and sometimes money to engage in activities which involve meeting people, and it takes time and sometimes also money and

Box 3. Social capital and health

Social interaction – in various forms and degrees – is common for all economic agents. Social interaction is beneficial for at least two reasons. First, it contributes directly to the utility of those who participate in it.⁴ Second, social interaction may improve the allocation of resources by improving information-sharing, coordination of activities and collective decision-making. Social capital consists of all the networks, norms, structures and institutions that facilitate social interaction in society.

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Socially cohesive societies are those with well functioning institutions and developed civic communities. A lack of social cohesion shown, for instance, by indicators such as income inequality and unemployment, can have significant negative health consequences. It has been known for a long time that unemployment and health are negatively correlated. Moreover, in recent studies it has been suggested that not only absolute income levels, but also the relative distribution of income within a society, are important determinants of health. That inequality in itself is a health hazard has become known as the Wilkinson (1996) hypothesis (6). So far, however, studies have shown conflicting empirical evidence of the Wilkinson hypothesis. Thus, this issue still has to be resolved by further research in the future.

Sources: Deaton (7), Grootaert (8), Kahn et al (9), Lavis & Stoddart (10).

emotions to keep this kind of capital intact. In order to get help from your network when you need it, you have to be prepared yourself to act towards the members of your network as you hope they will act towards you.

Differences in perceived benefits and costs may explain why people differ in the investments they make in social networks. For instance, a married woman is typically younger and faces a lower mortality risk than her husband. Thus, she has a higher expectation than her husband of being widowed, and she can also expect to remain a widow for longer. Her husband would typically have a shorter remaining life expectancy in the case of widowhood but also face greater prospects of remarriage. Thus, a woman has strong incentives to prepare herself for a single life as a widow and to allocate time and money to activities which, *inter alia*, involve investments in her social network. For a man, those incentives are much weaker, so he would typically invest less in keeping his social network capital intact and more in other goods and services that he prefers. He would, hence, typically benefit more than his wife from being married. On the other hand, he will also be less prepared for a single life as a widower. The impact on mortality of widowhood has been found to be significantly higher among widowers than among widows.

Workplace

Most adults of working age spend roughly one third of their day at work, and the workplace has an enormous impact on their health status. On the one hand, an unsafe and unhealthy working environment may, *inter alia*, involve exposure to accidents, noise and chemical hazards, ergonomic problems and stress. Furthermore, the psychosocial work environment may be related to other health conditions, such as heart disease and mental illness, which do not fall directly into the sphere of the workplace. On

the other hand, adults can be reached with health promotion activities, such as smoking control and exercise, at the workplace. It is also a site for building social networks.

Most employers have incentives for investing in the health of their employees (to varying degrees) reflecting the fact that financial losses will accrue to the employer when an employee gets ill. These losses will arise because it is impossible to foresee exactly when someone will fall ill, which implies that an employee can only be replaced at a cost. The cost of replacement, including the cost of training, is high in industries which employ highly qualified and specialized employees. It also varies with the business cycle: the lower the unemployment rate, the harder it will be to find replacement workers.

So, worksite health promotion may reduce health-related costs to the employer due to health insurance benefits, worker's compensation, disability, absenteeism and lower productivity. The extent to which an employer will have financial incentives for investing in the employees' health depends on the regulatory environment, which differs from one country to another. In Sweden, for instance, the law obliges employers to pay income compensation to employees during the first 14 days of their absenteeism, after which social insurance takes over the responsibility. There are proposals for extending the period during which the employer pays the compensation, thereby increasing the incentives for employers to invest in employees' health. No investments are without cost, of course, and the higher the risk that an employee will leave for another employer, the lower will the returns be on the health investment for the present employer.

Physical environment

The health of an individual depends on the availability and quality of food, water, air and shelter. Agricultural products are a prerequisite for health and wellbeing, but the development of bovine spongiform encephalopathy (BSE), for instance, has shown that food safety is also important for health. Microbial contamination of drinking-water causes outbreaks of acute gastrointestinal disease. Water may also be seriously contaminated by waste. In rural areas, the widespread use of pesticides and nitrates in agriculture has contaminated the groundwater. Water shortages are a major problem in some countries. Air pollution causes damage to lung function, respiratory illness and death from respiratory diseases. Allergies relating to air pollutants are also an important health problem. Homelessness and poor housing (lack of sanitation, damp, moulds, constructional deficiencies and unhealthy building materials) cause major health problems.

Cheap and extensive transport facilities mean opportunities for people to meet other people and experience other cultures, and for goods to be exported to satisfy the demands of people in other countries. They also mean fast transport to hospital in case of health emergencies. At the same time, transport may be a health problem. Carbon dioxide emissions are already a health problem, as are noise and congestion. Moreover, road traffic accidents cause a heavy burden of personal injuries.

To a large extent, the environmental effects on health are unavoidable for the individual, or at least only avoidable at a cost which is often rather high. Certainly, a person can move to another geographical area – although that would involve having to give up an established social network – but only if the individual and his or her family can afford it and can find jobs, housing, etc. Also, the negative externalities of the road traffic environment for an individual can be reduced by decreasing the number of journeys. On the whole, however, improving the physical environment requires collective action.

Health care

Health care is, of course, a key determinant of an individual's health, especially when he or she has been struck by disease and needs curative care rather than illness prevention or health promotion services. The efficient use of existing medical technology is essential for an optimal contribution to the individual's health capital. The importance of a well functioning relationship between the health care workforce and users (including patients, unpaid carers and volunteers) for health improvements should, however, be observed in the context of this module. The health care workforce is the major input into the health care system, exceeding all other inputs combined in terms of expenditure. The education, training and experience of health care providers are critical factors underlying the processes by which health care is provided and for the actual outcomes which are achieved. The human capital of health care providers is a prerequisite for the health capital of individuals in society.

Multisectoral responsibility for health

The health of an individual is a product of heredity, his or her physical and social environments and capacity to make healthy choices, and chance. It is clear that actions pursued solely by the health care sector are not the only factors that affect health. Healthy lifestyles can only be promoted and healthy environments created if a large number of sectors are mobilized – not all of them mentioned above. An effective approach to health development requires all sectors to recognize the benefits of promoting health and to be accountable for the impact on health of their actions.

Box 4. The contribution to health from the health care and other sectors

If the overall objective is to maximize the health of the nation as some trade-off combination of the health status of all the inhabitants and the distribution of health among them, what is the relative contribution from each sector to this objective? This is an under-researched area. Furthermore, conditions differ among countries, so there is no definite answer for each and every country. However, even though their study is dated, the early contribution by Auster et al (11) may help to illustrate some important issues. These authors used states of the United States as their unit of observation when estimating the contribution to age- and sex-standardized mortality rates of a number of factors, including education, cigarette consumption and medical services. The estimated elasticities address several policy issues.

First, the elasticity of medical services expenditure was approximately -0.1 and was statistically insignificant. This suggests that a 1% in expenditure on medical services would reduce mortality by 0.1%. Since the coefficient is not statistically significant, the possibility cannot be ruled out that the contribution from increased spending on medical services is zero. Second, the elasticity of education is somewhat larger, -0.2, and statistically significant. Taking the costs of increasing education levels into account, a marginal transfer of resources from medical services to education would be expected to improve population health in terms of lower mortality rates. Third, cigarette consumption per capita is associated with higher mortality rates. It should be noted that this lifestyle variable easily attains significant levels, while medical services do not.

This should be taken as an illustrative example, not literally as a recommendation for policy-making in a specific country. The observations on which this study was based are now 40 years old and many conditions have changed since then, including the development of high-tech medical care. For more recent studies see Wolfe (12) and Cremieux (13).

Source: Auster et al (11).

Questions for discussion

1. When is the social network beneficial to an individual's health? When is it detrimental?
2. Why may people differ in the investments they make in social networks?
3. What is meant by social capital? In what ways can it be beneficial to an individual's health?
4. What factors determine an employer's returns on investments in employees' health?
5. What are the roles of the individual, other family members, the employer, the health care system and society in general in determining an individual's health? What is the relative influence of different decision-makers when it comes to investments in individual health in your country?
6. Why can it be argued that improvements in the physical environment require more collective actions than improvements in most other areas affecting health?

Individual health, public policy and population health

Objectives of a policy for population health

The health of a nation (population health) depends on the health of its inhabitants. It has two aspects, which are reflected in the objectives of the WHO strategy for health for all: (i) to improve health for all individuals, and (ii) to decrease inequities in health between individuals (and countries). This strategy may take different forms, stressing one rather than the other objective, in different countries depending on cultural values and economic conditions. At one extreme would be making equity in health the sole objective, so that a worsening of other people's health would be accepted as long as the policy promoted equity. Such a policy would create enormous disincentives for everybody to invest in their own health, not just people with advantages. At the other extreme would be a situation where inequities were disregarded and all health gains valued equally no matter who received them. Most European countries have (generally more implicitly than explicitly) chosen some trade-off between the two policy objectives. No government seems to say that closing the health gaps should be achieved by promoting a worsening in health for their healthiest inhabitants.

A measure of individual health

In order to implement and evaluate the above policy objectives, a meaningful measure of individual health (and changes in individual health) must be available, and it must be possible to collect it at a relatively low cost. It must also be possible to aggregate this measure of individual health (and changes in health), giving varying weights to individuals who are more or less advantaged in terms of health. Measures of population health which are aggregates from the beginning, such as the mortality rate or life expectancy which are readily available at present in all countries, may be used (at least for some purposes) where the distribution of health is not of interest. For the individual, the mortality rate for the whole nation makes little sense, since his or her long-run probability of death equals one. Mortality rates relating to a smaller group are only slightly better, since almost everyone differs from the statistical average. The exception is infant mortality, since many characteristics of the individual have not yet been formed resulting in some degree of homogeneity. However, even in the case of infants, mortality rates reflect a rather extreme situation, providing very little information about health in terms of life expectancy and quality of life. Yet mortality rates are often used in empirical studies because they are easily available in official statistics and can be compared across regions and countries. Life expectancy is a better measure, particularly at time of birth. Quality-adjusted life expectancy (as well as gains and losses in quality-adjusted life years) would be a still better measure, suitable for all age groups.

This is an important point for policy-makers, who have to make up their minds about the relative importance of the two objectives in their particular situations. Since policies in most cases will affect the two objectives differently, the policies which should be undertaken depend on the relative emphasis placed on the two objectives. The outcome will be influenced by the circumstances of the individual country, including its history, its level of economic and social development, its distribution of income, wealth and other resources relevant for health outcomes, and its values.

In a world of scarce resources, no policies are without costs. It seems reasonable that those policies will be chosen which will maximize the national health objectives within some given budget, properly defined and subject to various other constraints.

Population health and policies for economic growth

Affluent societies are often healthier in terms of life expectancy. For example, richer countries can afford to improve the environment. Thus, economic growth is important for the health of nations and, in the long run, policies which improve conditions for economic growth are vital for all other types of health policy to be successful. Economic growth means that there are more goods and services to distribute among the population. Incomes can be raised for the least advantaged, employment can be kept at a high level, tensions in health care finance can be eased, housing conditions can be improved, education can be expanded and so on. Without economic growth, there will be fewer opportunities for improving health. On the other hand, economic growth, or conditions which stimulate growth, may also create health problems. Moreover, people's health is in itself a contributing factor to productivity and economic growth. Thus, the most successful policies would be those which deal with economic growth, human development and health in an integrated way. However, economic growth is a prerequisite for extending opportunities in many other areas than those which directly refer to health. Since the interrelationships between economic growth, the environment, health care and health were explored in the first chapter of these learning materials, the focus here is on the potential of more direct policies for population health.

Policies for population health

Different countries put different emphases on individual versus collective responsibilities for promoting the health of the population. At one extreme is the totally individual-centred society, in which only individual wellbeing counts and the distribution of health does not matter. At the other extreme, the totally collective society has definitive paternalistic views about individual health and the distribution of health among individuals. These are extremes. The historical circumstances and values of a society, its level of economic and social development and the distribution of income, wealth and other life chances are significant elements of the balance it chooses between individual-centred and collective approaches.

Where collective approaches are supported, there is a range of policies that will affect the health of individuals and/or the distribution of health among them which governments can adopt.

- Taxing goods and services (or reducing subsidies that support practices) that are harmful to health, e.g. tobacco products and alcohol. Even though these substances are addictive, people – even heavy consumers – react to price changes. The price elasticity of liquor seems to be the largest among alcoholic beverages (around -1), while the price elasticities of wine and beer are significantly lower, but definitely not 0. Since differences in price levels may distort competition and create cross-border shopping, such policies often stimulate coordination among countries.

- Subsidizing certain goods and services which promote health, or providing them free, to disadvantaged individuals, especially where the disadvantage, if not addressed promptly, can become permanent or cumulative.
- Regulation of private activities, in order to restrict some aspects and encourage others, e.g. in order to create a safer road traffic environment.
- Direct public provision of goods and services, including information on healthy lifestyles and health risks.

Overall, as has been identified by WHO, governments are in a unique position to address population health issues. They are charged with protecting the public good and have the legitimacy to act on behalf of the overall community. They possess legislative and regulatory powers and a comprehensive reach across the country and across the various sectors of the economy. They have some clear roles to play in promoting health across the entire society, including the following.

- They work to create links within the public sector between tiers of public administration and different government departments. The potential government contribution to health gains can be fully realized only if all tiers of government are willing and able to coordinate their activities. There is also a need for intersectoral action, involving a wide range of functional agencies, not just ministries of health.
- They act to unlock resources that will reduce inequity in health. Not only inequalities in income and wealth, but also differentials in security, authority, and power can affect the distribution of health in society.
- They collect and disseminate health information and use it to plan for the future. Routine monitoring allows for a tangible measure of the baseline position before an intervention and for the mapping of potential improvements in population health. This can be a powerful tool for persuading agents from different sectors to commit themselves to particular programmes. It also allows planners and policy-makers to analyse the existing context and to identify likely trends and paths of action.
- They work with other sectors, including the voluntary and community sectors, to develop cooperative partnerships.
- They run campaigns and programmes that promote health and seek the voluntary support and compliance of organizations and individuals for these initiatives.
- They legislate and regulate. WHO has argued that such measures should not be the main routes for implementing population health and the health for all approaches. Certainly, governments may want to see a greater sensitivity to health issues on the part of private companies. Advocacy, persuasion, popular pressure and the use of financial incentives are likely to be more effective ways of winning support. Where companies are not inclined to participate in voluntary schemes, despite such efforts, it may be necessary for governments to consider legislation and regulation to enforce compliance with environmental protection policies, occupational health and safety standards, provision of health information to facilitate consumer choice, etc.
- They act responsibly as a major employer and as a significant economic player.

The optimal mix of population health policies

As emphasized above, the appropriate balance differs among countries depending on differences in their historical circumstances and values, their economic and social development, and the distribution of income, wealth and other life chances. However, all policy options have different outcomes, achieved at different costs. Thus, there is also a role for economic evaluation of available options in order to find the most cost-effective way of using scarce resources for the objective of maximizing population

health. The module by Michael Drummond (5.3.1) provides the essentials of how to make economic evaluations of health programmes. Thus, economic analysis can help in setting priorities with regard to risk reduction and health promotion. It can provide information to assist choices concerning the optimal mix of population health policies among all the options open to society.

Questions for discussion

1. Is there a trade-off between different approaches to aggregate, on a population basis, levels of individual health? If there is, what is the trade-off in your country? If not, what are the policy implications?
2. How could individual health be measured for routine purposes?
3. Consider the following opinion: “Lifestyle factors are major and statistically significant determinants of individual health, but changing lifestyles may not be the least costly way to improve population health status.” Try to explain under which circumstances this opinion could be true. Is it likely to be true in the real world? Taking the evidence on lifestyle factors into account, how should government health policies be designed?
4. What public policies contribute to the improvement of the health of individuals and the health of the overall population? To what extent are these objectives complementary and to what extent are they competitive?
5. How could economic evaluation of health programmes be helpful when setting priorities among all the health policy options that are open to society?

Exercise

The balance between individual and collective action (role-play)

The balance between individual and collective action to achieve health gain is an important aspect of this module. Collectives refer to a wide range of social groups and organizations. The extent and focus of their interest in preserving or restoring health vary widely, as do the possibilities open to them and the impact of these. The balance between individual and collective participation varies among settings and societies, with differences in values playing an essential role. Compared to other goods and services, health care, for instance, tends to show an emphasis on collective action, but this is more obvious in relation to its financing than delivery. Individual approaches have both advantages and disadvantages, for example, greater freedom of choice and flexibility in organization, but may leave some individuals and groups in vulnerable positions. Collective approaches also have advantages and disadvantages, such as the possibilities for wider accessibility and greater equity, but can become unwieldy: the administration of large systems can become bureaucratic, user preferences may be ignored, and social problems may become medicalized. Historical traditions, social expectations, the level of economic development and the distribution of resources also affect how these differences work out in particular countries and circumstances.

Discuss (preferably through role-playing among participants from various groups) a particular case – a city with poor health status indicators, for instance – and prepare suggestions to improve the situation. Participants should be encouraged to bring out the possible contradictions and conflicts of interest of the actors, the values inherent in their views, and the historical and ideological factors which may be involved.

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Learning to live with Health Economics

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Chapter III Economics of health systems development



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OUTCOME ASSESSMENT (HEALTH CARE)
PROGRAM EVALUATION – methods
FORECASTING
TEACHING MATERIALS

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3. Economics of health systems development

3.1 Introduction

Chapter 3 of the learning materials is concerned with the development of health systems, with particular reference to the WHO European Region and the areas where the modules are thought likely to be most useful. The modules address aspects of knowledge about the economic approach which are often lacking among the potential users of the learning materials. For example, they may lack basic knowledge about the criteria which are applied by economists in judging existing arrangements or proposals for change; about how economics can be applied in the special circumstances of health systems; or about the alternatives that are available, with their broad advantages and disadvantages. The modules also stress the variations which exist between different countries in the European Region as well as within them. They are primarily “thinking” modules and are organized into three parts.

Section 3.2 discusses the two key criteria by which the development of health systems is judged by economists: equity, thought of as fairness, and efficiency. Section 3.3 is concerned with important aspects of the overall reform of health systems. The three modules in this part address the framework, or identity, which exists between expenditure, income and revenue and its implications; the evaluation of a range of available options for health care reform in the circumstances of particular countries, particularly those of central and eastern Europe; and the structural, political, economic and social transformations that are occurring in those countries. Section 3.4 includes two modules on important specific issues: financing and privatization.

Section 3.2 contains modules on equity and on efficiency, prepared by Professor John Lavis of McMaster University in Canada, the second one in collaboration with Professor Greg Stoddart. Module 3.2.1 presents a framework for thinking about how to distribute fairly the various available resources. This framework builds on three questions: are there aspects of health care which mean that it should be distributed differently from other goods and services? Does it matter who receives health care goods and services? Is it only the process chosen to distribute health care that has to be equitable or does the way in which health care is distributed matter as much (or even more)? The author emphasizes that there is no correct technical answer to a question about the fairness of a given distribution of resources – “values matter”. He concludes that to distribute health-producing goods and services (or health) equitably means to distribute them:

- in a way that is acceptable, given the characteristics of the goods and services to be distributed;
- in a way that is acceptable, given the characteristics of the recipients who will receive them; and
- according to acceptable processes or criteria about acceptable outcomes of these processes.

The module emphasizes that what is acceptable in one jurisdiction may not be acceptable in another.

Module 3.2.2 focuses on efficiency, which is central to health economics conceived of as the study of how scarce resources are allocated between alternative uses for the cure of sickness and the promotion, maintenance and improvement of health. Health care is distinguished from health and the even broader concept of wellbeing. The module considers the three main elements of efficiency: technical efficiency (“do not waste resources”), cost–effectiveness (“produce each output at least cost”), and allocative efficiency (“produce the types and amounts of output that people value most”). Of course, efficiency does not necessarily imply social desirability, since distribution of the costs and benefits can make an important difference to decision-makers. Thus, considerations of equity are often inextricably related to considerations of efficiency.

Section 3.3 contains three modules, each written by a different author. These modules are all concerned with aspects of the reform of health care systems, but the approaches adopted and the detailed subject matter are very different. Together they raise a range of matters which are relevant to the reform of health care systems in the diverse countries of the WHO European Region.

Module 3.3.1, written by Professor Greg Stoddart, is concerned with the identity that exists between expenditure, income and revenue (i.e. that they *must* be equal mathematically). The same national income–expenditure accounting principles which apply to other economic sectors also apply in the health sector. Thus every *expenditure* on health care is also an *income* to someone in the health care industry, and it must be financed through *revenue* of one type or another. Examining these three dimensions of proposed or actual health care reforms is often a useful aspect of health policy analysis. It can provide valuable insights on issues such as the redistributive income effects of policy changes, or the likely impact of such changes on the levels of expenditure and the real availability of health care services. The module describes a basic analytical tool of economics, the expenditure \equiv income \equiv revenue identity, and illustrates how it can be applied in the health care sector, especially in the context of health care reform. This tool enables skills to be developed in the appraisal and in the analysis of health policies and proposed changes. It can be extended to more complex relationships, can be used by a variety of audiences, and there is a wide range of possibilities for applying it to specific reforms. It can be used to record and understand changes retrospectively. It can also be used, perhaps even more importantly, to examine prospectively the likely consequences of health care reforms. Three illustrative examples are presented in the module.

Module 3.3.2, by Dr Panos Kanavos and Dr Elias Mossialos of the London School of Economics and Political Science, considers health care reform by reference to the evaluation of available options in the circumstances of particular countries, including their previous experiences, their values and priorities, and their aspirations in relation to their resources. The authors consider the key factors which should be taken into account when various options for health care reform are being evaluated, including access, cost-containment and quality assurance. Secondly, they discuss the implications for the financing of health care reform once the objectives of the reform programme have been identified in a particular context. Thirdly, they outline four important factors to take into account in order to ensure that the reforms are implemented in an effective and sustainable way. Among other things they emphasize that the incentives inherent in the reforms, either explicit or implicit, should encourage desirable action by the main stakeholders, support appropriate changes in attitudes as well as action, and promote the intended objectives over the longer term. Fourthly, they explain briefly how the development, dissemination and use of knowledge, and also monitoring, evaluation and (where necessary) modifications to health care policy and practice, can be harnessed to ensure that health care

reforms are appropriate, evidence-based as far as possible, and adjusted appropriately as new knowledge becomes available. Obviously, health care reform in a particular country or region needs to be based on an extensive knowledge of the existing system, how it has developed and how it is operating in relation to the desirable objectives (including relevant intersectoral aspects). Thus, in the final part of their module, the authors consider the particular challenges of health care reform in the countries of central and eastern Europe, including the countries of the former Soviet Union. They illustrate, *inter alia*, the special difficulties that are encountered in seeking to implement health care reforms when the economy is shrinking rather than growing, and when society is suffering from considerable stress.

Module 3.3.3, by Professor Yannis Yfantopoulos of the University of Athens, is different again. It focuses on the structural, political, economic, social and health transformations that are occurring in the countries of central and eastern Europe, and seeks to understand the major determinants which have influenced the changes in health status and health expenditure there following the fall of the Berlin Wall in 1989. This module is more econometric in its approach than the two previous modules and includes a case study concerning regional equity and efficiency in the Russian Federation.

This module deals with changes in the overall systems operating in societies in transition over the period 1989–2000. These changes, for example from one political system to a new set of arrangements, or, in the economic sphere, from a planned economy to a system in which market forces play a larger role, went much further than just the health sector system, although they have had major consequences in that sector. The module considers the overall system adjustments in which particular changes (whether in health care or elsewhere) have occurred and in the context of which they have to be understood. It also shows how changes in the overall political and social arrangements in a given society are often more far-reaching than economic changes alone, let alone changes in the health care sector alone. The wider context needs to be borne in mind if specific changes are to be fully understood or proposals for reform most appropriately formulated and implemented. This is not to deny, of course, that decisions may be connected in a specific sequence and with related timing. Role-playing from the perspective of multiple stakeholders and with regard to the different circumstances of various societies (or time periods) can be a valuable method of articulating these differences, the possibilities for health care reform, and alternative ways of achieving them.

Thus, the three modules in Section 3.3 present different aspects of a complex reality in a stimulating way. However, they all draw on health economics approaches to illustrate a series of important problems relating to health care reform options facing the countries of the WHO European Region, with their diverse histories, values, circumstances and aspirations.

Section 3.4 is concerned with two issues – financing and privatization – of particular importance in the development of health systems, and where health economists have a useful contribution to make. Module 3.4.1, written by Dr Panos Kanavos of the London School of Economics and Political Science, is concerned with financing. It highlights the relative merits of different methods of financing health services at the aggregate level, and discussing how different methods work and in what environments. Alternative arrangements for paying providers are analysed, together with the extent to which these encourage providers to achieve the broad objectives of health policy. The module also includes some discussion of how health resources and outputs/outcomes are distributed, the effect of particular incentives on the sustainability of change (particularly over the longer term), and the wider impacts of the specific factors considered on the broader economy and society.

Module 3.4.2, by Professor Greg Stoddart of McMaster University, provides an overview of some issues in privatization. He distinguishes several different economic functions in health care

systems, each of which may have a different public/private mix, and cautions that privatization is only a means to previously agreed or specified goals. It is not an end in itself.

Module 3.4.3, by Professor Anthony Culyer of the University of York, United Kingdom, in collaboration with Professor Richard Saltman of Emory University, USA, provides a case study of consultancy services on privatization in a central Asian republic. Countries in transition are well advised to consider carefully the options, prerequisites and likely outcomes of privatization.

3.2 Criteria

3.2.1 Equity in health¹

John Lavis²

Key messages

- Equity can be thought of as fairness. A framework for thinking about equity can help decision-makers understand what fairness means on their jurisdictions.
- A framework for thinking about how to distribute health care resources fairly builds on three questions:
 - (i) Are there aspects of health care which mean that it should be distributed differently from other goods and services; for example, does health care have generalized or customized value?
 - (ii) Does it matter who receives health care goods and services; for instance, can some individuals benefit from health care more than others?
 - (iii) Is it only the process chosen to distribute health care that has to be equitable (e.g. markets versus queuing) or does the way health care is distributed matter as well or even more (e.g. individuals with greater health care needs receive more health care than those with fewer needs)?
- To distribute health-producing goods and services equitably means to distribute them in a way that is acceptable given the characteristics of both the goods and services to be distributed and the recipients who will receive them, and in a manner that accords with acceptable processes or criteria about acceptable outcomes of these processes. What is acceptable in one jurisdiction may not be acceptable in another.

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Tutors' notes

Module 3.2.1 considers the relationship between the WHO health for all strategy and health economics, with a particular focus on equity. Module 3.2.2 considers the relationship with a particular focus on efficiency.

The first exercise in this module is aimed at the level of *appreciation* and can be used with the following groups:

- policy-makers (e.g. elected officials)
- civil servants and other government technical staff
- health care managers
- health care professionals (e.g. doctors and nurses).

If the exercise is not relevant to participants' own settings, tutors can develop another one. The situation should involve pairs of goods and services that cut across most of the categories of goods and services. In the exercise, the first pair can be thought of as inputs, the second can be thought of as access to inputs, and the third pair can be thought of as utilization of inputs. Each pair should involve a health care good or service with characteristics that would make decision-makers concerned with its fair distribution. To foreshadow issues raised later in the module, tutors can ask participants whether they would feel any different about people who love going to the theatre buying their way to the head of a queue for theatre tickets or people with triple-vessel coronary artery disease buying their way to the head of a queue for coronary artery bypass surgery.

The second exercise is aimed at the level of (critical) *appraisal*. It can be used with the following groups:

- policy-makers (e.g. elected officials)
- civil servants and other government technical staff
- health care managers.

The exercise requires the group to focus on a particular policy – needs-based funding – and to appraise it critically. Participants are also asked to assess whether the policy would work in their own jurisdictions, so that they move beyond generalities to the difficulties of judging competing claims for resources.

The third exercise in this module is aimed at the level of (critical) *appraisal*. It follows upon Exercise 2 and can be used with the same groups. The exercise requires the group to focus on fair end-states and to ask what are the relevant aspects of different regions' situations. The proposed budget allocation is based on population size and one measure of health status (life expectancy), both of which can be considered measures of need. Tutors can ask participants to suggest alternative measures of need. They can also ask participants if they think it is important to consider cost differences between regions.

The conclusion provides a good jumping-off point for discussions about many important issues that could not be explored fully in a short module. For example, it raises issues such as how to make iterative movements towards greater equity, the need for balance between standardized measures of equity across societies and specific measures for specific societies at specific times, and the possibility that some decisions can bring a society closer to both efficiency and equity goals.

Introduction

HEALTH21 – an introduction to the health for all policy framework for the WHO European Region (1) opens with a thought-provoking question: is it healthy? This seems straightforward enough, but “it” means many things. In fact, the question is really a series of questions:

- Are “the social and economic inequalities between groups” healthy?
- Are “our children’s starts in life” healthy?
- Are “our living and working conditions” healthy?
- Is “our physical environment” healthy?
- Is “the way we pay for and deliver health care” healthy?

And the list goes on. The document goes on as well, providing 21 targets for the Member States of the European Region which, if achieved, would move them towards a healthier twenty-first century. The document represents the WHO Regional Office for Europe’s efforts to develop an inspirational framework that Member States can draw on when developing health for all (HFA) policies.

Health economics might seem to be a curious thing to throw into this mix. As Module 3.2.2 will explore in more detail, health economics can be thought of as the discipline of health economics applied to the topics of health care and health. As such, health economics can help to make “better” decisions in general, by providing either new frameworks for thinking about issues or a collection of methods for analysing these issues. There are many courses in health economics that can achieve the very general objective of informing decision-making. For example, the Economic Development Institute at the World Bank makes available health economics course materials on-line.

The WHO European Region has been developing learning modules in health economics for two reasons. First, many of the HFA targets and supporting information have been established, either implicitly or explicitly, using frameworks and tools from health economics. Understanding these frameworks and tools will therefore help to understand HFA targets. For example, the notion of efficiency in producing health pervades much of the document. By understanding that efficiency means “getting the most out of scarce resources” and that health can be thought of as the “output” of a production process involving health care and other “inputs” such as our living and working conditions, decision-makers can begin to see that there are cheaper or more expensive ways of achieving a given level of health status. Why waste resources?

Second, many of these targets require frameworks and tools from health economics for their implementation. For example, one of the targets involves establishing multisectoral responsibility for health and suggests health impact assessments as a strategy for implementing this target. Translated into everyday language, this means that employers, the heads of housing agencies, ministers of finance and many other individuals are being called on to think about the health consequences of their decisions (i.e. they are being called on to ask “are they healthy?”). This represents a major change in thinking for health officials (who will face individuals who routinely invoke economic concepts to make decisions and justify them) and for individuals in other sectors (who will routinely have to use tools from health economics such as health impact assessment).

This module and Module 3.2.2 provide background material for learning about health economics *in the context of the health for all strategy* . Two core concepts provide the backbone of many of the frameworks and tools of health economics. The first concept, efficiency, will be covered in Module

3.2.2. Efficiency can be thought of as getting the most out of scarce resources, a notion implicit in much of WHO's strategy for health for all and related targets. Considering that the overarching goal of HEALTH21 is to achieve full health potential for all, an ambitious goal if ever there was one, the concept of efficiency has to be at the forefront of decision-makers' minds.

Sometimes getting the most out of scarce resources will require a focus on policies with explicit health objectives, such as policies related to the health care system. Several HFA targets address the health care system. Target 17, for example, covers financial arrangements: a funding system should foster universal coverage, solidarity and sustainability, and sufficient financial resources should be allocated to priority health needs. Targets 3 and 6 cover some of the types of health care service that should be provided: reproductive and child health services, and services for people with mental health problems.

At other times, getting the most out of scarce resources will require a focus on policies with health consequences, not health objectives (i.e. on broader determinants of health, not just health care). A number of HFA targets address the broader determinants of health. Targets 6 and 10, for example, cover aspects of the social and physical environment – working conditions and pollution levels – that have been found to be important health determinants. Labour market policies that can affect working conditions and business regulations that can affect pollution levels often do not have health as an explicit objective. Other HFA targets address specific policy domains that have important health consequences as well. Target 5, for example, covers housing, income and other measures that can enhance autonomy, social productivity and health.

These targets have presumably been selected in part using the concept of getting the most out of scarce resources. Advocating the allocation of resources to reproductive and child health services, for example, rather than to health services for the care of a specific set of chronic diseases, suggests that some people believed that this allocation would “buy” more health for all. But Member States still have to decide how many resources should go to priority health needs and how many resources should go to some of the determinants of these health needs, such as working conditions or housing. These types of decision may require intersectoral decision-making processes.

But getting the most out of scarce resources is not the only concept used to select these targets. In fact, unlike most documents, HEALTH21 is refreshingly frank about the values that form its ethical foundation. One of the three values is “*equity in health* and solidarity in action between and within all countries and their inhabitants” (emphasis added). Moreover, many of the 21 HFA targets have an equity dimension to them. For example, Target 2 involves the reduction of social and economic inequities between groups through policies, legislation and action. The remainder of this module surveys basic concepts of equity and discusses how they might affect economic decision-making for health. It draws on material produced by the author and Mita Giacomini as part of a larger project (2).

Equity can be thought of as fairness. This concept is sometimes covered as an afterthought when health economic concepts are introduced. The rationale for this can be traced to the primary concern of health economics: finding the most efficient allocation of health resources to achieve a given policy goal (e.g. to help individuals get well when they are sick or to help populations remain healthy). But efficiency is not the only criterion for judging the distribution of resources. Equity represents another criterion and since it forms an important part of the ethical foundation of HEALTH21, the module introduces a framework for thinking about equity before introducing other frameworks and tools from health economics.

A framework for thinking about equity can help decision-makers to understand what they and other groups mean when they say they want to be “fair”. For example, many jurisdictions have formal mandates requiring that health care be distributed equitably (3). But what does equitably mean in this instance? More specifically:

- are there features of health care which mean that it should be distributed differently from other goods and services;
- does it matter who receives health care goods and services; and
- is it only the process chosen to distribute health care that has to be equitable or does the way health care is distributed matter as well or even more?

As these questions suggest, there is no technical answer to a question about the fairness of a given distribution of resources. Values matter.

These three questions are used here as the basis of a framework for thinking about equity. The three questions all focus on health care, but they can be generalized to any good or service that contributes to health. To distribute health-producing goods and services equitably means to distribute them: in a way that is acceptable given the characteristics of the goods and services to be distributed, in a way that is acceptable given the characteristics of the recipients who will receive them, and according to acceptable processes or criteria about acceptable outcomes of these processes. Each of these three principles will be addressed in turn.

Characteristics of goods and services that may affect their fair distribution

Health-related goods and services can be divided into categories (4). A list of categories specific to health care is as follows:

- (i) health care insurance;
- (ii) health care inputs:
 - providers
 - programmes and services;
- (iii) access to health care insurance and health care
- (iv) utilization of health care:
 - use of health care services (or “utilization”)
 - use of effective health care services (“met needs”);
- (v) benefits generated by (i)–(iv) above:
 - specific health benefits (health)
 - general benefits (wellbeing).

Each category depends to some extent on the categories that precede it. Health benefits can accrue from the use of effective health care services. Health care utilization can depend in turn upon access to health care insurance. The pyramid nature of this listing, with each category building on the foundation established by the previous category, is only approximate. Access to health care insurance does not necessarily ensure use of effective health care services, which in turn does not necessarily ensure an improvement in wellbeing. Also, both health and wellbeing depend upon resources besides health care, such as housing and income. This list can be augmented to include other health-producing goods and services, but we will focus here on health care goods and services.

Decision-makers ideally seek a fair distribution of the “highest” element on this list: an acceptable level of health and wellbeing shared by members of the jurisdiction to which they are accountable. In fact, two of the three basic values that form the ethical foundation of HEALTH21 endorse this view: that “health is a fundamental human right”, and “equity in health ... between and within all countries and their inhabitants”. Of course, health and wellbeing are not goods and services that a decision-maker (such as a government official) can distribute directly. A decision-maker can, however, often have direct control over health care insurance and over health care inputs that can produce health (such as providers, programmes and services). In addition, decision-makers can often influence individual behaviour and thereby influence access to and the utilization of health care services.

To pursue the target of equity in health (Target 2), decision-makers therefore typically seek a fair distribution of health care inputs and encourage appropriate access to and utilization of health-producing goods and services. That is, decision-makers typically focus on allocating the “lower” elements on the list of categories in the hope of influencing the “higher” elements (health and wellbeing). To monitor success in achieving Target 2, decision-makers ideally will examine not only the distribution of health-producing goods and services and the rates of their use (5), but also the resulting distribution of the “higher” elements, such as health and wellbeing.

Now what is it about health-producing goods and services that may affect their fair distribution and lead decision-makers to intervene in their distribution? Consider the following pairs of goods and services:

- a television and a kidney dialysis machine;
- an art exhibit in a private gallery in the nation’s capital and a CAT (computed axial tomography) scan service available at every hospital;
- watching a theatrical performance and undergoing a coronary artery bypass procedure.

We might accept certain processes for the distribution of the first item in each of these pairs (such as market exchange) and certain criteria for acceptable outcomes of these processes (such as inequality in the distribution of these goods and services in accordance with people’s ability-to-pay and willingness-to-pay). At the same time, we might be very uncomfortable using the same processes or the same criteria for acceptable outcomes for the second item in each of these pairs. Entertainment-related goods and services are typically seen in a very different light from health-producing goods and services; the first part of the framework for thinking about equity can help in understanding why.

Three characteristics of a good or service may affect its equitable or fair distribution:

- its physical nature;
- the degree to which it possesses customized as compared to generalized value across the citizens of a given jurisdiction; and
- prevailing cultural beliefs about a good or service and acceptable processes for its distribution or criteria about acceptable outcomes of these distribution processes.

The fairness of a given distribution of the goods and services listed above can be examined with regard to each of these three characteristics.

Physical nature of the good or service

The physical nature of a good, in particular its divisibility and its scarcity, will affect how it can be distributed (6,7). Regarding *divisibility*, some health care inputs can be divided; others cannot. A hospital, for example, is a capital-intensive type of input which cannot be divided and which cannot be

distributed uniformly over a large geographical area and without regard to where the majority of potential users of the hospital live and work. Examining the distribution of hospitals (as an input) by geographic area therefore makes little sense. Instead, decision-makers could examine the distribution of access to hospital-based programmes and services and/or the distribution of the goods (e.g. private cars and fuel) and services (such as buses) required for access to hospitals. Human resources in health care, on the other hand, are an input which can be divided into individual health care providers such as physicians and nurses. Health care providers, especially those who provide primary care, can be distributed in a meaningful way over a geographical region. Finally, moving from health care inputs to the benefits generated by these inputs, it is impossible to distribute health benefits meaningfully across a population. Genetic endowments, for example, are such that there are physical limits to the equal distribution of these benefits.

Scarcity can also influence how fairly goods and services can be distributed. In many countries, inputs such as kidney dialysis machines are scarce resources because both their purchase price in the local currency and the operating costs related to technical staff and materials are high. Other resources are naturally scarce, for example human tissues (such as blood) and organs (such as hearts). Where the need for a health-producing good or service such as kidney dialysis is greater than its supply, decision-makers often rely on one of the other two equity principles. As discussed in the next two parts of this module, such principles could include the characteristics of the potential recipients (e.g. providing kidney dialysis to young rather than old people), or acceptable processes (e.g. using waiting lists or lotteries) and criteria about acceptable outcomes of these processes (e.g. people with end-stage kidney disease are all treated the same, even if this means that no one receives kidney dialysis).

Generalized compared to customized value

Some goods and services have roughly the same value to everyone (generalized value); others have different values for different people (customized value) (7). A television, for example, might offer something for everyone and therefore have roughly the same value for everyone. An art exhibit or theatrical performance, on the other hand, may be highly sought after by some and less highly sought after by others. Access to health care can be thought of as a good or service with generalized value. The knowledge that health-producing goods and services will be available in case of need is presumably highly valued by everyone. The use of these services, on the other hand, has customized value. Using a kidney dialysis machine represents a “met need” if an individual has end-stage kidney disease. Similarly, having a CAT scan of the head has customized value for an individual who has recently become paralysed for no apparent reason; and undergoing a coronary artery bypass procedure has customized value for an individual with severe triple-vessel heart disease. Neither the CAT scan nor the bypass procedure has much value for a healthy individual. Note that value need not be restricted to the person receiving the good or service. Immunization against a communicable disease benefits both the individual who receives it and the individuals with whom that individual comes into contact.

Cultural beliefs

The citizens of one jurisdiction may have a strong cultural belief that a particular good or service should be distributed in one manner, while the citizens of another jurisdiction may believe that the same good or service should be distributed in another manner (6,8–10). Many governments have defined an essential health care service package of which they would ensure the fair distribution across their jurisdiction (11–14), leaving discretionary services to the private market. Which services

are considered essential and which discretionary, however, varies with the values of the decision-makers in a given jurisdiction. The essential package endorsed by the World Bank contains five types of services prenatal and delivery care, family planning, management of the sick child, tuberculosis treatment, and management of sexually transmitted diseases (14).

Moving from inputs to access, many European jurisdictions value universal access to health care insurance, in part as a symbol of national solidarity. Other jurisdictions (such as the United States) feel a stronger ideological commitment to competitive markets than to universal access to health care insurance (15). Moreover, some jurisdictions feel that the removal or lowering of financial barriers to access is only part of the answer. Decision-makers and citizens in these jurisdictions believe that additional barriers such as language, education deficits and getting time off work must also be addressed.

Exercise 1

Consider again the following pairs of goods and services:

- a television and a kidney dialysis machine;
- an art exhibit in a private gallery in the nation's capital and a CAT scan service available at every hospital;
- watching a theatrical performance and undergoing a coronary artery bypass procedure.

First, match each pair with one of the following categories of goods and services: inputs, access to inputs, utilization of inputs, benefits generated by the utilization of these inputs.

Second, describe which characteristics of each good or service in a pair means that it is more likely that decision-makers will be concerned with the fair distribution of the health-related goods and services rather than the entertainment-related goods and services.

Characteristics of potential recipients that might justify their claims to particular goods and services

In the case of some goods and services, individuals or groups may argue that they have a claim to a greater proportion of resources than others. What characteristics of potential recipients could justify this claim – membership of a group, past contribution to society, need for health care? Typically, when an answer is sought to these questions, potential recipients are thought of as groups or populations rather than as individuals. Decisions about how to distribute resources across different groups will depend upon decision-makers' commitments to them.

Consider the following example: an administrator of a local health authority wants to close one of the two hospitals in a small community to get the most out of scarce resources. One hospital serves one religious group and, in keeping with religious custom, provides care to men and women in separate sections of the hospital; the other hospital serves another religious group. Activists from both religious groups argue that both hospitals must remain open. This example illustrates how *group membership* can, and often is, used to justify a claim to particular goods or services.

Groups can be defined socially (e.g. by membership of community organizations or by religious affiliation), economically (wealthy or poor), demographically (gender, age or race), geographically (urban or rural), intergenerationally (current or future generations), or along other dimensions. The meaning and legitimacy of a particular group division is best understood within a particular social

context, because cultural beliefs about historical entitlements or injustices will vary across social contexts. Group-based equity analysis can be used to advance social justice, but it can also be used to advance prejudicial discrimination. The latter may conflict with international human rights principles, for example, that health is a fundamental human right.

Now consider another example: a government cannot afford to pay for the drugs to treat all the people infected with the human immunodeficiency virus (HIV) that causes AIDS. Some people argue that infected health care workers should be given priority because they make a critically important contribution to society. Others argue that managers and professionals should be given priority, because society has made an important investment in their education and training and they have made and could continue to make an important contribution to society. Both arguments are based on contributions to society – past, present or future – which economists call a *human capital* criterion.

Using the contribution to society as a characteristic to justify claims for health-producing goods and services raises two problems (16). First, health and social productivity are interrelated: it is more difficult for sick people to make a contribution to society, so preferential treatment of the productive often means preferential treatment of the healthy. Second, historical patterns of discrimination can mean that certain groups of people (such as women or ethnic minorities) will consistently appear less productive in measurable terms (e.g. taxable earnings, intellectual contributions).

Now consider a final example: in a war zone or other extreme situation where medical personnel and supplies are very scarce, medics often cannot treat everyone. They simply do not have the time and supplies to do the job. These medics make a triage of the injured on the basis of the severity of their injuries and the likelihood that they will benefit from emergency medical attention. The same approach is typically taken in less extreme situations. Health care providers make a triage of the population on the basis of their ability to benefit from health care, that is on the basis of their *need* for health care. Need represents a third characteristic of potential recipients that might, and often does, justify their claims to particular goods and services.

Need may be measured in different ways, depending upon the good or service to be distributed. For example, if the good is access to health care insurance or health care, then need may be defined in part by degree of poverty. If the good is health care utilization, then need would ideally be defined by ability to benefit from health care. Unfortunately, such information is rarely available. Therefore, analyses of equity commonly compare the distribution of health-producing goods and services across groups that, on average, have known relative needs for health care. For example, all groups can benefit from immunization so immunization rates should be similar across all groups if people were immunized according to need. However, it has been found that residents of urban regions in Peru have been immunized at roughly four times the rates of rural residents for poliomyelitis and other diseases (17), suggesting that people were not immunized according to need in that jurisdiction at that time. As another example, not all groups can benefit from asthma drugs and urban populations may have higher rates of asthma, because of poorer air quality, and therefore they may have higher needs for asthma drugs. In this case, a higher rate in an urban region may suggest that asthma drugs are distributed according to need.

Exercise 2

Many jurisdictions distribute the money for health care on the basis of historical patterns of use. More money is distributed to regions with more hospitals and more health care providers, without explicit regard to the relative size or health of the local populations. In an effort to improve the equity or

fairness of publicly financed health care systems, some jurisdictions have introduced needs-based funding for health care. According to this approach, money is distributed to local health authorities based on population size and population health indicators (i.e. the larger or sicker the local population, the more money its local health authority would receive to spend on health care goods and services).

Consider the following questions:

- (i) What “good” is being distributed by needs-based funding?
- (ii) Who is receiving the good?
- (iii) Within each local jurisdiction, how might local health policy-makers ensure that services will be distributed according to need?
- (iv) Would needs-based funding work in your own jurisdiction?

Fair process or fair end-states

The third part of the framework involves how resources are distributed (i.e. the fairness of processes) and the acceptability of the resulting distributions (i.e. the fairness of end-states). Equity objectives such as those articulated in HEALTH21 can be defined in terms of fair processes, fair end-states, or both.

Fair process approach

The fair process approach holds that fair processes will necessarily distribute resources fairly. This approach can be particularly helpful in two situations: first, when the good or service cannot be distributed to all those with a claim on it (so each individual may be provided with a fair chance to obtain the good or service, perhaps leaving others with none of it); and second, when informational problems preclude the valid assessment of the final distribution of a good or service, making end-state judgements impossible.

Market exchange, ideally conducted in a perfect market, is one process that could be used to distribute resources (18). Most people believe that this process distributes resources equitably only if: (i) transactions are completely voluntary; (ii) people have full information about the consequences of their transactions; and (iii) there are no substantial starting differences in people’s wealth (which would influence their ability-to-pay and willingness-to-pay for health care goods and services). In practice, these conditions are rarely satisfied in markets for health care goods or services.

A second process that could be used to distribute resources is a *lottery*. Although seldom used in clinical practice, lotteries do underlie the randomized controlled trials used in clinical research. Lotteries are seen by some as a fair way to distribute an indivisible and scarce good, because they give each potential recipient an equal chance of receiving the good or service. Because the process is blind to the characteristics of recipients – everyone has the same probability of winning regardless of who they are – there can be no unfair discrimination. Lotteries are not common, however, in part because people do not always want an equal chance. Instead, people often want a fair chance that reflects what they see as their legitimate claim to the good (6). That is, they are seeking fair discrimination.

Queuing represents a third process (7). Queuing in health care can be based on a number of characteristics of potential recipients. For example, in some jurisdictions the time since the need for a good or service was determined (i.e. time in the queue) and degree of need for the good or service (i.e. clinical severity) are used to establish the recipient’s position in the queue for coronary artery bypass surgery and hip replacements.

Governance and decision-making processes represent a fourth category. For example, democratic processes may be used to involve the general public in broad policy decisions such as the types of goods and services that should be paid for in publicly financed health care systems. Alternatively, contracting processes may be used when a small number of decision-makers act on behalf of a larger group (19–21). Such processes require that decision-makers specify a distribution of goods as if they have no idea what situation they might find themselves in after the goods and services have been allocated. Simply put, a decision-maker must make a decision guided by the notion that “there but for the grace of God go I.” This approach tends (to some extent) to minimize harm to whomever will be made worst off. A limited health care service package for the poor in the American state of Oregon, for example, has been criticized on the grounds that the poor were not adequately involved in the decisions, and that the decision-makers (state employees) might not agree to such a limited package for themselves (through state employee health insurance) (22,23).

Moral duty may conflict with other fair processes, as well as with efficiency (24). Moral duty (i.e. the imperative to do the right thing in a given situation) is a principle upon which health professionals place great emphasis (25). In particular, clinicians’ ethical duties to rescue individuals in danger can result in the redirection of large amounts of resources into intensive or emergency care. To the extent that a jurisdiction recognizes this particular moral duty as fair, it may accept the resulting distribution as fair.

The fair end-state approach

The fair end-state approach adopts a very different viewpoint. Here the concern is not with the process of distribution, but with where resources actually end up (i.e. the end-state distribution). *Equality* represents one possible fair end-state distribution. A strictly equal distribution of a health care budget across regions may, for example, turn out to be quite unfair to the citizens of some regions. Many local health authorities might argue that the citizens of their regions have legitimate claims to more goods and services. For example, these citizens may be sicker or poorer than the citizens of other regions and so they may have a legitimate claim to more resources for health care. It may be necessary to make an unequal distribution of a health care budget based on population size, needs for goods and services, and the costs of providing those goods and services, in order to provide equal access to goods and services for the inhabitants of each region. Hence, although they are closely related, equality is not the same as equity.

Another possible fair end-state distribution involves equals being treated equally and unequals being treated unequally according to their degree of inequality, an idea of formal justice first articulated by Aristotle (26). In economics, the term *horizontal equity* refers to the distribution of equal amounts of a good among recipients who are similarly situated according to relevant aspects of their situations. Hence, a funding formula may seek to ensure that regions with similar needs and costs receive equal shares of the budget. In contrast, *vertical equity* refers to the distribution of unequal amounts among differently situated recipients in proportion to the degree to which they are differently situated. Hence, a funding formula may also seek to ensure that regions with greater health care needs and costs receive a greater share of the budget.

Exercise 3

Imagine that you are the chief executive officer for a local health authority in your country. You receive a letter from the minister of health informing you that the central government has decided to move from basing budget allocations on past allocations (i.e. historical patterns of health care use) to basing them on health care needs. The government has decided to use population size and life expectancy as measures of health care need. Your region has received a budget allocation of 100 million currency units. This amount is 20 million current units less than you received last year. The letter provides the following comparative information about the budget allocations for all regions in the country (Table 1).

Table 1. Comparative budget allocations in a country

Region	Population size (your region)	Life expectancy	Budget allocation (currency units)
A	500 000	67.5	100 million
B	250 000	70.0	45 million
C	1 500 000	65.0	320 million
D	5 000 000	67.5	1 000 million
E	500 000	67.5	100 million

Has the central government addressed both horizontal and vertical equity? What aspects of your region's situation would you bring to the attention of government if you wanted to argue that your budget allocation is not equitable?

Conclusion

To distribute health-producing goods and services (or health) equitably means to distribute them:

- in a way that is acceptable given the characteristics of the goods and services to be distributed;
- in a way that is acceptable given the characteristics of the recipients who will receive them; and
- according to acceptable processes or criteria about acceptable outcomes of these processes.

What is acceptable in one jurisdiction may not be acceptable in another.

Distributional decisions are made every day, every month and every year in health-producing sectors. If these decisions and their outcomes are tracked, it is possible to learn about what types of decision bring us closer to where we want to be. Many decisions will bring us closer to both our efficiency and equity goals. At other times, one goal will be sacrificed at the expense of the other, at least to some degree. Many jurisdictions will share an interest in tracking similar outcomes, such as equity in utilization of health care services by socioeconomic status. Other jurisdictions may have a particular interest in health differentials between aboriginal and non-aboriginal children. The important steps are, however, shared: establish equity goals, measure the extent to which these goals are achieved, and revise the goals or the approach as necessary.

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3.2.2 Efficiency in health care provision³

John Lavis and Greg Stoddart⁴

Key messages

- Health economics can be thought of as the discipline of economics applied to the topics of health care and health. More specifically, health economics is the study of how scarce resources are allocated among alternative uses for the care of sickness and the promotion, maintenance and improvement of health.
- The three main elements of efficiency may be summarized in everyday language as follows:
 - (i) do not waste resources (technical efficiency);
 - (ii) produce each output at least cost (cost-effectiveness); and
 - (iii) produce the types and amounts of output which people value most (allocative efficiency).
- Society's resources can be used to produce health care, health and wellbeing. A given use of society's resources may be technically efficient (or cost-effective or allocatively efficient) in the production of health care, but it may not be technically efficient (or cost-effective or allocatively efficient) in the production of either health or wellbeing.
- For almost any use of society's resources, there will be both winners and losers. Some economists have proposed that a sufficient condition for viewing a change in resource allocation as an improvement in (allocative) efficiency is that those who gain from the change value their gains enough to, in principle, be able to compensate those who lose for the value of their losses, thereby leaving the losers as well off as before the change.
- The general requirement for allocative efficiency is that each activity or output should be pursued only until the extra benefits from pursuing it just equal the extra costs. Under some very specific conditions, this requirement can be met through a system of prices and markets. In the case of health care, these conditions are often violated.
- Efficiency does not necessarily imply social desirability. As outlined in Module 3.2.1, who wins and who loses may make an important difference to decision-makers. The measurement of fairness (equity) is therefore often inextricably related to the measurement of efficiency.

Tutors' notes

The core exercise in this module is aimed at the level of (critical) *appraisal* of core economic concepts. It can be used with the following groups:

- civil servants and other government technical staff
- health care managers
- health care professionals (e.g. doctors and nurses).

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The first exercise in this module requires the group to focus on a particular policy proposal. If the proposal is not relevant to the participants' own settings, tutors can develop another one. The proposal should contain examples of technical inefficiency (e.g. the provision of ineffective medical procedures or excessive staffing levels), cost-ineffectiveness (e.g. a mix of providers skewed towards more expensive ones relative to what they produce, say physicians, and away from less expensive ones, say nurses), and allocative inefficiency (e.g. some of the types of service that people value most are not provided).

The second exercise is aimed at the level of *appreciation* and can be used with the following groups:

- policy-makers (e.g. elected officials)
- civil servants and other government technical staff
- health care managers.

It will be of most interest to those individuals with broader responsibilities for health care and health, including officials in ministries other than health, such as finance. Again, if the situation is not relevant to participants' own settings, tutors can develop another one. The situation should involve moving from a production-related notion of efficiency (cost-effectiveness) to a consumption-related element of efficiency (allocative efficiency). It should also involve moving from traditional inputs into the production of health (hospital-based services) to non-traditional inputs such as those outlined in Fig. 1.

The third exercise is aimed at the level of *appreciation* and can be used with the following groups:

- policy-makers (e.g. elected officials)
- civil servants and other government technical staff.

This exercise requires the group to focus on a situation that involves an externality but in which a price system may allow for a stable allocation of resources such that marginal social cost equals marginal social benefit, and that these in turn equal both marginal private cost and marginal private benefit.

Introduction

Different groups in any society speak different languages and dialects. Economists have developed a language of their own as well. Sometimes they share this language with non-economists. The word "scarce", for example, means the same to almost everyone. At other times economists use a term from everyday language to mean something very specific in their own language. "Efficiency", for example, means something very specific to economists. In fact, economists believe that there are three types of efficiency.

This module is primarily concerned with key concepts in health economics. It is secondarily concerned with introducing the language of economists (i.e. the terms that economists use when referring to these concepts). In defining and providing examples of these key concepts, we draw heavily on two documents that we have previously written (1,2). We begin with the big picture.

Economics is the study of how individuals and societies choose to allocate scarce productive resources among competing alternative uses and to distribute the "products" from these uses among the members of a society. Health care and health are universally seen as two important products to

which all societies commit resources. *Health economics* can be thought of as the discipline of economics applied to the topics of health care and health (3 pp.1–13,4). More specifically, health economics is the study of how scarce resources are allocated among alternative uses for the care of sickness and the promotion, maintenance and improvement of health. It further includes the study of how health care and health-related services, their costs and benefits, and health itself are distributed among individuals and groups in society.

The term “resources” means the basic inputs to production: the time and abilities of individuals; land and other natural resources such as water; facilities, equipment and other types of capital; and knowledge of production processes. Money, although an important medium of exchange and a very useful measuring device, is not defined by economists as a resource in itself. The importance of financial budgets, for example, stems from the command over resources which they confer upon those who control the budgets.

A fundamental problem facing all societies – and the reason that economics exists as an area of study – is that resources are scarce. *Scarcity* means that there are not, and can never be, enough resources to satisfy all human wants and needs. This observation is acutely clear every day when it comes to matters of illness and health, but it is equally true of other areas of human activity. There exists a constant conflict between alternative uses of resources, and a constant need to choose among alternative allocations. Therefore, economists define the real cost of an activity (such as hospital services) as the other outputs that must be given up (for example, other health services such as immunizations, non-health services such as defence, or commodities such as cars) because resources are committed to it. Economists refer to this important basic concept as the *opportunity cost*.

Decision-makers in all societies face decisions about trade-offs on a daily basis. For example, a request from a hospital doctor to begin providing magnetic resonance imaging (MRI) scans for the 20 patients each year who are suspected of having multiple sclerosis could virtually preclude all other new initiatives at a hospital that does not own and operate an MRI scanner already. In some jurisdictions the same amount of money could pay for a 10% reduction in the post-operative infection rate if disposable needles were consistently available for use and instrument sterilization machines were purchased. Trade-offs can also be considered across sectors. For example, in the 1990–1991 fiscal year, the government of the Canadian province of Ontario granted a US \$350 million budget increase for hospital services. A public health researcher pointed out that these funds could have been used to provide 70 000 publicly subsidized housing units for low-income families or 547 000 publicly subsidized day-care places for children, both of which he considered to be alternative investments in health (5). Both the request to introduce an MRI scanner at a hospital and the decision to increase hospital budgets have high opportunity costs.

Two fundamental characteristics of economic analysis follow from the concept of opportunity cost. First, economics is concerned with evaluating and choosing among alternative courses of action, whether or not they are explicitly identified. Second, in doing so it examines both the costs and consequences of the alternatives.

Efficiency

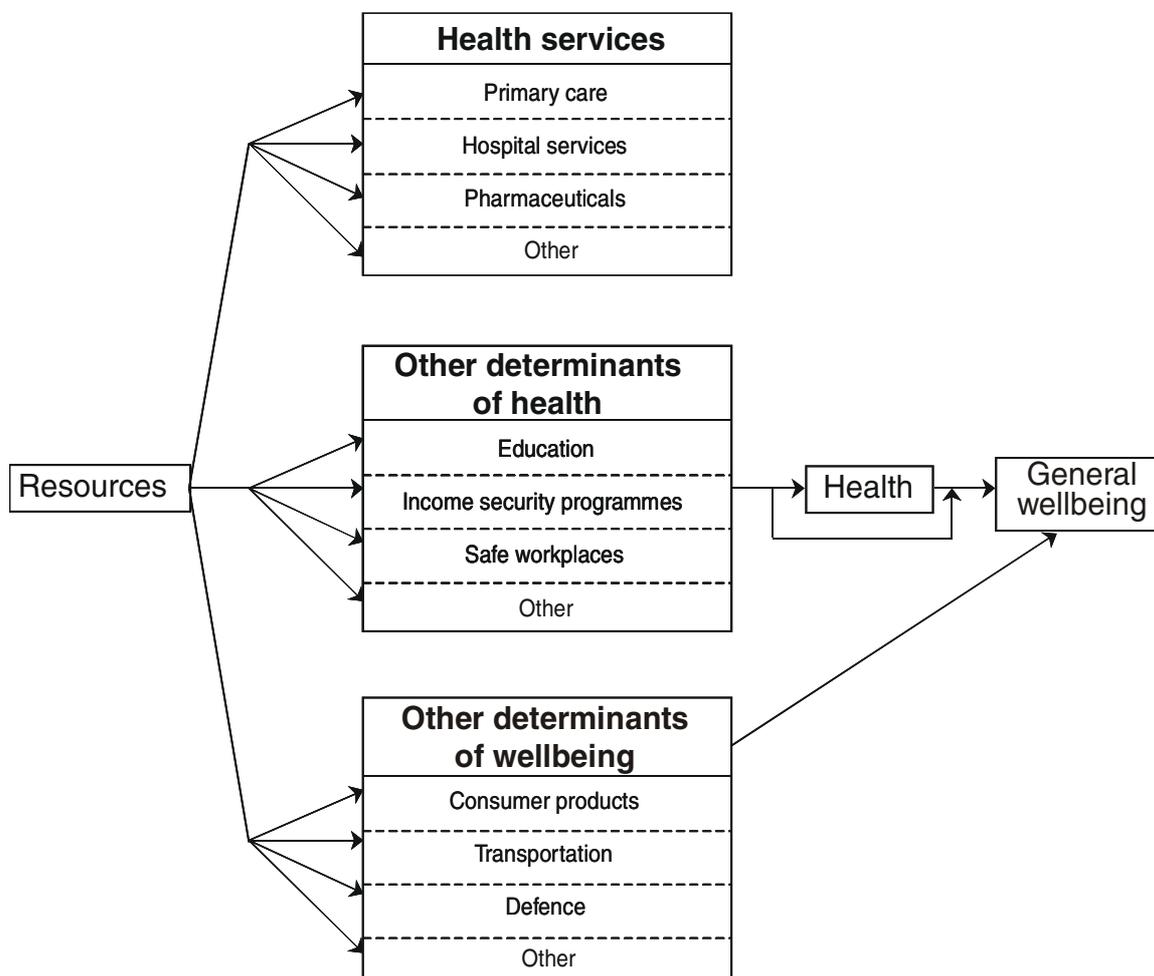
The primary criterion that economics uses to organize and conduct these analyses is that of *efficiency*. The basic concept of efficiency, as the word is understood in common usage by almost everyone, is quite simple: to get the most out of scarce resources. But beyond this intuitive advice it is not always

clear what this involves, or how to achieve it, and – a word of warning at the outset – economists attach a very precise set of meanings to the concept of efficiency. Some of these meanings may not be obvious, agreed to or understood by everyone (6,7).

Before considering these meanings in more detail, it is worth pausing to reflect on the magnitude of the resource allocation problem facing societies once the implications of resource scarcity, competing uses for resources, and conflicting needs and wants are taken into account. This is illustrated in Fig. 1 with particular reference to the role of health care and health. Fig. 1 shows how resources can be used in alternative ways to “produce” health care services, health and general wellbeing. The concept of efficiency and its meanings discussed below can be applied to each of these (2). Because efficiency is an instrumental concept, it is always necessary to specify clearly the outcome being sought or the output being produced. (A more detailed discussion of these “outputs” is contained later in the module.)

In Fig. 1 resources can be used for a variety of purposes, divided here into three groups labelled Health care services, Other determinants of health, and Other determinants of wellbeing. Health care services contribute to general wellbeing through their effect on health, as do other determinants of health such as education, income security programmes and safe workplaces. These other determinants of health may also have a direct effect on general wellbeing. The third category, other determinants of

Fig. 1. The magnitude of a society’s resource allocation problem



wellbeing, in general has only direct effects on wellbeing, although there may be some consumer products – food, for example – that can affect wellbeing indirectly through an effect on health as well.

The three main elements of efficiency (3,8) may be summarized in everyday language as follows:

- do not waste resources
- produce each output at least cost
- produce the types and amounts of output that people value most.

An efficient allocation of resources is one that simultaneously meets all three of these requirements. The first two requirements relate only to production; the third introduces consumption, thereby bringing together the supply and demand sides.

The first element of efficiency above requires that for any given amount of output the amount of inputs used to produce it is minimized. (The requirement may also be stated such that maximum output is produced from any given combination of inputs.) If this condition is not met, then it is possible either to obtain more output through a different configuration of resources, or to release some of the resources to alternative uses without sacrificing any current output. This element of efficiency is termed “technical efficiency”. Hospitals that are larger than they need to be to serve their communities are an example of technical inefficiency. In general, there will be several technically efficient combinations of inputs (for example, combinations of labour and capital) for a given level of output.

The second element of efficiency builds on technical efficiency but takes into account the relative cost of different inputs. It requires that, in addition to technical efficiency being attained, inputs be combined so as to minimize the cost of any given output. (Alternatively, the requirement may be stated such that output is maximized for a given cost.) For example, if labour is abundant and inexpensive relative to capital in one economy compared to another, then least-cost production methods will employ relatively more labour in the first economy. This element of efficiency is termed “cost-effectiveness”.⁵ Although the cost-effective way of producing an output can vary from setting to setting, for any given output in a particular setting there will normally be only one combination of inputs that will be cost-effective. (It is only possible to claim that a specific combination of inputs is cost-effective in producing a particular output if it has been compared to one or more alternative combinations of inputs used for the same purpose.) Note also that, while cost-effectiveness can inform the question of *how* to produce an output at least cost, it does not address the question of *whether* the output should be produced. If something is not worth doing, it's not worth doing well!

The third element of efficiency links the supply of outputs to the demand for them by extending the analysis to consider the preferences and values of the members of society who consume the outputs. It requires that, in addition to achieving technical efficiency and cost-effectiveness, resources be used to produce the types and amounts of outputs which best satisfy people, i.e. which people value most highly. The term used by economists to describe this all-encompassing concept of efficiency is “allocative efficiency”. It is possible for an allocation of resources to be both technically efficient and cost-effective but allocatively inefficient, if producers are supplying too much or too little of a good or service relative to consumers' wishes. For example, if patients who have had heart surgery want counselling services for lifestyle modification instead of organized exercise classes, then allocative efficiency might be improved by changing the mix of secondary prevention services even if the exercise programme was being provided cost-effectively.

⁵ The authors of economics texts do not always make the distinction between technical efficiency and cost-effectiveness. Some use the term technical efficiency to include both concepts (9).

In common language, then, efficiency means both “doing things in the right way” (technical efficiency and cost–effectiveness), and “doing the right things” (allocative efficiency). To take health care services as an example, there is no single, correct, international solution for their efficient provision. Although all countries in theory have access to the same production knowledge, the relative cost of different inputs (e.g. nurses versus doctors, drugs versus hospital days) varies across countries, and consumers in different countries have different preferences and values. Therefore, it is possible (indeed expected) that countries will differ in how they provide services, which services they provide and to whom they are provided, independently of any differences in efficiency which may exist.

Exercise 1

Consider one of the four main strategies for action in HEALTH21 (10): to develop “integrated family- and community-oriented primary health care, supported by a flexible and responsive hospital system”. Imagine that your country already has the beginnings of a national network of primary health care centres. Before you are willing to consider expanding this network as part of your country’s commitment to the health for all strategy, you want to be certain that the existing centres are operating efficiently. The following information has been collected:

- some medical services provided in the centres have not been found to be effective;
- staffing levels of physicians and nurses are high relative to anticipated levels of communities’ needs for primary care (in fact, physicians and nurses are idle for extended periods of the day);
- physicians perform routine services such as immunizations and well-child check-ups that nurses could perform to the same level of quality (and physicians are paid considerably more than nurses);
- some communities with existing centres have reported that families feel there are too few (and sometimes no) reproductive and child health services to give their children a healthy start in life (as recommended in Target 3) and that there are too few quality services for people with mental health problems (as recommended in Target 6), even though they would prefer these services to some others that are currently provided.

Use the three elements of efficiency (technical efficiency, cost–effectiveness, and allocative efficiency) to examine the proposal more closely, paying particular attention to how each observation relates to one of the three elements of efficiency.

Now consider how you would develop “integrated family- and community-oriented primary health care ...” in your country and what information you would need to inform your decision.

By necessity, statements about allocative efficiency involve value judgements about which criteria will be used to judge whether a particular resource allocation “best satisfies” people, or is the “most highly valued”, or gives “too much or too little” of some goods and services. The standard criterion in economics comes from a branch of economic theory known as *welfare economics*. The criterion is known as the *Pareto criterion* (named after a nineteenth century sociologist and economist, Vilfredo Pareto), and states that allocative efficiency has been attained when it is not possible to change the allocation of resources to make any one person better off without making at least one other person worse off (11).

There are at least two other important characteristics of efficiency based on Paretian criteria (3, 11). First, such a notion of efficiency is centred on the individual: social “welfare” is assumed to be

a function only of individual welfare, each individual is assumed to be the best judge of his or her gains and losses, and individual welfare is assumed to depend only on the goods and services the individual consumes. In the real world, all of these assumptions are problematic. People care about the welfare of each other, their social groups and their communities. Individuals must often make decisions on behalf of others. And even when they only consider themselves, people care about other things than just the goods and services that they consume, such as the characteristics of the societies in which they live.

Second, the efficient outcomes realized under this concept of efficiency depend very much on the distribution of income and wealth among individuals in the society. In other words, under the Pareto criterion there is no unique allocation of resources that is *the* (one and only) efficient allocation. Rather there is a set of efficient allocations, one for every different distribution of income and wealth. In practice, this difficulty can be avoided by accepting the existing distribution of income and wealth, although this is a very important value judgement that should be (but seldom is) made explicit in discussions of efficiency.

These characteristics of the standard economic approach to allocative efficiency mean that it may be possible for a society to prefer an “inefficient” (in a Paretian sense) resource allocation to an “efficient” one if, for example, the members of society judge it to be fairer in some way (3,7,12). A policy change that removed public subsidies for private hospitals in favour of expanding free public clinics might be an example of this. Another way to state this is that the choice among several allocatively efficient resource allocations must be made on the basis of criteria other than efficiency (9).

The usefulness of the Pareto criterion is very limited in practice, because most changes in resource allocations do in fact make some people worse off. That is, for almost any policy, there are both gainers *and* losers. In an attempt to extend the scope of the criterion, it has been proposed by some economists that a *sufficient* condition for viewing a change in resource allocation as an improvement in (allocative) efficiency is that those who gain from the change value their gains enough to, in principle, be able to compensate the losers for the value of their losses, thereby leaving the losers as well off as before the change (11). This “potential Pareto” criterion does not require that the compensation actually be paid, which many observers, including some economists, find ethically unacceptable (6,7,13). For example, suppose a policy of user fees improved access for the wealthy but reduced access for the poor. If the gains to the wealthy were sufficiently large to be able to compensate the poor, the potential Pareto criterion would deem this policy efficient, even if the rich do not in fact compensate the poor for their reduced access. Nevertheless, it is this potential Pareto criterion for allocative efficiency which is the basis for the economist’s measurement technique of cost–benefit analysis, one of the techniques described in Module 5.3.1 on methods of economic evaluation.

Allocative efficiency as defined above does not necessarily imply social desirability, except under a very specific and controversial value judgement. Specifically, unless compensatory policies are implemented, allocative efficiency implies social desirability only if ability-to-pay and willingness-to-pay are considered appropriate criteria on which to base access to goods and services. That is, allocative efficiency implies social desirability if the existing distribution of income and wealth, which facilitates purchases and consumption, is considered acceptable. Because value judgements and ethical principles are such an important part of the criteria for allocative efficiency in the real world of policy-makers, the measurement of *equity* or fairness is often inextricably involved in the measurement of efficiency. Equity considerations were discussed in Module 3.2.1.

An application of efficiency concepts

With the three efficiency concepts now clear, these concepts are applied to the production of health care, health and wellbeing – three potential outputs of HEALTH21 policy. Two of the four main strategies for action in HEALTH21 involve health care services: primary health care, supported by a flexible and responsive hospital system (as mentioned above), and “health outcome-driven programmes and investments for ... clinical care.” Parts of the latter strategy, as well as the other two strategies, involve things other than health care. One might therefore ask “Can we have too much health care?” Elsewhere we have addressed this question (2) and parts of that answer are repeated here because it demonstrates how technical efficiency, cost-effectiveness and allocative efficiency can be applied to the outputs of health care, health and wellbeing.

In Fig. 2, a simple framework is provided to answer the question “Can we have too much health care?” The rows of the framework ask the questions: “Is production technically efficient?”, “Is production cost-effective?” and “Is production allocatively efficient?” The columns itemize what is being produced: health care, health and wellbeing. Some of the eight resulting cells are combined to generate six ways in which there can be too much health care:

- (i) health care that is not effective
- (ii) effective health care that is more costly than it need be
- (iii) health that is more costly than it need be
- (iv) health care that is valued at less than its cost
- (v) health that is valued at less than its cost
- (vi) wellbeing that is more costly than it need be.

Health care that is not effective. If health care is not doing what it is supposed to do (i.e. restore, maintain or improve health) then the resources devoted to it are wasted. Some programmes or services may actually harm patients or do more harm than good. Others may be ineffective. It may also be the case that an otherwise effective service is rendered ineffective because it is applied in the wrong clinical circumstances (i.e. when it is not clinically warranted). For example, although coronary artery bypass surgery can dramatically improve the length and quality of life for selected patients, it would have no effect (and may even be harmful) in patients who do not have a type or severity of heart disease for which coronary artery bypass grafting has been found to be effective.

Fig. 2. A taxonomy of ways in which too many resources can be devoted to health care

Is production efficient?	What is being produced?		
	Health care	Health	Wellbeing
Technical	2	1	6
Cost-effective		3	
Allocative	4	5	

Source: Lavis & Stoddart (2).

Effective health care that is more costly than it need be. Health care becomes costly when the same quantity of services could be produced with fewer inputs (i.e. with fewer personnel, less equipment or less know-how) or with lower expenditure (i.e. with less expensive personnel, equipment or know-how compared to more expensive ones). As examples of the latter, consider the possibility of substituting nurse-practitioners for physicians in many routine clinical encounters or the possibility of providing more non-acute care outside hospitals, i.e. in nursing homes or ambulatory care facilities. By the same reasoning, health care becomes costly when *more* services could be provided with the same number of inputs or with the same level of expenditure.

Health that is more costly than it need be. If a specific level of health could be produced by reducing expenditure on some types of health care relative to others or by spending less on health care and more on other contributors to health (such as those outlined in Fig. 1), then too many resources may be devoted to health care. Coronary artery bypass surgery when applied to the right patients, for example, can buy more years of life than the same amount of money spent on monitoring low-risk patients in coronary care units (14). In addition, the early initiation of prenatal care (a health care intervention) and supplemental food programmes (an intervention traditionally considered to be outside the health care sector) can both reduce infant mortality rates more cheaply than neonatal intensive care units (15). Monitoring low-risk patients in coronary care units and neonatal intensive care units may therefore produce health in more costly ways than necessary.

Health care that is valued at less than its cost; and health that is valued at less than its cost. The fourth and fifth ways in which too many resources can be devoted to health care move us beyond the production (supply) side of the economic ledger to the consumption (demand) side. Here the focus is on benefits as well as costs. The benefits of health care (as determined by those receiving or paying for health care) must be valued in relation to its costs (i.e. other things foregone), and it may be that some types of health care are not valued as highly as other outputs that could have been produced. Similarly, the benefits of health must be valued in relation to its costs. In other words, it may be possible to improve the mix of different types of health (both quality of life and length of life, for example) or the mix of health compared to other things (such as consumer goods, education, security and justice).

Wellbeing that is more costly than it need be. Just as health care is only one determinant of health, so health is only one determinant of wellbeing. Wellbeing can be produced in more and less costly ways. If overall wellbeing could be increased by “less” health (produced by health care) and correspondingly more of the other contributing factors, then too many resources are being devoted to health care.

Exercise 2

In your role as the ministry of health official charged with implementing the 21 targets from HEALTH21, you are visited by the head of the medical staff of the largest hospital in your country. He is lobbying for a new programme to expand lung transplantation facilities. He shows you several clinical research studies – all well done, randomized controlled clinical trials – which demonstrate the cost–effectiveness of a new transplantation technique compared to the old technique and to maximally intensive medical therapy. His claim is that, because he has “proof” of cost–effectiveness, it is obvious that his initiative should be funded without further delay. How would you reply?

The head of the medical staff is not satisfied by your reply. He in turn replies that you should at least agree that additional funding be given to his hospital because you are responsible for ensuring “health for all”; then he and others at the hospital will work out which programme inside the hospital

should get increased resources. Other programmes within his hospital will therefore be able to compete with the transplantation programme. What is your reply now?

The margin

The general conditions for allocative efficiency under the potential Pareto criterion can be described in a technical way, using the economist's concept of the "margin". Economists define the "marginal cost" of an output as the *additional* cost incurred in producing the last (or next) unit of that output. Similarly, the "marginal benefit" is the *additional* benefit obtained by consuming the last (or next) unit of an output. In an efficient world, marginal cost and marginal benefit are equal for each output, although they may vary across outputs. For example, if a hospital wishes to expand its diagnostic imaging programme, a consideration of allocative efficiency requires that it not be expanded past the point where the extra resources required (personnel, space, supplies and equipment) would create more benefit if used instead in another of the hospital's programmes.

Individuals use a similar rule every day in deciding how to allocate their time and money. Individually, we constantly make judgements about whether the *extra* benefit of doing something (e.g. buying another belt, drinking more coffee, visiting relatives more often) is worth the *extra* cost involved. We tend to stop doing things when the extra costs exceed the extra benefits. So, too, for societies pursuing their health care activities and health goals. For allocative efficiency, each activity or output should be pursued or produced only until the extra benefits from pursuing or producing it just equal the extra costs. In other words, the value of the extra benefit that individuals and societies derive from the last unit of any output consumed is just equal to the opportunity cost of the resources (i.e. their value in their next best use) used up by producers to create that unit of output.

Of course, this is a difficult determination to make in practice. An important contribution of economic theory has been the demonstration that this requirement can be satisfied (i.e. for each good or service produced, the *marginal social cost* equals the *marginal social benefit*), and a stable allocation of resources can be identified through a system of *prices* and *markets*. This solution to the economic problems of what goods and services to produce (and in what quantities), how to produce them, and how to distribute them applies only under some very specific conditions, however (as outlined towards the end of Module 3.2.1). When these conditions are violated, markets are said to fail in that they do not lead to an allocatively efficient distribution of resources. As mentioned previously, unless compensatory policies are implemented, a system of prices and markets implicitly accepts two value judgements. The first is that both ability-to-pay and willingness-to-pay are appropriate criteria on which to base access to goods and services, while the second is that the existing distribution of income and wealth is acceptable. In the case of health care, market failure is common (16) and the above two value judgements are frequently rejected for certain categories of service.

Exercise 3

In your role as minister of health, you have a meeting with the minister of the environment to discuss water quality. You point to Fig. 1 and make the case that the quality of the physical environment is an example of the category of "other determinants of health". You believe that firms are making decisions to minimize their production costs at the expense of the physical environment in general, and water quality in particular, by dumping effluent into rivers and streams. You want the minister of the environment to do something. The economic adviser to the minister of the environment replies that

the problem has two parts. First, at the level of the firm, the extra benefits of disposing effluent in this way far exceed the extra costs. At a social level, however, the reverse is the case. The minister of the environment argues for a price system that would sell pollution rights as the simultaneous solution to both problems. As minister of health, do you see this proposed solution as an efficient one?

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3.3 Overall reform

3.3.1 The expenditure \equiv income \equiv revenue framework (identity)

Greg Stoddart⁶

Key messages

- The same national income–expenditure accounting principles that apply to other economic sectors also apply to the health sector.
- Every item of *expenditure* on health care is also an *income* to someone in the health care industry, and it must be financed somehow through *revenue* of one type or another.
- Examining these three dimensions of proposed or actual health care reforms is often a useful aspect of health policy analysis. It can provide important insights on issues such as the redistributive income effects of policy changes, or the likely impact of such changes on the levels of expenditure and the real availability of health care services.

Tutors' notes

This module describes a basic analytical tool of economics, the expenditure \equiv income \equiv revenue framework or identity, and its application to the health care sector, especially in the context of health care reform. As such, it is intended to develop skills in *appraisal* and *analysis* of health policies.

The identity can be used by a variety of audiences. Indeed, stripped of its algebra or symbols and reduced to its basic idea (key message 2), it can be *appreciated* by even the least experienced audiences, including members of the general public. Perhaps those most involved in debates over health care reform (politicians, ministry of health officials, and leaders of health care institutions or professional associations) will find it most useful and relevant.

There is a wide range of possibilities for applying the identity to specific reforms. The key thing in Exercise 1, for example, is to ensure that the participant attempts to trace the effects of his or her chosen reform in *all three* parts of the framework. Another source for reforms to be analysed using the framework is *European health care reform: analysis of current strategies (1)*.

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Introduction

Few subjects generate as much debate as health care reform. This seems to be the case in all countries and, although the debate may follow a cyclical pattern in any one country, significant debate over health care reform appears to be a constant feature of the international scene. The debates are frequently intense, and claims or counter-claims in one country often have spillover effects, prompting similar debates in other countries.

One reason for the ongoing debates is that the stakes are perceived to be high, in several dimensions. Perhaps the one of most concern to the average person is that of health. If health care systems are not organized, financed and managed to deliver effective services at the right time and in an efficient and compassionate manner, the basic needs of individuals will go unmet.

Governments must also consider other dimensions such as the level of expenditure on health care versus other spending priorities and how to finance public expenditure, as well as the extent to which they can (or should) rely on private financing. Governments must also consider carefully the political consequences of their health care policy decisions. Few issues will mobilize opposition constituencies as quickly as a perception of neglect or poor management of health care.

Health care providers too have a direct economic stake in health care policy. After all, expenditure on the health care “industry”, whether public or private, is also the income of those who work in the industry. It is not a coincidence that health care providers are everywhere at the forefront of lobbying efforts to fight controls on health care costs or to expand the provision of health services.

The economic issues involved in health care reform are complex, and cannot be condensed into one module. The purpose of this module is to provide a relatively simple economic framework which draws on the observations above and some concepts of economic theory in order to assist participants to begin to analyse and understand some of the most frequent policy debates in health care reform. It continues the emphasis in this series of WHO Regional Office for Europe learning materials on providing participants with analytical and conceptual tools for health policy analysis.

The module begins by presenting and explaining the analytical framework. Next, examples of typical health care reforms are briefly discussed in order to illustrate the use of the framework and, in particular, its ability to clarify issues regarding the distributional effects of health care reforms. The module concludes with an exercise for participants to apply the framework to health care reform in the contexts of their own countries.

The expenditure = income = revenue identity (framework)

Evans (2–4) outlines a useful analytical framework for the economics of health care reform based on national income–expenditure accounting principles (which apply to all economic sectors). He emphasizes that every expenditure on health care is also an income to someone in the health care industry, and must be financed somehow through revenues of one type or another. Thus, there exists the following expenditure ° income ° revenue framework (Fig. 1). The relationship is an identity, which means that the three items *must* be equal mathematically.

Fig. 1. The expenditure = income = revenue framework (identity)

Total EXPENDITURE on health care goods and services	≡	Total INCOME earned from the provision of health care goods and services	≡	Total REVENUE raised to pay for health care goods and services
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Each of the three individual items can be separated further into its basic components as follows:

EXPENDITURE	= P x Q	Where P is the unit price and Q the quantity of each type of health care good or service.
INCOME	= W x Z	Where W is the rate of payment per unit of input and Z represents the various types of input or resource that are combined to produce the health care goods or services.
REVENUE	= TF + SI + UC + PI	Where TF is taxation, SI is social insurance contributions, UC is direct charges to users and PI is private insurance premiums.

These are the three main channels through which revenue may be raised to finance the provision of health care goods and services.

The identity may therefore be written in symbols as follows:⁷

$$P \times Q \equiv W \times Z \equiv TF + SI + UC + PI$$

Using the identity

Although simple, the identity is quite a powerful analytical tool. For example:

- If total health care *expenditure* ($P \times Q$) increases, then it must be possible to trace the corresponding effects in the income and revenue items. For income, either the amount of inputs (Z) has increased, or the rate of payment per unit of input has increased, or some combination of both has occurred. This must be the case, or the identity will not balance.
- For revenue, either taxes (general taxes or social insurance premiums) have increased, direct charges to users have increased, private insurance premiums have increased, or some combination of the three effects has occurred if total health care expenditure has increased. Again, this must be the case, or the identity will not balance.

The definition of what constitutes a health care good or service will vary from country to country. However, in principle Q is a list (vector) of all of a country's health care goods and services, including hospital, medical, pharmaceutical, ambulance, dental and laboratory services. There is, therefore, a long list of types of health care goods and services under the symbol Q , and a corresponding long list of their unit prices under the symbol P . Note that non-marketed services, such as care provided by family members in the home, are typically not included, although technically they could be. To include them would require measurement of the quantities of services and time spent by family members, followed by imputation of values for the prices of services, the wages of family caregivers, and the out-of-pocket contributions by users' families.

Similarly, under the symbol Z , there is a long list of individuals who derive their *incomes* from the provision of health care goods and services. The obvious ones are health care providers such as physicians, nurses, dentists or physiotherapists. Another group includes the non-clinical employees of

⁷ This presentation uses symbols for convenience, but they are not required. Some users of the learning materials may be more comfortable with an entirely verbal treatment. Other participants may prefer an algebraic treatment, which can be found in (2).

health care firms, such as the administrative and support staff of hospitals, clinics and government agencies. But the symbol Z includes *all* individuals who derive income from the provision of health care goods and services. Therefore it includes other, less obvious individuals such as the employees, shareholders, lawyers and accountants of private insurance firms, pharmaceutical firms, medical equipment suppliers and for-profit managed care firms. In other words, the symbol Z includes not just the health care providers, but also the individuals deriving incomes from the management and overhead components of health care systems. Consequently, under the symbol W there is a corresponding long list of rates of payment per unit of input for each type of individual.

The *revenue* item in the identity could also be expanded in detail. Under the symbol TF would be a list of all types of taxes (personal income, corporate income, sales, excise, payroll, etc.); under the symbol SI would appear social insurance premiums; under the symbol UC would appear the various types of direct charge (deductibles, coinsurance, per-service fees, etc.); and under the symbol PI the different premiums would appear for any types of private insurance which existed.

The picture can be made quite complex, but the basic point is simple. Any change in one of the three items in the expenditure ° income ° revenue identity of necessity implies a change in the other two. To take a simple example, suppose that the only change that occurs is that a nurses' union successfully negotiates a wage increase with its governmental employer in a publicly-financed hospital system. Then W increases and, if the same number of nurses remain employed, then both the expenditure item ($P \cdot Q$) and the revenue item ($TF + SI + UC + PI$) must increase. If there is no change in the amount of hospital services supplied (Q), then there has in effect been an increase in the unit price (P) of hospital services. If there is no change in the mix of public and private financing, and no increase in direct charges to users, then government must raise taxes or social insurance premiums in order to pay for the wage increase if it wishes to avoid creating or adding to a fiscal deficit.

Extensions to the identity

Several more complex extensions can be made to the identity (2). Evans introduces four types of additional relationship:

- (i) a health production function linking the output of health care goods and services (Q) to the health status of members of the population;
- (ii) a health care production function linking the output of health care goods and services (Q) to the levels of inputs and resources (Z);
- (iii) a demand relationship linking the level of direct charges paid by users (C) to the level of health care utilization (Q);
- (iv) a capacity relationship linking the levels of health care goods and services provided (Q) to a maximum available stock of inputs and resources.

Participants interested in more advanced analyses may wish to study the articles by Evans (2,3). Although reference may be made to some of the concepts in (i)–(iv) above, for the purposes of this module the basic framework of the identity will be sufficient.

Retrospective use of the identity

The identity can be used to record and understand *retrospectively* the changes that have occurred in a country's level of total health care expenditure and to investigate, for example:

- whether changes in expenditure levels were primarily the result of changes in the level of utilization of services or changes in the cost of the services;
- how changes in the reimbursement of health care providers have affected overall expenditure and, in particular, the availability and utilization of services;
- how changes in the supply of health care providers have affected their remuneration, overall expenditure, the availability and utilization of services, and fiscal pressure on government;
- the effects of increasing direct charges to users on utilization of services and the incomes of health care providers; and
- the effects of introducing or reducing reliance on social insurance as a financing mechanism.

Prospective use of the identity

Perhaps an even more important use of the framework, however, is to examine *prospectively* the likely consequences of health care reform. Three examples are discussed below concerning the control of health care expenditure in a publicly financed system, real or perceived shortages of physicians, and pharmaceuticals, respectively. The framework could also be used to analyse the implications of greater privatization of health care financing, a topic which is discussed in the next module (on the evaluation of health care reform options).

Controlling or reducing the rate of growth of *health care expenditure* is an important policy objective for many governments. Since expenditure on hospital services typically represents the largest single component of total health care expenditure, attention often focuses on it. Consider first the case of a government committed to reducing total expenditure by reducing hospital expenditure. One of the most frequent strategies for accomplishing this objective is to reduce the number of hospital beds in operation, with the goal of forcing the more efficient use of the remaining beds and possibly increasing the amount of care provided in the community or on an outpatient basis.

In terms of the expenditure \equiv income \equiv revenue identity, the main effect of the policy is to decrease that portion of Q devoted to inpatient hospital care and thereby decrease the item $P'Q$. (There may be a small increase in the portion of Q devoted to hospital-based outpatient care, but this must be less than offsetting if the goal of *reducing* overall expenditure is to be achieved.) Achievement of the goal also means that TF decreases, assuming that the hospitals are only financed through taxation. But what about the income item in the identity? Assuming that policies that would lower W , such as lower rates of remuneration, job-sharing or reduced hours of work for, for example, physicians, nurses or hospital support staff, are not introduced, then unemployed hospital workers are the anticipated result, as Z decreases and balance is maintained in the identity. In practice, both W and Z may decrease to maintain the identity. The policy therefore not only has an effect on the public budget, it also redistributes the incomes of health care workers.

Real or perceived *shortages of physicians* are another policy “crisis” which frequently arises in health care systems. Consider a government committed to “holding the line” on total health care expenditure (i.e. holding the item $P'Q$, and presumably also $TF + SI + UC + PI$, constant) but feeling politically constrained to do something about the shortage of physicians. If it increases the number of doctors, Z increases and so will $P'Q$ and the need for revenue. One option might be to increase the supply of physicians but simultaneously reform their remuneration so that W is lowered, although this will generally be a difficult strategy to implement. Another option might be for the authorities to embark on a longer-term strategy to reduce reliance on physicians by increasing the use of family health nurses or nurse-practitioners. In this case, the eventual goal is to decrease that portion of Z

representing physicians, while increasing it for physician substitutes. But as the identity makes clear, the payment rate for these substitutes will have to be carefully structured so that the item $W \times Z$ for physicians and their substitutes does not increase overall.

In recent years, the increase in the cost and use of *pharmaceuticals* has been one of the driving forces behind increased health care expenditure. (The effectiveness of the utilization of pharmaceuticals is a major issue requiring attention, although that is not the issue being addressed in this example.) In terms of the identity, the shares of *both* P and Q representing pharmaceuticals have been increasing, with accompanying increases in the shares of both W and Z for individuals associated with the pharmaceutical industry, including executives and shareholders in multinational corporations.

To the extent that payment or insurance for pharmaceuticals remains largely outside the publicly-financed health care system in many countries, this means that either UC or PI, or both, have been increasing. They may continue to do so given the cost-control record of the private sector of health care systems. (It also has the interesting effect of making a health care system look more “private” over time as expenditure on pharmaceuticals becomes a larger share of total health care expenditure. This occurs even though no structural changes to the system or the boundaries between public and private services have occurred.)

For a government that is holding the line on total health care expenditure while paying publicly for all or most pharmaceutical use, recent experience shows that there is an implicit reallocation occurring among different types of Q – more of pharmaceuticals and less of other types of health care goods and services – unless the unit prices (P) of the other services can be lowered. It is possible to imagine cost-reducing efficiencies being instituted for other types of service (e.g. hospital care) that lower their Ps, thereby leaving overall $P \times Q$ constant in the face of rising P and Q for pharmaceuticals. However, in practice this is both difficult and unlikely. Accompanying the reallocation among types of service will be a reallocation of incomes away from the providers of non-pharmaceutical services, involving decreases in (some combination of) W and Z, and towards the providers of pharmaceutical services.

Exercise 1

Identify and describe at least one health care reform which is currently being proposed or considered in your country. Discuss what effect you think it will have on total health care expenditure, and give the reasons for your view. Then trace the possible implications of the reform in each of the income and revenue items of the identity.

Exercise 2

Compare and contrast the implications of the expenditure ° income ° revenue identity in a contracting economy, where the resources available for health care are declining, with those in a growing economy. For example, what are likely to be the similarities and differences in terms of the redistributive income effects of policy changes, their likely impact on the levels of health care expenditure, and the real availability of health care services?

Also, consider the similarities and differences from the point of view of the four separate groups of users of these learning materials: national or regional policy-makers; managers of health facilities or services; health care practitioners and consumers; and people with an interest in, concern for and perhaps involvement with the health sector.

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3.3.2 Evaluation of health care reform options

Panos Kanavos and Elias Mossialos⁸

Key messages

- Policy-makers face dilemmas in the reform of health systems and the incompatibility of different reform objectives, for example extending cover or providing more choice on the one hand, and keeping within a tight budget.
- Policy-makers and practitioners need to be aware of the limitations of their decisions, based on an analysis of financing, regulatory and provision implications.
- A tailor-made cost-containment strategy addresses issues for payers, providers and consumers. Strategies related to provider payment methods that encourage efficiency, cost-sharing options, information on prices and utilization reviews, as well as efforts to reduce administrative costs (among other things) are discussed and placed in the context of the reform process.

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- An efficient approach to quality assurance in health care requires a means of monitoring performance, setting up and following a number of indicators, and a feedback system.
- Administrative reforms, cost-containment strategies and infrastructure changes need to be analysed regarding the anticipated sources of financing and the expected level, distribution and timing of savings.
- To pursue ways of improving efficiency, changes may be needed in provider payment mechanisms, the potential introduction of market elements, the role of incentive structures in addressing stakeholder behaviour on the demand side, and the role of consumers/patients.
- An appreciation is needed of how the different stakeholders and professions interact in the face of reform and what their respective roles are. An appreciation of the decision-making process and consensus-building is provided.

Tutors' notes

- The module can be used with two main groups of professionals: (i) senior staff in ministries of health and health/sickness fund directors/managers, and (ii) (placing the emphasis on slightly different material) hospital directors, clinical directors and other health care practitioners. The first group would benefit by exploring broad policy issues in terms of cost control, quality, financing and financing reform, incentives, and improving efficiency at the macro level. The second group would be keen to learn how specific aspects of incentive structures (e.g. cost-containment or budgets in general practice) would affect their behaviour and their clinical freedom.
- It is important for participants from both groups to understand some key economic terms, such as scarcity of resources and opportunity cost, and the implications that these may have for the decisions they make. The best way to do that would probably be through the exercises, where they will be asked, for example, to discuss what they would be prepared to sacrifice for "additional units of benefit" (more cover, better care, etc).
- It would be a good idea to try to apply the key messages to a geographical region with specific characteristics and a given legacy, for example when dealing with different types of professional in eastern European economies in transition (both in central and eastern Europe and the Commonwealth of Independent States (CIS)).
- Beyond the teaching of concepts and what international experience suggests, participants should be encouraged to think strategically with regard to what is desirable and what is feasible within their operational environments. Again, exercises (based on some available empirical evidence) may help to transfer some useful experience from other settings and contextualize it in the setting where the training takes place.
- The list of further reading at the end of the module should be adequate, but tutors and participants are invited to make use of the resources and case studies that can be found on the website of the European Observatory for training purposes, in order to promote a comparative element in the application of the training material.

Introduction

There are two main issues that should be borne in mind by policy-makers wishing to adopt reform measures. The first relates to the fact that the majority of health care reform programmes involve an imprecise definition of defects of the system and vague articulation of policy goals. Governments/reformers are often reluctant to confront the issue of trade-offs between policy goals, for example,

how much efficiency should be sacrificed to achieve equity goals; whether efficiency can be achieved only with relaxation of cost control; how can cost controls be elaborated to facilitate the achievement of equity, for instance, by using weighted capitation budgets; and how provider incentives and user charges can be used to influence the behaviour of key actors. Quite often this is deliberate; for instance, the British government did not wish to be “confused” by evaluation of the NHS internal market reforms. Consequently, the effects of the purchaser–provider split and GP fund-holding hospitals are largely unknown, with advocates marketing these structures worldwide as a success and opponents denigrating them as failures. Neither advocates nor opponents have any robust evidence base to sustain their claims. Often, the political dimension is the key to initiating and implementing reform. This has been shown by the market-oriented reforms in the United Kingdom initiated and implemented by the Conservative government, and the 1997 “modern-dependable National Health Service” reforms, initiated and implemented by the Labour government.

The second main issue relates to the import and transferability of reform ideas from other countries, often with markedly different socioeconomic conditions and stages of development. If such a transfer takes place, it needs to take into account national, economic, political, cultural, historical and social trends and be adapted accordingly to meet objectives such as extending access, containing costs, implementing quality assurance mechanisms, and improving system efficiency through an improved infrastructure.

Extending access to health

For many politicians and citizens, the defining objective of health care reform is to create more uniform, secure and effective access to health care and health insurance. The focus is understandable. Millions may be uninsured or otherwise lack reasonable access to health care. Millions more fear that an illness, an employer’s decision to cut health benefits, or some other event beyond their control could deprive them of coverage. Even voluntary actions, for example, a job change, are increasingly constrained by concerns about continued health coverage. What was once perceived as largely a problem for low-income people is now a growing concern for middle-income people as well.

It has been argued that health care costs must be contained *before* major steps to extend health coverage can be undertaken. Such a two-step reform strategy underestimates the foreseeable costs of not extending access, in particular the extent to which the lack of universal health coverage produces costly distortions in the way care is provided and financed and in the decisions made by employers, employees and others. These distortions include delays for patients in getting needed care, “job lock” (which occurs when a worker refuses an otherwise better job because it does not include any acceptable health benefits), and cost-shifting (when providers try to recover costs related to charity care and underpayments from public payers through higher prices to private payers).

It is expected that expanding health coverage will be associated with higher health care spending – both public and private – in the short term. Although a phased-in strategy for broad reform, including a phased-in approach to improved access, is reasonable, such an approach should include early steps to achieve broader and more predictable health coverage. Expanded access should not become a second-hand contingency.

The primary barriers to access stressed in most reform proposals are financial, especially non-existent, inadequate or unreliable health insurance. Reform proposals regarding access should also be grounded in a realistic understanding that access to effective health services is more than a matter of

money. Other barriers to access also require attention. In transition economies, in particular, the economic issues of defining an adequate insurance base and maintaining it are key for the coverage of the population.

Key issues in extending coverage, therefore, may include the following.

- All or virtually all persons, whether employed or not, ill or well, old or young, must participate in a health insurance/benefits plan. Specific provisions must be made for households or individuals that do not participate in the official sector of the economy, or are self-employed or employed in the primary sector. Provision must be made to cover employees and their families and for adequate funds for those not active in the official sector.
- Whether a single or multiple insurers are envisaged, a uniform package of core or basic health benefits must be defined and periodically updated. The package should include services that are thought to be valuable in improving health. To limit inequities in access, the core package or standard plan needs to be reasonably comprehensive.
- If multiple health insurance plans are permitted, policies should minimize barriers to initial and continued health coverage (such as waiting periods and restrictions on coverage for pre-existing health problems) for those who move, change jobs, fall ill, start or stop receiving public assistance, or face similar changes in their circumstances.
- Requirements that individuals share in the cost of health coverage and health services should not create barriers to needed care for low-income individuals.
- To reduce incentives for health insurance plans to compete for healthy individuals and avoid the ill (adverse selection), payments received by health insurers (from governments, employers, employees or other sources) should be adjusted to reflect important differences in the distribution of low-risk and high-risk individuals across such plans. Correspondingly, what individuals pay for health coverage should not be linked to their health status (past or anticipated), age, gender, occupations or similar factors. Thus, what an individual pays into the system for health coverage may differ from what is paid out to a health plan for enrolling that individual.
- Critical cover, funding and other health insurance features should be made consistent across plans, more reliable and predictable over time, and less of a barrier to continuity of health care and job mobility.
- Proposals for reform should include specific provisions for benefits that cover all, or virtually all, the cost of services that are critical to the health and wellbeing of children and mothers, especially those at high risk.
- Proposals to extend health insurance should define where coordination is needed with other public and, potentially, private initiatives that target non-financial barriers to improved access and health status.
- Equal access is by no means the same as equal outcome and reform proposals need to consider policies to counter socioeconomic inequalities by intersectoral action.
- Policies to improve access to the health services go hand-in-hand with the concept of geographical equity and the extent to which resources are allocated optimally throughout a given country. Distribution (allocation) formulas must be developed where they do not exist and incentives must be given to professionals to practise in remote areas.
- Because reforms, once adopted, cannot just be assumed to be successful in meeting their objectives, policy-makers need to monitor changes in access over time.

Exercise 1

Why undertake reform? On what basis are priorities selected? Who makes this selection? How are proposals for reform defined? Who benefits and who pays? Who decides?

Cost-containment

Given the many pressing demands on finite national resources and the rapid increase in the share of those resources devoted to health care, policy-makers, employers and ordinary citizens must be concerned with both the overall costs of health care and their rapid rate of growth relative to the overall economy. Cost concerns have been a major obstacle to efforts to expand access to health care for those who are uninsured or underinsured. High health care costs are also a major contributor to growing anxiety among the middle classes about the adequacy and continued availability of their health cover.

To serve health and access as well as cost-containment objectives, policies to limit the rate of cost escalation need to be grounded in the concepts of:

- value: how health care spending relates to the achievement of desired outcomes;
- affordability: how health care spending relates to individual and societal resources; and
- equity: how the financing and distribution of health services affects different groups.

For these objectives to be achieved and sustainable, cost-management tools and monitoring structures are required which should encourage and emphasize individual, professional and organizational accountability. Detailed efforts to regulate prices, services and other aspects of day-to-day health care delivery run two major risks. First, some professionals and health care providers, health insurers and consumers may be preoccupied with manipulating the system rather than achieving more efficient and effective health services. Second, such manipulation may inspire ever more complex and voluminous rules that would ultimately defy sensible management or compliance by even the most well informed participants.

The following specific policy elements should have a role in a strategy for health care reform that promotes cost-containment.

- Movement toward provider payment methods that encourage efficiency and economy in the provision of health care services as well as quality of care and good outcomes.
- Some cost-sharing by most patients.
- Better information on prices, quality and expected outcomes of medical services.
- Methods for quality and utilization review that help practitioners, patients and others learn how actual care conforms to criteria for appropriate care and why care varies in effectiveness and efficiency.
- Further movement to standardize many administrative practices and eliminate many costs associated with the immense diversity of billing, payment, audit, reporting and other practices.
- A pragmatic mix of regulatory and market strategies. Some degree of local flexibility and discretion is also desirable.
- Efforts to reduce administrative costs, may in some cases, conflict with efforts to collect more data for monitoring access and quality, and educational and other purposes. The key criterion

for judging the appropriateness of administrative tasks and costs is whether the costs they impose are justified by the degree to which they serve desired objectives related to access, quality, equity, efficiency and information.

- Reform should discourage health insurers from competing on the basis of risk selection rather than effective management of care and costs. Proposals for reform should include provisions for standard benefit packages, risk-adjusted payments to health insurance plans (but not risk-adjusted individual premiums), special provisions for very high risk individuals (e.g. reimbursable or separate risk pools), monitoring of marketing and other health plan practices, and similar measures.

Exercise 2

How can health care costs be contained? How does the concept of cost-containment relate to the concept of microeconomic efficiency?

Quality assurance

Health care reform proposals must aim to maintain and improve the health and wellbeing of the entire population, including groups with special health or access problems. At the same time, reform planners must design and organize policies and programmes to strengthen the value of health care expenditure – that is, what can be achieved, in terms of health and wellbeing of individuals and populations, through health care spending. Reform must be implemented so that expanding access and containing costs does not lead to unintended reductions in the quality of health care.

Reform plans can achieve these objectives only with explicit attention to quality, which includes defining, measuring, assuring and improving the quality of care. A set of quality-related principles and policies for health care reform proposals must, therefore, be on the policy-makers' agenda. The emphasis on practice guidelines from this debate seems unavoidable.

By way of context, two major changes in medical care should be noted. First, care is being evaluated increasingly on the basis of its processes and outcomes, rather than on its structural aspects, such as the credentials of health care professionals. Second, with the advent of better research methods and computer technology, clinical medicine is becoming more science- and information-based. These two shifts should yield better and more cost-effective care in the future. Health policies and reform packages should not create incentives that retard these promising developments. In the light of this, an agenda that focuses on quality includes the following points.

- Proposals for reform should explicitly acknowledge three central issues that quality assurance and improvement efforts should address: (i) the use of unnecessary or inappropriate care, as well as over-provision of otherwise appropriate services; (ii) under-use of needed, effective and appropriate care, and (iii) lapses in technical and interpersonal aspects of care.
- Proposals should define an approach to quality assurance that will be meaningful, efficient and acceptable to those with a stake in the process.
- In considering outcomes, proposals should provide for the use of a wide range of health-related quality of life measures.
- Proposals will need to reflect both concern with the quality of care provided by individual insurance plans and practitioners and attention to the quality of care across the entire system.
- Proposals should be clear about organizational structures, procedures and divisions of responsibility and make explicit provisions for both internal and external monitoring of quality of care.

- The quality assurance and improvement programme outlined in the proposals should include specific responsibilities for identifying and overcoming system and policy barriers to improved performance.
- Proposals should mandate that quality assurance and improvement programmes track the effects of certain cost-containment processes.
- Practice guidelines are an important element of reform and are related to appropriateness of care, while at the same time they may serve the objectives of cost control, benefit package design, rationing, competition and administration. Emphasis should be placed on the development of such guidelines by involving all necessary stakeholders. The issues of compliance and clinical audit are key for the adoption and implementation of such guidelines by clinicians.
- The active implementation of quality assurance and good clinical practice indicators necessitates adequate investment in information systems throughout the health sector, so that effective monitoring of practitioners, hospital activities, budget management and prescribing, among other things, can be carried out.
- A formal, non-judicial mechanism by which individuals can voice grievances and obtain assistance should be available to all. Proposals for health care reform should mandate an additional responsibility for a quality assurance and improvement programme, namely to serve as a focus for consumer complaints or as an ombudsperson.

Exercise 3

When evaluating various options for health care reform what are the key factors to take into account? How? What impact might environmental factors or the historical context have on this debate?

Reform of financing

Many steps proposed to improve access can be expected to add significant new financial burdens for employers, governments and some individuals (e.g. those who moved from low-risk insurance pools to average-risk pools). Whether a given country will accept such burdens and how they will be distributed are clearly political decisions. Policy-makers may need sufficient popular support for increased taxes or insurance premiums that may be necessary to protect more individuals against the financial consequences of ill health. Consequently, financing policies will be influenced by several considerations, including equity and efficiency arguments.

Proposals for reform should move the health care system toward more broad-based, efficient, equitable and transparent financing arrangements. They should be grounded in realistic estimates of expected expenditure and revenues and their distribution across population groups.

Proposals for health care reform should explicitly:

- describe anticipated sources of financing and also their expected level in absolute terms and in terms of covering the entire population;
- identify the expected level, distribution and timing of savings expected from administrative reforms, cost-containment strategies, infrastructure changes and other provisions;
- estimate the level and distribution of public and private expenditure (including tax expenditure) needed to implement the reform proposal over a period of several years and state the assumptions, modes, data and similar elements used in developing these estimates;
- describe financing not only for health care services but also for basic elements of the health care infrastructure including public health, research, education and capital investments;

- make sure that projections of revenues and expenditure should be subjected to review and audit by independent, nongovernmental sources.

Exercise 4

Once the objectives of health care reform in a particular context are identified, what implications do they have for reform of financing?

Improving the infrastructure for effective change

Making policy is not the same as implementing it. The necessary conditions for effective short- and long-term implementation of a proposal for health care reform should be considered in the design of the proposal. Some of the conditions for successful change involve matters beyond the scope of a reform proposal *per se*, for example, political leadership and the general condition of the economy. Proposals should, however, discuss how certain broad features of the government and health care delivery infrastructure would be designed or shaped to support the objectives of reform. Four important elements of this infrastructure are:

- *governance and administration*, which involve the transformation of statutes into regulations, enforcement and oversight mechanisms, and other public and private action needed to implement reforms;
- *human and physical capital*, which includes the appropriate level, mix and distribution of health care professionals, facilities and equipment;
- *development of knowledge*, that is, the biomedical, clinical and health services research and the health data systems that create, aggregate, analyse and disseminate information that practitioners, administrators, consumers and others need continuously to improve health and meet other objectives of reform; and
- *public health policies and programmes* that focus on the community rather than on the personal health services that are the central concern of health care reform.

In addition, other elements may be considered part of the administrative apparatus necessary to promote the goals of health care reform in the longer run or to advance other important social goals. Among these are, for example, the definition of clinical malpractice, the creation of better legal responses to clinical errors, and the protection of the privacy and confidentiality of sensitive patient data that reside in computer-based records and databases.

- Reform packages should be clear and realistic about the timetable expected for full implementation. Monitoring mechanisms will be needed to detect inadequate implementation, unanticipated negative effects, and positive results that should be built upon.
- Any proposal should make clear how issues of human and physical capital supply and distribution will be dealt with.
- Proposals should describe policies and priorities that determine the roles of various providers, including nurses and physicians, and the settings from which they should deliver care. Particular emphasis must be given to primary care providers and how the shortfall in such clinical disciplines can be overcome in both the short and long term through changes in methods of payment for practitioners, educational programmes, and improvements in the attractiveness of the primary care function.
- Proposals should include a specific mandate for the development and continued support of comprehensive databases in the health field.

- Steps must also be taken to improve survey and statistics capabilities, particularly by instituting a national health care survey that can track progress and identify problems in the implementation of efforts to reform.
- Proposals should promote universal implementation of computer-based patient records (CPRs) and CPR systems among providers. The same holds for information services for health services research and health technology assessment.
- There must be an absolute increase in support for a range of research and information activities if reform activities are to be implemented and evaluated satisfactorily, particularly in the area of clinical evaluation sciences and health services research.
- An improvement in a country's capacity to carry out effective technology assessment efforts is needed. Proposals must be explicit about how technological innovation and the diffusion of health technologies will be dealt with over time.
- Proposals should encourage a partnership between the personal health services system and the population-based activities of the public health system, as well as occupational health activities.

Exercise 5

What are the main factors to be considered in order to ensure that the implementation of health care reforms is effective and sustainable? How can it be ensured that the incentives encourage desirable action by participants and promote the objectives which are intended in the longer term?

Efficiency and effectiveness

To measure efficiency, the cost of efforts must be related to results and the ratio between the two assessed. However, measuring results is very difficult in many policy areas. It is often equally difficult to assign costs to particular results, even if those results were measurable. For much the same reasons, equal difficulties may arise in attempting to measure effectiveness. Surrogate measures of the intended results are frequently developed for public programmes and policies, but all require the suspension of disbelief to be accepted as valid and reliable descriptions of what is occurring in the reform process.

As a consequence of these difficulties in measuring the substantive sequence of government actions and plans for reform, much of the assessment of performance in government depends on the evaluation of procedural efficiency, i.e. not so much what is produced as how the agencies go about producing it. The efficiency of public agencies may be assessed by determining the speed with which certain actions occur or by ensuring that every decision goes through all the appropriate procedural stages specified for a process. The important point here is that goals may be displaced when evaluations are made on a basis that posits the process itself, rather than the services that it is intended to produce, as a measure of all things. Concern for measuring efficiency through procedures may, in fact, actually reduce efficiency in producing results for citizens, because of a proliferation of procedural safeguards and associated "red tape".

Improving efficiency

Improvements in efficiency have featured quite strongly in most countries' efforts to reform their health services over the past twenty years. Efficiency can be thought of in terms of macroeconomic and microeconomic efficiency. The former relates to the concept that the costs of health care should not exceed an acceptable share of national resources. The latter refers to the fact that the mix of

services chosen should secure health outcomes and consumer satisfaction at minimum cost. Macroeconomic efficiency has been examined under the umbrella of cost-containment and policy-makers' efforts to control total expenditure on health as a proportion of national resources. Microeconomic efficiency is a more complicated notion, since it seeks to address different objectives: to satisfy consumers, to grant incentives to providers, and to induce payers to behave optimally.

While macroeconomic efficiency is a more general concept, achieving microeconomic efficiency certainly contributes to it. The pursuit of microeconomic efficiency should include the following:

- five key dimensions, which can subsequently be pursued at a more decentralized level:
 - (i) lowering the cost of achieving a desired outcome;
 - (ii) providing greater consumer satisfaction for patients and their relatives;
 - (iii) reducing the time and travel costs for patients and their relatives;
 - (iv) reducing the costs of administration and regulation; and
 - (v) encouraging technological and organizational advances to raise productivity;
- measures at the macro- and micro-level to address problems in the current methods of paying providers and to improve incentives that would, in turn, lead to greater efficiency;
- at the macro-level, a shift from an integrated or command and control model to a public contract model with the introduction of competition into the health care markets has been shown to contribute to greater system efficiency, although a number of issues still need to be addressed:
 - (i) both buyers and sellers being public bodies;
 - (ii) oligopolistic behaviour of health professionals;
 - (iii) conflict between consumer choice of provider and “third-party” choice of best buy;
 - (iv) the extra administration costs of contracting and whether these counterbalance efficiency gains;
 - (v) avoiding cream-skimming;
 - (vi) protecting quality of care; and
 - (vii) whether there will be adequate disclosure of information to make the market work as intended;
- the issue of market competition and where it should occur – several options are available:
 - (i) enabling practitioners to be responsible for the care of their patients, both clinically and in terms of managing their total cost;
 - (ii) introducing competition between insurers, although this also necessitates action regarding regulation;
 - (iii) separating purchasers from providers, which should ensure that there is adequate scope for competition between providers; and
 - (iv) encouraging self-governing hospitals with the objective of improving micro-efficiency through innovation and less bureaucratic control;
- the issue of provider payments (professionals and hospitals) and decisions about policies that improve efficiency while at the same time save on costs;
- policies that would increase the flexibility of the health system and the kind of services it offers, for example developing alternatives to hospital care such as stand-alone facilities, day care and community-based services.

Exercise 6

How can (a) the development, dissemination and use of knowledge, and (b) monitoring, evaluation and (when necessary) modifications to health care policy and practice be harnessed to ensure that health care reforms are appropriate, evidence-based and adjusted appropriately as new knowledge becomes available?

Implementing funding/financing reforms in central and eastern Europe and the CIS

Many of the countries emerging from socialism rejected the Semashko model in favour of the Bismarck model. The centralized model of general taxation with government control (i.e. the Beveridge model) was not politically feasible at the time so, instead, social insurance was embraced as the preferred choice. Most countries have encountered difficulties in making this model work successfully in a period of rapid economic decline.

While the context and the options reviewed and analysed in the previous chapters are relevant to the debate about health sector reform in eastern European economies in transition, aspects and challenges of the reform process that are prevalent among countries in transition may also need to be considered.

Although there is an additional module on health care reform issues in the countries of central and eastern Europe and the CIS, some elements that could be examined in this context (bearing in mind the agenda defined in the previous chapters) can be addressed in the following exercise.

Exercise 7

- How does the size of the informal economy, the agricultural labour force and the self-employed, and the collection of contributions, affect the feasibility of social insurance as the main source of finance?
- What are the implications for the efficiency and equity of the health sector as a whole when highly segmented systems are implemented, providing cover for only part of the population (as occurs in Latin America)?
- Have single or multiple fund systems performed better? Why?
- What difficulties have emerged because of different systems of management or public/private ownership?
- What systems of regulation and administration have proved most successful?
- Consider how successful the process of decentralization has been in the countries of central and eastern Europe, and how devolution to local insurance funds has operated in practice.

Further reading

ADAY, L.A. ET AL. *Evaluating the medical care system: effectiveness, efficiency, and equity*. Ann Arbor, MI, Health Administration Press, 1993.

FIELD, M.J. ET AL., ED. *Assessing health care reform. Committee on Assessing Health Care Reform Proposals, Institute of Medicine*. Washington, DC, National Academy Press, 1993.

MAYNARD, A.K. & BLOOR, K. Introducing a market to the UK National Health Service. *New England journal of medicine*, **344**(9): 604–608 (1996).

MOSSIALOS, E. & LE GRAND, J., ED. *Health care and cost-containment in the European Union*. Aldershot, Ashgate Publishing Limited, 1999.

The reform of health systems: a review of 17 countries. Paris, Organisation for Economic Co-operation and Development, 1994 (OECD Health Policy Studies No. 5).

SALTMAN, R., ET AL., ED. *Critical challenges for health care reform in Europe*. Buckingham, Open University Press, 1998.

Individual country case studies from both EU countries and the rest of Europe can be downloaded from the web page of the European Observatory for Health Care Systems <http://www.euro.who.int/observatory/TopPage> (accessed 6 November 2002).

3.3.3 Economies in transition

Yannis Yfantopoulos⁹

Key messages

- The economic principles for a command economy and a market economy differ substantially, and these differences have major implications.
- The major issues of health reform policies in the transition countries are discussed and the trends are analysed with reference to structural, political, economic, social and health transformation.
- The economic crisis in the Russian Federation has brought a series of negative economic effects in the newly independent states (NIS), such as a fall in production, spiralling inflation, increasing unemployment, poverty and social deprivation, which all lead to violence, increased alcohol consumption, and a significant deterioration in health status outcomes.
- Restrictions in data sources and problems envisaged in time trends analysis are highly relevant when changes in outputs and inputs over time are being considered. In a planned economy, a net material product-based system is used for the measurement of output, whereas in a market system, national accounts are used for the measurement of macroeconomic variables.
- The changing role of government in transition economies has wide-ranging implications, including for the health care system and for health outcomes.
- The reform of health care from a state bureaucratic system to an insurance-based system is critically evaluated, particularly in relation to the quality of services, access to care, the efficiency principle and the financial sustainability of reforms.
- The increasing trends towards activities in the underground economy are explored, together with their implications.

⁹ This module was prepared by Professor Yannis Yfantopoulos from the National and Capodistrian University of Athens (e-mail: yyfa@otenet.gr). The author is grateful for a number of comments by experts in central and eastern Europe and the newly independent states, notably Dr Eva Bondar (e-mail: bondar_eva@s16.kibernet.hu).

Tutors' notes

Given the breadth and complexity of the subject, considerable background material based on economic analysis is included. Tutors are also encouraged to supplement the material with appropriate case studies. The audience needs some familiarity with the overall health context and some appreciation of the economic tools, such as Module 5.4.1 Economic Modelling and Forecasting. It is nevertheless intended that a more general audience can – with appropriate tutoring and using the research conclusions – tackle the exercises.

Introduction

The purpose of this module is to discuss issues related to health economics for the economies in transition. The term “transition” is used here to portray the structural, political, economic, social and health transformation of the post-communist societies in southern and eastern Europe, and to understand the major determinants that have influenced the evolutionary changes in health status and expenditure on health there.

The end point of the transition is likely to differ between countries for a wide variety of reasons. Indeed, a given point may never be reached, as other changes may occur first. The process of transition may be more amenable to consistent discussion than the final destination, and changes in the health care sector may interact, positively or negatively, with changes in other sectors. It does not need to be emphasized that the learning process can be mutual, based on respect and an openness to a range of learning opportunities: it need not necessarily operate in a single direction (west to east). The socialist health care systems were often quite successful with, for example, some important basic tasks, such as vaccinating all citizens, reducing mortality from infectious diseases and addressing maternal and infant mortality.

Inevitably, the model-like approach focuses on a limited number of (major) factors. The reality is much more complex, varying between countries and over time. As Saltman & Figueras say: “Drawing conclusions about current patterns in European health care reform can be a complicated process” (1). Similarly, McKee & Healy comment that “one of the pervasive messages in this book is the need to take account of different contexts” (2). While this is recognized, not all factors can be included in this brief module or lend themselves particularly to the approach adopted here.¹⁰

Some points should perhaps be emphasized. First, many of the countries of central and eastern Europe did not voluntarily choose the political or economic systems from which they are now changing. In many cases they are seeking to make the best of situations. Their past conditions and the present can, however, influence their future through attitudes, incentives and expectations, as well as through more specific manifestations, such as the health care resources of money, skilled labour and knowledge. For example, the lack of experience with market-based systems can result in unrealistic expectations, underdeveloped complementary structures and arrangements, and a failure to take full advantage of emerging opportunities. Any sort of independent economic entity may be seen as private, because it is not part of the previously dominant state complex. The countries in transition also vary greatly, whereas the module takes a broad and general overview.

⁵ For more detailed information on health care reform in Europe see Saltman & Figueras (1) and Saltman et al. (3). For more specific studies see Mossialos et al. (on funding options) (4), Saltman et al. (on the regulation of European health systems) (5), McKee & Healy (on hospitals) (2), McKee et al. (on health care in Central Asia) (6), and Mills et al. (on the challenge of health care reform) (7).

Secondly, the module generally considers the public sector at the level of the national state. In fact, collectives can assert and pursue public purposes, in health care and in other sectors, through many forms such as regions, cities, communes and even voluntary, religious and charitable organizations.

Thirdly, the demographic and epidemiological processes which are occurring in many of the countries of central and eastern Europe do not reflect a uniform structure of health development. Broad comparisons, for example of overall levels of health status for health expenditure, can obscure these important differences, but they need to be kept clearly in mind.

Fourthly, there are problems associated with the transition process itself, quite apart from the starting point and the likely eventual outcomes. For example, resources can be suddenly reduced, often widely, at the same time as new, sophisticated and often relatively expensive foreign drugs, equipment and medical technologies become increasingly available. Since 1989, several radical discontinuities have been observed in health inputs and outcomes that have influenced the transition process of the economies in question. In the newly independent states which have emerged, the transition from centrally planned to open-market economies introduced many problems and tremendous imbalances in countries that had been highly dependent and heavily subsidized by the economic authorities in Moscow. The Leontief-type of predetermined production and distribution plans provided little space for exports and economic transactions with the rest of the world. The economic crisis in the Russian Federation brought a series of negative economic effects in the NIS, such as a fall in production, spiralling inflation, increasing unemployment, poverty and social deprivation which lead to violence, increased alcohol consumption and significant deterioration in health outcomes.

In the NIS economies as a whole, the inflation rate was around 349% by 1995 and production fell by half between 1991 and 1995. In 1993 the highest inflation rates were recorded in Ukraine (4735%), Armenia (3732%) and Turkmenistan (3102%). In 1994 the highest price increases were in Georgia (15 606%), and Armenia (5273%). By the end of the decade, in 2000, prices were fluctuating around 28% in Ukraine, 10% in Turkmenistan, 4.4% in Georgia and -0.2% in Armenia (8). Poverty in the Russian Federation reached its highest level in July 1992, affecting 46% of the children under 15 years of age. The economic decline brought a significant reduction in health and social expenditure that further influenced the health and social outcomes. For example, public expenditure on health fell in Turkmenistan from 5.5% of gross domestic product (GDP) in 1988 to 2.8% in 1994. Similar reductions in expenditure, absolute and relative to GDP, have been observed in all the transitional economies. Increasing trends in infant mortality were recorded during the period 1989–1993 in the Russian Federation (from 17.8 to 19.9), Kazakhstan (from 25.6 to 28.1), Tajikistan (from 43.2 to 47.0), Azerbaijan (from 26.2 to 28.2), Ukraine (from 13.0 to 14.9) and Bosnia-Herzegovina (from 18.4 to 22.7), followed in all cases by significant reductions.

A comparative analysis can be helpful, examining trends in health status and changes in health resources among different groups of countries. The analysis explores both macro- and microeconomic aspects. The data are the best available and are derived from WHO, the World Bank and the United Nations. Twenty-two Member States of WHO are classified as transitional economies, representing 7% of the world's population.

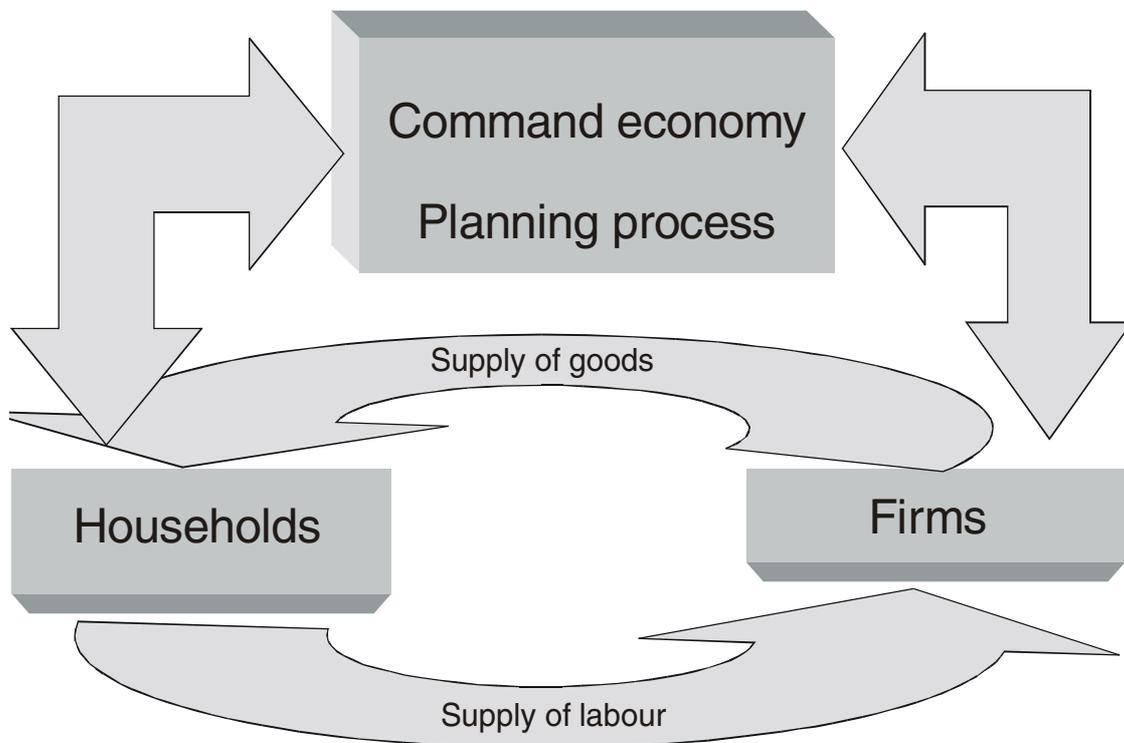
Planned versus market economy

Because resources are scarce in any society, whether communist, socialist or capitalist, politicians, administrators, producers and consumers have to make choices concerning three basic questions in any economic system.

1. **What** goods and services should be produced and in what quantity? For example, how many hospital beds, and primary health centres, should be developed? How much public or private care should be provided?
2. **How** should the production of the health goods and services be organized. For example, what techniques and what input mix will the health system use to produce a certain level of health for the society? Should a society produce more primary health and preventive services compared to hospital services?
3. **For whom** should services be provided? For the elderly? For the young? For the rich or for the poor?

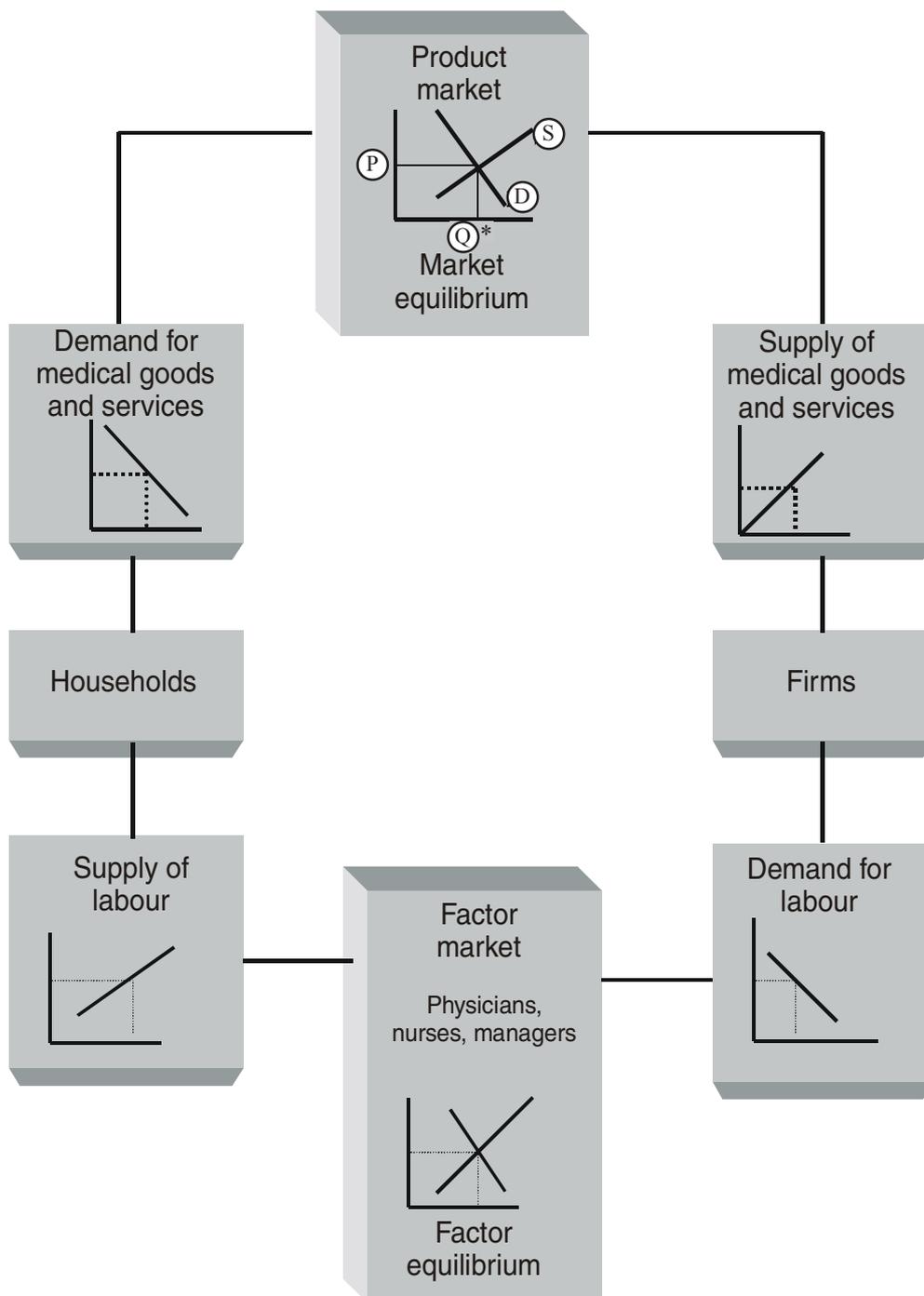
However there are considerable differences between economic systems in the way that they tackle the above questions. For instance, *in a totally planned or a command economy* (usually associated with a socialist or a communist society) the government or the central planning committee is responsible for taking decisions. The production factors of land and capital are collectively owned. The process of satisfying human wants is predetermined by a committee which is responsible for allocating resources. Fig. 1 presents the three-sided relationship between the state, the producers and the consumers. A Leontief-type of input–output analysis is used to determine the output produced in the society and the resources required for such production. Outputs of one sector can be used as inputs in other production activities. By this process the state creates the general framework of a planned economy.

Fig. 1. The process of a command economy



At the other extreme lies the *free market* system which is associated with a capitalist system (Fig. 2). There is much less government intervention and decisions are taken by the consumers and producers. The consumers aim at the maximization of their utility and the producers aim at the maximization of their profits. The free market ensures that an optimum allocation of resources is achieved when certain assumptions are fulfilled such as perfect knowledge among consumers and producers, no uncertainty, constant returns to scale, and perfect mobility among the factors of production.

Fig. 2. The free market system



However, in the health care sector the classic thesis of Arrow (9) revealed that the market itself fails to produce an optimal distribution of resources for a number of reasons: externalities, such as infectious diseases and altruism; social and historical controls, such as the prohibition of illicit drugs; the existence of uncertainty in the incidence of disease and the efficacy of medical interventions; asymmetry in information between doctors and patients; incomplete coverage of all risks; non-increasing returns to scale; and monopolistic tendencies. Interestingly, he also stated: “I propose here the view that, when the market fails to achieve an optimal state, society will, to some extent at least, recognize the gap, and non-market social institutions will arise attempting to bridge it.” (9)

In reality, in the majority of health care systems, a mixed economy is observed where decisions are taken partly by the government and partly by the competitive forces of supply and demand.

Exercise 1

In an economy which is in transition from a centrally planned to a more decentralized system, with a greater role for market forces and the independent interactions of producers and consumers, and with a political system which is in transition from a centralized to a more pluralistic and democratic set of arrangements:

- What effects do these have on the priority attaching to health care compared to other important social objectives?
- What implications do these have for the relative weight given to efficiency and equity objectives (specifically in relation to the health care system)?
- What role is played by the underground economy and the incentives it embodies, both in the short term and in the longer term?

Political and economic transition

The transition

This section considers the theoretical link for the societies in transition between the political and economic spheres and assesses critically the changes implemented during the period from 1989 to 2000. Emphasis is given to macroeconomic issues (such as output, investment, inflation, unemployment) and microeconomic issues generated by the liberation of prices. Other issues, including the underground economy and corruption are discussed briefly.

After the post-war period many European countries witnessed substantial social and economic transformations, mainly attributed to economic growth and political reforms aiming at more democratic and competitive electoral systems. In the central and eastern European countries, the fall of the Berlin Wall in November 1989 signified a new era, which was accompanied by peaceful political transformations to democratic societies and economic transitions to market economies. Free and fair elections have led to democratic changes in the Czech Republic, the former Yugoslav Republic of Macedonia, Hungary, Poland and eventually the Russian Federation. New multiparty systems have emerged after the collapse of bureaucratic socialism. The previous authoritarian socialist systems have been replaced by a new élite of politicians who have emerged from a politically competitive system promoting parliamentary democracy.

In the economic sphere marked changes have been observed, not only between the countries in transition but also within these countries among social classes and regions. The more advanced countries, after rapid liberalization, have managed to achieve macroeconomic stabilization and gradually introduce sustainable institutional changes. In the less developed countries, the privatization and liberalization of the economic systems have been jeopardized by unfavourable legacies of the previous communist regimes, which slow down the process of economic transformation. Nevertheless, even small-scale privatization has yielded significant benefits in terms of employment and growth. The variation in implementing reforms across the transition countries is mirrored in their macroeconomic performances.

Macroeconomic performance

During the decade 1990–2000, the key challenge confronted by the economies in transition involved the restructuring of their entire economies. This involved moving away from a command economies and opening up to a modern, dynamic and more competitive environment. Inevitably, the composition of GDP was totally restructured as a result of substantial changes in the production process and in the utilization of the factors of production. In particular, the production of output is no longer predetermined and dictated by the central planners, but is defined by the competitive forces of supply and demand. Enterprises produce only what the consumers are willing to buy. The new system transformed the previously socialist society and had a profound impact on the quality of products and the welfare of consumers.

In addition, the demand for new factors of production totally reshaped the factor markets for capital and labour. In relation to capital, new technological advances were introduced and new investment programmes launched, financed by privatized banks and credit institutions. In the labour market new skills were in demand, and the changing demands also created large-scale job losses and high levels of unemployment. Poverty, crime and alcoholism increased, partly as a result of these changes, and there was a substantial deterioration in the health status of the population. The *World development report 1996 (10)* emphasized the growing inequalities in the Russian Federation and eastern European countries.

Inequality increased most rapidly in eastern Europe and the countries of the former Soviet Union after the collapse of Communism. In the Russian Federation, the number of people living in poverty (on less than US \$4 per day) soared from about 2 million in 1987 to 66 million – four out of ten Russians – by 1995 (11).

These changes were accompanied by new methods of measuring output. The approach changed from a material-based measurement to a national accounts basis, which is common in market economies around the world.

During the transition period the volume of production fell, which was reflected in the growth rates of GDP for the societies in transition. However, this fall in production and the annual rates of economic growth were far from uniform in the various economies. Fig. 4 presents the annual rate of growth for the Commonwealth of Independent States and the Baltic countries from 1989 to 1999. After the first years of substantial negative economic growth, a weak recovery was achieved by the mid-1990s. In 1996 the rates of economic growth in Latvia, Poland and Slovakia were above 6% and in Lithuania just under 6%, but more modest in the Czech Republic and Hungary.

Fig. 3. Issues in the political and economic sphere

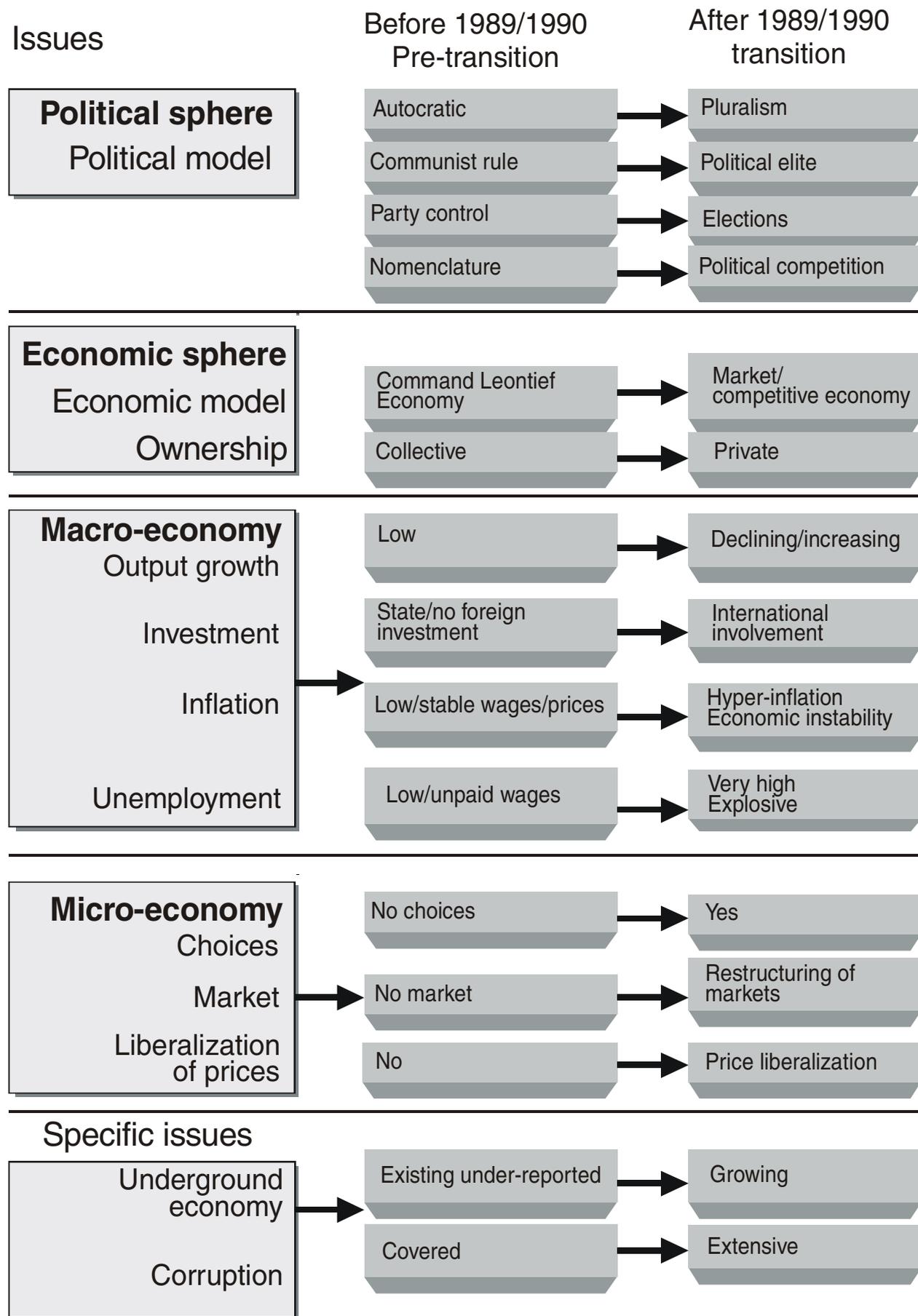
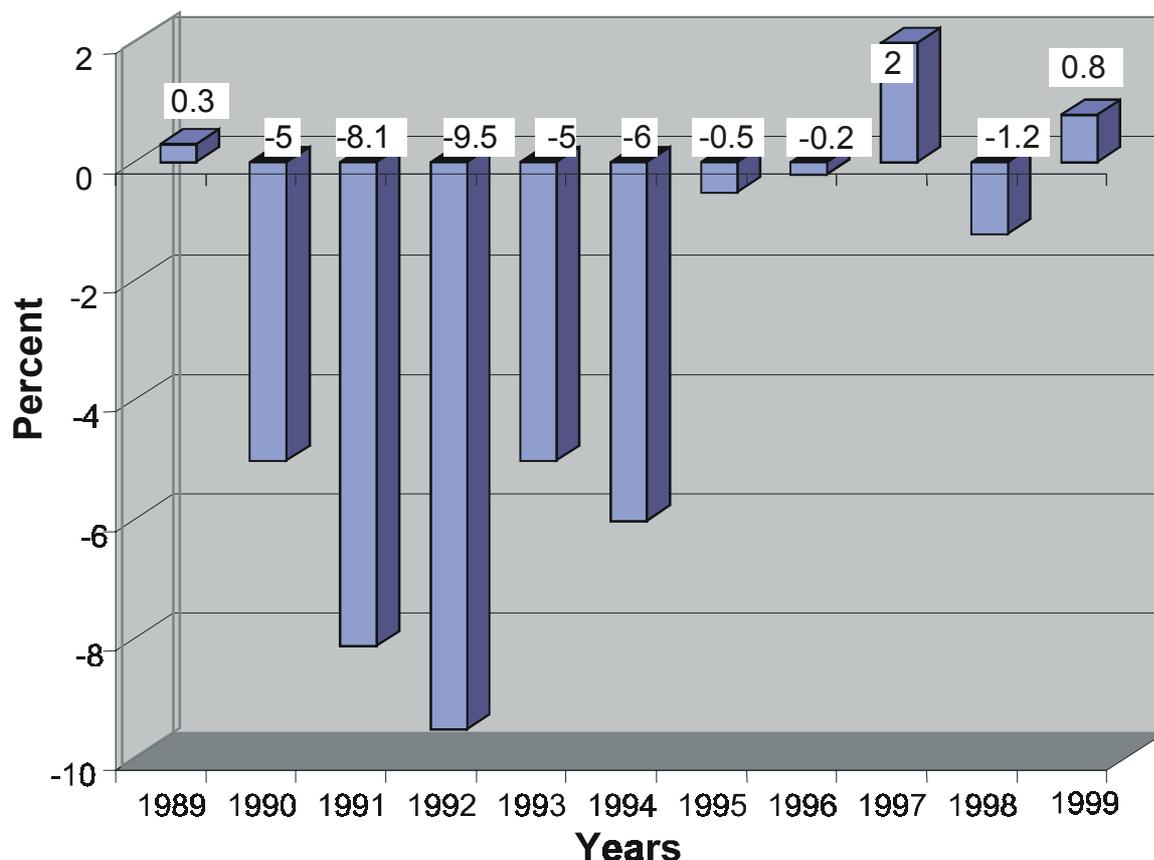


Fig. 4. Growth rate in real GDP in the Baltic States and the CIS

Microeconomic prospects

To achieve sustainable economic growth, liberalizing reforms should be complemented with institutional changes aiming at the restructuring of markets. During the first phase of transition the old large-scale industrial complexes were faced with great challenges. Many had to close, due to inadequate labour skills, technological infrastructure and managerial competence. Rapid industrial downsizing led to massive unemployment, social upheavals and stress. Over the medium term the transition economies developed new labour skills, attracted foreign investments and rapidly improved their productivity. New products which were introduced to the market strengthened the competitive spirit of enterprises, consumers and the wider society. The choices available to, and the welfare of, many consumers improved substantially, although inequalities increased sharply.

The role of the state was of vital importance during the transition period. Politicians and administrators faced serious challenges in changing the form of government from planned bureaucratic economies to market-oriented systems. New legislation was enacted to promote economic reforms aiming at the development of markets and the establishment of private enterprises. However, despite the impressive achievements in the liberalization of the system, the quality of government and state intervention in the economic system still varies widely across the different economies in transition. In many cases the transition phase was accompanied by a growing underground economy and corruption in the civil service. Ensor & Denan discuss corruption as a challenge to effective regulation in the health sector (5).

Exercise 2

To what extent is the situation in your country (a) similar to, and (b) different from, the broad picture outlined in the module and the particular aspects which are emphasized there?

To the extent that there are differences, what implications do they have for:

- the priority given to health care compared to other social objectives
- efficiency and equity in health care
- the possibilities for intersectoral action
- the relationships between the official and the underground sectors in health?

Consider the similarities and differences in relation to:

- the processes of transition
- the end point to which transition is directed – indeed, is there any such point?

Health reforms

This section analyses the issues relating to health economics in transition economies with reference to decision-making, management, health objectives, resource development and financing of the system. The characteristics of the traditional Semashko health care model are analysed and compared with the health care reforms implemented after 1989. Table 1 portrays the changes implemented after 1989 in various fields of the health economy.

The need for health reform

The need to implement health care reforms in the countries in transition may be attributed to the following reasons:

- collapse of the soviet Union and the consequent political, economic and social crisis
- transition from state-managed to market systems
- new social risks related to the economic crisis (unemployment and poverty)
- decline in living standards
- increasing inequality in the distribution of income
- high rates of poverty and social exclusion
- increasing incidence of alcoholism, crime and smoking
- more recorded cases of drug addiction and AIDS.

Numerous empirical studies have documented the negative impact of the above factors on people's health.

In these countries a sharp deterioration in health status has been recorded since the transition began. Life expectancy continued to decline during the whole decade and remains far below European Union levels. Infant and perinatal mortality have shown a similar gap compared to western European societies. The incidence of tuberculosis and other infectious diseases has increased substantially.

Since the first stage of transition, the newly independent states and the countries of central and eastern Europe have begun to assess health outcomes more carefully and to discuss critically innovative avenues for reform. Many aspects of the reforms introduced in these countries have had to follow a different path from those observed in western Europe. The latter had already reached a high level of

Table 1. Health economic issues in transition economies

Issues		Before 1989/1990	After 1989/1990
1. Decision-making		Centralized	<ul style="list-style-type: none"> ☀ Signs of decentralization and regionalization (St. Petersburg Region)
2. Management		State-managed comprehensive system	<ul style="list-style-type: none"> ☀ Towards an internal market managed system
3. Objectives	• Efficiency	Low	<ul style="list-style-type: none"> ☀ Increasing
	• Effectiveness	Not assessed	<ul style="list-style-type: none"> ☀ Some cost effective therapies
	• Equity	Emphasis on per capita distribution of services	<ul style="list-style-type: none"> ☀ Problems with vulnerable groups, aged, poor, unemployed
	• Quality	Low	<ul style="list-style-type: none"> ☀ Increasing
4. Resources	• Doctors	Oversupply/mainly specialists, low productivity, no incentives	<ul style="list-style-type: none"> ☀ Declining trends
	• Nurses	Oversupply	<ul style="list-style-type: none"> ☀ Declining trends
	• Beds	Oversupply	<ul style="list-style-type: none"> ☀ Declining trends
	• Medical technology	Lack of infrastructure	<ul style="list-style-type: none"> ☀ Increasing infrastructure
5. Financing	• Public:	1. State	<ul style="list-style-type: none"> ☀ Yes
		2. Region	<ul style="list-style-type: none"> ☀ Yes
		3. Health insurance	<ul style="list-style-type: none"> ☀ Yes
	• Private:	1. Private insurance	<ul style="list-style-type: none"> ☀ Yes
		2. Out-of-pocket payments	<ul style="list-style-type: none"> ☀ Yes
	• Under-the-table payments	Limited	<ul style="list-style-type: none"> ☀ Yes

health outcomes, and since the share of GDP devoted to health was more than 8%, cost-control and cost-containment policies were introduced to control costs. The countries in transition, which confronted increasing mortality and declining life expectancy, adopted a more expansionary model. They aimed to increase their low levels of health expenditure, both in absolute terms and as a percentage of GDP.

However, it was evident that expansion should be pursued on a cost-effective basis and in an equitable way. New management techniques and economic evaluation were considered as appropriate tools to monitor changes and assist decision-making. In the first phase of introducing health reforms the major objective was to move away from a state-controlled bureaucratic system, based on the principle of state monopoly, and gradually to develop a more pluralistic network of public and private insurance initiatives, financed from public and private sources.

Provision of services

The traditional Semashko model was based on the maximalistic principle of:

- large hospitals, often with more than 1000 beds;
- very large numbers of facilities;
- large numbers of doctors with very low salaries (much lower than civil servants); and
- large numbers of nurses with low salaries and low education.

Inevitably the result was low quality of services, low medical productivity, no incentives to produce more, and under-the-table payments to medical personnel.

The lack of advanced medical technology, combined with the shortage of health economists and administrators, contributed to large inefficiencies in the delivery of services.

In the process of reform many positive changes have been observed:

- introduction of decentralization of decision-making;
- exploration of new management techniques
- changes in the ownership of health care facilities
- privatization in primary care services
- large-scale privatization introduced into the pharmaceutical sector
- privatisation of small hospitals
- reduction in the number of hospital beds
- introduction of medical technology improvements in hospitals
- substantial increase in the application of health economics and medical management
- development of quasi-autonomous sickness insurance funds.

It is widely accepted that significant progress has been achieved during the last decade towards greater cost-effectiveness and improvements in efficiency.

Financing

Financing issues are explored here in the context of the changing public/private mix in the health care systems of the economies in transition. The important role of the public sector in the financing of health services has often been discussed in the literature of health economics under the theory of public goods and market failure. Private goods (such as personal health services) with substantial externalities and where there was a significant collective interest could also be publicly subsidized. For private goods with exclusive personal benefits, such as cosmetic dentistry, it has often been argued that the individual should be responsible for covering the cost. OECD, World Bank and WHO reports reveal that in all countries of the world there are public and private initiatives in health. The key question concerns the optimal proportions of public and private involvement in the health sector to ensure efficiency in the utilization of resources and equitable access to a certain spectrum of services for all citizens.

Health insurance has been proposed as a method of providing services in a cost-effective way, because it reduces the overall risks accruing to society by pooling all the risks. The countries in transition have implemented health reforms aiming at the introduction of compulsory health insurance, and the separation of state budgets from employers' and employees' contributions paid directly to insurance funds.

Various forms of health insurance have been introduced or are in the process of implementation, as in Bulgaria and Romania. In some countries, compulsory health insurance has been introduced covering the whole population, whereas in others (e.g. Albania) health insurance only covers part of the population.

The financing mechanisms also present many dissimilarities. For instance, in Estonia a tax collection system has been introduced which is based on contracts between the insurance agencies and the tax authorities. In Poland all the insurance contributions covering health, pensions and unemployment benefits are collected by the insurance agencies.

Several problems have been recorded, including in the collection of payroll insurance contributions. Changes in employment status have created uncertainty for many insured people. A number of countries declared significant problems in collecting contributions, even from workers who were employed in large industrial complexes and in successful enterprises. In Hungary, some insurance funds went bankrupt and never paid their debts.

The role of the state

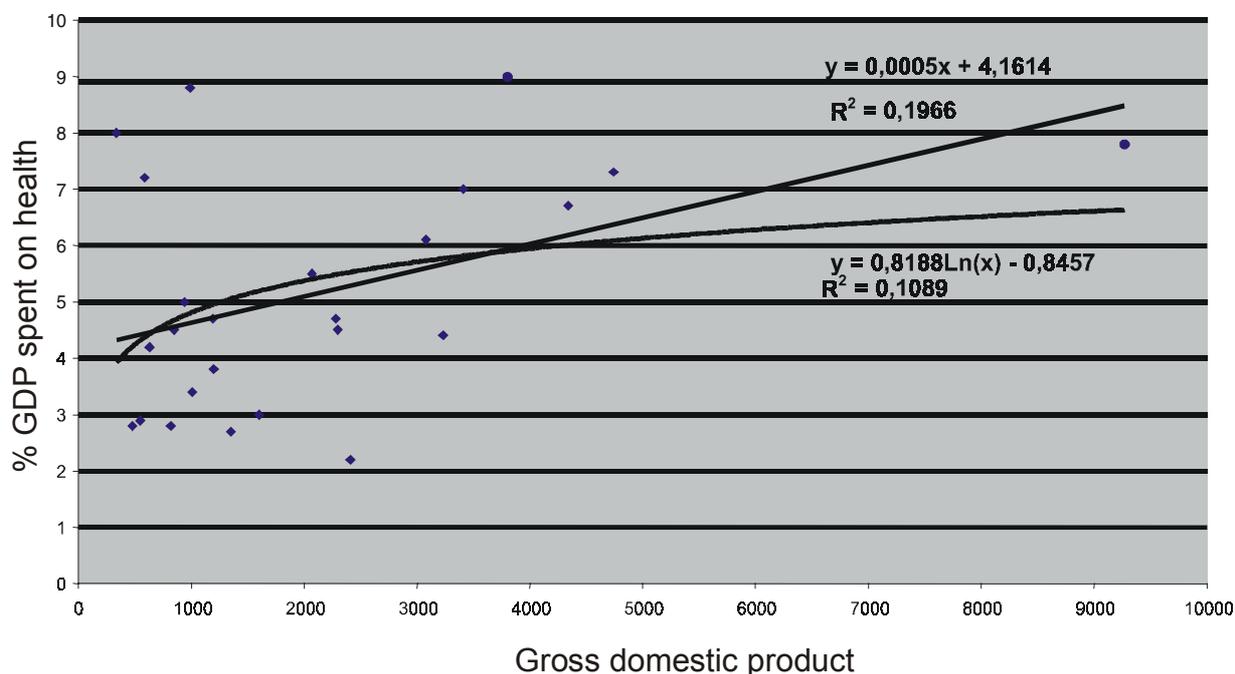
Despite the changes, public involvement in the financing of health services has remained substantial. The forms of public intervention vary significantly from country to country. In the majority of the countries in transition (for example, the Czech Republic, Poland and the former Yugoslav Republic of Macedonia) the state acts in a manner which is complementary to the insurance system and undertakes to cover the insurance contributions for some vulnerable groups such as the elderly, the unemployed and the poor. In other cases the role of the state is more targeted to the poor and disadvantaged by providing a minimum package of public health services. It is widely evident that, because of the reforms which have been introduced and the emergence of fee-for-service arrangements in hospitals and primary health care, the poor and the unemployed, who represent a high share of the population (around 20–35% in a number of these countries) cannot afford to pay the higher costs of care. As a result they have been pushed out of the health system. In some countries, such as Albania and Latvia, the government has introduced a minimum package of health care for the uninsured in order to ensure that their basic needs are covered. Recent experience reveals, however, that in times of economic crisis the sustainability of such systems can become uncertain.

Expenditure

There are problems in assessing trends in health expenditure in the countries in transition, because the existing sources are scarce and the data are not fully comparable. Notwithstanding, an attempt is made to establish some international comparisons between these countries. It has often been argued in the literature of health economics that the proportion of GDP devoted to health rises with the economic prosperity of the country. Hence, richer countries tend to spend more on health than less developed ones.

Fig. 5 presents the relationship between GDP per capita and the share of GDP spent on health for the economies in transition. A linear and a logarithmic form are both explored to approximate the above relationship. The coefficient of the double logarithmic equation shows an income elasticity of 0.82. The logarithmic relationship is used to investigate the existence of diminishing returns to scale in the expansionary process of health expenditure. This hypothesis is often supported by the fact that as GDP rises, more cost-effective techniques are introduced in order to achieve a more efficient utilization of resources. For instance, in the case of the Czech Republic, the share of GDP devoted to health increased from 5% in 1990 to around 8% in 1994. Following the introduction of cost-control measures, the share of GDP devoted to health fell to 7.3%. Similar patterns of expenditure have been identified in other European countries.

Fig. 5. Relationship between GDP per capita and percentage of GDP spent on health in the economies in transition

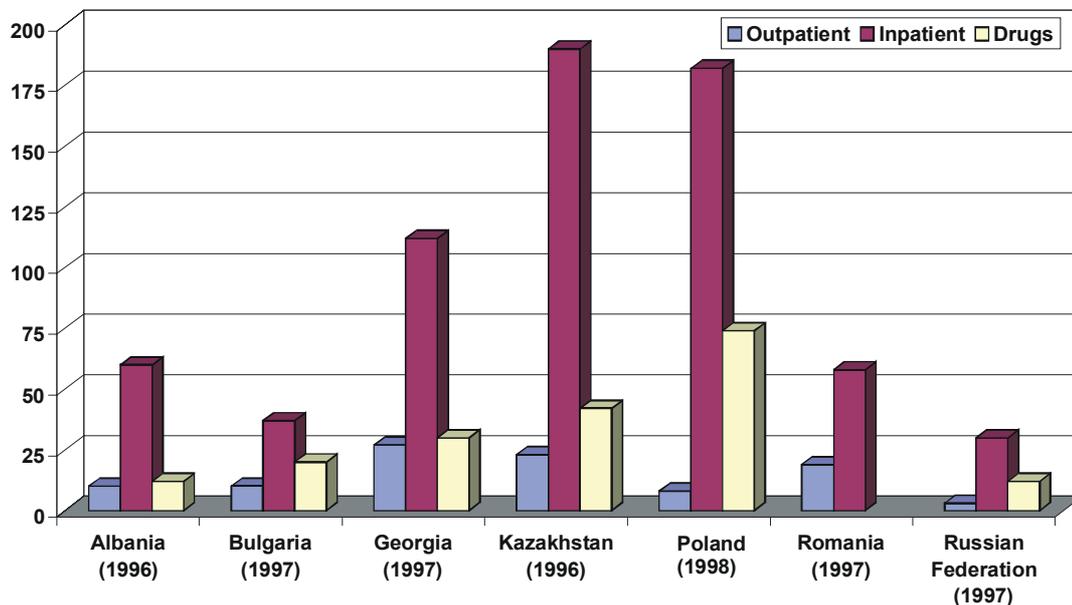


The percentage of GDP spent on health in the countries in transition suggests that they can be divided into two broad groups. The first group includes the richer countries (Croatia, the Czech Republic, Hungary, Slovakia, Slovenia and the former Yugoslav Republic of Macedonia) which spend a higher proportion of their GDP (6–8%) on health. These countries introduced economic and social reforms at an early stage of their transition process. In the health sector, early changes from state to insurance-based systems financed by a payroll tax contributed to sustained development. The second group includes the countries with delayed health reforms such as Albania, Bulgaria, Latvia, Poland and Romania. They spend around 3–5% of their GDP on health.

Underground economy

The role of the private sector in the finance and delivery of health services has been increasing around the world. Although there is no harmonized methodology for recording private expenditure among the developed and least developed countries, some recent estimates suggest that average private expenditure on health represents 2–3% of GDP in the developed countries. In the economies in transition, the corresponding share of GDP is 1.1%. However, this figure does not include a large underground economy in health care, which takes the form of unofficial charges paid for outpatient specialist consultations, surgery and other inpatient services. Fig. 6 shows informal payments in some selected eastern European countries. The highest per capita payments are for inpatient care followed by drugs expenses.

Fig. 6. Average informal payments per visit for outpatient care, inpatient care and drugs in selected eastern European countries (1995 US\$ adjusted for purchasing power)



Sources : 1) Adapted from Lewis M (2002) p. 196. 2) World Bank (1996, 1997c, 1999b), 3) Balabanova (1999), 4) Boikov and Feeley (1999), 5) Feeley et al. (1999), 6) GUS (1999) and Sari et al. (2000)

Source: Lewis, M. *Informal health payments in central and eastern Europe and the former Soviet Union: issues, trends and policy implication* (11).

In addition several anecdotal studies have provided similar information on the underground economy:

- An anecdotal study in Turkmenistan revealed that over 50% of the people interviewed paid unofficial charges for health care. Another study conducted in a hospital in Kazakhstan showed that around 45% of hospital expenditure per patient was accounted for by under-the-table payments. Other studies conducted in the economies in transition have revealed under-the-table payments to medical personnel who receive low official salaries.
- In Mexico, a recent household budget survey revealed that private health expenditure as a proportion of GDP was 3.2%, whereas a previous study had provided an estimate of 1.6%.
- In Poland, many patients make under-the-table payments to doctors in the state system in order to receive preferential treatment. However, a system of co-payments has been proposed, and it is hoped that this, together with the integration of private services within state-owned facilities, will eliminate the need for the “brown envelopes”.

From an economic perspective, the underground economy in health care may be a mechanism bringing demand and supply into a closer relationship in a situation of pervasive disequilibrium. It can also generate important incentives, with both positive and negative consequences, including in the longer term. It is often argued that reforms should be introduced in the financing structure of health services and in the payments made to health care workers to reduce the number of under-the-table payments. In addition, improvements in the quality of services could contribute to eliminating the existing differences. Medical auditing and quality control would also contribute to the minimization of inefficiencies and inequities created by the underground economy.

Exercise 3

What are the likely implications of a sizeable underground economy for:

- the equity and quality of the delivery of health services
- the management and reform of the health care system?

How would your response differ in a country where:

- the economy is in decline and society is undergoing substantial stress
- the economy is growing and society is vibrant and confident?

Case study – Russian health reforms

Some indicative empirical findings with regard to equity and efficiency

The terms equity and efficiency may imply different things to different researchers and policy-makers. It is important then to investigate the current situation in the Russian Federation and identify whether these objectives could be evaluated using the available data sets.

In the Russian Federation the objective of social equity was developed theoretically and implemented in a large spectrum of health activities. Under Soviet rule the allocation of resources among the *oblasts* (regions) was based on a series of norms established by the Semashko research institute in Moscow. The Ministry of Health in Moscow was responsible for health policy development and for the allocation of resources according to predetermined standards (12). The regional administration at *oblast* level was responsible for implementing the centrally designed policies.

Overall the system was primarily concerned with numerical targets without taking into account quality standards and technological improvements. Patient satisfaction tended to be low and much ineffective treatment was reported (13). Clinical and financial management was often lacking at national and regional levels, which led to inefficient utilization of resources.

The general impression was that an equitable distribution of resources was achieved in per capita terms, but that the overall system was wasteful and ineffective. There was a need for reform, including a redefinition of objectives.

Equity in per capita health expenditure

The theory on equity in per capita health expenditure argues that the public sector should have some concern with the allocation of resources on a per capita basis. Le Grand, using data from the 1976 British Household Survey, presented evidence of a roughly equal distribution of health expenditure in the United Kingdom on a per capita basis (14). Similarly, perhaps the per capita distribution of health expenditure in the Russian Federation should be equated with regional needs. Table 2 presents the per capita distribution of public health expenditure per region in the Russian Federation in 1990 and 1993, together with the standardized mortality rates for each region in the two years.

It is evident that the most deprived regions receive the lowest per capita public health budgets and that resources are concentrated in the major urban regions. The distribution of per capita health expenditure does not appear to take much account of the variations in the regional needs of the population. Unfortunately, epidemiological studies and clinical surveys are lacking in the Russian Federation, which presents difficulties in conducting a more sophisticated analysis of regional needs and the degree to which public health expenditure is allocated with reference to them.

Table 2. Health expenditure and health status (1990, 1993, regions of the Russian Federation)

	Health Expenditure 1990	Health Expenditure 1993	SMR Crude 1990	SMR Crude 1993
Russian Federation	95.52	95.30	11.20	14.50
North Region	117.76	127.67	9.10	13.30
North West	99.02	89.76	12.70	17.90
Central	92.54	96.54	13.00	16.60
Volga	84.94	92.36	11.90	14.60
Cheromzemny	84.16	75.01	13.70	16.30
Povolzsky	93.57	88.24	11.00	13.40
Caucases	77.20	57.40	11.10	13.60
Urals	91.06	106.30	10.40	13.80
West Siberia	105.76	113.65	9.60	13.00
East Siberia	103.01	97.97	9.50	13.00
Far East	138.28	152.39	8.20	13.80
Kalinigradskaya	86.44	73.14	9.80	13.50

Equity in health status

Several studies have shown the presence of inequalities in health status between social classes, and that they can remain significant over time despite substantial health reforms. In the case of the Russian Federation there are important difficulties. First, mortality data are not available by occupational class. Second, the classification of employment is different from that in some other countries, so that valid comparisons cannot be drawn. Furthermore, social classes in the country cannot be distinguished by occupational groups, because a relatively large segment of the active population has a second job or other activity which is not statistically recorded. The picture becomes even more difficult if account is taken of the black economy (which is relevant under different forms for all socioeconomic groups).

Epidemiological studies in the Russian Federation are scarce, and valid comparable data across social classes, sex and age are lacking. Table 3 presents standardized mortality ratios (SMRs) for the ten administrative regions of the country for the years 1990 and 1993. It is worth considering the absolute inequalities (i.e. the levels of SMR per region at a given time) as well as the relative changes over the period 1990–1993. With regard to absolute inequalities there is a change in the hierarchical order of regions.

Table 3. Health inequality indexes in the Russian Federation

Indexes	Health expenditure 1990	Health expenditure 1993	SMR Crude 1990	SMR Crude 1993
Coefficient of Variation	0.165	0.250	0.151	0.108
Logarithmic variance	0.024	0.063	0.023	0.011
Gini Coefficient	0.014	0.010	0.086	0.055
Atkinson 1	0.012	0.030	0.013	0.005

Source: Yfantopoulos (15).

For analytical and empirical purposes some inequality indexes have been estimated, which are shown in Table 3. Each index has specific mathematical properties. Some of the estimated indicators are more sensitive in the measurement of extreme values of the distribution and other indexes are more sensitive in the middle values of the distribution. (Detailed discussion of the advantages and disadvantages of each measure is beyond the scope of this paper.) All four indicators reveal that the inequality in the distribution of per capita health expenditure has increased during the period 1990–1993. Opposite results are shown with regard to SMR mortality indicators, revealing that inequalities in health status between the Russian regions have been reduced during the period 1990–1993. There appears to be scope here for more detailed research in the area of inequality, which may yield interesting results.

The relationship between SMR and health expenditure

Auster et al. (16), using cross-section data for the year 1960 across several states in the United States, estimated a negative relationship between SMRs and health expenditure; they also included other variables, such as cigarette consumption. The new analysis here is restricted to a quantitative approach showing the relationship between SMR and health expenditure across the regions of the Russian Federation for the years 1990 and 1993. The estimated linear models for the year 1990 and 1993 are:

$$\text{SMR (1990)} = 7.48 - 0.0678 \text{ HEX} \quad R^2 = 0.446 \quad F = 8.86 \\ (7.76) \quad (-2.97)$$

$$\text{SMR (1993)} = 15.83 - 0.0146 \text{ HEX} \quad R^2 = 0.053 \quad F = 0.612 \\ (8.4) \quad (0.78)$$

Health expenditure (HEX) in 1990, was found to be a statistically significant variable (t ratio = 2.97). According to the above estimate, it had a substantial impact on the reduction of SMR. In 1993, the relationship becomes weaker and not statistically significant. The difference may be attributed (assuming the data are correct) to the transition phase in the market economy having had not only an economic effect, but also serious effects on the production of health. This is supported by the decline in general living standards over the same period and changes in lifestyle and attitudes towards unhealthy habits, such as alcoholism.

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3.4 Major special issues

3.4.1 Implications of financing systems

Panos Kanavos¹¹

Key messages

- The interaction of different agents is important for understanding health policy.
- There are often conflicting objectives of health policy and various choices can be made to satisfy these objectives.
- The module highlights the relative merits of different ways of *funding health systems*, different methods of *financing health services* and different approaches to the *remuneration of health care providers*.
- The module discusses how different methods of funding health systems and financing services work and in what environments.
- Different methods of remuneration (including of agents – such as physicians, of services – such as hospital services, and of goods – such as pharmaceuticals) are analysed, together with their implications for health policy. Each method has its advantages and disadvantages and is more suitable for some circumstances than others.
- Incentive structures for providers (agents, goods and services) are critical when considering provider performance.
- There are interactions between the funding of health care, the purchasing agents and the providers of health services.

Tutor's notes

- The module aims to educate stakeholders in decision-making processes concerning the methodology and feasibility of different methods of funding health care, the allocation of health care resources, and the policy implications of different ways of remunerating health care providers. It can be used in conjunction with other modules, such as 3.3.2, and linked to the material in other modules such as 2.3.1 and 2.3.2.

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- The contents of the module are relevant to a range of health care decision-makers, including the following.
 - Legislative and public sector decision-makers, such as those in health, finance and other ministries and in parliamentary parties and committees, as well as concerned academics and researchers. It would be helpful if tutors made it clear that the health policy environment, as other policy areas, involves many stakeholders (often with conflicting interests and approaches), and is characterized by constant change, so that learning, adaptability and flexibility are essential.
 - Leading health care and public health professionals, local community leaders, representatives of the voluntary, religious and non-profit sectors, commercial interests in health care (such as pharmaceutical companies and for-profit hospitals), patients and their advocates. One useful focus here can be to raise awareness of the health policy implications of different methods of funding systems, allocating resources and remunerating providers.
- All participants would benefit from understanding some key economic terms, such as the scarcity of resources and opportunity cost, and the implications these can have for health care decision-making and quality in health care. Tutors may find the exercises helpful for this purpose. International comparisons can also be stimulating for participants.
- Tutors are asked to encourage participants to think strategically within their operational environments about what is desirable and what is feasible. The exercises (plus any available empirical evidence) help transfer useful experience from other settings and contextualize it in the particular settings of participants. However, tutors are also asked to recognize any unique features of a particular operational environment (e.g. the extent of the underground economy), and the impact these can have on health policy options there at macro- and micro-levels.
- Tutors and participants are invited to supplement the references at the end of the module by using the resources and case studies on the website of WHO's European Observatory <http://www.euro.who.int/observatory/TopPage> (accessed 6 November 2002). They particularly facilitate the introduction of a comparative element into the training materials.

Introduction

The process of generating, allocating and managing resources to fund health care raises important questions for policy-makers and planners, who are faced with the challenge of designing and operating systems consistent with broad social policy objectives and compatible with economic realities. The generation of resources to fund health care is subject to macroeconomic constraints, and the allocation of resources to health is guided not only by need, but also by scarcity. The context in which most, if not all, developed countries are operating is characterized by continuous attempts to control rising health care costs and fine-tune health system arrangements and practices. The European economies in transition are operating in similar, though more difficult, conditions.

In addition to fine-tuning the systemic operational environment, many countries in the European Region of WHO are faced with an adverse macroeconomic environment and, equally importantly, their health systems are frequently in great need of reform in terms of physical and human capital infrastructure. Adverse macroeconomic conditions imply difficulties in raising adequate resources to fund health care in a sustainable manner and limit the ability of these countries to invest in much needed infrastructure. At the same time, the way in which health care services are financed and health care providers are remunerated often needs considerable change and can be subject to local cultural traditions pertaining to medical practice and the provider–patient relationship.

To provide an analysis of different methodologies of funding health services, allocating resources and remunerating health care providers and goods within a dynamically evolving policy environment, this module combines empirical evidence with theory by providing background in two main areas. First, there is a brief analysis of theoretical concepts, which are important for understanding the complex relationship between health purchasers, providers and patients (e.g. market failures, government failures, quasi-markets and agency relationships in health care). Secondly, the module analyses the interrelationship between the broad objectives of health policy and the tradeoffs that are so frequently required between cost-containment and microeconomic efficiency, equity, quality, responsiveness and choice. It is against this background that the various funding mechanisms at the macro- and micro-levels, methods of remunerating providers and allocating resources are analysed.

Theoretical concepts

Agency relationships

In order to understand the complex relationships between purchasers and providers of health care and patients, usually analysed within a principal–agent relationship, it is essential to place them in context. In this respect it is important to identify:

- what agency relationships are
- how agency relationships work
- what the caveats of principal–agent relationships are, and
- what a perfect agency relationship is.

Analysts stress that there are frequently conflicting interests between principals and agents, and that agents may act on behalf of principals who hold different objectives. For instance, contracted physicians are agents of health insurance funds that reimburse their services and they are also expected to act on behalf of their patients. While the patients may be seeking to maximize their health, the insurance funds may be seeking to minimize costs. The differing objectives of the respective principals are likely to have an impact on the quality (and quantity) of care that is actually provided to individual patients.

Information and knowledge are critical for understanding agency relationships in the health care context. For example, the informational asymmetries that can exist in agency relationships often give rise to the phenomenon of supplier-induced demand. Here, providers use their superior knowledge to influence the patient's demand for health care, for purposes that are influenced by the provider's own self-interest rather than the welfare of the patient.

Market failure

To address the issue of market failure in health care the reasons for it need to be analysed. This involves, among other things, consumer moral hazard, where “excess” demand is placed on health services because costs to consumers are zero or very low, and provider moral hazard, where the providers do not bear the full cost of their treatment decisions, resulting in potential over-treatment for patients. In addition, there can be significant problems associated with private insurance markets, such as adverse selection arising from information asymmetry. Again, the role of information is central for the analysis of failures in health care markets.

Private markets, however, are not the only ones that fail; and it is important to understand why public provision can also be problematic. This involves consideration of issues such as inefficiency (also referred to as x-inefficiency), where the level of output produced by particular combinations of inputs (say doctors, nurses and high technology equipment) is not as high as it could be; loyalty, which can result in poor quality care continuing to be delivered to patients by health care providers; lack of resources, in total or in terms of distribution; and whether consumers really have the opportunity to exit from unsatisfactory health care facilities and services (especially in the public sector) and exert their consumer power by getting treatment elsewhere (in some cases the alternative may effectively be unavailable to them, for example in terms of location or cost).

Quasi-markets

As markets are often associated with failures in health care and public provision is not always optimal, quasi-markets have been proposed to encourage competitive relations between providers and a separation of purchasing from provision. In theory, the latter can create an environment where near-market decisions and solutions take place. Quasi-markets, in theory, also promote competition between providers which could be based on better quality of services and/or price. In practice, however, there can also be problems with quasi-markets. For instance, competition may not occur in practice, due to a limited number of providers in a given geographical area and the unwillingness of patients to travel further afield for treatment, or the reluctance of health authorities to favour providers outside their geographical borders. There is also the issue of whether an effective purchaser–provider split can take place within a single insurer system.

Objectives of health policy

All decision-makers have to confront and resolve the identification of health policy objectives and their ranking in order of priority. It is assumed that policy-makers in all health care systems aim to control the total costs of health care (cost-containment, sometimes referred to as macroeconomic efficiency); achieve microeconomic efficiency, in terms of resource allocation; and promote equity. Additional policy objectives are likely to include freedom of choice of provider, quality of the service provided, responsiveness to consumer/patient need, and the overall feasibility of implementing change.

Cost-containment

The concept of cost-containment, or the total amount of resources spent on health care (usually expressed as a proportion of national resources to GDP), has dominated governments' behaviour in health care systems internationally. Over the past two decades, growth in health care expenditure has exceeded the growth of retail prices, and often the rate of growth of health care spending has exceeded that of other sectors of the economy. Analysis of cost-containment may include:

- the income–expenditure identity;
- an extension to discuss resource allocation and microeconomic efficiency;
- a systems approach to cost-containment;
- the extent to which some methods of financing are preferable to achieve this compared with others; and
- the conflicts that arise between cost-containment on the one hand and microefficiency and equity on the other.

Microeconomic efficiency

Efficiency at the micro level requires the minimization of opportunity costs and maximization of health benefits. If resources were deployed inefficiently, reallocation would improve the total level of benefit achieved. The costs and benefits of competing health interventions need to be compared and resources allocated to maximize health gains. The efficiency criteria were discussed earlier in module 3.2.2.

A distinction should be drawn between allocative and technical efficiency. Allocative efficiency involves the division of scarce resources between competing needs to maximize benefit and, therefore, seeks to determine whether the activity is worth undertaking. Technical efficiency is defined as the production of a good or service at minimum cost. From that one can arrive at the notion of cost-effectiveness, namely the production of health benefits for patients at least cost. Efficiency concepts are precise in terms of economic theory, but measuring efficiency in health care in practice can be difficult. It has been noted that the scientific basis for many health care interventions is weak or unproven (1,2). At the same time, policy standards on efficiency need to be explicit and capable of enforcement.

Two main areas captured by the concept of microeconomic efficiency are of special interest here. First, there is the issue of whether resources are being used to their maximum effect in terms of the benefits they generate. In this context, it may be desirable to explore the operationalization and the likely impact of such matters as: how to offer cost-effective treatments, how to reduce wasteful lengths of stay, adopting innovative approaches to health care that reduce costs without reducing quality, and whether by focusing on system efficiency only, unequal access to health care and health inequalities result (and, if so, how can these be counteracted).

The second main area concerns the ability to operationalize measures which provide incentives to stakeholders in the health care system, and which encourage them to operate in desirable ways, such as more efficiently, more equitably or more transparently. These approaches through incentives can be compared with approaches that rely more on command and control measures in the delivery of health care and their implications for equity and efficiency in both the immediate term and the longer term.

Equity

Equity is important on both the financing side and the delivery side. On the financing side the benefit principle is relevant. This requires that those who benefit from a health-related service should pay for it, and that the payment amount should be related to the benefit received. The ability-to-pay principle is also relevant. This requires payment to be organized, not according to the benefit received, but so that individuals pay according to their means.

On the delivery side of health care, equity relates to access (the extent to which different social groups and individuals have access to health care facilities and services), geography (relating to the geographical distribution of health resources) and outcomes (relating to differing needs by different social groups). For example, even in highly developed societies such as Australia, Canada, New Zealand, the United States or some of the Scandinavian countries the health care outcomes of indigenous populations are much worse than those for the population as a whole.

An additional aspect relates to the trade-off between equity and efficiency. This includes consideration of the ability to benefit from different policy initiatives or practice changes in health

care, which can vary between different social groups. It also includes the many arguments that have been put forward by policy-makers to divert or ration resources between social groups.

Quality

Improving the quality of health care has several aspects, one of which concerns what might be termed the output of the system, i.e. its impact on the health of the individuals it treats and, through them, its impact on the health of the nation as a whole. Measures of such quality include “throughput measures”, such as the number of patients treated, or “input indicators” such as the number of physicians or hospital beds per 1000 population.

Another dimension stresses the need for greater attention to the entire structure of the delivery system. In this context, improvements in quality need to address a wide range of issues relating to the reduction of medical errors; and the overuse, misuse and underuse of medical technology (including pharmaceuticals, devices and procedures). In this context, it can be worth exploring how to reduce uncertainty about decision-making in individual cases and, more broadly, the establishment of criteria for determining the appropriateness of care in particular circumstances and for particular individuals or groups.

Swift access to appropriate health care, good procedural management and a pleasant environment may be important process measures. Ultimately, however, it can be argued that quality in health care relates to improvement in health status, and is thus measured as effectiveness. Others might argue, for example in relation to long-term care for the elderly, that the quality of care is as important as cure, the process compared to the eventual outcome.

Choice and responsiveness are also surrogate indicators of quality in a given health care system. Choice can be associated with patient choice in selecting a given provider, being entitled to an additional clinical opinion (perhaps at the expense of the taxpayer) or wider aspects of choice. The cost implications of allowing relatively unlimited choice can generate considerable public discussion. Responsiveness reflects the ability of the system to respond to the wide variety of patient needs appropriately, promptly and without undue difficulty. Long waiting lists have been used as one indicator of poor responsiveness. Clearly there can be trade-offs between a highly responsive system and one that focuses more on cost control.

Feasibility

The feasibility of different systems depends heavily on the country’s social, political and economic context, as well as its historical and cultural traditions. Many established systems developed out of particular social conditions and historical circumstances. For example, in central and eastern Europe and the Commonwealth of Independent States, the historical precedent of the Semashko model has influenced the successful establishment of decentralized systems. Political and technical feasibility both need to be analysed when considering health care financing in particular contexts.

Political feasibility is mainly concerned with stakeholders, their interests and relative power to influence the successful functioning of the system. It includes such factors as the influence of voters, particular interest and professional groups and providers of health care services compared to health care consumers and citizens more generally. Political feasibility also embraces the notions of affordability and sustainability of the system (both in economic and political terms). For example, is a particular system of funding feasible both in the short and the long run?

Technical feasibility is concerned with the capacity of the country to support and operate a particular financing system for health care. This includes factors such as the structural and administrative capacity within government, the professions and industry. It also includes other factors, such as the development of information systems and the availability of sufficient human resources with appropriate training and skills. All these factors affect the technical feasibility of operating different systems of funding health care.

Exercise 1. Objectives of health policy

Over the past decade or so health care reform in several European countries has focused heavily on cost-containment. Should the emphasis be on cost-containment or allocative efficiency? Discuss the issues either generally or with a specific focus on one or two countries.

How can quality in health care be measured? Discuss various indicators of quality and the trade-offs that exist between quality, the other objectives of health policy and wider societal objectives.

Methods of funding health services

This section discusses the relative advantages, disadvantages and problems associated with different methods of funding health care. Each method is discussed separately here, but it is acknowledged that most countries fund health care through a combination of the methods.

General taxation

A tax-based system is relatively easy to administer, has no risk selection (because everyone is covered) and no risk-related premiums. It provides stable levels of financing. Where there is global budget capping there tends to be tighter control over total costs compared with other systems for funding health services. Such funding through general taxation can take the form of an integrated model, a command and control model, or a public contract model with several purchasers (in terms of location) and competition between providers. In theory, a monopsony situation¹² might be expected to result in good microefficiency; in practice, however, the lack of incentives for providers tends to result in inefficiency (e.g. waiting lists). Tax-based systems are characterized by universal coverage, with the capacity for the principle of equity in delivery to be upheld. Although tax-based systems enjoy considerable public support, for example in Sweden and the United Kingdom, there is rationing (explicit or implicit) of services and frequently a lack of transparency.

Increasing health expenditure through rising levels of taxation has become more difficult in many countries, with growing public resistance. Within each country there is, however, considerable variation as to how the taxation system is organized and managed. These variations can have implications for the feasibility of increasing taxes to finance growth in health care expenditure.

In tax-financed systems, taxes may be raised centrally or locally, as is the case in Denmark and Sweden. Raising revenue locally may result in higher local visibility and political interest in health care spending. Localized tax-raising powers for health may also result in greater geographical inequities in the level and quality of services provided. Similarly in federal countries, the volume of health care expenditure is influenced by the respective responsibilities for health care and taxation of the different levels of government. It is important to consider the internal efficiency of particular administrative tools and methods of tax collection, i.e. how much does it cost (financially and in terms of political

¹² A market situation with only one buyer.

resistance) to raise revenue in alternative ways and what impact does the tax have on other production and consumption decisions?

Taxes may be levied on earnings, income or expenditure (i.e. a sales tax) with different implications for progressiveness and equity, for savings and investment, and for other decisions by producers and consumers. Another method of raising revenue, hypothecated taxation, has the advantage of visibility. However, it is generally opposed by finance ministries as it can lead to a lack of flexibility at the macro level. Earmarking may be applied in a strong sense (i.e. revenue determines spending) or in a weak sense (i.e. purely formal labelling of expenditure for political visibility). Other variations include the “sin” taxes levied on alcohol and tobacco; in most countries these are not clearly earmarked for health although they form a substantial proportion of tax revenue. There is potential for greater use of hypothecated taxes in European health systems, either as a complement to existing arrangements or as an alternative.

Social insurance

Social insurance is usually related to a stable source of income, in principle independent of the ministry of health and with fee-for-service payments for providers. Contributions are mainly based on wages and are shared between employers and employees. Nevertheless, there may be important differences relating to:

- the uniformity of the rate
- the distribution of contributions between employers and employees
- the existence of an upper contribution ceiling, and
- the existence of additional non-wage-related contributions.

Social insurance systems are characterized by a form of competition in that purchasers are separated from providers and there are multiple purchasers and providers. Social insurance systems tend to be characterized by equity in delivery (in terms of need and access), and with the insurance premium based on income, rather than risk. The advantages of social insurance need to be evaluated carefully and balanced against its disadvantages, especially for economies in transition. For instance, social insurance systems have higher administration costs and are relatively more expensive than tax-based systems in terms of total commitment of resources, because doctors commit resources in ignorance and there is usually no price sensitivity. Systems of this kind may be associated with moral hazard when combined with a fee-for-service payment system. Social insurance may be unjust in those countries where the parallel economy is a significant proportion of national income. In political terms the practice of raising premiums imposes disadvantages on employers as overall labour costs increase, the export position weakens and inflation rises. France and Germany provide interesting case studies of social insurance systems with a single dominant sickness fund or several funds, respectively.

There is considerable variation among different social insurance-based systems. Some countries operate with multiple funds (e.g. the Czech Republics and Slovakia). Others have a single fund (e.g. Croatia, Hungary, Poland) with several regional branches. The experiences of Germany and the Netherlands in the organization of funds and the potential for the introduction of competition between funds are worth examining. In the Netherlands, where the multiple insurance funds have started to compete with each other, attempts have been made to allocate resources to insurers on a capitation formula based on their age and gender and the location of their membership. These risk-adjusted

payments are intended to reduce the incentives for cream-skimming. However, the problems of calculating individual risk mean that, on the whole, these risk-adjusted payments have not been successful. There are also questions relating to what choice of fund exists for consumers in different countries, and the level of collusion and/or competition that actually exists between “competitive” insurance funds.

It can be argued that social insurance is effectively an earmarked tax, and in this case revenue is determined by the level of contributions, usually set as a percentage of earnings. This means that revenue levels fall during an economic recession. In order to meet rising expenditure, levels of contribution would have to be raised, but as is the case in tax-financed systems, public resistance to this is strong. Part of the burden of payment in social insurance-based systems tends to fall on the employer and this could be a possible source of economic inefficiency, affecting productivity adversely (and levels of external investment). Increases in insurance contributions may also be passed on to the employee in the form of lower wages (or unemployment).

Voluntary, supplementary and private health insurance

In most countries, voluntary or private health insurance exists in parallel with statutory health insurance systems. In some countries, the top decile or quartile of the population may be (voluntarily) excluded from social insurance and contract their own private insurance. The fundamental difference between social insurance and voluntary health insurance lies in that the former pools risks across the whole of society and the insurance premium is income-related, whereas the latter covers only part of the population and the insurance premium is arranged on an actuarial basis. The advantages and disadvantages of voluntary health insurance need to be explored vis-à-vis the different agents in the system: payer, provider and consumer. The cost of the system and the potentially inequitable access to services resulting from voluntary health insurance may have to be counterbalanced against increased choice for consumers, greater quality and responsiveness, more flexibility and sharper incentives to efficiency. Moral hazard and adverse selection are two key problems of a voluntary insurance system, together with high administration costs. The Netherlands, the United Kingdom and the United States provide interesting examples of private insurance funding in addition to statutory social health insurance (the Netherlands), universal health coverage through taxation (United Kingdom) or as the main means of obtaining health insurance (United States).

Private insurance markets operate differently in different countries. In some countries, such as Switzerland, they are the predominant system of financing under a compulsory system. In other countries, such as the United States, they are the predominant means of financing under a voluntary, employer-based system.

In addition, there are different types of voluntary insurance, not necessarily provided privately. There may be voluntary insurance as cover for those who are ineligible or choose to opt out of the public universal system. In such circumstances the voluntary insurance is a substitute for statutory health insurance (e.g. Germany, Ireland and the Netherlands). Voluntary insurance can also be a secondary supplementary form of cover in predominantly publicly-financed systems provided by non-profit or for-profit organizations. Insurance offered by the *mutualités* in Belgium and *mutuelles* in France for co-payments, and extra cover for better quality hospital facilities and quicker treatment for elective surgery, as offered in the United Kingdom, illustrate this situation.

Hypothecated taxation

Hypothecated taxation is a form of social insurance, and offers an alternative method of financing health services. Two alternatives exist. The first alternative involves taxing incomes and earmarking the resulting revenues specifically for health services. The other alternative relates to the taxation of goods classed as “bads”, such as tobacco and alcohol (“sin” taxes). Hypothecated taxation has advantages if consumers dislike paying taxes in general, but are willing to pay higher taxes specifically for the health service (3). The revenue raised from hypothecated taxation can be used for specific health services or for the health service in general.

The proceedings from hypothecated taxation may be heavily dependent on consumption patterns and the overall rate of growth in the economy. Earnings from hypothecated taxation may therefore fall considerably in times of economic recession and increase in times of economic recovery. If so, the fluctuation in the available funds would not provide a solid base for long-term financing of health services. There may also be equity issues if the hypothecated tax falls especially heavily on those who are disadvantaged, e.g. the poor, the ill educated or those living in disadvantaged regions.

The implementation of hypothecated taxation may be subject to two important technicalities. First, policy-makers need to ensure fairness in that contributions should be levied across the whole range of incomes and that those with lower incomes pay no more proportionately than those with high incomes. Secondly, if health care necessitates the redistribution of income not only across time, but also between high- and low-risk groups in the population (e.g. the unemployed), policy-makers should ask themselves whether a hypothecated tax is the best way of effecting such redistribution.

Medical savings accounts

Medical savings accounts (MSAs) have been proposed as a way to avoid some of the problems of voluntary health insurance, especially adverse selection. MSAs are a system whereby funds are placed in a personal savings account from which the individual can draw to meet medical expenses up to the amount in the account. MSAs have advantages and disadvantages that are similar to those of voluntary health insurance, except for adverse selection. It is a system that encourages choice of provider by the consumer.

MSAs also present unique challenges to policy-makers regarding their implementation for the benefit of consumers. Thus, monitoring of payments must be safeguarded, particularly in economies with high unemployment and a significant underground economy. Funds must be invested so that the best yields to individual savings can be achieved. While this necessitates developed capital markets, it also requires regulation regarding the types of investment made (e.g. in terms of risk pursued). Competition may have to be fostered in order to reduce over-reliance on an institutional investor, increase the pool of available investment opportunities and promote stability. At the other end of the spectrum, if several funds are permitted, then marketing costs may increase.

Analysis of the technical feasibility of medical savings accounts has been extensive. However, less attention has been paid to the implications of the lack of universal risk pooling or any redistributive effect between high and low risks and between high- and low-income contributors. Such assessments of MSAs should include analysis of the feasibility of managing the investments and the problems experienced with low-yield government bonds compared to higher-yielding but higher-risk private investments. Other concerns include the possible need for additional catastrophe insurance (called

Medishield in Singapore); the degree to which MSAs are appropriate for preventive care; and the mechanisms for dealing with bankruptcy, financial underwriting and funds management.

User charges

Another significant contribution to the funding of health care is the range of formal and informal out-of-pocket payments. Direct charges to the consumer or patient are increasingly common in many European countries, either in the form of co-payments and deductibles in insurance markets or out-of-pocket payments. The debate about user charges is quite old. Considerable arguments exist in favour of user charges: they bring in more revenue, make patients more cost-conscious and deter frivolous demand. Arguments also exist against them: they hit the poorest hardest (and therefore are against the principle of equal treatment for equal need), and are liable to have perverse effects on costs and health care outcomes by deterring people from seeking early treatment and discouraging preventive medicine. Delayed care may even prove to increase health costs.

Policy-makers can consider different types of user charges, ranging from patient co-payments, co-insurance and flat rates to deductibles (or a combination of them). Although the revenue yield, incidence and equity implications of each method varies considerably, policy-makers need to consider the services to which user charges apply, the level of user charges and exemptions from user charges, due, for example, to chronic illness, age, income level, or a combination of these factors.

The evidence suggests that unless user charges are carefully set they may deter genuine need, especially among low-income and other disadvantaged groups, raising concerns about equity and the impact on health gain. The suggestion that equity problems could be overcome through exemptions has been found to be quite difficult to implement in practice. Evidence from the RAND health insurance experiment showed a relationship between increased out-of-pocket payments and reduced drug consumption and medical care utilization, though the methodology employed has been criticized.

The role of the underground economy

The extent of the underground economy can have a significant impact on the ability of countries to fund their health services. First, it can result in statutory insurance contributions or taxes not being paid. This affects the financial resources from which health care facilities and services are provided. The tax authorities cannot obtain some revenues, due to their underground nature. Such activities may be legal, for instance, a second job the income from which is not declared to the authorities; or illegal, such as drug trafficking and prostitution. There may also be systemic difficulties and weaknesses in identifying sources of revenue and collecting the respective contributions. Economies with large agricultural sectors, which can also be characterized by cyclical events which affect revenue-raising capacity, and large self-employed populations, tend to face particular difficulties in this regard.

Second, there can be problems arising from under-the-table and, therefore, illegal, payments to health care providers. Such payments can form part of the local culture and have become institutionalized in several countries. Doctors can come to view such payments as a legitimate means of supplementing their income, especially if other sources, such as health insurance funds and the public authorities, pay them relatively little.

From a policy-making perspective, it is important to discuss ways of counteracting the above.

Exercise 2. Methods of funding

Outline the main advantages and disadvantages of the various methods of funding health services, noting:

1. the criteria being applied in comparing them, and
2. the context in which the funding methods are to be applied.

Outline the main advantages and disadvantages:

1. in theory, and
2. in the context of a particular European country.

Methods of remunerating providers of health goods and services

Remunerating doctors

How different providers in the health care system are paid can have a significant impact on their behaviour and, therefore, on the achievement of the objectives of the health care system. The central economic problem inherent in devising a payment system is to provide the right incentives (or disincentives) to encourage (or discourage) certain types of behaviour, and therefore allow stated objectives to be pursued (4). This part of the module discusses the incentive structures for physicians; the agency relationship between themselves, payers and patients; and the issue of supplier-induced demand and the circumstances under which it occurs.

Three main methods of paying doctors and other health care professionals are identified: fee-for-service, salary and capitation. The resource-based relative value scale methodology used under Medicare in the United States and the relative value scale of fees in Germany highlight some of the problems associated with over-servicing.

- The perverse incentives present in *fee-for-service* payment systems limit the achievement of cost-containment and efficiency. If a fee-for-service system is implemented, additional regulation is likely to be required as well to limit activity, e.g. the resource-based relative value scale, which reduces the value of the fee as activity increases. The issue of bureaucracy and associated transaction costs also needs to be considered.
- *Salary* payments do not contain incentives to overtreat, but may contain incentives to undertreat or shift costs. Hospital doctors paid on a salary basis may choose, with a given availability of beds, to have a longer average length of stay, thereby reducing overall workload, rather than encourage faster throughput, which would increase work without increasing income (4).
- *Capitation* at primary care level and fee-for-service at secondary level provides a built-in incentive for over-referral. The implications of cost shifting and referrals to other levels of care should thus be considered when designing payment systems.

Incentives (financial and non-financial) affect the behaviour of health care professionals, and this behaviour is likely to affect cost control, equity and efficiency. Salary payments, for instance, facilitate cost control but may not contain incentives for efficiency. Fee-for-service payments can increase efficiency, if activities are well defined and desirable, but they can also lead to incentives to overtreat and, therefore, to cost inflation.

Some countries, such as Germany and the United Kingdom, have adopted systems of budget-holding for physicians, to encourage cost-consciousness, either by directly manipulating their income or by allowing any budget surplus to be retained within a practice and used for the benefit of patients. France has adopted a controlled fee-for-service system; Germany has preferred a fee-for-service system that incorporates an inverse relationship between individual fee levels and the volume of the relevant service; and the United Kingdom uses capitation payments.

The enforcement of regulations also requires consideration. An unenforceable regulation is equivalent to no regulation. Societies that have a large underground economy, for example, may tend not to be notable for their effective enforcement of efficient and equitable regulations.

Remunerating hospitals

As is the case with physicians, there are several methods of paying hospitals. Each alternative payment mechanism can create different incentives for the service provider, and the effects observed will be influenced also by local, non-monetary incentives. This section discusses the mechanics of the alternative systems in the light of incentives that are prevalent in each system of payment and in relation to the broad objectives of health policy, namely equity, micro-efficiency, quality and cost-control. There are two broad methods of paying for hospital services: retrospective remuneration (usually on a fee-for-service basis), and prospective remuneration, which can be done either through overall prospective budgeting or prospective budgeting by individual cases.

Retrospective payment exists when the payment is determined and agreed after the services have been provided. Charges are usually calculated on a fee-for-service basis. They do not necessarily reflect costs if there is cross-subsidization within the hospital finance system. In these systems, a charge may be invoiced for every service provided, or there may be “bundling” of service units, with payments being provided for the overall group of services as a whole. The key feature of retrospective fee-for-service as a reimbursement mechanism is that there are few incentives for efficiency and cost-minimization. Providers can maximize their revenue and profits by increasing the volume of their activities, i.e. by providing more services.

In a prospective payment system, payment per case is determined in advance of the services being provided. This can be done by global budgeting or on a per case basis. Global budgeting is defined as an overall constraint imposed, nearly always prospectively, on providers, limiting the price and the quantity of services provided. Provider payments are agreed in advance, and designed to cover expenditure on a range of services during a fixed period of time. Global budgets are a relatively straightforward method of budgeting and allow local managers to be flexible about the use of resources and the methods of giving care, while removing the incentive to maximize certain types of input (such as the number of beds). Where possible, it is desirable to link budgets to capitation rather than to historical levels of activity. Assuming that budgets are fixed, global budgeting may be an efficient means of cost-containment (5). However, there are potential inefficiencies associated with global budgeting, such as incentives to minimize resource use and to cut costs at the expense of quality. Contracts should therefore specify quality standards, at least in terms of process if it is too difficult to contract for outcomes, and these standards should be monitored closely.

A variant of global budgeting is line item budgeting, which exists when providers are given a fixed budget for specific cost items, such as staff, food, laundry, drugs and maintenance. Line item budgeting is always more difficult for managers than global budgeting, since it limits their capacity to reallocate resources in the light of emerging needs, new knowledge or changing priorities.

Prospective payment by case is determined in advance of the services being provided. The care provided has therefore to be paid for out of a predetermined charge per case, with the payment rates for each type of case being determined in advance. Patients are categorized into an illness or disease category to facilitate billing and reimbursement. The use of diagnostic-related groups (DRGs) in the United States and similar methodologies elsewhere are important examples of per case prospective reimbursement. Significant issues arise from the pricing of services, activity volumes, reimbursement negotiations between purchasers and providers and the regulatory requirements for setting up a DRG system. Particularly from a longer-term perspective, the DRG approach can reduce the incentives to maximize treatment, shorten lengths of stay and reduce the number of diagnostic tests that are undertaken. However, DRGs can also have perverse incentives, such as cost-shifting, changes in the pattern of care, case-mix selection, DRG creep, and the potential effects on outcomes arising from earlier patient discharge.

Paying for pharmaceuticals

Pharmaceutical policy brings together different elements of public policy, namely health policy and industrial policy. It also brings together a wide range of agents in the organization and delivery of health services, such as the statutory insurer, the treasury, the ministry of health, the physician, the pharmacist, the wholesaler, the industry and the patient. Health policy is involved in pharmaceuticals since safe, efficacious and effective drugs are needed to treat different conditions. The commercial interests of the pharmaceutical industry enter the debate regarding the availability and affordability of medicines and of the industry's promotion of jobs, exports and, where applicable, research and development. The cost of pharmaceuticals is an important element of health policy, particularly as the proportion of pharmaceuticals in total health spending has been rising. In this respect, pharmaceutical policy comprises elements of supply-side control, proxy demand-side control, and demand-side regulation.

The discussion here comprises a critical appraisal of supply-side, proxy demand-side and demand-side measures which influence pharmaceutical expenditure; and their implications for cost-containment, efficiency and quality.

Supply-side measures include, mainly, the following:

- methods of price or profit regulation applying to pharmaceutical products and their relative merits for health policy and industrial policy (e.g. free pricing, average pricing, international price comparisons, profit controls, reference pricing, compulsory price reductions after an initial control-free period, cost-plus pricing or basic cost pricing);
- the establishment of (positive and/or negative) lists and formularies as part of reimbursement policy and consideration of their implications for cost-containment, quality and efficiency;
- the use of economic criteria in either pricing or reimbursement, such as requiring adequate evidence on cost-effectiveness before listing new pharmaceuticals on the schedule for public reimbursement (as in Australia and the Canadian Province of Ontario);
- direct controls on pharmaceutical manufacturers, such as controlling advertising outlays and detailing;¹³
- examination of industrial policy considerations, such as incentives for pharmaceutical firms to locate in certain countries.

¹³ See Module 4.2.1, under "A tool for understanding the implementation of clinical policy", for an explanation of this term.

Proxy demand-side measures seek to influence agents acting on behalf of patients, namely physicians and pharmacists. These can be analysed in detail from the perspective of cost-containment, efficiency and health care quality. Measures applying to physicians include, among other things:

- the possibility of managing budgets (both overall budgets for their patients or pharmaceutical budgets, providing that either of them are “hard”); the measures can incorporate incentives (e.g. to keep savings) or penalties (e.g. pay any excess back to the insurance fund);
- policies to prescribe generically, as well as policies that influence the prescribing behaviour of physicians through practice guidelines, vignettes for good clinical practice and prescription monitoring through information systems;
- the method of remunerating physicians can also affect their prescribing behaviour (and can be associated with supplier-induced demand).

Measures applying to the behaviour of dispensing pharmacists include:

- incentives for generic substitution – remuneration methods need to be examined in this context, including the extent to which they are progressive, regressive or a flat fee;
- overall policies that encourage generic substitution – here, the overall relationship between physicians and pharmacists can be particularly important;
- the role of pharmacists in the community – the advisory role of the pharmacist is significant in some European countries, and in several countries of central and eastern Europe patients can acquire medications without a prescription.

Demand-side measures comprise action on the consumer of pharmaceutical products. These include:

- cost-sharing and its variations, including the implications of different cost-sharing methods for equity, efficiency and revenue-raising capability;
- switching certain products to over-the-counter status, where there are issues relating to consumer safety and the possible requirement to amend existing regulatory frameworks;
- launching health promotion campaigns, which includes consideration of the health areas and target groups where such campaigns can best be focused, together with their medium- to longer-term results.

Exercise 3. Remunerating providers

Outline the various methods of remunerating those who provide health care services (such as health workers, health institutions or pharmacists); the incentives or disincentives the remuneration methods establish to encourage desirable behaviour or to achieve health goals; and how monitoring, evaluation, learning and progressive improvement can be encouraged.

Consider the methods of remuneration used in your country, the degree to which such approaches are determined solely by reference to factors within the health care system, and how the remuneration methods might be improved.

Allocating resources

The discussion in this section relates to discussion in other modules, such as 2.3.2, which presented a conceptual framework for considering possible reallocation of resources for health.

Budget allocation formulae

Allocating resources is a crucial issue in the organization and delivery of health services. Often, incremental financing decisions perpetuate historical inequalities and serve political rather than health needs. When resources are being allocated, consideration should be given to the resulting incentives and their longer-term implications at each level of decision-making: central, regional, and local. An equitable budget allocation formula could be capitation-weighted and risk-adjusted by measures of relative need, including consideration of variations in mortality, morbidity, costs, income, employment and age.

Resource allocation and purchaser–provider split

There has been a tendency in some countries for state-financed health care systems to redirect their policy focus from cost-containment (which they can achieve through global budget control) to the improvement of efficiency. Purchasers in this respect are faced with two tasks. Their first task is to identify what actually works, namely what interventions are efficacious (shown to improve patient health status in carefully designed randomized controlled trials), which interventions are effective (those which improve patient health status when used in routine medical practice) and which interventions are efficient (those which maximize improvements in health status at least cost). The role of information, its availability and an evidence-based medicine approach are critical for ensuring that this first task is fulfilled. The second task facing the purchasers is to induce health care providers, particularly physicians, to review their practices, change them where appropriate and deliver care as efficiently as possible.

Information needs for efficient purchasing

Information systems are essential for the effective delivery of health services to a given population. The efficient purchaser needs to invest in the development of the following skills:

- appraisal of population health needs and their ranking in relation to the availability of cost-effective interventions;
- monitoring of activity rates and outcomes by institution and clinician and the reduction of inefficient variations;
- monitoring of the costs of provision by contracted providers and their rivals; and
- design of incentive-compatible contracts that encourage providers to behave efficiently, to respond to changing needs and to adjust in appropriate and sustainable ways over the longer term.

Exercise 4. Funding health services

In evaluating various options for health care funding in a particular country, how might the historical context and political, cultural and economic factors influence the choices that are made? Consider an actual case or a hypothetical example.

Four implications

First, there are many objectives of health policy, including cost-containment, microeconomic efficiency, quality, feasibility, choice and responsiveness. These objectives, all of which are desirable in most societies, can also be in conflict. Thus, various choices generally have to be made in seeking to satisfy the overall objectives for a particular society.

Secondly, there are various methods of financing health services, such as general taxation, social insurance or user charges. There are various methods of paying providers, such as doctors, hospitals and the providers of pharmaceuticals. And there are various methods of allocating resources, including budget allocation formulae, a purchaser–provider split and evidence-based approaches.

Thirdly, each method of finance, payment and resource allocation has advantages and disadvantages; is more suitable for some circumstances than others; and generates incentives to act in particular ways. Also, there are interactions between the method of funding, the purchasing agents and the providers of health care.

Finally, in all health systems a balance has to be struck which enables three objectives to be achieved, either wholly or in part. The first objective is *allocation*, so that the cost-effective production and procurement of appropriate health goods and services are achieved. The second objective is to achieve an equitable *distribution* of health-producing goods and services. Relevant considerations here include fair financing, fair access to health goods and services, and fair payment to providers. The third objective relates to *sustainable development* over the longer term. This element includes sustaining development by the fostering of appropriate policies, continuous learning and the management of change; securing the necessary resource requirements for the health system on a continuing basis; and building in powerful incentives for the improvement of performance and health. While all three objectives tend to be judged as desirable in all societies, the balance to be struck between them, and the reasons for doing so, can vary widely.

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3.4.2 Privatization – overview of issues

Greg Stoddart¹⁴

Key messages

- The term “privatization” can refer to several different economic functions which occur in health care systems: (i) ownership of facilities and delivery of services, (ii) financing, (iii) management, (iv) administration, (v) regulation and (vi) provision of information. When using the term it is important to point out clearly which functions are involved.
- The functions above are only the *means* by which countries attempt to achieve important policy objectives or *ends*, such as improved health outcomes, equity in access to and payment for health services, efficiency in health service delivery, provider and patient satisfaction, and overall expenditure control. The choice of ends requires that important value judgements be made, and these may differ across societies. There is no single “best” way to organize and finance health care systems that “wins” on all performance criteria. All systems have their strengths and their weaknesses.
- More than ever, the public versus private debate in health care policy is becoming blurred by new models of public/private partnership. It is increasingly necessary to conduct analyses not at the level of stereotypes but at the level of specific policy proposals with clearly identified policy objectives.

Tutors’ notes

This is always a controversial topic, and one of the important roles of the tutor here is to separate issues of evidence from those that are matters of value judgement (not always a simple task!).

¹⁴ This module was prepared by Professor Greg Stoddart from the Centre for Health Economics and Policy Analysis, McMaster University, Canada (e-mail: stoddart@mcmaster.ca).

The main purpose of the module is to encourage students to think more carefully about what privatization means in the context of any specific policy proposals that may be occurring in their countries. The purpose is not to argue for or against privatization either factually or ideologically. Much will depend on the underlying social values in the country (it is worth noting that these may differ from those of the analyst) and the specific policy goals being pursued. For example, it does not appear from international experience that privatization of financing assists with control of expenditure – indeed, the opposite seems to be the case; on the other hand, if the policy concern is how to increase the incomes and satisfaction of health care providers – an important issue in many of the economies in transition – then increased privatization of financing may be an effective policy. In all cases, it will also be necessary to examine the impact of the policy on other goals, such as efficiency and equity.

The module could be used at all three levels of skill development, depending on the audience. For those who are relatively unfamiliar with the debate or who are heavily involved in the politics of the debate, the module may increase their *appreciation* of some of the subtleties and complexity. For those such as bureaucratic staff in health ministries, who have responsibilities for policy development or policy advice, the increased attention to specifying the function and objectives associated with privatization proposals may assist with *appraisal* and *analysis* activities.

There will probably be no shortage of examples or cases from the students' own countries for Exercise 1, but if tutors prefer, they may wish to use examples from *European health care reform: analysis of current strategies (1)*. During discussions in the development of the module it was suggested that the case of the Netherlands might be a particularly interesting example, with merged public and private insurance systems.

Introduction

Everywhere in the world, countries struggle with finding the appropriate public/private mix in their health care systems. Even though debates on this subject are often intense, the meaning of the phrase “public/private mix” is often unclear and frequently misunderstood. Similarly, “privatization” of health care systems is a term that is often used without a clear definition of its meaning. Several complex functions go on inside a health care system, and the public/private mix may be different for each. Indeed, not only is it clear that the stereotypical extremes of purely public and purely private systems are in practice meaningless, it is now also the case that some analysts feel that the complexity of relationships inside health care systems make simple public/private distinctions all but impossible.

The purpose of this brief module is to improve the clarity of discussions about privatization by (i) distinguishing different functions and activities to which the term may be applied, (ii) discussing how privatization relates to another frequently used term, “competition” and (iii) illustrating the complexity of making public/private distinctions in some recent cases of health care reform. The module is not intended to provide policy advice. There is no single best way to structure health care systems that is the clear winner on all performance criteria which may be relevant. Moreover, decisions about the structure and operation of health care systems inherently involve value judgements about social goals; each country must make these political judgements within its own culture. There is, however, an extensive body of international experience with different public/private mixes, and some of the key insights from this experience are included in the module.

The module begins with a discussion of six important types of function or activity that occur within health care systems, and notes that each may contain both public and private elements. It then illustrates the complexity of the public/private distinction through discussion of several key issues in common health care reforms. The module concludes with a discussion exercise animated by a set of summary propositions offered by one international expert on the economics of health care reform.

Discussion

To label an entire health care system as “public” or “private” is impossible, because systems contain many different types of functions, each of which may be public, private or mixed public/private. Following a taxonomy used in Canada by Professors Greg Stoddart and Roberta Labelle (2), it is possible to identify six distinct economic functions which occur in health care systems:

- ownership of facilities and delivery of services
- financing
- management
- administration
- regulation
- provision of information.

Each of these may contain a mixture of public and private elements. Hospitals, clinics, physician practices, laboratories, long-term care facilities and even ambulance services are examples of facilities which are privately owned and operated in some countries but not in others. Even within one country there may be a mixture of types of ownership. (Furthermore, although private ownership implies private delivery of services, public ownership does not rule out some private delivery of services, for example in a situation in which private physicians use public hospital facilities.)

Financing – i.e. raising the revenues for the health care system and the terms and conditions implied in that process – also frequently includes a mixture of public and private sources, ranging from taxation (personal income, corporate income, sales and excise, etc.) and social insurance on the public side to private insurance and direct charges (including under-the-table payments) on the private side.

The term “management” is used here in its broadest sense, to refer to activities of strategic planning, policy-making and decision-taking that define the direction of health care systems. Again, this may occur in agencies or departments of governments or in the executive offices of private firms, or both. The term “administration” is used here to denote the daily activities required to carry out and implement management decisions. Some aspects of publicly-financed systems may be administered privately, as is the case if the claims processing activity for a public health care insurance system is contracted out to a private firm.

Regulation, i.e. the setting of rules, usually embodied in legislation, is most often associated with governments, but here too there can be private elements, as in the practice guidelines which international for-profit hospital chains require their clinical employees to follow.

Finally, the provision of information about the cost, effectiveness, necessity and availability of health services is an activity which occurs both publicly and privately in most health care systems.

These functions are the *means* by which countries attempt to achieve important policy objectives or *ends*, such as improved health outcomes, equity in access to and payment for health services, efficiency in the delivery of health services, overall control of expenditure, and patient and provider satisfaction. Therefore the challenge facing each country is to find the mix of public and private activity both *within* and *across* these functions that best achieves its ends, a daunting task when one considers the number of different services to be provided in any health care system. It is important, however, to recognize that privatization (of any function) is only a means; it is not an end in itself. In each specific case of privatization it is important to ask the questions: “What goal will privatization achieve?” and “Are there more cost-effective alternatives than privatization for achieving this goal?”.

One important theme that emerges from the international experience is that public versus private *ownership* of facilities and delivery of services may be one of the less important aspects of the debate, especially when compared to the financing, management and regulation functions. These latter functions contain the capacity to define critical terms and conditions on which health care systems will operate (e.g. universal coverage of the population, supply of health professionals, standards of quality and cost-effectiveness), regardless of whether the services are delivered by public or private employees in public or private facilities. The financing, management and regulation of health care systems can provide the *control* over expenditure and utilization patterns which appears to be necessary for the achievement of public policy objectives.

All models for organizing health care systems have their respective advantages and disadvantages, however. While private ownership and service delivery are often associated with greater flexibility, adaptability and innovation, when services are delivered privately the motivation of those making management decisions is an important consideration. Private firms which operate on a for-profit basis can be expected to behave differently from those operated on a non-profit basis. Again, the structure of the management function is more important than the ownership function itself.

This is not meant to imply that the motivation of public managers, who face no profit motives, is unimportant. Indeed, relating reward to performance is perhaps even more difficult in the public sector, especially in large bureaucracies which may lack flexibility in labour agreements or have difficulty maintaining managerial skills and training. However, the for-profit motivation typically conflicts with public ends, at least in the provision of clinical rather than non-clinical services.

Similarly, different financing models each raise their own sets of issues. Financing through private insurance or direct charges is highly regressive, placing a disproportionate burden of the cost of health care, relative to income, on the poor, and creating significant problems for access to services. International experience also suggests that this model has difficulty controlling overall health care expenditure.

Tax-based public financing performs much better on expenditure control and in most countries is mildly progressive. It does, however, create a constant political debate between governments and health care providers over the appropriate level of services (and incomes), since governments must live within their means as provided by the growth and performance of their economies. This model also requires an effective tax collection system, which can be a problem in some countries.

Social insurance models of public financing are a common alternative to tax-based models and also perform relatively well on expenditure control (though not quite as well as tax-based models, it appears). They are frequently employment-based and can be regressive if workers' contributions are

a fixed proportion of earnings up to some limit, as is typically the case. They may also be less transparent than tax-based systems, which seem to be constantly under scrutiny, and some analysts feel that this may undermine the incentive for cost-effective management.

In view of this array of performance characteristics of different models of financing and ownership/delivery, countries proposing to change from one model to another must be particularly careful to examine the potential for new problems. For example, a move from a tax-financed to a social insurance model may increase the need for managerial and actuarial skills. A move to private insurance from either tax-finance or social insurance may require government to initiate supplementary coverage to address equity and access concerns. A move from a public to a parallel public and private delivery system will require new policies to govern physicians and to prevent physicians working in both systems from directing public patients to their own private practices. Each situation will be different; it is important to realize, however, that there are no simple solutions to the question of how to structure health care systems.

Another theme which emerges is that it is a dangerous oversimplification to equate “private” with “competition”. The words “private” and “public” refer to a status. Competition is a process. “Private” does not imply “competition”, as illustrated by the existence of private monopolies. Nor does “competition” imply “private”. Competition may be used within the publicly-owned and/or -financed components of systems as well as in the private components, or indeed between the two components. As Professor Richard Saltman and WHO policy analyst Josef Figueras have pointed out (1), competition is most successful in advancing public ends when it is focused directly on and restricted to the supply side (contracting non-clinical services, performance contracts for clinical service providers, substitution in pharmaceuticals, etc.). It is problematic when focused on individual patients, making treatment or insurance coverage choices as if they were consumers of other everyday products on which they are typically much better able to inform themselves. Nevertheless, given the present state of limited knowledge in this area, it should be acknowledged that it is difficult to draw any definitive conclusions, and that value judgements about the relative merit of different policy objectives will heavily influence any conclusions which are drawn.

A third theme, which emerges from recent health care reforms in several countries that have created purchaser-provider splits, is that the complexity of modern health care systems renders it sometimes impossible to make public/private distinctions. In some cases, the difficulty lies in deciding how and whether to apply the term “public” to purchasing bodies which may be quasi-public, nongovernmental organizations or corporations operated on a non-profit basis. In other cases the public and private elements are interdependent, even within a service category. There is a variety of purchaser-provider ownership models. Further, complexity arises from the public/private arrangements made in capital markets to finance new facilities; for example, joint-venture models involving public/private cooperation are increasingly being used to add new facilities or augment and update old ones (3).

The result of recent trends is that, more than ever, the public versus private debate in health care policy needs to be carried on at the level of specific policy proposals, judged against explicit social policy objectives. It is only at this level of detailed analysis that some of the newer, more complex proposals may be fully understood. “Public versus private” is not a particularly clear or helpful way in which to frame current policy debates; rather these debates should focus on performance.

Exercise 1

Identify one policy option in your country which involves “privatization” of the health care system. Which of the six functions described in this module does it involve? Give your view (and the reasons for it) of how the policy would perform on the criteria of:

- improved health outcomes
- equity in access to and payment for health services
- efficiency in the delivery of health services
- overall control of expenditure
- patient and provider satisfaction.

Exercise 2

Privatization (especially in relation to the financing function) is sometimes linked closely with market-based reforms. Annex 1 presents eight summary propositions about such reforms from an article by Professor Robert Evans (4). Do you agree or disagree with Professor Evans? Use the propositions as the basis for a discussion of the status of market-based reforms in your own country. Under which conditions do you think countries can introduce market systems? What evidence is there for your answer? What objectives are best achieved by market systems? What value judgements are involved in decisions about market systems?

Note: For an audience familiar with the concept introduced in Module 3.3.1: *The expenditure ≡ income ≡ revenue framework*, Annex 2 may be used to illustrate key issues.

Annex 1. Summary propositions from *Going for the gold: the re-distributive agenda behind market-based health care reform* by Robert G. Evans

Summary propositions

1. There is in health care no “private, competitive market” of the form described in the economics textbooks anywhere in the world. There never has been, and inherent characteristics of health and health care make it impossible that there ever could be. Public and private activities have always been interwoven.
2. The persistent interest in an imaginary private competitive market is sustained by distributional objectives. These define three axes of conflict:
 - (i) the progressivity or regressivity of the health care funding system: who has to pay, and how much?
 - (ii) the relative incomes of providers: who gets paid, and how much?
 - (iii) the terms of access to care: can those with greater resources buy “better” services?
3. The real policy choices fall into two categories:
 - (i) the extent of use of market-like mechanisms within publicly funded health care systems;
 - (ii) the extent to which certain services may be funded outside the public sector, through quasi-markets, and under a mix of public and private regulation.

4. Proposals to shift towards more use of quasi-markets through the extension of private funding mechanisms are driven by distributive considerations. They reflect the fact that, compared with public funding systems, privately regulated quasi-markets have to date been:
 - (i) less successful in controlling prices and limiting the supply of services (more jobs and higher incomes for suppliers);
 - (ii) supported through more regressive funding sources (the healthy and wealthy pay less, and the ill and wealthy get preferential access);
 - (ii) off-budget for governments (cost-shifting in the economy looks like cost-saving in the public sector).
5. Market-like mechanisms within publicly-funded health care systems constitute a particular set of management tools that might be used along with other more established mechanisms to promote the following generally accepted social objectives:
 - (i) effective health care, efficiently provided and equitably distributed across the population according to need;
 - (ii) fair but not excessive reimbursement of providers; and
 - (iii) equitable distribution of the burden of contributions according to ability to pay, within an overall expenditure envelope that is consistent with the carrying capacity of the general economy, or rather of its members' collective willingness to pay.
6. These general objectives seem to be widely shared internationally. Their specific content is of course much more controversial: they are fundamentally political statements and, as usual, God and the devil are in the details. But the key point is that these social objectives have their origins prior to, and at a higher level than, the choice of any particular set of mechanisms for trying to attain them. They are *ends*; the mix and blend of public and private actions are *means* to those ends. (Markets were made for and by men, not vice versa.)
7. Market-like mechanisms, as a class, have no inherent or *a priori* claim to superiority as mechanisms for achieving these public objectives. Nor is there, to date, any overwhelming empirical support for their widespread use. There are a number of interesting examples, in different countries, of the use of economic incentives to motivate desired changes, and these bear close watching. But this is still very much an experimental technology for system management. Moreover, there are grounds for serious concern about negative side effects from transforming the structure of motivations and rewards in health care.
8. The central role of governments remains that of exercising, directly or more traditionally by delegation, general oversight of and political responsibility for each country's health care system. Governments are increasingly acting as "consumers' cooperatives", or prudent purchasers on behalf of their populations. They should choose whatever managerial tools seem to work best for this purpose, subject to the political constraints created by the fundamental conflicts of the distributive interests detailed previously. In particular, they may delegate some parts of this role, but they should not be permitted to divest themselves of it. In the one country where a coalition of private interests has prevented government from taking up this responsibility, the results have been spectacularly unsatisfactory.

Annex 2. Use of the expenditure \equiv income \equiv revenue framework

Health care systems have an inherent tendency toward expansion (see Module 2.3.1). When faced with the fiscal tension this creates, governments frequently turn toward strategies which increase

reliance on private financing. Two of the most common strategies are to rely more heavily on user charges of various forms and/or to allow an increased role for private insurance. Both have significant redistributive effects which the expenditure \equiv income \equiv revenue framework introduced in Module 3.3.1 can help to illustrate.

In both cases, the objective is to increase the ratio of (user charges – UC, or private insurance – PI) to (taxation – TF plus social insurance – SI) in the revenues item of the framework. Typically, the objective is actually to decrease TF + SI while shifting the fiscal burden to UC and/or PI. Professor Evans notes in his article that although there is often much rhetoric about the intention of using private financing to lower the level of utilization (Q), this seldom occurs in practice. Indeed, international evidence strongly suggests that increased reliance on private financing leads to *higher* instead of lower levels of total health care expenditure (P x Q), accompanied by higher levels of *total* revenues (TF + SI + UC + PI), even though the public component of revenues (TF + SI) may be lower. (On this and other issues related to this module, participants may wish to read the detailed analysis in the Evans article (4), and also the WHO Report on the Ljubljana Conference on Health Care Reforms (5) and the Ljubljana Charter (6), which questioned the use of market-based strategies for cost-containment.) Higher total expenditure and higher total revenues must also imply higher total incomes (W x Z) which helps to explain why health care providers are often prominent among the advocates of increased private financing. They correctly perceive that this strategy will increase the resources devoted to, and therefore the incomes to be derived from, the health care system. Health care professionals such as physicians will not be the only ones to benefit from the increased incomes associated with private insurance in particular; the employees and shareholders of the insurance firms themselves constitute another important group of beneficiaries.

Omitted from this analysis, it seems, are the recipients and potential recipients of the health care services, who are also the individual patients and citizens from whom the revenues must be collected, either publicly or privately. It is for this group that the redistributive consequences are potentially the most significant.

Consider first the case of increased reliance on direct charges to users of services in a health care system financed primarily through progressive taxation (such as personal income taxes), which is perhaps one of the most common reform scenarios. Direct charges distribute the financial burden for care away from taxation and onto those who utilize services, for this is their purpose. Assuming that those who utilize services are the less healthy individuals in a society, the financing burden is thereby shifted away from the healthy and towards the sick. (A separate but important issue is that to the extent that direct charges do reduce utilization (Q), the reductions are often concentrated among the poor who are least able to pay the charges and who often most need the services.) If the system is otherwise financed through progressive taxation, then there is an additional redistributive effect; the wealthier individuals in the society gain more from the tax relief provided by the substitution of direct charges for taxation in the revenues item of the framework. The two effects combined mean that the financial burden of paying for health care is shifted away from the healthy and wealthy and towards the sick and poor. For any one individual, whether or not he or she is better off financially with increased reliance on direct charges depends on his or her level of health care utilization and level of income, but the extremes are clear. The relatively wealthy, who are on average also relatively healthy, gain; the relatively poor, who are also on average the relatively sick, lose. This may help to explain the frequent political alliance between health care providers and upper-income individuals in support of an increased reliance on private financing.

Reliance on private insurance (PI) instead of direct charges (UC) is a somewhat more complex analysis (again, participants may wish to refer to the Evans article (4)), but results in a similar picture of redistribution. Furthermore, in practice, much private insurance makes use of direct charges in combination with insurance premiums, and individual risk-rating in private insurance may price coverage beyond the reach of many lower-income individuals and/or deny coverage altogether to very sick individuals.

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3.4.3 Privatization – assessing strategies in a central Asian republic

Anthony J. Culyer & Richard B. Saltman¹⁵

Key messages

- Countries in transition, especially the newly independent states (NIS), have to consider very carefully the options, prerequisites and likely outcomes of privatization.
- Policy choices do not lie between a bureaucratic monolithic command-and-control state-run system on the one hand, and a fully privatized, for-profit, private system on the other. There are many gradations in between, involving different types of market.
- There are numerous up and running models for central Asian republics and other newly independent states to examine and consider, change and adapt.

Tutors' notes

- This module builds on the understanding gained in Module 3.4.2: *Privatization – overview of issues*. It takes up the issues that are likely to be important in the particular context in NIS and countries at similar levels of development. Indeed, it is based on a consultancy service.
- The module can help policy-makers and advisers to ask for relevant information and studies and to help others to understand some of the issues in practice.

Introduction

This module is divided into two parts. The first develops a set of general principles that is broadly applicable to the countries of central and eastern Europe and the newly independent states (NIS). These principles are not value-free, however, in that they inevitably embody political and social judgements. Each country should, therefore, assess the suitability of these principles in terms of their national history, culture and long-term aspirations. The second part of the module addresses key issues specifically for the NIS and attempts to apply the principles put forward in the first part.

Principles in privatization

This section outlines several general principles, which can be adapted and applied within the context of each country. There is no particular virtue in uniformity of health sector arrangements, whether for

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privatization or anything else, and each country will pursue its own individual path towards whatever goals it sets for itself. There are occasions where the international implications of internal arrangements become potentially important as, for example, when internal arrangements become conditions for securing external grants or loans (in which case, there will be trade-offs to be made and negotiations required to achieve mutually satisfactory agreements), or when financing arrangements are held to bestow unfair advantages in international trade (when the major empirical issue will usually be the distribution of health care costs paid for by owners, employers and employees in exporting industries). The principal objective for the health care sector ought, nonetheless, to be to arrange its affairs so that those public policy objectives which the elected government selects are served by the most cost-effective means compatible with those objectives.

Principle 1

The type, scope and degree of privatization in health care in a country ought to be evaluated in terms of that country's objectives for the health care sector; its history of provision and finance, the local culture and local resources (including managerial capacity).

The structure, organization and finance of health care systems vary across countries. Although many countries have similar dilemmas, not all choose to adopt similar solutions. Solutions which may be appropriate in one context may be highly inappropriate in another. They may reflect different priorities placed on equity, or the powerful influence of one or another group of actors in the health system. They may be constrained by the availability of resources, the quality of information systems, or the level of managerial capacity within the health sector. All these factors need to be balanced in determining the scale and scope of privatization.

Principle 2

Privatization is not an end in itself, but a means to achieve desired ends.

When suitably designed for local circumstances, privatization may enhance the efficiency with which social objectives are achieved by encouraging creative initiatives within the health care sector. The important element relates to clarity about the policy objectives sought. With an objective established, the test of the appropriateness of privatization will depend upon the extent to which it can assist effectively in achieving the desired objective over time, and the relative effectiveness of alternatives to privatization. In judging the cost-effectiveness of privatization, the analytical framework advocated here (identification of objectives followed by assessment of the effectiveness of privatisation, among other possible options) is an appropriate framework for thinking about the issues but does not remove the scope for policy judgement. On the contrary, this framework serves as an aid to judgement rather than a substitute for such judgement. There is no "scientific" solution to most major policy choices. Decision-makers confront a set of policy trade-offs, each of which has both advantages and disadvantages. The method proposed here has the advantage of making objectives explicit and encouraging systematic thought about the options for achieving them, drawing on available evidence both internationally and internally. This is preferable to "muddling through", especially at a time when substantial change is needed.

Principle 3

Privatization is a question of determining property rights and should be directly recognized as such.

Property rights define the uses to which resources may and may not be used, including the terms on which they may be exchanged. Property is not inherent in the physical characteristics of any asset, but the socially determined uses to which it may or may not be put. For example, a private individual may “own” a piece of land and regard him- or herself as having private property rights in it. However, such ownership will often not include the rights to own and mine minerals beneath the land, or to use the water that flows across it, or to fly aeroplanes through the space above it, or to burn noxious substances upon it, or to hunt over it, or to build tall buildings on it that obscure neighbours’ views and access to light. In addition, others may have the right to walk or drive across the land in question, and there may be public regulations that require only certain types of building or alterations to buildings on the land (as when, for example, these buildings are of historical or cultural importance). Moreover, the enjoyment of such private rights as exist may be subject to a fixed time period (as when the land is leased) and landlords may also set other conditions to which the tenant is obliged in law to adhere. This example makes clear that it may be quite common for an asset to have a number of “owners”, each with defined rights and protected by the law. The scale and scope of the rights attached to the use of an asset have a major impact on its value, both in the commercial sense of value and in a wider social sense. For example, certain estates might not be alienable from their “owners” and therefore may not be marketed, or a publicly-”owned” asset might not be commercially exploitable, or a health care institution might be privatized on terms requiring that it be a non-profit organization.

It follows that there will normally be a number of options that can be selected within the general range of privatization. The uses to which a building, such as a hospital or clinic, might legally be put are not determined by the intent to privatize *per se* but by the nature of the objective being sought, the range of uses to which it may and may not be put, the time period for which the private rights may be exercised, the question of whether the bundle of privatized rights includes the right to sell the rights of use in the asset, the likely wealth to be created through privatization, and the sale value of the asset to the public sector when it is privatized. There is thus considerable scope within any privatization programme for a variety of types of transfer from the public to the private sector, which are best considered in terms of their likely consequences for public policy objectives. Therefore, even within a privatization programme there is a range of choices, and decisions concerning them should be selected according to which bundle of rights is most likely to deliver the desired objectives at least social cost.

It should also be noted that even if state assets are transferred to the private sector at a zero or near zero price, the contractual terms of the transfer can include consideration of who would share in any net revenue stream should the privatization achieve its objectives. The contract can further make clear the nature of the activity expected of the privatized organization, how this is related to social goals, and how the organization will be made accountable for its activities.

Principle 4

Selective privatization is more likely to work effectively in service provision than in funding.

This principle derives from a combination of practical experience as well as more subjective and more culturally dependent value judgements. Private health care insurance can be defined as providing insurance against the cost of medical expenses rather than insurance against the cost of ill

health *per se*. It may be either monopolistic or competitive. If it is monopolistic, a strong system of state regulation will be essential to control common abuses of monopoly power in the form of unnecessarily high premium prices. One way to exert control in the monopoly case might be to contract out the (public) insurance function for a specific period of time to the most cost-effective private bidder who is also willing to be committed to meet the overall social objectives set by the government. Such a contract is difficult to monitor and enforce. However, weaker forms of regulation may be even less capable of delivering these objectives and will inevitably involve even higher monitoring and enforcement costs. They also require a degree of sophistication on the part of regulators that most countries do not possess.

Competitive private health care insurance often leads to risk discrimination in premiums and, in the case of the very elderly or the chronic sick, typically produces prohibitively high premiums that drive them out of the market altogether. This then requires explicit public insurance programmes (such as Medicare and Medicaid in the United States).

In addition, competition among private for-profit insurers engenders risk discrimination within those groups which private companies will insure. Since in all societies, the incidence of sickness and social status (or income) are inversely related, competition among insurers typically violates the equity objectives set for the health care system. It sometimes also violates efficiency objectives as, for example, when these are set in terms of maximizing the contribution of health care services to health gain in the community.

Principle 5

Consult as widely as possible in setting policy objectives.

Medical care systems require complicated choices and trade-offs, both at the system level (such as setting a limit to public expenditure on health care) and at the more detailed level (such as denying forms of care to some but not to others). In general, it is better for these decisions to reflect a broad process of consultation and, where appropriate, involve a wider public in their discussion. In this way, the values embodied in the health system will better reflect those of society.

Principle 6

Never let the perfect become the enemy of the merely good.

The above principles involve values and judgement. The importance of setting clear objectives for the design of health care systems and their supporting systems plays much the same role as setting moral principles for the conduct of one's own professional and personal life. One may not always live up to them, but it is rather important to know where one is failing, so that steps may be taken to remedy the worst departures from the ideal.

For example, although it may be intended that a health system should treat all citizens equally in their access to health care, it might be more realistic to compromise by allowing a small private sector both for insurance and for health care to cater for certain needs (such as foreign visitors and the wealthiest citizens), or to compromise on the availability of expensive medical treatments by defining limits to entitlement.

Principle 7

Limited small-scale experiments, trials or pilots schemes are often better than trying to implement new policy ideas across the entire health system.

The case for policy experiments (for example, in one region or *oblast*) is that they enable a ministry to test the feasibility of an idea in the light of the experience gained. Such experiments make it possible to identify best practice and to share it more widely. This does not negate the value of local experimentation for local purposes. Moreover, experiments can and ought to have a bottom-up as well as a top-down motivating force. The ministry should, never the less, be informed about experiments so as to disseminate good practice and discourage bad practice as it is revealed. It may also offer advice on the design and implementation of experiments.

Policy experiments should be designed so as to enable an informed judgment to be reached as to whether the changes observed in the experimental group may, through comparison with the controls, be reliably attributed to the policy changes in question as distinct from other changes going on at the same time. More generally, pilot projects avoid having to put all one's "policy eggs" into a single basket in a situation where there is doubt as to whether a proposed policy will achieve the objectives sought at a reasonable cost compared to either the status quo or some other alternative.

Pursuing privatization in a central Asian republic

Privatization ought to be part of a broader strategy for overall health care reform

The health care systems that most NIS inherited at independence had substantial advantages but no less substantial disadvantages. The challenge to the central health sector has been to develop and implement policies that can address the disadvantages while not undermining the inherited advantages. Proposed health policy changes need to be evaluated in terms of their probable outcomes, so that policy-makers can be reasonably confident that the changes will indeed reduce inherited disadvantages (e.g. inefficient management of existing institutions, the frequent poor quality of services, and the counter-intuitive combination of under-resourcing health services in general while simultaneously over-investing in institutionally-based care) while not harming the inherited advantages (in particular, the access of all citizens to a fairly full range of health care services). This balancing or trading-off of two different, conflicting, needs requires a fully thought out and comprehensive approach to health sector reform.

An effective reform strategy could include the privatization of ownership of certain health care institutions as a part of a more comprehensive approach towards the whole sector, consistent with movement towards more widespread private ownership in society in general. If introduced through a period of experiment or a pilot project, such a strategy could provide plausible answers to such crucial questions as which institutions to privatize (and why), to whom they would be transferred (and why), the nature and scope of the property rights thus transferred (and why), the price at which they were transferred (and why), the regulatory environment in which the privatized institutions would operate (and why), whether the objective sought was likely to be met, the speed at which the process should go ahead, and how the process should be best managed.

All these issues require careful consideration about the balance of advantage and disadvantage in the inherited system and of the overall goals of the health care sector. Sharp, rapid and ill thought

through privatization is extremely unlikely to satisfy these policy requirements. Indeed, such a process is likely to create as many problems as it resolves. Moreover, ill-planned privatization may not shift the responsibility for solving problems from government, and yet make it more difficult for policy-makers to solve them. Inadequately conceptualized and planned privatization schemes will inevitably damage the current and prospective health of the weakest and most vulnerable members of society: children, the elderly and the chronically ill, particularly among the poorest members of society. In short, if privatization is not to undermine the overall objectives of the health care system, it must be part of a clearly defined, broad and comprehensive strategy of health sector reform covering finance, structure, ownership and organization, and long-term objectives.

When privatization was proposed in several NIS in the mid- to late 1990s, such a broad comprehensive strategy did not exist. The impression was one of “privatization for privatization’s sake”, as a universal panacea for the inherited problems of the countries’ health sectors. Indeed, the major objective in some countries seemed to be driven by fiscal rather than health policy considerations, that is, to reduce the ministry of the economy’s budget allocation for health care. This appeared to represent a confusion between means and ends which is particularly dangerous for countries going through massive economic transition, with all the negative health consequences that accompany such transitions.

These privatization proposals appeared to reflect the lack of effective change up to that point within the health care sector, presumably in the belief that shock tactics were necessary to address the system’s problems. However, inappropriate privatization, or privatization on an inappropriate scale and at an inappropriate pace, would generate consequences that run wholly counter to aspirations for what the sector ought to be achieving. Yet the reasons for lack of responsiveness in the sector may have more to do with the absence of a clearly signalled future direction. This leads again to the centrality of a sector-specific strategic vision and the practical plans which flow from it.

One particular structural dilemma in several NIS is the dispersion of health-related responsibilities across several ministries. The development of a coherent health care policy is thus even more difficult to achieve. While several ministries have legitimate interests, there is an urgent need for them to be coordinated and for clearly defined responsibilities to be identified both for a broader health care strategy and for the specific privatization programme.

The need for complementary policies

Privatization is a means to an end, not an end in itself. The objectives of the *process* of privatization (which should include minimal destabilization and disturbance) are not the same as the objectives of having a sector that is in varying degree privatized. The objective of having a (partially) privatized health sector would be to increase economic efficiency by reducing the *cost* per unit of output and improving the *quality* of output.

Privatization is a potential, though not inevitable, threat to equity. Equity objectives are a constitutional matter in all NIS. If threats to equity are not to materialize, privatization needs to be accompanied by a set of complementary policies. Indeed, the greater the extent of privatization, the more important it is that effective complementary policies are put in place.

These complementary policies are, in effect, necessary conditions for privatization to meet efficiency goals and minimize adverse effects on equity. Their nature reflects the point made above, that privatization is a means to an end. Further, privatization ought to be seen as only one element in a broader strategic approach to the health care sector, not itself alone the sum total of that strategy.

There are several essential complementary policies, all of which interact with the others. Some of the factors that might be considered to be particularly relevant in NIS include those listed below.

- (a) In choosing what to privatize there are essentially three interrelated factors to consider:
 - (i) which *institutions*?
 - (ii) which *services*?
 - (iii) what *charges* ought to be applied (to which services) and who ought (and ought not) pay them?
 Current patterns of eligibility and the financial contributions required of patients vary considerably in NIS according to the policies of local institutions. There is much to be said for having a *national* policy in accordance with the equity requirements of the country's constitution.
- (b) One way of approaching these issues is to examine critically those services currently falling into the categories of "guaranteed" or "basic" packages, in order to consider which services might be included in a "core" group of services freely available to all citizens. Obvious candidates include primary diagnosis, emergency care, care for chronic diseases, public health, and health education. Within each category of core services, only those of demonstrable effectiveness ought to be included.
- (c) Publicly-insured services need not be provided only in publicly-owned institutions.
- (d) Certain categories of person are typically not required to make co-payments (or make them at a reduced rate) for core services, including children, the elderly, the very poor, the disabled, pregnant women and veterans. There is an important distinction to be made between formally agreed co-payments and the informal payments that characterize a good deal of the current systems. Formally agreed co-payments ought to reflect the objectives of policy. Informal payments reflect local decisions and are likely to be arbitrary, inequitable and inefficient.
- (e) Privatization does not necessarily equate to "for-profit". In many countries, hospitals and clinics operate in the private sector as charities or non-profit trusts, operated by either religious organizations or secular ones. In several NIS, the current absence of a sophisticated system to regulate independent sector institutions, and the lack of a tradition of private management, suggests that the way forward would be to maintain a strong public sector presence. This approach harnesses existing and developing national management structures to ensure that the system is as integrated as it can be in pursuing nationally decided priorities. For-profit and non-profit experiments might be conducted through carefully designed pilots and trials. Privatization may take many forms and a simple private/public distinction bears little resemblance to the great variety of options that are actually available.

Operation of the capital market

To the extent that there is a limited capital market (private sources of borrowed funds such as bank loans and bonds), state assets transferred to private hands will have a lower value and contribute less to the delivery of efficient service delivery, due to the private sector's inability to borrow at competitive and relatively low real rates of interest for investment. If borrowing is excessively costly for potential purchasers of state assets, then potential buyers from within the country will be relatively few and the proportion purchased by external agencies relatively high. If borrowing for routine operational purposes (working capital, investment in the enterprise) is excessively costly, adaptation to change, investment in personnel (both hirings and professional training/development) and investment in equipment and buildings will all be sub-optimal and limit the efficiency gains hoped for.

Creation of a regulatory framework

A privatized portion of the health sector will require a sophisticated framework of national regulation. This includes the establishment of national standards for personnel and institutions as well as the monitoring and evaluation of both the providers' performance and the health outcomes of the system as a whole. The absence of an effective regulatory environment would make it undesirable to privatize provider institutions due to the dangers of abuse of private monopoly power. Regulation of privatized units within the health care sector is also required for other purposes, for example to control professional monopolies, and to preclude health care procedures for whose ineffectiveness or damaging effects there is an evidential basis, such as uncontrolled over-the-counter purchases of antibiotics. It is worth noting that public health care agencies also require monitoring and regulation in these matters.

Training of central experts and managerial cadres

Privatization places high demands on the skills of managers at all levels. Skill development is required not only to manage the process of change itself but also to manage privatized institutions in ways that are proactive rather than reactive, that are innovative and show willingness to take (sensible) risks, that show strategic vision and an understanding of the overall objectives for the sector, and that have the ability to distil practical and operational plans from a broader vision. Such skills cannot be acquired overnight but require training programmes.

Contracting framework

Private health care providers (whether for-profit or non-profit) are all potential contractors with state "purchasers" of services. These might be a compulsory state insurance fund, regional or *oblast* authorities, or other public agencies which decide to purchase services on behalf of defined population groups. An important element of meaningful competition is competition between private and public providers of care. If this is to be introduced (and it is a model much used in western Europe), a contracting environment needs to be created through which: (a) the public purchasers can specify their requirements (volume, type of service, target clients, quality, cost, terms of access for clients, etc.); (b) potential providers can bid for such contracts; (c) performance can subsequently be monitored; and (d) long-term relationships between contractors can be established. Over time, such contracts can be useful means of securing what is becoming an increasingly important element in North American and European health care systems: the provision of evidence-based medical care. The absence of such a mechanism between purchasers and providers is likely to lead to the isolation of private from public providers, the development of at least two tiers of service (with perceived quality differentials and violation yet again of equity desiderata) and missed opportunities to use the private sector as an instrument for achieving social policy objectives. The contracts do not need to be legally enforceable formal contracts, but are better seen as written expressions of the joint intentions and the chosen means of delivering them of both purchasers and providers.

Creation of purchasing power

A private health care sector confronts three sets of potential purchasers:

- (a) public purchasers who contract on behalf of specific population groups (defined, say, by area of residence);
- (b) private insurance agencies which may contract for specific services on behalf of their clients;
- (c) private individuals who pay out-of-pocket (and preferably not under-the-counter) or via their private insurance cover.

A private sector relying for its income solely on the third of these has an inherently limited market in several NIS and will consequently have a restricted scope owing to the limited purchasing power of most citizens. The present time thus presents a useful opportunity to bring about a coherence of the private and public sectors, whereby private providers have an opportunity to develop through extensive reliance on public contracts, the two parts of the sector can develop mutual understanding of what is expected of each, technology and evidence-based practice can develop evenly in each, and public policy can be directed to the monitoring and control of private health care and private health care insurance.

Maximizing asset sale prices

It is relatively easy to divest the public sector of assets. It is harder to do so in a way that maximizes the financial gain to the public sector and thereby generates maximum income to the state to offset budget deficits and reduce public debt. This is not merely a question of the type of bidding procedures to be adopted. It also requires attention to those factors within the economy that create a demand for such assets and that help to determine their value (essentially the current value of positive net receipts from their operation, whether as health care providers or in some other economic activity) and indeed whether they have any value at all. Factors that depress the sale value of state assets include the small number of clients for privatized services and poorly developed capital markets.

It might, even when the capital market is poorly developed, make good strategic sense to privatize selected institutions whose sale would bring little cash into the state budget (other than a possible reduction in a continuing recurrent expenditure drain). The transfer of state assets at a zero or near zero price does not, however, mean that they should be transferred without clear contractual terms specifying the activity to be undertaken in the privatized institution, whether it is to be a profit-making or a non-profit organization, and the nature of its accountability to the state. Nor should it be done without recognising that, despite a current low asset value, if the privatization is successful in achieving its objectives, privatized organizations represent potential sources of considerable wealth in the future – which should accrue to the public or private sectors according to the terms of the transfer.

Reconsidering ends and means – alternative policy options

The interaction between and the mutual reinforcement of the components of the broader strategy outlined above are important. Two points in particular are worth highlighting:

- (a) if the overall objectives of efficiency and equity in health care policy are to be achieved, neither the process of privatization nor the subsequent operation of the private sector will be optimized by treating each as a separate issue, nor will overall objectives be realized by failing to ensure appropriate coherence of the public and private sectors once the private sector is up and running;
- (b) the equity objectives of the health care system are likely to be seriously compromised if low quality (public) and high quality (private) services develop – a process that would be encouraged were private health care insurance to become significant.

As noted above, privatization should be viewed as simply one possible tool which can be employed to achieve a more fundamental set of policy objectives. The WHO Ljubljana Charter on Health Care Reforms (1), adopted by WHO European Member States (including the NIS) in June 1996, defines these fundamental principles as driven by values, targeted on health, centred on people, focused on quality, based on sound financing and oriented towards primary care. The general principles presented here mesh well with these. The central question for NIS governments thus becomes: what policy interventions provide the most cost-effective means of achieving these six general health sector objectives.

Privatization is often linked with a theoretical view that health care is a commodity, like most other commodities, which ought to be available for purchase and sale on the open market. This may be a tempting view for any country that has inherited a communist health care system. There is, as a matter of fact, no developed country in the world which, in practice, treats health care in so thoroughgoing a commercial manner. Even the United States, which dramatically differs from other OECD countries in dependence on private insurance and for-profit organizations on the provider side, does not apply this theory fully. Over 40% of health care funding comes from compulsory taxation (mainly to support Medicare and Medicaid) and there remains a substantial number of tax-funded hospitals providing services to the indigent poor and military veterans. The for-profit commercialism of the United States system is nonetheless substantial and it carries a high social and financial price. Total health care costs per person in the population are almost double the OECD average and more than double those in the almost wholly public systems of Sweden and the United Kingdom. Moreover, even with 15% of GDP devoted to health care in the United States, fully one third of the entire population is either completely uninsured (43 million citizens) or only partly insured (50 million). Only poor elderly citizens in the United States have the right to tax-financed home care or long-term nursing care. Put bluntly, the notion that health care ought to be treated as a commercial commodity, and the consequent high level of privatization in both finance and provision, are directly linked to the failure of the United States to provide adequate health care for its entire population and to the enormous cost of what it does provide.

The NIS should look, perhaps, to other systems as models for further consideration and adaptation. In western European countries health care is viewed as a social good, one whose benefits accrue not only to those who directly receive its services but also to the public at large and whose equitable distribution is seen as lying at the core of policy objectives. In countries such as Finland, the Netherlands, Sweden and the United Kingdom, and to a lesser degree Italy and Spain, there have been serious and sustained attempts to introduce market-style incentives and more sophisticated management into what have remained publicly-owned, publicly-operated and publicly-accountable health care systems. Public hospitals have not been privatized (although public patients have on occasion been placed in private hospitals) but have instead been transformed into managerially independent public firms which are publicly accountable. They no longer receive a global budget from the state but are instead funded on the basis of contracts or agreements with funding bodies that embody performance targets. In Sweden patients can choose the hospital at which they are to receive care and the money received by the hospital follows the patient. Similar types of “public” or “internal” markets exist between primary care professionals and secondary care, and between social, home-based care and nursing home providers and hospitals. All these arrangements can be characterized as planned markets which are designed to deliver specific public policy objectives and to ensure that the relationship between purchasers (or commissioners) and providers is one that brings stability and mutual understanding and agreement about objectives, thus enabling well targeted long-term investment in staff and other resources over time. Not all these arrangements demand highly sophisticated management and many could be introduced with relatively modest investments in the relevant skills.

A similar set of options exists with regard to the public body or bodies which do the commissioning or which oversee the providers. This need not be the state directly but could be elected regional bodies (Sweden), municipalities (Finland) or specially appointed authorities (the United Kingdom). With these kinds of decentralization, some general framework is required, for example to specify national

objectives for the reduction of mortality from specific causes and for maximum waiting times. Ultimately these bodies are accountable not only locally but also to central government and to national regulatory (sometimes professional self-regulatory) bodies which monitor and control standards.

Thus, the key policy choices at the broadest level do not lie between a bureaucratic monolithic command-and-control state-run system on the one hand, and a fully privatized, for-profit, private system on the other. There are many gradations in between, involving different types of market, and there are numerous models in existence for the NIS to examine and consider, change and adapt.

Exercise 1. Advice on privatization in a newly independent state

The government in a newly independent state (or a country of similar level of economic development) has decided to push for privatization throughout the economy. You are asked to advise on greater privatization of particular aspects of health care or the wider health systems.

- What are the *objectives* which greater privatization in health might enable to be more efficiently or more equitably achieved?
- If there would be any major *disadvantages*, are there ways in which they could be countered or minimized?
- What are the *likely costs and benefits* of greater privatization in the country, and who might gain or lose?
- Would your judgment and advice also hold for *another country* with a different level of economic development?

References

1. *The Ljubljana Charter on Reforming Health Care*. Copenhagen, WHO Regional Office for Europe, 1996 (document EUR/ICP/CARE 9401/CN01).

Further reading

See the lists of references and further reading at the end of Module 3.4.2: *Privatization – overview of issues*.

Learning to live with Health Economics

**Edited by H. Zöllner,
G. Stoddart and C. Selby Smith**

Chapter IV Economics of management and the change process



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OUTCOME ASSESSMENT (HEALTH CARE)
PROGRAM EVALUATION – methods
FORECASTING
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Chapter V. Useful economic tools

4. Economics of management and the change process

4.1 Introduction

Chapter 4 of the learning materials is concerned with change, a pervasive feature of health systems in Europe and the societies in which they are embedded, and how the change process can be managed. Change is endemic at all levels of European health systems, and some commentators argue that the rate of change is accelerating. Change and how to manage it is relevant to all stakeholders in the health and health care systems. It also affects their relationships with other sectors, disciplines and stakeholders.

The discussion of the change process and its management is organized in three sections, which include a total of six modules. Section 4.2 includes a module by Professor John Lavis of McMaster University in Canada providing an introduction to concepts for health policy analysis, and two further modules on health management and administration.

Health policy analysis is the study of why groups respond to some health problems or issues and not others, why they develop some health policies and not others, and why they implement some health policies and not others. Identifying patterns in agenda-setting and the development and implementation of health policy, as well as understanding the reasons for those patterns, are important skills for those in the health field. Module 4.2.1 supports the development of these skills, which are important for all the potential users of the learning materials, particularly those in senior policy-making or policy-influencing positions (in health and related areas). It also emphasizes that, while analytical constructs can be a valuable aid for understanding and empowerment, the world is a messy place where the implementation of change generally involves bargaining, negotiation and compromise.

Module 4.2.1 considers health policy at three levels: legislative, administrative and clinical (where a practice guideline can be thought of as a health policy for clinicians). For example, at the legislative level three factors are cited to help explain action or inaction in policy development: interests (who wins and who loses), institutions (the rules for decision-making), and ideas (both values and research). The module concludes that policies are more likely to be developed when the benefits are concentrated among more influential groups and when the costs are diffused across less influential groups; when decision-making structures concentrate influence in a small number of individuals at the same level of policy-making; when policies are less visible (especially to those who will have costs imposed on them); and when both values and empirically tested “facts” support the policy.

The two further modules in Section 4.2 are concerned with the administration and management of change. Module 4.2.2, by Keith Barnard and Professor Chris Selby Smith looks at how public health is managed politically (by government or organized society rather than in the narrower party political sense), noting that the ultimate responsibility for the overall performance of a country's health system must always lie with government. The module emphasizes that HEALTH21, the health for all policy framework approved by the WHO Regional Committee for Europe in 1998, is intended to stimulate and guide countries and communities, enabling them to develop strategies that address the determinants of health and result in: socially responsible and sustainable health development; greater equity in health; higher levels of health throughout the individual's life; a reduced burden of sickness and injury through the unlocking of new resources for multisectoral action; and high quality cost-effective health care. The underlying ethic is that of equity. The module also discusses the valuable contribution which can be made by economics and economists to the achievement of the objectives of HEALTH21, and key success factors for an effective approach to the political management of health policy and changes in health practice. The essentials are articulated clearly: the shared view; the political will to cooperate; the support of participating interests; appropriate mechanisms and structures for identifying and implementing options; and a climate of creativity. The module concludes that: "While it may not be easy, while it may take time, it can be done. However, it often is not done; and the task tends to be more difficult in a declining economy than in an expanding one."

Module 4.2.3, by Professor Chris Selby Smith and John Wyn Owen, is concerned with health administration and management at a more devolved but no less important level. The module notes that all managers are affected by the environment in which they work, that the environments in which health care managers operate have some special features, and that, in many European countries, significant changes are taking place in that environment. The authors argue that managers contribute to the provision of health care and the achievement of health gain i.e. adding years to life and quality life to years. Managing for health involves deciding what needs to be done and ensuring that it gets done, through people.

Managers are concerned with both processes and outcomes, where outcomes include quantity and quality. Since managers take decisions in order to achieve results, it is crucial that the objectives to be achieved are clearly defined, however difficult it may be to achieve them completely and irrespective of whether tactical adjustments are required from time to time (they will be). Good managers provide a support service, which enables a wide range of resources (wider than in many other industries) to be brought together in an efficient, effective, economic and equitable manner. The result is enhanced achievement of the health objectives of their organizations. People are a particularly important resource in health care; over time, good management expands the capacity of people, whether providers or users, to achieve outcomes and make informed choices.

Outstanding managers, the authors argue, are characterized by their ways of thinking, presenting and behaving. While they are aware of the complexities of the managerial environment they are not paralysed by analysis. They are oriented to action and to taking the best decisions which are possible in the prevailing circumstances. The manager's role necessarily involves balancing a range of risks, deciding on the course of action which appears to be most appropriate in the light of the available information, and ensuring that it is pursued in a business-like fashion. "The only manager who never makes a mistake is the one who never takes a decision, so that risk management is inherent in the role."

The managerial role is demonstrated in practice. How the manager acts tends to be more powerful than what he or she says. Much of the manager's influence occurs through setting the climate, in

leadership rather than mere administration. Managers also need to be aware of the dynamic elements of the managerial task and of the intersectoral contributions to health outcomes, and that he or she has responsibilities to the wider health care system and society as well as to the particular institution.

Section 4.3 contains one module written by Professor Björn Lindgren from the University of Lund, Sweden and Professor Michael Drummond from the University of York, United Kingdom, with contributions from Eva Bondar in Hungary. Module 4.3.1 is concerned with the development and diffusion of health technology where costs (capital and recurrent) and benefits can be substantial. It emphasizes that technologies for health, which are the mechanisms through which resources are combined to produce health improvements for the individual and for the overall population, are not confined to the clinical care sector but comprise all health promotion, disease prevention, diagnosis, treatment, rehabilitation and care activities. New health technologies are developed by publicly or privately funded research and development, but they are not developed haphazardly. They are induced by the incentives which are provided for developing specific kinds of technology. The incentives may be created by government regulations or by the financial incentives of the market. The authors stress that considerable inefficiencies can occur in how health technologies are produced and how they are used. The payment mechanisms for health professionals and institutions are among the factors which can either inhibit or encourage the development and diffusion of health technologies, while both regulation and financial incentives can be used to encourage a more rational process of diffusion and use. Economic thinking, economic models and economic evaluation can help decision-makers decide whether to use various health technologies, when and to what extent, and subject to what indications or other conditions. In general, new health technologies are diffused gradually, technologies which have entered the health care system are not easily removed, and many older health technologies have never been subject to careful economic evaluation of their costs and benefits.

Section 4.4 includes two modules. Module 4.4.1, prepared by Chris Buttanshaw (United Kingdom), is concerned with primary health care. He emphasizes that primary health care, the broad concept underpinning HEALTH21, covers both a way of organizing health care and a set of beliefs about the best way of improving health. It includes care directed at both individuals and communities; its interventions are often diffuse and difficult to evaluate with the empirical quantitative methods which are frequently used in health economics; and its resources are often provided through informal care, by individuals, families or communities. Primary health care has much to offer in terms of cost-effective interventions, but there are many factors that can prevent these services having an appropriate priority. There can also be differences between the viewpoints of professionals, individual patients and society in general.

The module reiterates the message that, in many countries of the WHO European Region, changing demography and social patterns pose special challenges to primary care, especially in terms of long-term care and care for older people. The module also stresses that lack of evidence is not necessarily evidence of lack of effectiveness. The difficulties in obtaining hard evidence, such as that from randomized controlled trials, are greater in some parts of the health system than in others. The author points to a danger that, with developing evidence-based initiatives, resources may be allocated to areas where harder evidence is available, which may not necessarily be the areas where the health needs are greatest.

Module 4.4.2, by Dr Manfred Wildner and the late Dr Oliver Sangha (Munich, Germany), is concerned with citizen participation, patients' rights and ethical frameworks. It makes a valuable contribution to the learning materials, since these topics are often inadequately considered in many health economics textbooks and traditional economic theories based on individual preferences do not

adequately describe the full set of conditions influencing demand in health care markets. In fact, knowledge of theoretical frameworks of ethics and rights, as well as the possible strategies for their implementation, is of great importance for health economists as they can regulate or otherwise influence the market and the behaviour of participants on both the supply side and the demand side. Furthermore, public participation, patients' rights and consumers' rights are widely expected to play an increasingly important role in medical practice as well as in other health care markets in the future. The module is highly relevant for all four of the groups of potential users of the learning materials, with the understanding that ethical choices can be painful. A health service which seeks to retain the confidence of its patients, its political constituency among the general public, and its funders (whether public or private) cannot afford to ignore the important issues which are raised in this module.

4.2 The process, administration and management of change

4.2.1 Policy analysis, bargaining and negotiation

John N. Lavis¹

Key messages

- Why are some health problems or issues on the agenda to be deliberated (and not others)? Why are some health policies developed to achieve particular objectives using particular policy tools (and not others)? Why are some health policies acted upon by people in the field (and not others)? Identifying patterns in agenda-setting and the development and implementation of health policy, as well as understanding the reasons for these patterns, are important skills.
- Health policy can be considered at three levels: clinical, administrative and legislative. Health policy analysis is the study of why groups respond to some health problems or issues and not others, why groups develop some health policies and not others, and why groups implement some health policies and not others. Each of these topics can be explored at each level of the audience.
- Health care providers work at the intersection of educational, economic, administrative, community and personal environments, and the concordance of a practice guideline (which can be thought of as a health policy for clinicians) with these environmental influences will determine whether it is implemented. Practice guidelines are more likely to be implemented when large amounts of high-quality information from a range of sources support the action or inaction suggested by the practice guideline, when financial incentives reward it, when regulations make such action or inaction possible, when public pressure is either non-existent or supports the action or inaction suggested by the guideline, and when personal experience makes the health care provider comfortable with the action or inaction suggested by the practice guideline.
- Three factors are typically cited to explain action or inaction in policy development at the legislative level: interests (who wins and who loses), institutions (the rules for decision-making), and ideas (both values and research). Policies are more likely to be developed when the benefits are concentrated among more influential groups (and the costs across less influential groups), when decision-making structures concentrate influence at the same level of policy-making and when policies are less visible (especially to those who will have costs imposed on them), and when both values and empirically tested “facts” support the policy.

¹ This module was prepared by Professor John Lavis (e-mail: lavisj@mcmaster.ca), Centre for Health Economics and Policy Analysis, McMaster University, Canada.

- These insights can be used to assess the feasibility of change and to establish a strategy for bringing about change if it appears feasible. For example, certain people may have a particular policy that they would like to see developed. The first step involves a stakeholder analysis to determine who wins and loses, and what this means for the proposal's political feasibility. The second step is to determine the rules for decision-making and whether values and empirically tested "facts" support the policy. The final step uses the knowledge from the first and second steps to establish political strategies for improving the chances that the policy will be adopted. These strategies can include bargaining, strengthening the position of supporters and weakening the position of opponents, and mobilizing disorganized supporters and deterring organized opponents.

Tutors' notes

This module introduces a very different set of skills from the modules that precede it. As outlined in Module 3.2.1 on the relationship between the health for all (HFA) strategy and health economics, the frameworks and tools from health economics can help in understanding the HFA targets and how to implement them. The frameworks and tools from health policy analysis expand the discussion even further and provide an understanding of the context in which these targets may be discussed, converted into policy and acted upon. While it is not an exercise for this module, participants could be challenged to answer the following questions.

1. What conditions would make it more likely for the idea of "health for all" to be put on the agenda of legislators in participants' countries?
2. What conditions would make it more likely that HFA policies (with targets and indicators) are developed by their countries?
3. What conditions would make it more likely that HFA policies (with targets and indicators) are implemented by their countries?

One important condition is met by encouraging policy-makers, civil servants and other government technical staff, health care managers and health care professionals to learn about health economics' frameworks and tools. This module seeks to stimulate thinking about the other conditions.

The first exercise is aimed at the level of *appreciation*. The first half of the exercise would provide the most opportunities for learning if at least some members of the group were either health care managers or health care professionals (e.g. doctors and nurses). The second half of the exercise would provide the most opportunities for learning if at least some members of the group were either policy-makers (e.g. elected officials) or civil servants and other government technical staff. These subgroups would have valuable experiences on which the tutor could draw to illustrate points for participants who are unfamiliar with practice guidelines or legislative policy.

The second exercise is aimed at the level of (critical) *appraisal*. It can be used with the following groups:

- policy-makers (e.g. elected officials)
- civil servants and other government technical staff
- health care managers
- health care professionals (e.g. doctors and nurses).

The first two subgroups would be a helpful resource to the tutor in working through the exercise because this is a type of analysis with which they are very familiar.

Introduction

For those working in the health field, there can often appear to be no particular reason as to why some health problems or issues are on the agenda for discussion and not others, why some health policies (and not others) are developed to achieve particular objectives using particular policy tools or why some health policies are acted upon (and not others). Identifying patterns in agenda-setting and the development and implementation of health policy, as well as understanding the reasons for these patterns, are important skills for those in the health field. This module supports the development of these skills by encouraging participants to explore these patterns in the context of their own countries. The objective is to provide participants with several analytical tools for health policy analysis, rather than to discuss the advantages and disadvantages of particular health policies.

The module begins with a framework for understanding the range of topics that health policy analysis can address. Two examples of health policy analysis are provided, one at the level of a health care service (caesarean sections) and one at the level of the health care system (user fees for health care services), followed by an exercise for participants which builds on these examples. The module then introduces tools for understanding patterns in two of the topic areas: the implementation of clinical policy and the development of legislative policy. The enumeration of factors is not meant to be exhaustive; participants are expected to add to and modify them. The module concludes with a second exercise in which participants are asked to select two cases of policy development and, in view of their awareness of possible explanatory factors, to offer explanations for why these policies rather than others were introduced.

Health policy analysis

Health policy analysis is the study of why groups respond to some health problems or issues and not others, why groups develop some health policies and not others, and why groups implement some health policies and not others. In other words, health policy analysis is the study of **agenda-setting**, health policy **development** and health policy **implementation**. What health policy is not also warrants attention. Health policy analysis does not include the study of how best to advance particular interests (i.e. political strategy) or what interests to advance (i.e. political advocacy).

Health policy can be considered at three levels: clinical, administrative and legislative. The **clinical level** includes health care providers who deliver services to patients. These providers often play a role in deciding which health problems or issues warrant the development of clinical practice guidelines (e.g. treatment of dyspepsia, treatment of HIV disease, or use of caesarean sections) and how these guidelines will be developed (e.g. by using clinical evidence regarding effectiveness, analytical evidence about decisions regarding the cost–effectiveness of alternative courses of action, or econometric evidence of budgetary impact). Moreover, these providers are the people called upon to implement clinical practice guidelines. The **administrative level** includes the range of administrators working in health-related facilities or programmes. These administrators often play a role in deciding which health problems or issues warrant the development of administrative policy and which administrative policies will be developed. They may be called upon to implement their policies or may work with health care providers or other administrators to implement their policies. The administrative level also includes private firms whose managers can make decisions about how the employees should be treated or what products and services should be produced, in part on the basis of the health consequences of their decisions. The **legislative level** includes the politicians and senior

bureaucrats charged with the authority to develop legislative acts or regulations that can affect health. These politicians and bureaucrats ultimately decide which health problems or issues warrant the development of public policy, which legislative policies will be developed, and under which legislative policies resources will be allocated to facilitate or monitor implementation. It is recognized that there are a number of issues, especially in safety and risk management, where the population manifests political will and influences agendas directly.

Note that this categorization differs slightly from the categorization of decision-makers introduced by Professor Stoddart in Module 2.3.2. His categories can be collapsed into individual service providers (corresponding to the clinical group), programme managers and regional or community authorities (which, with the addition of the administrators in hospitals and other health facilities, corresponds to the administrative group), and elected politicians and senior officials of government ministries (corresponding to the legislative group).

Table 1 provides a conceptual framework for this discussion. It outlines three distinct topics that health policy analysis might be used to explore – agenda-setting, policy development and policy implementation – and the three levels (clinical, administrative and legislative) at which these topics can be considered. These examples and those in the text below provide brief illustrations of the two most frequently studied topics from Table 1: the implementation of clinical practice guidelines and the development of legislative policy.

While agenda-setting is not further discussed in this module, interested participants can obtain a rigorous introduction to this field by consulting Kingdon (1).

Table 1. Examples of topics addressed by health policy analysis

Steps in the policy-making process	Levels of policy-making		
	Clinical	Administrative	Legislative
Agenda-setting	Why are particular practice guidelines developed?	Why do needs of a particular group become an issue?	Why does privatization of health care become an issue?
Development	Why do practice guidelines for the same condition differ?	Why do some managers of primary care centres focus on young children and others on the elderly?	Why do some governments privatize health care and others not?
Implementation	Why are some practice guidelines implemented?	Why do some programmes targeted at particular groups succeed?	Why do privatization initiatives sometimes succeed?

Health policy is not just health care policy. As foreshadowed by Professor Stoddart in Module 2.2.1 and addressed by him explicitly in Module 2.2.2, health policy may have health as an objective or as a consequence. As examples of the former, consider policies related to the remuneration of health care providers or policies related to income support for low-income pregnant women to allow them to afford better nutrition and make eating choices that are healthier for their babies. As examples of the latter, consider tax or transfer policies to reduce the financial burden on low-income parents with small children or more generally public policies on taxes and income security. As Professor Stoddart points out in Module 2.3.1, while “the health care system is a critical component of health policy, and in most countries receives the largest share of resources directed to health as well as the largest share of media coverage about health issues”, it is not the only component of health policy.

Some examples of health policy

As a first example of a health policy, consider a **practice guideline**. Such a guideline can be considered a case of explicit clinical policy. In Module 3.4.2, Professor Stoddart introduced the idea of practice guidelines in the narrow context of the requirements for clinical employees set out by some international for-profit hospital chains. In Module 5.4.1, Professor Leidl will introduce two clinical areas in which health economics could inform the development of practice guidelines: the recently “rediscovered” drug treatments to eradicate *Helicobacter pylori* (*hp*), thought to be one of the causes of dyspepsia, peptic ulcer and gastric cancer, and the newly discovered combination drug treatments for HIV disease. Decision analysis could inform whether eradication treatment should generally be offered to all dyspeptic patients found *hp*-positive, irrespective of whether there is evidence of further disease, and econometric analysis could inform whether to fund combination treatments involving protease inhibitors given its implications for public budgets.

Consider now the case of a practice guideline for caesarean sections, the implementation of which has been extensively studied by Jonathan Lomas and colleagues (2). This guideline generally recommended a reduction in the use of caesarean sections and specifically recommended that women who have had a caesarean section previously should be given a trial of labour. One year after the release of this guideline, 94% of obstetricians were aware of the guidelines, 67% of their responses to knowledge questions were correct, and 85% of them agreed with the guideline (they may not have known what was in the guideline but they agreed with it!). According to obstetricians’ own reports, the caesarean section rate among women who had previously had caesarean sections had dropped from 72.1% to 61.1%. However, according to more objective records, the caesarean section rate in these women had only dropped from 94.5% to 91.0%.

Disappointed with these results, a team of researchers at McMaster University conducted an experiment to determine how best to improve the implementation of this practice guideline. They randomly allocated obstetricians to receive: (i) no intervention (the control group), (ii) an audit of their practices with regard to caesarean section and the feedback of these results to them, or (iii) the opportunity to interact with an opinion leader. For the latter, an opinion leader in each community was selected and educated about the key messages from the guideline. The opinion leaders then passed on these messages to their obstetrical colleagues in routine encounters, both formally (at medical rounds) or informally (even on the golf course!). The caesarean section rate dropped by 4.7% in the control group, 6.7% in the audit and feedback group, and 11.9% in the opinion leader group. Something (or many things) that the opinion leaders did seemed to have made a difference.

As a second example of a health policy, consider a **legislative act or a regulation** that would remove a ban on user fees so that health care providers could charge patients for services either instead of or in addition to the fees that they already received through public or private programmes. Such a policy regarding user fees can be thought of as a specific case of health care financing policy. In Module 3.3.1, Professor Stoddart introduced user fees as one legislative area in which health economics could inform the development of public policy. The income–expenditure identity which he described could be used to highlight the effects of increasing direct charges to users on utilization of services and the incomes of health care providers.

Several factors have made it unlikely that a ban on user fees would be removed in a jurisdiction such as Canada. First, as the income–expenditure identity suggests, there would be losers as well as winners. The losers would include the sick and the poor (who are often one and the same); these individuals would be likely reduce their use of needed services and feel the impact, as a proportion of their income, to a greater degree. The winners would include the healthy and the wealthy, as well as health care providers whose incomes would rise if a ban were lifted. The losers would tend to outnumber the winners. Second, the decision-making structure for health policy in Canada and the visibility of decision-making on this issue make lifting a ban particularly difficult. With a constitution and a legislative act that gives the federal government the authority to develop health care financing policy, even though the provincial governments administer the health care system, the federal government can reap the electoral benefits of banning user fees while not having to deal with public concerns regarding perceived funding shortfalls. Moreover, health care financing is a highly visible policy domain in its perceptibility (voters can usually identify that a policy has or could have an effect on them) and in its traceability (voters can usually link policies to individual politicians who they can reward or punish). Third, user fees have not been shown to achieve one of their principal objectives: to reduce selectively the inappropriate use of health care services. Faced with user fees, individuals stop seeking health care services for both the right and the wrong reasons. This empirical finding makes it difficult to argue that no one would be hurt by the introduction of user fees.

Exercise 1

Before going further in the module, describe why you think practice guidelines sometimes are and sometimes are not implemented. Identify as many distinct factors as possible that might help or hinder the implementation of a particular practice guideline. Use the following questions as a guide for systematic discussion.

- In what specific ways can the amount and type of information available to health care providers influence their uptake of a practice guideline?
- In what specific ways can the incentives that health care providers face influence their uptake of a practice guideline?
- In what specific ways can the regulations that govern the practice of health care providers (at the national, local or facility level) influence their uptake of a practice guideline?
- In what specific ways can the public influence their uptake of a practice guideline?
- In what specific ways can the personal views of health care providers influence their uptake of a practice guideline?

You should feel free to add other factors which you feel are important. You are also requested to illustrate your answers to the above questions with examples, observations and statistics from your own countries.

Now consider legislative policy. Describe why you think some legislative policies are developed and not others. Identify as many distinct factors as possible that might help or hinder the development of a particular legislative policy. Use the following questions as a guide for systematic discussion.

- What specific groups can win and lose with a legislative policy related to the health field, and in what specific ways can these groups influence policy?
- What decision-making structures exist for legislative policy related to the health field, and in what specific ways can these structures and interactions between them influence policy?
- In what specific ways can values influence policy? In what specific ways can research influence policy?

Again, you should feel free to add other factors which you feel are important and should illustrate your answers to the above questions with examples, observations and statistics from your own countries.

A tool for understanding the implementation of clinical policy

While some attention in recent years has focused on which health problems or issues warrant the development of clinical practice guidelines (e.g. caesarean sections instead of the treatment of dyspepsia or HIV disease) and on how the process by which guidelines are developed may influence their content (e.g. who sits on the guideline development panel, what types of information they use, and what rules are used when consensus cannot be reached), most attention has focused on the implementation of clinical practice guidelines. As the study of the caesarean section guideline suggests, practice guidelines are often not implemented by health care providers – they fail to receive guidelines, read them or act on them.

By studying patterns in the implementation of practice guidelines, we can begin to understand why some practice guidelines are implemented and others not. Building on his study of the implementation of the caesarean section guideline, Lomas has pointed out the fundamental limitation of a simple dissemination strategy for a guideline: it fails to acknowledge the range of environments in which health care providers work. A guideline represents only one component of a provider's educational environment. Providers also obtain information from journal articles, textbooks, continuing medical education sessions and colleagues. Moreover, the **educational environment** represents only one environment of many. Health care providers also face the following:

- an **economic environment** which, for example, might include incentives such as higher fees for a surgical procedure such as a caesarean section than for a trial of labour;
- an **administrative environment** which, for example, might penalize health care providers less severely for errors of commission (doing something unnecessarily) than for errors of omission (failing to do something);
- a **community environment** which, for example, might put public pressure on health care providers to take a particularly aggressive approach to management when a pregnant woman and her baby are involved;
- a **personal environment** which, for example, might include a bad experience with trials of labour.

Picture a health care provider who has to present the pros and cons of a caesarean section to a woman in labour and her husband. While the clinical practice guideline might suggest a trial of labour, other aspects of the provider's educational, economic, administrative, community or personal environments might suggest a caesarean section. In an ideal world, all of these pressures would point in the same direction – and in ideal worlds, practice guidelines are probably fully implemented by

every health care provider. In the real world, efforts are made to reorient as many of these environments as possible so that they support the implementation of practice guidelines. Interventions by opinion leaders probably work in part because these individuals can help to make sense of guidelines in the light of these environments. The same holds true for academic “detailers”, the “public” equivalent of pharmaceutical detailers.²

The questions in the first half of Exercise 1 and the environments described above, taken together, provide a framework for considering why some clinical practice guidelines are implemented and others are not. Practice guidelines are more likely to be implemented when large amounts of high-quality information from a range of sources support the action or inaction suggested by the practice guideline, when financial incentives reward the action or inaction suggested by the guideline, when regulations make possible the action or inaction suggested by the guideline, when public pressure is either non-existent or supports the action or inaction suggested by the guideline, and when personal experience make the health care provider comfortable with the action or inaction suggested by the practice guideline.

A tool for understanding the development of legislative policy

While some attention in recent years has focused on which health problems or issues warrant the development of legislative policy (e.g. choosing to develop health care financing policy rather than a policy for the remuneration of health care providers) and on the implementation of legislative policy, most attention has focused on why some policies are developed and others are not. As the discussion of user fees suggests, legislative policy in some domains may rarely be changed, while in others it may be changed quite regularly and in predictable ways.

By studying patterns in the development of legislative policy, we can begin to understand why some policies are developed and others are not. Three factors are typically cited to explain action or inaction: interests, institutions and ideas. Consider **interests** first. Because any policy will provide benefits and impose costs (i.e. some will win and others lose), many voters and interest groups will have a reason to ensure that their interests are taken into account in policy-making. However, because some policies provide concentrated benefits or impose concentrated costs, voters and interest groups with more to gain or lose have more reason to seek to influence the policy-making process than those with less to gain or lose. Next consider **institutions**, which includes both formal decision-making structures and past policies. These institutions determine the rules within which ideas and interests develop and policies are made. Some policies may be more likely to be developed in jurisdictions with particular features (e.g. federalism with shared authority for health care) or with particular policies already in place (e.g. a ban on user fees for health care services). Finally, consider **ideas**, which includes values (i.e. views about how the world should work) and empirically testable or tested hypotheses about how the world actually works. Some policies may be more consistent with some values and empirical “facts” than others, making these policies more likely to be developed.

² Academic “detailing” refers to university-based educational outreach (see, for example, Soumerai, S.B. & Avorn, J. Principles of educational outreach (“academic detailing”) to improve clinical decision making. *Journal of the American Medical Association*, **263**(4): 549–556 (1990). The term comes from the pharmaceutical sector: drug representatives who meet one-on-one with physicians are called detailers. Whereas pharmaceutical company detailers act in the interests of their firm, academic “detailers”, by passing on accepted scientific knowledge, act in the public interest.

Now let's return to the issue of user fees for health care services. First, as outlined by Professor Stoddart in Modules 3.3.1 and 3.4.2, the losers from removing a ban on such fees include the sick and the poor. The winners include the healthy and the wealthy, as well as those people who derive their incomes from the provision of health care goods and services, and from the management and overhead components of the health care system. The latter include the employees, shareholders, lawyers and accountants of private insurance firms, pharmaceutical firms, medical equipment suppliers, and for-profit managed care firms. Second, to take the example mentioned previously, the division of authority between the federal and provincial governments in Canada and the visibility of health care financing policy-makers makes lifting a ban particularly difficult. Third, user fees have not been shown to reduce selectively the inappropriate use of health care services, so that the policy cannot be argued to have no effect on the sick.

Health policy analysis, like any field, has its pet explanations at any one time. Interest-based accounts dominated explanations in the 1970s. Institution- and idea-based accounts dominate today. Nevertheless, all three factors warrant consideration to explain why some policies are developed and others are not. Often the answer lies in the interaction between all three factors.

The questions in the second half of Exercise 1 and the three factors described above, taken together, provide a framework for considering why some policies are developed and others are not. Policies are more likely to be developed when the benefits are concentrated among more influential groups and when the costs are diffused across less influential groups, when decision-making structures concentrate influence in a small number of individuals at the same level of policy-making and when policies are less visible (especially to those who will have costs imposed on them), and when both values and empirically tested "facts" support the policy. Health economics can provide many of these "facts".

Exercise 2

Using today's local newspaper (which could be the same one you used in the exercise for Module 2.2.2), select one major news story concerning a policy developed by government with health as a primary objective. Analyse who wins and who loses (and who might have won or lost under other possible alternatives, including the alternative of the status quo), what are the rules of the game for developing policy in this domain, what are the (explicit or implicit) values of the policy-makers, and whether and how they used research evidence to inform their decision.

Repeat this exercise for a government policy or decision which has health as a consequence but not as a primary objective.

Conclusion: from understanding to action

For people seeking to achieve the health for all targets, these insights can be used to assess the feasibility of change and to establish a strategy for bringing about change if it appears feasible. For example, they may have a particular clinical practice guideline that they would like to see implemented. The first step would involve an analysis of the educational environment within which the target clinicians function. The second step would be to use this knowledge to establish implementation strategies for improving the chances that the practice guideline will be adopted. Sometimes these strategies might include modifying financial incentives (i.e. the economic environment); at other times they might involve changing a hospital policy (i.e. the administrative environment).

More likely, given the focus of the health for all targets, motivated individuals or groups will have a particular policy that they would like to see developed. The insights from this module, as well as those from another resource devoted to this issue (3), may prove helpful here. The first step would involve a stakeholder analysis to determine who would win and who would lose and what this would mean for the political feasibility of the proposal. Stakeholders in the health sector can often be grouped according to whether they are providers (e.g. hospitals and physicians), consumers (e.g. disease-specific patient groups), economic groups (e.g. business associations), ideological groups (e.g. political parties) or health development groups (e.g. voluntary aid groups). The power of each of these groups should be assessed, both in terms of the tangible sources of their power (money, organization, people, votes and skills) and the more intangible sources (information, access to the media, legitimacy). In addition, their positions and commitment to these positions should be assessed.

The second step would be to determine the rules for decision-making and whether values and empirically tested “facts” support the policy. For example, some decision-making structures lend themselves more easily than others to penetration by stakeholders. A structure in which policies are developed within policy subsectors often makes it easier for stakeholders to get a seat at the policy-making table. Many decision-making points involving many different decision-makers can make it easier for a single stakeholder group to veto a policy. Some policies may also be less visible than others and thus less likely to attract the attention of groups other than the main stakeholders.

The final step would be to use the knowledge from the first and second steps to establish political strategies for improving the chances that the policy will be adopted. The first such strategy is bargaining. Bargaining can include promises (I’ll give you something in exchange for your help), trades (I’ll do something for you on another issue if you help me on this issue), threats (if you don’t do this, I won’t work with you again) and deals (I’ll do this if you do that). The second strategy involves strengthening the position of supporters (e.g. by giving them money) and weakening the position of opponents (e.g. by distracting them with another issue). The third strategy involves mobilizing unorganized supporters and deterring organized opponents. Policy development is a complex game. It pays to know who you are playing with, the rules of the game, and what kind of support you can build on the basis of shared values or “facts”.

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4.2.2 Political management of public health

Keith Barnard and Chris Selby Smith³

Key messages

- **Public health** definitions typically reflect one of two perceptions. The first, narrowly focused, conception refers to a range of technical services, such as environmental health and communicable disease control. The second conception is broader. It covers the organized efforts of society to protect and promote the health of the population, to prevent and control disease, to mitigate the effects of disability and handicap, and to ensure the wellbeing and care of those with chronic health problems and the terminally sick. Public health in this second sense equates with the values, operating principles and objectives of WHO's health for all (HFA) strategy.
- **Primary health care**, as elaborated in the Declaration of Alma-Ata (http://www.euro.who.int/AboutWHO/Policy/20010825_2), provides a set of principles to be adapted by each society to pursue the goal of health for all. Primary health care identifies actors to be involved and ways of mobilizing resources to ensure that essential tasks are undertaken to achieve the highest attainable level of health. The underpinning ethic is that of equity (in the sense of fairness).
- **Public health management** involves formulating and implementing action plans that:
 - address the health problems of a given community, as identified by epidemiological and other assessments of need;
 - mobilize, deploy and use resources efficiently to achieve given ends which meet political, social and cultural expectations;
 - monitor the impact of services and make appropriate adjustments;
 - scan the operating environment for early warning signs of developments that could affect what needs to be done and how it is done;
 - are based on maintaining close contact with all operating partners, community groups and opinion leaders; and
 - are supported by a clear strategy of public advocacy, public information and public education to promote informed choice.

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- Public health management makes prudent use of economic concepts and reasoning (and of economists as advisers). It recognizes where they are helpful, but is also aware of the limits of their frame of reference and the assumptions they make to live within it, and the questions to which they cannot provide usable answers.

Tutors' notes

This module is concerned with the political management (by government or organized society rather than in the narrower party political sense) of public health, where public health relates to the organized efforts of society to protect and promote the health of the population. It equates with the values, operating principles and objectives of WHO's health for all strategy, adopted by WHO in the Declaration of Alma-Ata in 1978 (1), later endorsed by the World Health Assembly and reaffirmed in the Ljubljana Charter on Reforming Health Care in 1996 (2), the World Health Declaration *adopted by the world health community at the 51st World Health Assembly in May 1998* (3) and the two WHO publications setting out HEALTH21, the health for all policy framework adopted by the WHO Regional Committee for Europe in 1998 (3,4).⁴

Primary health care is the means by which the goal of health for all is to be pursued. This remains the foundation of WHO policy, so that this module has close links to others throughout the learning materials. The essence of primary health care is putting into practice at the local level a coherent, rational and broad-ranging health policy to promote and protect, maintain and restore the health of all people in a community. Its underlying ethic of equity implies preferential consideration for the disadvantaged and the vulnerable.

The module is organized in four parts.

1. The first part outlines the scope of health for all.
2. The second part is concerned with the particular contribution of economics to HFA and primary health care. Exercise 1 discusses the contribution which the economic way of thinking (and economists) can make. It considers the contribution from an overall perspective and from the specific viewpoints of four major stakeholders in the health care systems of WHO's Member States.
3. The third part focuses on how the HFA framework can be used to improve outcomes, including the tension between imagination or vision and realism, noting that it is practice rather than rhetoric that determines how the health agenda is set and acted upon. Exercise 2 asks participants to consider the extent to which the HFA framework assists decision-makers to address the political and ethical challenges involved in socioeconomic policy-making for health by reference to a topical example in their own countries.
4. The fourth part discusses certain factors which can improve the chances of success, since the overall purpose of the political management of public health is to identify the innovations to be adopted, and then to secure the commitment of all those interests whose involvement is necessary to achieving them. Exercise 3 invites participants to reflect on the key health, political, economic, social and other factors for success in handling the political management of public health.

⁴ The earlier of these: Health21 – an introduction to the health for all policy framework for the WHO European Region (4), sets out the essence of health policy in an HFA context. The later – *HEALTH21: the health for all policy framework for the WHO European Region* (5) – provides the evidence and rationale for specific policy proposals and is in effect a planners' manual.

The module is primarily for the purposes of *appreciation* and *appraisal* rather than *analysis*. It can be used by each of the four groups of users for whom the learning materials have been developed. For example, policy-makers at national, regional or local levels (both political, and administrative and managerial policy-makers) can use the module in developing, implementing and evaluating their strategies, while managers, practitioners and other concerned groups can understand more fully what is required, how needs are being met and where their influence can be most effectively applied.

The scope of health for all

The intention behind WHO's health for all concept is to encompass within one policy framework long-term objectives relating to:

- healthy living by a population educated in health problems and the appropriate responses;
- a healthy environment providing shelter, food, water and sanitation, with good economic opportunities and freedom from the fear of violence; and
- an accessible, rational and comprehensive system of preventive treatment, care and rehabilitation services.

HEALTH21 advocates specific proposals for preventing and controlling disease and injury to reduce their incidence, prevalence and impact. It identifies multisectoral strategies to ensure that physical, social and other environments are more health-promoting, to enable people to adopt healthy patterns of living, and to provide health services that are efficiently run, responsive to people's needs and produce health gains through improved outcomes. It proposes strengthening the knowledge base, mobilizing partners for health improvement, and managing the process of policy development and implementation in an efficient but sensitive way.

The aim is to stimulate and support countries and communities, enabling them to develop strategies that address the determinants of health and result in:

- socially responsible and sustainable health development;
- greater equity in health;
- higher levels of health throughout people's lives;
- a reduced burden of sickness and injury through the unlocking of new resources for multisectoral action; and
- high-quality cost-effective health care.

WHO's health for all strategy was originally adopted by the World Health Assembly to give effect to its resolution WHA30.43 in 1977, which committed Member States, at least morally, to action. They undertook to pursue as a social policy goal the attainment of a level of health by all their peoples that would enable them to lead socially and economically productive lives. This commitment was reaffirmed by the World Health Assembly in resolution WHA51.7 of 16 May 1998 and by the WHO Regional Committee for Europe in 1998 in resolution EUR/RC48/R5 on the Health for all Policy Framework for the European Region for the 21st Century.

The underpinning ethic, made clear in the original HFA resolution, is that of equity. Good health is a right to be enjoyed by all (irrespective of the argument that a high level of population health produces benefits in terms of social and economic development). This means that action taken and the allocation of resources require that preferential consideration be given to those whose needs are greatest and whose health could be improved the most.

In the terms of the Declaration of Alma-Ata (1), and later endorsed by the World Health Assembly, primary health care is the means by which the goal of health for all is to be pursued. This remains the foundation of WHO policy. The essence of primary health care, as promulgated in the Declaration of Alma-Ata, is putting into practice at the local level a coherent, rational and broad-ranging health policy to promote and protect, maintain and restore the health of all people in a community. The task is to sustain people's capacity for independent living, their integrity and self-respect, and to seek to empower people individually and collectively to promote their own health and to make rational use of health care services.

The values underpinning the policy are:

- health as a human right and people's responsibility to use the health potential they have;
- equity in health and solidarity in action; and
- participation of people and groups in decision-making and implementation and their accountability for action.

The proper objective of health care must be to provide services equitably to those in need of them. This is irrespective of the pattern of ownership of institutions or how services are funded. At the same time, society and its policy-makers should avoid placing an unreasonable burden on physicians by expecting them to treat every problem presented to them even when the causes are not biomedical. Rather, society and its policy-makers, in WHO's view, must ensure that actions focus on the underlying factors, the lifestyle and environmental determinants of the health of communities, and not just the presenting problem.

Central to the HFA concept of health policy is the emphasis on the determinants of health and the importance to economic and social development of a population enjoying good health, defined as the capacity to lead socially and economically productive lives. This does not, of course, make the minister of health and the health sector responsible for everything. However, they need to recognize that they have a crucial advocacy role. It is their responsibility to make the argument for health in the political sphere, including to other ministers and decision-makers in all sectors, whenever and wherever it is needed. To undertake this advocacy role successfully they need negotiating and diplomatic skills so that they can devise appropriate strategies jointly with actors in the different sectors. It is also their responsibility to ensure that health policies rooted in HFA, not just for health care but for the broad field of health protection and promotion, are developed, adopted and implemented at all levels.

The primary health care strategy and its effective implementation require technical expertise of different kinds and knowledge of people's circumstances and living conditions. It shows equal concern for the sick and the currently well. The ethic of equity implies preferential consideration for the disadvantaged and vulnerable. Primary health care is teamwork and collaboration, such as general medical practitioners working with community nurses and others. Each of the participants and groups has their own particular skills and responsibilities. In some tasks they cooperate with professionals from other sectors.

Primary health care workers offer prompt, professionally sound treatment locally for conditions that do not require more specialized attention, such as those involving the use of hospital-based technology. They also need an effective referral system that gives their patients access to more specialist services when needed. They function as agents of their patients in relation to the rest of the health care system. When that role is properly discharged, it should lead to a more rational use of all specialist care and indeed of all resources.

The health for all policy also included Europe-wide targets and indicators by which progress is measured periodically and in relation to which remedial action can be taken if required (5,6). However it is done there is a need for continuous monitoring and regular evaluation of the actions which are taken to achieve health for all (and of relevant developments in the external operating environment). Mechanisms need to be provided for the periodic review of policies and practices, so that appropriate changes can be made when required.

Although governments differ in the arrangements they make for the provision of health and social care, the propositions in the 1978 Declaration of Alma-Ata (1) were formally accepted by WHO Member States in the World Health Assembly. They were reaffirmed in the 1996 Ljubljana Charter (2).

This immediately raises the issue, how can HFA really mean care for all (and not just for some)? Perhaps there can never be certainty, but it is only even possible if the following two conditions are satisfied, and any health care reform should be judged against them.

1. First, are services financed according to the fundamental principle of equitable collective funding, so that users' contributions, whether by taxation, insurance premiums or direct payments, are determined in relation to their ability to pay? However it has been generated, the aggregate level of funds available must be sufficient to make reasonable provision to meet the essential care needs of the population. The same principle applies in the allocation of resources in other respects, such as to geographical areas and health care providers.
2. Secondly, are services organized and managed with the purpose of achieving the highest possible equity of access to and quality of care and treatment, according to need, not ability to pay? This should apply, for example, across geographical areas and socioeconomic status. However, equity does not mean equality, literally the same for all, but fairness. Attention is also paid to efficiency, effectiveness, responsiveness and quality of care. The intention is to make the best use of resources in order to achieve the best attainable outcome from health care interventions. This includes reduced disability, better quality of life and user satisfaction, and wider considerations such as seeking to restore a capacity for independent living and enabling citizens to play a full part in society.

The twin criteria of equity and efficiency were discussed in more detail earlier in the learning materials. When applied in practice they require decision-makers to clarify their sense of priorities. In particular, this means stopping what is reasonably judged to be unnecessary and (in terms of results) ineffective activities. It is to focus on what is in tune with the values and expectations of the community and, recognizing what is affordable, to make a defensible use of the available resources.

In the *World health report 2000* (7), stewardship is ranked above the other three functions of a health system (service delivery, input production and financing) "... for one outstanding reason; the ultimate responsibility for the overall performance of a country's health system must always lie with government. Stewardship not only influences the other functions, it makes possible the attainment of each health system goal: improving health, responding to the legitimate expectations of the population, and fairness of contribution. The government must ensure that stewardship percolates through all levels of the health system in order to maximize that attainment". Stewardship is "the very essence of good government" (7).

Chapter 6 of the *World health report 2000* examines certain aspects of how the public interest is protected.

- What is wrong with stewardship today? The report concludes that "stewardship has major shortcomings everywhere" (p.120).

- What vision for the future should be encouraged and pursued? How should the rules or incentives be set? How can compliance be encouraged?
- How is information to be developed, collected and disseminated? How is intelligence to be exercised and knowledge shared?
- Who should do what in relation particularly to strategies, roles and resources?
- What are the key challenges, how can improvements be made and, in a world of limited resources, what are the critical messages to facilitate better functioning health systems?

The contribution of economics

Robbins' definition of economics was "the science which studies human behaviour as a relationship between ends and scarce means which have alternative uses" (8), while Oskar Lange saw it as "the social laws governing the production and distribution of the material means of satisfying human needs" (9). These definitions remind us that economic concepts and reasoning are a thread running through HEALTH21 (3) and the thinking that lies behind it.

HEALTH21 is a reasoned presentation of possibilities (whether they are called ends, wants or needs) which, taken together and if satisfied in full, would result in everyone achieving their highest attainable level of health, i.e. WHO's constitutional objective. While the document is intended to be technically realistic, its purpose is more about clarifying proposals for action in the WHO European Region than addressing constraints on action such as limited financial and material resources ("scarce means").

The task of the policy-maker, the administrator implementing policy and the health practitioners exercising their professional skills, is to pursue HEALTH21 objectives as far as these are practicable. At the same time they will be faced with constraints in their particular situations. Among the other resources available to them, they will look to economists for advice. They will be aware that economists cannot and should not make decisions for them. The choice of ends, and of means having different consequences, are policy decisions, and as such are the business of politics and of wider decision-making processes in society. Economists in their professional role are (or should be) neutral between alternative political choices.

Economists are in the business of asking particular sorts of question and providing particular sorts of information. The questions are relevant to issues that policy-makers, administrators and practitioners must confront in coming to a decision. The information from economists can assist them in addressing those decisions. Economists look particularly at alternative ways in which ends can be achieved, the implications of those ends, and the consequences of choosing different means.

Prudent policy-makers, administrators and practitioners will also be aware when an economist is involved as a stakeholder (for example, as a citizen or local resident) in the choices that are to be made. This will make it harder for the economist to be neutral. Policy-makers, administrators and practitioners know that economists, unlike scientific advisers, will not have the benefit of any controlled experiments to support or corroborate the advice they give; that many aspects of what they advise on may not be susceptible to measurement; and that their models (however sophisticated and comprehensive) are dependent on assumptions and estimates.

In fact, of course, a wide range of social sciences are concerned with the study and understanding of human behaviour, the decisions and actions people take. Perceptive decision-makers who make use of their results will be aware that the different social science disciplines sometimes work in parallel,

sometimes in competition and sometimes in collaboration. Perceptive social scientists have concluded that their impact on decision-makers is enhanced when they address issues together, making complementary contributions to an improved understanding of causes and consequences.

It has been noted that “different social and behavioural sciences are in the main distinguished not by the events they study, but by the kind of relation between events that they seek to establish. Events themselves are neutral to the different disciplines” (10). The implication is that “disciplinary frontiers (as artificial barriers between subjects) should be vibrant channels of communication, not iron curtains of mutual unintelligibility and mistrust; [the] narrow minded approach misconstrues the complementary aim and interests of these cognate subjects” (11).

This should be an issue of great urgency for all social scientists with an interest in health since, as a general rule, significant groups of potential users of their work are not interested in the territorial disputes of social science theory. These groups include: politicians as health policy-makers; the permanent civil servants who are advising on and executing policy; the managers responsible for the operation of health care and other health related institutions and agencies; and individual health care practitioners and users. In their different roles these groups are concerned with the pragmatic handling of difficulties, responding to pressures and exploiting opportunities to achieve desired change. The more the advice of social scientists is based on abstract theory (and therefore suggestive of the world not as it is, but as they think it ought to be) and the less it is rooted in observed experience of actual behaviour, the less likely is it that the decision-makers will take notice, unless this advice coincides with their own existing values-based perceptions.

It is worth noting that, while social scientists, including economists, are seeking to offer rigorously generated *information*, as additions to knowledge, decision-makers contemplating choices in their particular operating environment are often interested in *intelligence*. This is the distillation of stories and statistics, hard (verifiable) and soft (unconfirmed but plausible) evidence from multiple sources in different forms or formats, which provides a usable picture of what is wrong or what change is possible and how changes could be achieved. It is as well that both decision-makers and scientists recognize the difference and understand each other’s mindsets. The underlying assumption, nevertheless, is that the more extensive knowledge becomes through the analytical frameworks and research findings provided by economics and other social sciences, the more likely will it be that institutions can be reformed and policies reoriented with “good enough” assessments of the probable consequences of any changes that are proposed. But this is a hope rather than a guarantee.

Despite the limitations, there will be many issues on which economists’ contributions will be found helpful, although economists have often found it necessary to develop their concepts to apply them satisfactorily to the health field. Included in these concepts would be:

- public goods in the health field;
- the notion of consumer sovereignty applied to health care, including the feasibility and limits of user choice;
- the effects of dissemination to and use of information by users of health services, clients receiving health advice, and consumers purchasing health products;
- monopoly, such as public ownership of institutions, professions as monopoly providers, and national health insurance agencies as monopsonists;
- laissez-faire and collectivism as appropriate economic systems for the health field;
- the concept of “utility” applied to the health field;
- pricing in health care;

- the principle of substitution; and
- returns to scale and the division of labour.

Seven key HFA concepts and issues for the economist are identified. First, the importance of **values** (what is held to be good) and **principles** (what needs to happen or be in place to ensure that the values are given practical effect). There is a crucial coherence in HFA values and principles. For example, an inefficient intervention is an unethical and inequitable measure, because it uses resources that could have been deployed equitably and effectively there or elsewhere.

Secondly, there is an issue about making the concept of **responsibility** operational. This includes clarifying what is properly an individual responsibility, avoiding simplistic assumptions about what decisions individuals can or will make for themselves and what requires collective action. In addition, there are matters concerning how the conditions can be created to enable individuals to take decisions and actions that could enhance their health, in particular how to develop the **co-production** concept.

Thirdly, economics can assist stakeholders and decision-makers in the health care system to clarify the nature of **outputs** and **outcomes**. This includes distinguishing between those that are directly health-related and those that have another beneficial effect; between those that are visible and those that are invisible or intangible; between those that are intended and unintended; and between positive and negative outputs and outcomes. These distinctions often have substantial implications for the action to be taken by stakeholders.

Fourthly, economics can assist decision-makers to understand the nature of **costs** (whether or not these can be usefully given a monetary value), in particular the costs of any change (e.g. of introducing new technology or new working arrangements in health care institutions) and of inappropriate health care reform. Economists also tend to raise the issue of distribution – who gains and who loses from particular arrangements or proposed changes?

Fifthly, economists emphasize the crucial importance of **knowledge**, including for informed choice and for advocacy. It can be valuable to appreciate that actors in different sectors may have different logics which they bring to bear, including in assessing situations facing the health sector.

Sixthly, since economists are concerned with choice, they tend to understand the nature of the **pressures on decision-makers** and the costs and benefits to them of making or not making (postponing or avoiding) a decision. In some situations, such as when there is gross inefficiency in the use of resources, it may be possible to make big efficiency improvements and thus achieve given outputs with fewer resources (or a greater output with the same resources) without sacrificing other desired outputs or outcomes. In other situations, however, economists are likely to stress that more of one (desirable) outcome can only be achieved by accepting less of another.

Finally, it is important to see the economic dimension in the context of the **bigger picture**. There are particular contributions from the insights and methods of economics to the pursuit of the goal of health for all. However, the skills and insights from other disciplines, such as epidemiology, operational research, political science and sociology, are also valuable and often complementary.

A study of the principal objectives of HEALTH21 and its underpinning values and principles confirms the significant contribution that health economics can make. When economists are sensitive to the environment of decision-making and action they tend to find policy-makers, administrators and practitioners receptive to the contribution of health economics thinking and to the application of its methods in the development of policies and strategies and in the planning and management of services. Interestingly, the broad way of thinking adopted by economists can be as valuable as the technical

minutiae, e.g. the costs compared to the benefits of alternative uses of scarce resources; decision-making at the margin; the implications of varying preferences, including for risk and uncertainty; and the distributional issues relating to who gains and who loses from adopting particular courses of action.

Exercise 1

Discuss the contribution which the economic way of thinking (and economists) can make to:

- (i) the clarification of HFA objectives
- (ii) the means which may be used to achieve them
- (iii) the assessment of the extent to which they are achieved.

Consider the contribution of economics from the viewpoint of four stakeholders in the health care system:

- (i) national or regional policy-makers and planners
- (ii) managers of health care facilities and services
- (iii) health care professionals, such as doctors, nurses, pharmacists or dentists
- (iv) the users of health care services.

Using the health for all framework

The health of the people is really the foundation upon which all their happiness and all their powers as a state depend.

*Benjamin Disraeli*⁵

A distinction has been drawn between economic policy designed to create wealth and social policy designed to create harmony, or at least to create greater social cohesion. The political reality is that, in the hierarchy of values that steers government and ministerial careers and reputations, it is the portfolios of internal and external security and the management of the economy that enjoy primacy. Health and other aspects of social policy are clearly subordinate. In consequence, one underlying concern of the HFA movement has been to secure greater political visibility and awareness for HFA objectives, and recognition by governments (not just health ministries) of their importance for social and economic development. These have been seen as preconditions for effective implementation of HFA.

If Disraeli's view of health and the state is endorsed, should there be agreement with Beveridge that collective, responsible social action is preferable to economic individualism in the pursuit of human wellbeing?

We should regard want, squalor, disease and ignorance as common enemies of all of us not as enemies with which each individual may seek a separate peace, escaping himself to personal prosperity while leaving his fellows in their clutches. That is the meaning of social conscience – that one should refuse to make a separate peace with social evil. (12)

⁵ Speech, 23 July 1877. In domestic politics the British Conservative Prime Minister Benjamin Disraeli was associated with social and political reform, including the 1875 Public Health Act.

Health sector policy-makers addressing the political and ethical challenges in socioeconomic policy-making have the HFA framework with which to start. HFA has its critics; but it is in fact a carefully built structure which uses public health traditions, epidemiological evidence, technological trends and forecasts, moral appeal and political optimism. Effectively and persuasively presented, HFA can have considerable operational appeal. It can be a catalyst for increased collaboration between the health service and other social service agencies, private sector enterprises, various voluntary organizations and community groups, and the media. Such collaboration also implies joint information efforts for planning and monitoring purposes about the population to be served and their needs, and about present policies and provision of services and their effects. It should also be possible to show what can be done with little or no extra expenditure if there is good coordination and people are motivated.

The policy goes well beyond the health sector agenda perceived by the medical profession – or often by politicians and the general public. Yet it has survived. This is, or at least may be, partly because while it is kept in the most general terms no Member State wishes to be in opposition. As the product of an intergovernmental international organization, formally endorsed by its constituent Member States, HFA must be projected as politically neutral or universal. On balance however, the HFA strategy is collectivist, not least by its open espousal of equity as a fundamental objective and prerequisite for health. And, while the strategy must be adapted to a country's or a community's circumstances if it is to be properly implemented, too selective an adoption of its component parts will destroy the overall coherence of the strategy.

It is important to be aware of the interdependence of the different levels of policy-making. If the principle of **subsidiarity** is applied, decisions will be taken at the most appropriate level for the object of each decision. Generally speaking, the nature of the action, the actors involved, and the way decisions are arrived at will vary according to a country's constitution, practice, circumstances and traditions. Subsidiarity implies that, to the greatest extent possible, detailed policy-making and action are a local matter, although often operating within a framework that has been determined or influenced at other levels. This includes several dimensions, such as the physical environment, housing, communications and transport, work and economic activity, medical services, social history and tradition, lifestyles, culture and education, and other people-oriented activities and processes, creativity and tolerance.

Against this background the HFA agenda can be fashioned by identifying, analysing and responding to collective needs. The decisions taken will have short-term effects and possible long-term consequences. Both need to be weighed before decisions are taken. They can broadly be classified as the:

- **musts** – such as services and measures to ensure a safe environment, which minimizes unacceptable hazards to public health;
- **choices** – creating alternatives, such as healthy homes that people live in by personal preference; and
- **challenges** – developing appropriate policy responses to acknowledged social problems with health consequences: for example, how can an alienated group in the population be integrated into the community, or how can the social and psychological consequences of unemployment be mitigated?

There are certain realities to contend with in many countries: a culture of sectoral isolationism; the relative lack of power and status of health ministries, and the political disadvantage of health development being perceived as a limited concept which is unable to command sustained political and

governmental attention. There may be an indifference among political or bureaucratic decision-makers towards scientific knowledge as the basis for making better decisions – they may prefer other rationales.

The approaches to these realities can be arrived at by working through a series of propositions for HFA policy formulation. These point to key success factors, which are discussed in the next part of the module. Although derived from an analysis of direct experiences, they are in the form of an ideal type and are not a blueprint simply to be endorsed and implemented. They are intended to help trigger discussion of practical strategies in particular local circumstances. They stimulate the search for alternative approaches when the conditions for success are not immediately met.

In developing an effective approach to the political management of health policy, the health policy-maker is faced with four basic questions. What can be controlled? What can be changed? What can be influenced and how? What can be negotiated (or credit built up for later use)? In identifying the range of appropriate feasible actions (e.g. legislation, regulation, financial, education and research), the agency(ies) to be made responsible should also be identified, having first been assessed for their capacity to take action in the given situation.

Policy-making and planning are a tension between imagination and realism. Although plans must be tempered by feasibility and the availability of resources, the initial starting point is generally the generation of ideas. Starting with realism tends to mean that no vision results. This is an important point, because within many countries the pressures for delay and compromise are incessant. Nor is there any sense of shared vision in most instances.

For example, is a primary health care strategy:

- the sum of measures designed to assist the achievement of three common interpretations of health (longevity, healthy behaviour and physical fitness; *or* the absence or cure of disease and access to medical care; *or* social equilibrium, contentment and satisfying relationships?); *or*
- the operational coordination of health with other services, such as education and the environment?; *or*
- the functional integration through a referral system of first contact care with increasingly specialized institutional medical services?

It is the way these questions are answered **in practice**, rather than the rhetoric of policy documents, that determines how the health agenda is set and acted upon. Policy advisers and planners need to be sensitive to trends and concerns being generated both outside and within the health sector. In all events, the probability of opposition emphasizes the need to have in place a variety of tools for change that involve both public and private actors.

Maintaining the momentum for HFA is often a question of preparing defences against opposition. Arguments may be formulated on various bases. For example, the viability of the policy may be questioned at a **political** level, such as when particular vested interests (ranging from the manufacturers and distributors of products deemed to be harmful to health to the hospital with a high reputation which is threatened with a budget cut) seek to influence political decision-makers. Other arguments may be formulated at the **institutional** or **professional** level. For example, those in authority may be reluctant to encourage (or participate in) a controversy that could spark change – smooth-running organizations prefer to carry on as they are. Opponents may assert that there is no place or need for proactive or interventionist policy-making; the future is best left to the dynamics of the relationships between interests, or to the market; and in any event are not HFA objectives based on assumptions of doubtful scientific validity? In short, it will be alleged that it is all politically unrealistic and economically

unfeasible. A third set of objections may emerge at the **sociocultural** level. For example, objectors to HFA may maintain that nobody is really interested in health policy reform if they feel healthy and are satisfied with the available services. And if they are not, they will be concerned with quite specific worries. These could be based on perceptions of shortcomings in the operation of the health care system; or falling clinical standards; or anxiety prompted by the emergence of old-style public health problems, such as food safety linked to a serious loss of trust (e.g. Bovine spongiform encephalopathy, or mad cow disease, in the United Kingdom). Some objectors may even claim that HFA is a veiled form of “victim blaming”, since in emphasizing individuals’ responsibility for their own lifestyles and thus state of health, they are made the focal point for change.

It tends to be easier to advocate (and, if necessary, defend) HFA-based objectives if they have emerged from an open debate among all groups with an interest (stakeholders). The active dissemination of information and promotion of public debate are essential tools in creating from below more political visibility for health-related policy issues, and strengthening the political will to treat health seriously as a public concern. It tends to be easier to counter opposition if there is a properly thought through rationale for a comprehensive and integrated approach which emphasizes connections and linkages between seemingly separate issues. For example, a cost-effective approach is the use of multiple coordinated strategies to address the shared causes of the major noncommunicable diseases, which together account for most morbidity, disability and mortality in industrialized societies (13). Of course, it may sometimes be politically expedient to present and explore certain issues separately, in order to win support for particular measures in public debate. However, that is a separate matter from keeping one’s own comprehensive frame of reference (i.e. systems thinking) as a policy developer, implementer and manager. If opposition is not at root a reflection of a perceived threat to specific interests, it may be possible to engage with the objectors, especially if it can be convincingly argued that their suspicion and opposition to HFA is based on a misconception or a misreading of the evidence.

Exercise 2

To what extent does the health for all framework assist decision-makers to address the political and ethical challenges involved in socioeconomic policy-making for health in your country? Consider this issue in relation to:

- (i) a specific recent health policy or practice change (or proposal), preferably a controversial and substantial one;
- (ii) the different levels of decision-makers outlined in Exercise 1.

Key success factors

An effective approach to the political management of health policy and changes in health practice requires careful attention to three matters.

First, it benefits from a multi-level, intersectoral process with specific agencies designated as responsible for securing initiation and implementation. The range of possible types of action (e.g. legislation, regulation, financial, education and research) together with the specific agency(ies) that would be responsible, either solely or in cooperation with others, should be identified and assessed for appropriateness to the particular circumstances which are anticipated.

Secondly, an effective approach requires sustained political commitment, which means taking action when required. Major change generally takes a considerable period of time to accomplish. If

the key participants waver in their political commitment during the process (or it is thought that they might), the task of reform is more difficult and the defined objectives may not be achieved.

Thirdly, there needs to be targeted dissemination of information on health, health problems and risk assessments, and on possible counter measures, with an assessment of their likely impact.

The conditions for effective policy development include the following.

- The availability of strong evidence about the size of the problem, its main features and the need for action that would be affordable and broadly acceptable in that environment.
- The responsibility for protecting and promoting health (and where appropriate the need for joint, including intersectoral, action) is acknowledged by actors outside the health sector at ministerial, managerial and operational levels. This is especially important where the proposed action requires intersectoral cooperation, involves major expenditure or is contentious among powerful groups.
- The priorities, programmes, resource allocations and operating methods of the sectors involved can be reconciled or harmonized. This may not always be possible, but when it can be achieved it tends to make policy development more effective (and speedy), and effective implementation on a sustainable basis significantly more likely.

A policy proposal is much less likely to be adopted as the preferred option if it is perceived as a “zero sum game” by any of the interests involved. The number of policy initiatives being developed in detail at any one time should also be limited so as to increase their impact. This helps to ensure that the focus of the relevant interests and participants is not dissipated among competing demands and their capacities overloaded. It is desirable that there be a reasonable probability of early visible and positive results from the initiative, so that a success can be demonstrated publicly and politically. The stock of goodwill is limited, and key stakeholders are unlikely to be willing to gamble it on risky innovations, especially if they are not central to their perceived interests.

The options in HFA policy formulation can be organized in descending order of preference:

- first, identifying to other sectors the mutual benefit in cooperation to achieve health development;
- second, identifying a range of possible exchanges of favours with other sectors to induce them to cooperate;
- third, arguing to other sectors that there is an overriding national, regional or public interest to be served in adopting health criteria in their policy formation;
- finally, deferring attempts to engage with other sectors until the health policy-maker is in a stronger political position.

In all circumstances, it is important to avoid a posture that would appear as health “imperialism” or an attempt to colonize other sectors.

In summary, the approach means three things: (i) to identify the courses of action required, who are the interested parties to be involved and what consequences will follow; (ii) to seek political commitments, build networks and encourage grass-roots activities and support; and (iii) to negotiate action planning on specific issues with proper preparation and consultation and to build in agreed monitoring and evaluation procedures. This enables developments to be assessed promptly, remedial action taken when required and a virtuous cycle of consultative learning encouraged.

If it is effectively and persuasively presented, HFA can have a substantial operational appeal. It can be a catalyst for increased collaboration between the health service and other organizations and groups, including the media. The valuable role that can be played by voluntary organizations and

individual volunteers is sometimes overlooked. Such collaboration also implies joint information efforts for planning and monitoring purposes. Of course, different emphases may be effective with different groups. For example, some politicians may become more interested if the emphasis is on cross-national comparisons, particularly if these are given prominence by the mass media, while others may be persuaded by a bandwagon effect. Some interest groups may be persuaded by information about how their counterparts are being involved in other Member States and the desirable results that are being achieved. Sometimes a clear exposition of the available information may, of itself, begin to shape the tasks and persuade the responsible agencies, which means distilling evidence from all relevant fields to strengthen the empirical support for proposals. The arguments can be geared to reasoning with interest groups, but without resulting in contradictions between the statements which are made to different groups.

Against this background the role of (local) health sector policy-makers and planners has several aspects. Three are emphasized here. The first relates to the analysis of local circumstances, highlighting those concerns which are of interest to the local population, and persuading other levels of government or agencies (in both the public and private sectors) whose involvement or cooperation is required. The second aspect relates to spreading enthusiasm to other agencies, educating others (including health care professionals) by whatever means seem appropriate, lobbying for HFA concepts to be introduced into training programmes and using collaborative health systems research to enhance the credibility of HFA thinking. The third aspect relates to the use of even small successes to demonstrate the relevance of HFA. Prompt dissemination results in sharing successes and failures with others and facilitates learning, remedial action (where necessary) and improved health outcomes.

There is no one method for these tasks. Each “entry point” must be tailored to the circumstances. The political, administrative and cultural framework is the determining factor. HFA must be demonstrated as being relevant to real concerns. Certain responsibilities, however, remain constant.

- The distinction between policy (the content of a desired and intended action or set of actions) and politics (the process of debate and negotiation by which decisions on proposed actions are reached and implemented) must be clarified and maintained.
- The focus of interest for which a policy is to be prepared (e.g. the intended beneficiary population or the intention of any proposed action or intervention) must be clarified and a framework for analysis of the policy constraints and for judging what is politically and administratively feasible (as well as desirable) must be developed.
- Different approaches to priority determination must be recognized and the appropriate approach to apply in particular circumstances selected. A distinction is made between five types of criteria. The first involves **health** criteria, such as the reduction of mortality and disability using the most effective available technology. The second involves **ethical** criteria, such as minimizing preventable mortality, morbidity and disability, for example where an effective technology is available (within or outside the health sector) but is not yet in use. There are also **resource** criteria, such as cost or staffing implications; **political** criteria, such as pressure on decision-makers to act; and **social** criteria, such as the importance of an issue in the community (e.g. substance abuse). The chosen criteria generate, as a prelude to the selection of a strategy, a set of questions concerning what action is to be taken, by whom, where and in order to achieve what objectives.

The overall purpose of the political management of public health is to identify the innovations to be adopted, and then to secure the commitment of all those interests whose involvement is necessary to achieve them. This means trying to build up a shared view of the desired future, a shared ideology, and to identify mutual benefit wherever possible. This requires organization – structures, processes

and procedures for consultation and negotiation, for networking with and between various participating interests, and for building coalitions of critical support to initiate strategies, implement action on projects and sustain the resulting programmes.

Taking effective action requires the identification of all the required resources and where they are available. These resources might include money, human resources (both paid staff and volunteers), materials and buildings, and also less tangible factors such as enthusiasm and access to information. Judgements have to be made about how best to harness and use these resources, including how to combine them. The analysis, building of support and development of strategy must be followed by implementation through coordinated action in the appropriate practical steps. At this critical stage the realities need to be looked at very closely, including the strength of the evidence for the HFA proposals being pursued. How far will they convince those who oppose or doubt the proposal? Will the countervailing forces engineer a compromise solution? If so, is it better to push on, modify the current proposal or delay it for a more propitious occasion?

Successful actions have outputs. These could take various forms. For example, there may be **political** outputs, involving elements such as evidence of broad participation in debate and decision-making, of constructive conflict of ideas, or of political and other mechanisms to release people's creativity. Secondly, there could be **activity** outputs, such as an increase in activity for an unchanged level of resource input or a sustained level of activity for a reduced level of resource inputs. Thirdly, there could be **health** outputs or outcomes, such as measurable or observable improvements in health status or reductions in health inequity. These outputs need to be monitored, where necessary sustained and if possible increased.

The essentials for the successful political management of public health can be seen clearly: the shared view, the political will to cooperate, the support of participating interests, appropriate mechanisms and structures for identifying and implementing options, and a climate of creativity. While it may not be easy, while it may take time, it can be done. However, it often is not done; and the task tends to be more difficult in a declining economy than in an expanding one.

Exercise 3

What do you consider to be the key factors for success in handling the political management of public health? Consider this issue:

- (i) in relation to a specific recent health policy or practice (or proposal), preferably one which is substantial in its implications and controversial; and
- (ii) in terms of who gains and who loses from the change – would the political management of the public health issue have benefited from a different distribution of the gains and losses between the various participants?

Would the key factors and how they could best be handled be similar in a declining economy compared to a growing one? If not, how would they differ?

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4.2.3 Health administration and management

Chris Selby Smith and John Wyn Owen⁶

Key messages

- Health management matters and it can make a difference. Managers in health care contribute to the provision of health care and the achievement of health gain, i.e. adding years to life and quality life to years.
- Managing for health involves deciding what needs to be done and ensuring that it gets done, through people.
- Managers are concerned with both processes and outcomes, where outcomes include quantity and quality.
- Good managers provide a support service, which enables resources to be brought together in an efficient, effective, economic and equitable manner. The result is enhanced achievement of the health objectives of their organizations.
- People are a particularly important resource in health care; over time, good management enhances the capacity of people, whether providers or users, to contribute to achieving outcomes and to making informed choices.
- Outstanding managers are characterized by their ways of thinking, presenting and behaving. They are aware of the importance of risk management, and they enable value to be added throughout the organization.

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Tutors' notes

This module has been written as a guide for those in various managerial positions. It will also be of interest to those in policy development and advisers, as it provides insight into key aspects of successfully implementing change and more effectively managing resources. The module should enable the tutor to promote the importance of clear vision and values, learning from experience, encouraging practitioners to be responsive and influential towards internal and external changes, involving staff in decision-making and encouraging a culture of continuous improvement and development.

Although the module is, at first sight, most relevant to managers and health professionals among the four main groups of potential users of these learning materials, particularly in relation to *analysis*, it is useful for all four groups of users in terms of *appreciation* and *appraisal*. It is highly relevant for very senior political and bureaucratic decision-makers and the members of various concerned public groups, not least because of the influence they have, directly and indirectly, on the environments in which managers operate and the incentives (and sanctions) which apply to them. In addition it may be helpful to them in terms of analysis of their own working styles and approaches, their strengths and weaknesses, and the implications both in health and health care and in the many other arenas in which they may be operating (e.g. politicians, senior bureaucrats in non-health agencies, journalists, trade union officials, and prominent citizens who contribute to nongovernmental, religious, charitable and voluntary organizations as well as sit on a hospital board).

The three exercises are designed to highlight some important aspects of the module. Exercise 1 focuses on the key factors in the internal and external environments in which managers operate, how managers react to them and how they can influence them in the immediate situation and over the longer term. Exercise 2 focuses on the respective responsibilities and areas of authority and accountability of managers in particular situations; how they do (or could) relate to each other; and the consequences (for processes and outcomes) which arise when the three elements are not closely related. Exercise 3 focuses on the objectives of managerial action at both the macro and the micro levels, how they can be achieved (including the determination of priorities), and how managerial achievements can be measured.

The exercises can be used in various ways. For example, they could be used in a written presentation, in oral discussion or debate. Role-play could be useful for some audiences. Specific or hypothetical examples could be used.

The managerial environment

All managers are affected by the environment in which they work, and health care managers are no exception. Thus, legislators, policy-makers, planners (and wider political, economic and social factors) influence the incentives, both positive and negative, which managers face in performing their functions. The environmental factors can be divided into those within the organization, termed internal environment factors, and those operating from outside the organization, termed external environment factors. Examples of internal factors include the local workers, such as doctors, nurses, other professionals and ancillary or support staff; organizational processes, such as working arrangements or internal budgeting processes; and established practices and expectations. Examples of external factors for an individual health care institution include the national ministry of health or regional health authority, the organized medical profession, the general community, suppliers and trade unions. All the

environmental factors can be relevant, in greater or lesser degree, to the decisions made by health care managers. In some cases they constrain managerial action; in others they can provide opportunities.

The environment in which health care managers operate has some special features. For example, outcomes can be difficult to quantify and aggregate, in contrast to the clearer bottom line of many private sector organizations. This is partly because in most European countries public provision is important. When nongovernmental provision occurs it is often non-profit, religious or charitable in orientation rather than privately-owned and profit-focused, and the providers have particular relationships of trust and responsibility to patients. In many cases users of health care services are vulnerable groups or individuals, who are often particularly vulnerable when interacting with the health care system (e.g. they are sick, homeless, stressed or relatively ill informed compared to providers).

Health care managers operate in an environment with significant:

- political elements, for example media interest in low birth weight infants
- bureaucratic elements, such as high levels of public funding and provision
- professional elements, which are especially significant among doctors, and
- community elements, such as local relationships and expectations.

Since the health sector is large and varied there are significant differences in the managerial environments facing particular health care managers, for example, the public or private sectors, or managers of care for the elderly compared to those in university hospitals or general practice. In general, the health care sector tends to be a demanding environment for managers.

Furthermore, in many European countries significant changes are taking place in the environment within which health care managers are operating. These changes vary between jurisdictions, as does the speed with which they are occurring. Examples include:

- the relative weight attaching to the preferences of the users of health services compared to the preferences of providers;
- the balance between public and private provision (and financing) of health care;
- the balance between prevention, cure, rehabilitation and care;
- the relative priority attaching to quality and quantity;
- increasing recognition of the importance of intersectoral aspects of managing for health;
- the extent to which managerial decision-making is devolved, democratized and influenced by evidence.

Exercise 1

Identify the key environmental factors affecting your managerial decisions. Distinguish between the internal and external environmental factors. To what extent are you able to influence them: in the short run and in the longer term?

The levels and stages of managerial decision-making

Managing for health requires decision-making at various levels. First, at the level of national policy-making, managers seek to establish appropriate parameters for decision-making by practitioners to manage intersectoral relations and to obtain sufficient resources. In federal systems the relationships

between national and regional or provincial authorities are important; in unitary states these relationships occur but may be less visible. Political and bureaucratic considerations are both involved, since policy and politics are not separate from management and administration, but interrelated with them. Policy-making can have distinct stages: identification of problems and setting an agenda; formulation of a policy; adoption of the policy; implementation of the policy; monitoring of the budget and policy evaluation. In practice, these stages are often less separate and linear, e.g. implementation problems may result in a change of policy.

Secondly, there is managerial decision-making at the level of individual health care institutions, such as a university teaching hospital, a nursing home chain or a private health care organization. Managerial decision-making at this level can have parallels with management in other organizations, taking account of the specific features of the health care environment. The culture of health care managers at this level tends to differ significantly from the culture of the civil service. In decentralized health care systems or where command and control systems permit some local discretion, managers typically are required to develop and implement appropriate policies rather than merely adopt central directives. Managerial decision-making involves consideration of both top-down and bottom-up approaches.

Thirdly, there is professional decision-making, such as that by doctors, nurses, pharmacists, dentists, therapists or other health care professionals. The relationship between providers and patients in health care implies that decisions made by both users and providers affect health care processes and outcomes.

In Module 4.2.1. on policy analysis, bargaining and negotiation, John Lavis identified three levels of health policy which he termed the clinical, administrative and legislative levels. Managerial decision-making as discussed here refers primarily to decision-making at the administrative level, and at the clinical level when health care providers are making administrative decisions.

The health care manager is frequently faced with developing decisions and initiating action which take account of various disciplinary approaches. The accountant's view may not correspond with that of the economist, the medical practitioner's with that of the ethicist. The perspective of the professional provider may not equate to those of either the funder or the patient. The manager is charged with reaching a fair and reasonable decision, taking account of relevant factors and perspectives, and acting accordingly. Managers are not only charged with making decisions themselves, but with creating climates and providing incentives which encourage appropriate decision-making by others, primarily in their own organizations but also in the wider health care system.

Responsibility, authority and accountability are not always closely related to each other for an individual manager. Where this is the case the three elements should be brought into a closer relationship with each other. No one should be able to avoid blame for those matters for which they are in fact responsible: for example, where a surgeon who takes inadequate care kills a patient who would have recovered to live a satisfactory life if they had been treated competently. On the other hand, no one should be required to accept blame for matters which are beyond their control.

Exercise 2

In your managerial environment:

1. Are responsibilities (what you are expected to do), authority (what you have the power to do) and accountability (what you are expected to have done) closely related or not?

2. If responsibility, authority and accountability are not closely related for individual managers in your environment:
 - (i) To what extent does this result from factors internal or external to the organization?
 - (ii) What consequences are there for health care processes and outcomes?
 - (iii) In what ways could responsibility, authority and accountability be brought into a closer relationship with each other?

Objectives

Managers take decisions to achieve results. It is crucial that the objectives to be achieved are clearly defined, however difficult they may be to achieve completely and irrespective of whether tactical adjustments are required from time to time. Countries vary in the balance of objectives they seek to achieve. For example, the United States is more tolerant of inequality in health care outcomes than the United Kingdom, while private provision is more highly regarded in some European countries than in others where social solidarity has greater societal acceptance. Managers who are taking decisions at the level of individual health care institutions also vary in their balance of objectives: for example, prevention through screening, cure through surgery or care through long-term community support of patients and their families. But managers always need to be clear about the objectives they are seeking, otherwise there is no chance of achieving them. It needs to be recognized, of course, that health outcomes are derived from more than solely the health care sector or the administrative responsibilities of the health ministry. They can be significantly affected by factors such as improved road engineering, seat belt legislation or random breath-testing of drivers for alcohol; or whether a person is in employment, and average levels of income and their distribution; or housing and superannuation.

Each health service and manager can benefit from thinking carefully about what they are trying to achieve and the alternatives available for doing so. A quality health service has three hallmarks. First, a commitment to health gain, whereby years are added to life and quality life is added to years. Second, there is a commitment to people and a conscious attempt to provide people-centred services. This applies both to those who work in the health sector and to those for whom the services are provided. Third, there is a commitment to the effective use of resources, including financial resources, human resources and the intellectual resources of the health workforce. The four “E’s” of efficiency, effectiveness, economy and equity provide a guide for managers to think about their objectives in the immediate future and in the longer term. The objectives of health care managers include both outcomes and processes, such as the dignity and respect with which patients and their families are treated. However, it is difficult to measure the extent to which such changes occur, and the extent to which managerial decision-making contributes to them.

While economists are accustomed to thinking of maximizing outcomes, subject to given constraints, managers often find that their task is to give satisfaction. They bargain, negotiate and compromise where it is unavoidable. At worst, decision-making is delayed, tough decisions are avoided and responsibilities are blurred. At best, managers achieve the most beneficial result they can at the time, often in a number of different dimensions simultaneously. They adjust when they have to the realities of the moment, but are ready to achieve further gains when the opportunity arises in the future. The process is continuous, so that what is gained today can be lost tomorrow. There can be difficulty in satisfactorily conceptualizing the objectives of the organization compared to the varying objectives of groups and individuals within it: for example, see Lindblom on “still muddling, not yet

through" (1). An important managerial objective is to create conditions where one set of improvements facilitates others in a cumulative process. Systems can be significant, but people, incentives and motivations tend to be particularly important.

Combining resources

Few health outputs can be achieved through the use of one input alone. In the typical situation a variety of resources have to be combined, organized or managed. For example, a medical practitioner, a secretary/receptionist, facilities, equipment and information may be combined to produce a general practitioner service; while a range of medical specialties, such as surgery, anaesthetics and diagnostic services, plus nursing and administrative staff, a specialized theatre, equipment, consumables and information contribute to the carrying out of a successful surgical operation. Managers at all levels of decision-making combine and organize resources to ensure that efficiency, economy, effectiveness and equity are achieved. Sometimes managers are able to use the resources of others to achieve their own purposes: Keeling calls this diplomacy (2). This applies to health care outcomes and the processes by which they are attained. Managers are responsible for organizing the production function of health care, i.e. the processes by which inputs produce valued outputs.

Management in the health care sector can involve the combination and organization of a wide range of resources.

- In terms of expenditure, labour tends to be the largest single input: two thirds to three quarters of total health care expenditure in many advanced countries. Indeed, this may be an underestimate, given the substantial contribution often provided by contributed service (from family members, religious orders and voluntary or charitable contributions). Labour is critical for the processes of health care as well as its outcomes. The labour inputs are very varied. They can include doctors, nurses and other health professionals; administrative, clerical and support services, such as engineering and maintenance, catering, cleaning and security services; and paraprofessional services, such as those provided by ambulance workers, paramedics and laboratory technicians.
- Other important resources include finance, information and the technology of health care. Managers also need to be aware of the legal framework and the administrative structures within which they operate, because these both constrain action and provide opportunities.
- Since the relevant relationships are dynamic, health care managers need an openness to developing perspectives and new knowledge as well as basic skills, training and experience in management. Theory, practice and their integration are all important, while continuing learning is essential in a field of practice characterized by rapid change.

Those who are managing for health primarily work through people. In the short term they need to be aware of what resources are available and how best to use them to achieve objectives. But in the longer term good managers seek to expand the resources that are available through demonstrating achievement, investing in institutional and infrastructure resources, and arguing strongly in the fora where resource allocation is determined.

Investments can involve additional or improved resources, such as labour, buildings, equipment or information, from which an enhanced flow of services can be derived. It may also be possible for managers to get more outputs from existing resources, including through:

- an organizational culture that encourages learning and increased productivity;

- incentives that link personal rewards and recognition to their contribution to organizational goals; and
- transparent decision-making which more closely relates responsibility, authority and accountability.

It is surprising how much, even in large organizations, the personal qualities, vision and drive of senior managers can influence the health care outcomes that are achieved; and how competent and motivated teams in well managed environments can achieve results that are beyond even the ablest and most dedicated individuals.

Managers at all levels of decision-making also have a responsibility to acknowledge limits. Workers have lives beyond work, and sometimes the human resources are inadequate to achieve the desired results, however competent, committed and well managed they are. It is a managerial responsibility to ensure that health workers are not held accountable for failing to achieve impossible targets, while ensuring that resources are so managed that the absolute maximum of health care outcomes which are possible are achieved.

Many OECD⁷ countries are examining the financing and organization of their health care systems. Wales is presented here as a case study where significant progress was made within a strategic framework aimed to raise the level of health of the population to among the best in Europe. This strategic framework focused on health gain, people, and a resource-effective health service informed by a focused research and development framework.

Case study: experience from Wales

Aligning health agendas and improving the operational performance of health systems is an increasing priority in a number of countries. There are at present limited examples which can serve as case studies of integrating public health and health services management, but the Strategic Intent and Direction in Wales was “a pioneering response to the WHO Strategy for Health for All by 2000 and therefore lacked models to follow ...” (3). The National Audit Office report considered “The initiative had had a more substantial effect on the way in which the NHS in Wales plans service developments.” (3)

Reforms to the British health system in the 1990s fundamentally changed the management and organizational landscape. Although the guiding principles for the National Health Service (NHS) are common to all parts of the United Kingdom, considerable autonomy is given to the Service in England, Scotland, Wales and Northern Ireland. Recent changes in the United Kingdom constitution establishing a Scottish Parliament and Assemblies in Wales and Northern Ireland have consolidated this trend – politicizing what was previously administrative space (4). Wales developed a health strategy of its own, as did Scotland and Northern Ireland. The Strategic Intent has proved to be robust and, although it was introduced by the Conservative administration, was re-emphasized as a policy by the following Labour administration in Wales (5).

Although they differed in detail, the strategies adopted by England, Scotland, Wales and Northern Ireland had important similarities. First, they emphasized the need to tackle the major public health challenges, including cardiovascular diseases and the cancers, as well as give a higher priority to health promotion and sickness prevention. They all highlighted the need for intersectoral action and the development of healthy alliances, including with key players in both the private and public sectors,

⁷ Organisation for Economic Co-operation and Development.

whether in education, industry, transport, the environment or housing. Partnership with higher education was seen as one of the main agents for change and prosperity. Intersectoral collaboration was facilitated by the Welsh Office, of which NHS Wales is part – a one-stop-shop in government policy. The portfolio ranges from agriculture, industry and employment, through roads and transport, housing and the environment, education and the arts as well as health and personal social services. It was tailor-made for promoting the broader health agenda. Second, the four strategies reflected the conviction that citizens should be placed at centre stage in health planning and service delivery. Finally, there was a determination to secure better value for money from the substantial resources invested in health care systems. This was particularly important in Wales, which, with a population of some 3 million and about 70 000 people engaged in the health service, has the second lowest GDP per head in the United Kingdom.

Three aspects of the Welsh experience are emphasized. Firstly, a striking feature of the Welsh approach was its emphasis on looking for best practice wherever that might be found, and learning lessons for the development and implementation of policy. For example, Wales is one of the so-called “motor” regions of Europe, where the motor industry represents a key part of the economy, and Wales was a founder member of the WHO Regions for Health network. The Welsh strategy also sought to learn systematically from its experiences about how to improve future performance.

Secondly, the Welsh approach incorporated a strategic management approach. This meant being clear about who did what, by when, and then evaluating performance remorselessly. There are four key factors to the success of this approach: defining the purpose of the service; sharing the vision and securing ownership; translating policy into effective management and clinical action; and monitoring progress carefully. The Welsh vision was for the NHS, working in partnership, to take the people of Wales into the twenty-first century with a level of health on course to compare with the best in Europe. The idea was introduced, a novel one at the time, that improving health is one of the goals a health care system should strive for.

This initiative covered ten areas where health could be improved (recently updated), which together accounted for 80% of total health service expenditure in Wales. Three strands ran through each of the ten health gain areas:

- health gain, focusing on improving health by shifting resources to make treatment effective;
- making services more responsive to people’s needs and preferences by considering the total effect of services on people’s lives rather than the narrower clinical perspective; and
- effective use of resources by providing an appropriate balance between prevention, promotion, diagnosis, assessment, treatment, care and rehabilitation.

Thirdly, although the Welsh Office had a key role to play in offering leadership, the real action took place locally. These were the health plans which proposed specific management actions to achieve the milestones set in the local strategies. Frameworks were to be developed in collaboration with managers, professionals and staff across the system. Pursuing a leadership role while at the same time promoting further devolution of responsibility proved to be a difficult balance to strike. The Welsh strategy recognized the need to engage more fully than in the past the people involved in the management and delivery of services in setting and achieving Welsh health goals. It proved to be essential that local plans for health were understood and accepted by those involved, if they were to be effectively delivered and health gains achieved. The Welsh approach was not without its difficulties (6). There were overspending and problems with the financing of health services in some counties. Progress was slow

in implementing the Hine Report for cancer services (7). There were tensions between policy and management in the Welsh Office, cultural differences between the civil service and the NHS, and differences as to how best to treat mental illness – whether to consider it a social care issue or a health matter. But overall it was a period of development and a way of taking public health and the health services forward. This was a period when the concept of health gain became the currency of the World Bank, and the model not only influenced developments in Australia and New Zealand but also served as a case study which informed in due course the development of the Ljubljana Charter (8).

Exercise 3

- (a) Identify what objectives the health care manager is trying to achieve, at the macro level, and what strategies might assist in achieving them.
- (b) At the micro level, what factors would you consider:
 - in determining managerial actions to achieve a specific objective; and
 - in determining priorities between alternative health care outcomes?
- (c) How would you know if you had achieved your objectives?

Ways of thinking

Outstanding managers, at all levels of decision-making, are characterized by their ways of thinking, presenting problems and behaving. Firstly, while they are aware of the complexities of the managerial environment they are not paralysed by analysis. They are oriented to action and to taking the best decisions possible in the prevailing circumstances. They are clear about their objectives but willing to be flexible about how to achieve them. As circumstances alter their tactics may change too. While they take decisions in the present, their orientation is to the achievement of medium- or longer-term objectives. They recognize that their major effect on outcomes is likely to be mediated through other people; and they seek to create the conditions in which others are able and willing to give of their best. They appreciate that producing health care outcomes is a complex business; that many individuals, disciplines, occupations and perspectives can contribute something; and that the manager is the conductor who enables the orchestra to deliver on its full potential.

Secondly, the manager's role necessarily involves balancing a range of risks; deciding on the course of action that appears to be most appropriate in the light of the available information; and ensuring that it is pursued in a businesslike fashion. Thus, presenting alternatives, encouraging others (and when necessary disciplining them) and sustaining action once decisions have been taken are all essential elements of the managerial role. For effective outcomes to be achieved, the manager needs the support of the contributing resources, just as they need the manager's support if they are to contribute fully. Furthermore, all managers make mistakes. Some decisions prove to be incorrect, while other decisions are not taken that should have been. This is inevitable. The only manager who never makes a mistake is the one who never takes a decision, so that risk management is inherent in the role. It is often argued that the managerial role has become more difficult as a result of, for example, increasing change, declining direct authority and multiple accountabilities. What some see as a problem others perceive as an opportunity.

Thirdly, the managerial role is demonstrated in practice. How the manager acts tends to be more powerful than what the manager says. Much of the manager's influence occurs through creating the

climate, in leadership rather than mere administration. A manager who is not apparently open to new ideas or alternative suggestions for improving health care outcomes is not likely to elicit the full contribution potentially available from colleagues. Improving health care processes and outcomes often rests on an open and collaborative search, a willingness to consider new evidence or alternative approaches. For example, a managerial orientation towards providers rather than patients is likely to be reflected quickly in organizational operations and priorities. Managers need to be aware of the dynamic elements of their task and of the intersectoral contributions to health outcomes, and that they have responsibilities to the wider health care system and society as well as to their own institutions. As WHO has argued, “It is very clear that health does not arise from actions pursued solely by the health sector: rather it is a manifestation of all public policies and how they individually or in interaction with each other, promote or damage health” (9). While networking can develop two-way flows of information, skills and attitudes which improve decision-making, it is increasingly being recognized how much knowledge is already tacit and embodied in individuals.

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4.3 Updating inputs

4.3.1 Development and diffusion of health technology

Michael F Drummond and Björn Lindgren, with contributions from Eva Bondar⁸

Key messages

- Technologies for health are the mechanisms through which scarce resources are combined to produce health improvements for the individual and for the population.
- Health technologies are not confined to the clinical patient care sector but comprise all health promotion, disease prevention, diagnosis, treatment, rehabilitation and care activities.
- New health technologies are developed through publicly funded research at universities and research institutes. There is also privately funded research and development (R&D), for instance, in the pharmaceutical industry.
- New health technologies are not developed haphazardly but they are induced by the incentives for developing specific kinds of technology created by government regulation and the financial incentives of the market.
- Considerable inefficiencies can occur in how technologies are produced (through R&D) and the ways in which they are used, for example on inappropriate patients, in the wrong settings or by untrained professionals.
- New health technologies are diffused gradually, and adoption generally follows an S-shape pattern.
- Different factors either inhibit or encourage the development and diffusion of health technologies. These include the payment mechanisms for health professionals and institutions.
- Both direct regulation and financial incentives can be used to encourage a more rational diffusion and use of health technologies. Regulation can be linked with economic evaluation.
- A number of factors influence the cost–effectiveness of a health technology in a given setting.
- Economic models can be used to help decision-makers interpret evidence on a given technology for their own setting.

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Tutors' notes

A wide range of groups within the health system would benefit from understanding more about the development and diffusion of health technology.

This module may be of particular interest to those involved in designing direct regulation and financial incentives to encourage a more rational diffusion and use of health technologies, including:

- health (and health care) policy-makers
- pharmaceutical industry policy-makers
- civil servants and other governmental technical staff
- public health officers
- health service managers.

The module contains boxes illustrating the issues presented in the text, several questions for discussion within a country-specific context and an exercise designed to help health care decision-makers wishing to interpret data on the cost-effectiveness of health technologies for their own setting. The exercise builds on material given in Module 5.3.1 (on economic evaluation) and Module 5.4.1 (on modelling).

Introduction

Health improvement is the primary objective of the health sector (*1*). Technologies for health are the mechanisms through which scarce resources are combined to produce improvements in health. Health technologies are not confined to the clinical patient care sector but comprise all health promotion, disease prevention, diagnosis, treatment, rehabilitation and care activities. For example, a surgeon's time and skills are combined with those of anaesthetists, nurses and operating assistants, plus operating theatre equipment, in order to produce an appendectomy, which under certain circumstances may be a necessary procedure to maintain health; or physical exercise, low-fat food and abstinence from smoking can reduce the risk of developing coronary heart disease and stroke and may, hence, extend life expectancy and quality.

In the short run, existing health technologies determine the maximum possible contribution to population health, given the available resources spent on health. There is ample evidence of inefficiency, however. Inefficiency means that this potential is not fully realized – resources are wasted and the quality of the health sector is too poor in terms of health improvements achieved. The health of the population could be increased in the short run by increasing the efficiency of the health sector (Module 3.2.2). In the long run, more resources spent on health may yield (marginal) contributions to people's health. There are obvious limits, however, to that approach. Sooner or later, improvements in health will diminish when further resources are added. The only way to increase substantially the possibilities for a long and healthy life is through new knowledge about how scarce resources can be combined in order to produce improvements in health, i.e. through the development and diffusion of new health technologies.

Quality development in the health sector in terms of improving the health of the population can be achieved by reducing inefficiencies in the use of existing health technologies, by increasing resources spent on health, and by developing new health technologies (*1*). Given the critical role played by health technologies in producing population health, it is important that health policy-makers, managers and professionals understand their development and diffusion. Otherwise, there can be considerable

inefficiency in how new technologies are produced, through research and development, and the ways in which they are used. This module deals with the following two linked themes:

(i) *The economics of research and development*

Research and development are essential features of the development of new health technologies. What are their potential inefficiencies? What influences do different approaches to the reimbursement and pricing for health technologies have on R&D? How can those undertaking R&D be given incentives to improve efficiency? How should priorities for R&D be set?

(ii) *The economics of transfer and diffusion*

New health technologies are diffused at different rates in countries. They are adapted and changed, and are spread to other settings and to other groups of patients. What factors encourage the use of particular technologies? What factors inhibit the use of particular technologies? How do health technologies spread from one setting or application to another? What is the influence of different payment systems on health professionals and institutions such as hospitals? How can key actors in health care systems be given incentives to use health technology appropriately? How can decision-makers adapt or interpret economic evidence on a given technology for their own settings? What is the role of economic evidence in designing regulation? (This last issue is explored in Module 5.3.1 on Economic evaluation.)

The economics of research and development (R&D)

Health technologies comprise all health promotion, disease prevention, diagnosis, treatment, rehabilitation and care activities which may contribute to the health of the population. New knowledge about how health can be promoted through changing individual behaviour may be at least as important as new procedures in clinical patient care in the development of quality in the health sector. In clinical patient care, technologies are not confined to conspicuous items such as electromagnetic resonance technology or other expensive equipment but include “all drugs, devices, procedures, and systems of organization” (2). Some technologies are to a large extent embodied in physical items such as drugs and devices, whereas other technologies, such as systems of organization or surgical procedures, represent knowledge only available in people’s brains and skills.

Since the end of the Second World War there has been a rapid change in the technologies available for health. Almost all diagnostic and treatment methods that are used in clinical patient care today were unknown 50, or even 40, years ago. Among prescription drugs, for instance, about 10% of the 200 largest-selling drugs are new each year; and only 25% of the 200 top-selling drugs remain in that group 15 years later. The revolution in the processing of information through the development of new computer hardware and software facilities has included health care. New ways of organizing health care have been introduced in recent years. In addition, there is substantial new knowledge about the effects of healthy lifestyles and about how to modify environments so that people will make healthier choices.

New health technologies are developed through publicly-funded research at universities and research institutes. There is also privately-funded R&D, for instance in the pharmaceutical industry, which produce new health technologies. The incentives may differ between private- and publicly-funded organizations regarding the extent and direction of research and development of new health technologies, but for all agents involved in the development of new health technologies the expected utilization of the new technology is vital. For a private, commercial pharmaceutical company, this is self-evident, but research fellows at universities may also want to see their scientific discoveries

developed and used in practice. Few people are interested in developing technologies that no one will use.

Thus, new technologies are not developed haphazardly but are induced by the incentives that are available to develop specific kinds of technology. The expected return determines the development. Returns may be both pecuniary and, for people such as university researchers, non-pecuniary (fame, high positions, etc.).

Thus, some major characteristics are the same for the research and development of all health technologies, even though there may also be differences. The economics of R&D in the pharmaceutical industry are fairly well documented. Furthermore, the pharmaceutical industry works in a market environment in which the behaviour of both firms and the industry as a whole is governed by financial incentives – the prospect of market revenue to cover the costs of developing the drug, in addition to the costs of producing it. Therefore, we will use pharmaceutical R&D as an example to explore the characteristics of the R&D process and to discuss the factors determining the extent and direction of R&S of new health technologies. The role of academic research is emphasized in Box 1.

Box 1. The role of academic research

Academic research plays an essential role in the development of new health technologies. Publicly- or privately-funded university research is often a prerequisite for applied R&D in, for instance, pharmaceutical companies. So, to a large extent, basic research at universities and applied R&D in pharmaceuticals are complementary. It has been shown, however, that there is also some substitution: when basic academic research in a specific area of therapeutics is increased, there is increased private investment both in the same category of R&D and even more in other categories.

Since incentives differ, the financial incentives being decisive in private business, the direction of research is also different. The resources allocated to research into the less prevalent and more severe diseases tend to be greater from public funds than from private industry. This kind of research, however, may not lead to applied R&D, because the financial incentives for industry do not exist (see, for instance, the example discussed in Box 2).

Universities (and university hospitals associated with medical education and research) also play an important role for the location and success of private industry. Most production of new scientific knowledge is concentrated in a few regions within a few countries. If knowledge only flowed through published papers, geographic location would be unimportant. The importance of informal personal contacts appears, however, to be crucial. Thus, universities and academic research not only provide industry with highly qualified labour but also with R&D externalities in the form of symposia, conferences, seminars and education.

Sources: Jaffe (3), Ward & Dranove (4).

R&D of pharmaceuticals

The development of a new pharmaceutical product takes time and money. After a potential market has been identified, the pharmaceutical company is involved in the search for new chemical substances. Often thousands of substances are tested before one single substance proves to be potentially useful; this substance is then further improved and superior substances produced as candidate drugs. Various pharmacological tests (e.g. regarding the toxicity of the substances) are carried out using both animals and non-animal cell models.

When the substance fulfils certain criteria, tests are carried out on human volunteers. This does not start, however, until the company has filed an application to the appropriate regulatory body (in the United States this is the Food and Drug Administration, FDA) and received approval for doing clinical tests. The time from application to approval may take 5–9 years. Clinical studies start with rather small, randomized control trials including only healthy individuals (say 50–100). When the relations between dosage, effects and tolerance have been analysed, large-scale trials on say, 500–5000 patients are performed. Different dosages are compared with placebo and conventional therapy. The evidence on efficacy and adverse reactions, interaction with other drugs, etc., including during long-term treatment, is documented.

Once the safety and efficacy of a drug have been established, an application is filed with the appropriate regulatory body in order to register the new pharmaceutical product. After approval, a process which may take 1–3 years, the company can finally market its new pharmaceutical product. According to estimates, it takes on average 12 years and US \$360 million to discover and develop a new pharmaceutical product before it is introduced on to the market. This is essentially the cost of producing new knowledge about how scarce health care resources can be used. If competitors were able to use this new knowledge without paying in order to produce their own pills, these “free riders” could easily set prices on their products far below what would be necessary for the inventing company in order to recoup its R&D costs. Obviously, there would be too little R&D in private pharmaceutical companies if the market was not regulated. The main measure used here by governments is guaranteeing a temporary monopoly through patent legislation. (Patents actually have a rather long history: the first patent law seems to have been adopted by the Republic of Venice as early as in 1474.) The inventor’s property rights on pharmaceutical products, processes and uses are protected for 20 years under the World Trade Organization’s Agreement on Trade-Related Aspects of Intellectual Property Rights. There does not (yet) exist a Europe-wide patent, but after a single application the patentee receives a bundle of national patents. The patent-holder can either make sole use of the discovery or license others to use the invention at an agreed royalty rate.

In order to protect its commercial interests from competitors, a pharmaceutical company normally applies for patents as early as possible during the development process. This means that a new pharmaceutical product will have less than 20 years (maybe only 10 years) left of patent protection when it finally reaches the market. The expected revenue during the remaining period of the patent time is vital for the company’s decisions to develop and market the new pharmaceutical product. Society uses patents as an incentive to the inventor to develop appropriate technology *and* to make it available and accessible at reasonable cost.

The impact of regulation

Expected revenue depends both on expected prices and expected volumes sold in the pharmaceutical market, both of which are influenced by government regulation. Prices are more or less regulated in all European countries, especially if pharmaceuticals are to be reimbursed by (social) insurance. Reimbursement may also be a prerequisite for large volumes; estimated price elasticities are very low for prescribed drugs, for which patients only pay a minor share. Volumes are also affected by the size of the target group of patients and the medical decision behaviour of physicians. The size of the target group of patients can be influenced by decisions taken by regulatory bodies. Commercial marketing as well as recommendations by therapeutic drug committees may influence physicians’ behaviour. The way physicians prescribe drugs may also be affected by direct financial incentives, created by how doctors are paid under the system.

Thus, there are several ways for governments to affect the behaviour of pharmaceutical companies by influencing either the cost of developing new drugs or the expected revenue when the new drug has entered the market. The regulation of the pharmaceutical market in particular and health care systems in general creates the environment in which a company makes strategic decisions. For instance, in some countries, governments require or request economic evaluations to show “reasonable” cost–effectiveness or cost–utility ratios for a new drug to be reimbursed. If the cost (price) of the new drug is too high in relation to its effects in terms of health consequences, then it will not be reimbursed. Thus pharmaceutical companies have an incentive to make their own economic evaluations of potential new drugs as early as possible in the R&D process. It would be of no use to a company to develop a new wonder drug if it could not recoup its R&D costs.

However, from the start there is great uncertainty over the characteristics of a product, and hence over future returns. Nevertheless, a company may still want to make at least rough calculations of the potential cost–effectiveness of its new drug as part of deciding whether or not to continue the process. At several other points, the company will make decisions whether to continue, contract or expand. Even though such decisions naturally depend on potential therapeutic benefits, and the expected frequency and severity of adverse reactions, they also depend on estimated future revenues and hence on the estimated results of economic evaluations. As more information is produced during the development process, the economic evaluations become more and more reliable as a tool for decision-making within the company.

Can an optimal level and direction of R&D in health technologies be achieved?

Obviously, the development of health technologies is influenced by government regulation. Thus, at least in principle, regulators would be able to create incentives for innovators to develop an optimal level and direction of R&D in health technologies in a societal perspective. Since R&D in health technologies takes time and money, it is an investment with expected benefits in the future after many years of costs only. The resources used for R&D in health technologies could be used for immediate purposes or for other kinds of investment. The optimal level and direction of R&D in health technologies from a societal point of view is achieved when there is no better way of using scarce resources, taking into account both present and future demands of a population.

In principle, no new health technology for which the willingness to pay is not great enough should be developed. By the same token, all new health technologies for which the willingness to pay is great enough should be developed. Willingness to pay represents other present and future consumption opportunities foregone by using resources for R&D in health technologies. To what extent do present health care systems create incentives for the optimal development of health technologies?

Technologies for health are developed for the world market, and hence for the leading markets in the world, notably the United States market, with other characteristics in terms of demography, incomes, preferences, etc. than, for instance, small countries such as Belgium and Sweden. Even though the regulation of health insurance in all countries may matter, the United States health care system has probably the greatest impact on R&D in health technologies.

Box 2. Too little R&D on vaccines?

The lack of incentives due to market failures is a reason why socially valuable health technologies may not be developed. Vaccines, for instance, have proved to be effective against several infectious diseases – the success of the smallpox vaccination programme, which has led to the eradication of the disease, is perhaps the best example of the potential of vaccines. There are fears now, however, that there is too little R&D today in order to produce new vaccines, especially against communicable diseases which are common in poor countries.

R&D on vaccines is a global public good. Efforts in one country to develop a new and more effective vaccine against tuberculosis will benefit many other countries too. Once a vaccine has been developed and R&D have been sunk into it, however, governments may be tempted to use their powers as regulators and major purchasers not to compensate the developer for his expenditure on R&D but only for the manufacturing costs. Thus potential developers will not invest in R&D without credible commitments that they will be paid, but on the other hand no single small country has an incentive to pay.

Traditionally, governments have financed both the basic research on vaccines and the later stages of development through grants to researchers, hence paying in advance of the development of the vaccine. The growth of the biotech industry and the increased availability of risk capital, however, has made it possible for researchers to get investors to finance R&D as long as a big enough market can be expected. So for the later, more applied stages of the development of a new vaccine, commitments in advance to pay (only) if a vaccine is actually developed have important advantages. It gives the researchers, pharmaceutical companies and investors strong incentives to focus on projects which have reasonable chances to yield a viable vaccine.

Mr James Wolfensohn, President of the World Bank, has made a proposal along these lines. He has suggested that the Bank should create a US \$1 billion vaccine purchase fund to help poor countries purchase specified vaccines if and when they are developed. The proposal has several advantages in comparison with alternative ways of rewarding the developers of vaccines. Extending patents on other pharmaceuticals would place the entire burden of financing R&D on vaccines on the people who need these other pharmaceuticals. Increasing the prices of already existing vaccines may not create sufficient incentives for new research.

Source: Kremer (5). Major progress has now been made by establishing the Global Fund to Fight AIDS, Tuberculosis and Malaria, and creating the Global Alliance for Vaccines and Immunization.

As emphasized above, there will be too little technological progress in a completely unregulated market. Such worries are solved, at least in principle, by granting patents. It has been suggested, however, that the regulation and design of health insurance may induce the development of new technologies for which unsubsidized consumers would not be willing to pay, hence creating a welfare loss to society. This would be the case if all other regulatory measures were designed in order to induce the optimal investment in new technology in an unsubsidized market. If, for instance, patent protection falls short of being optimal in that sense, there is not necessarily any welfare loss from a too rapid rate of innovation induced by insurance.

Some new technologies increase the expected health care cost for a specific patient, while others decrease it. The biologist Lewis Thomas (6) distinguishes three levels of health technology: (i) “non-technology” means that the disease is poorly understood; it involves reassuring and nursing patients with very little hope of recovery, for example the treatment of patients with intractable cancer; (ii) “half-way technology” adjusts to disease and postpones death, for example organ transplantations and the surgical treatment of cancer; (iii) “high technology” comes as a result of a genuine understanding of disease mechanisms, for example vaccines and antibiotics for bacterial infections. Generally, half-way technologies are more expensive than non-technologies and high technologies.

As explained in Module 5.3.1, the aim is cost-effective technology. Although the therapeutic value of new technology is becoming an important policy issue, policy-makers are still predominantly concerned with cost and expenditure. It seems to be common wisdom among health economists that most new technologies have increased rather than decreased expenditure. Thus, there seem to have been relatively more development of half-way technologies than high technologies. The reasons may be found in the cost-reimbursement insurance systems used until recently in the major world markets for health technologies, notably in the United States. In such systems there is little or no incentive for health care providers to avoid costly technologies that are only marginally effective, since the costs are paid retrospectively by insurance. This may have created a non-optimal development of health technologies from a societal perspective, both from the narrower American perspective and from a broader global perspective. In systems with prospective-pricing and cost-effectiveness evaluations, there should be incentives to bypass the development of half-way technologies. Thus, the regulation and design of health insurance will have influence not only the amount of R&D activities but also the direction and type of innovation which will be developed.

The economics of transfer and diffusion

New health technologies continue to be developed and adapted once they are introduced into the health care system. For example, a new surgical procedure may first be used by highly skilled surgeons working in tertiary referral centres. After a while it may be more widely used as more surgeons hear about it.

The spread, or transfer, of health technologies raises two efficiency concerns. First, as the technology spreads it may be used on a wider patient population. An assessment would need to be made, through economic evaluation (see Module 5.3.1), whether a broader range of indications for use could be justified on the grounds of cost-effectiveness.

Second, as a technology spreads it will be applied in different settings, where the availability of facilities and the skills of professionals and systems of organizing health care are different. It is therefore not clear whether the cost-effectiveness of the technology **as applied in the new setting** is the same as in the original one. Also, issues related to technology transfer may differ by type of technology. For example, the training requirements associated with acquiring a new surgical technology may be different from those needed to prescribe a new drug.

This part of the module deals with the second of these two efficiency concerns, which is particularly important in an international context. Namely, is a given technology, when transferred to a new setting, as cost-effective as in its original setting?

Factors affecting the cost-effectiveness of health technologies

Basic demography and epidemiology of disease

Countries differ in respect of the age structure of their populations and the incidence of various diseases. In some cases this will affect the cost-effectiveness of health care technologies and programmes,

Box 3. Cost-effectiveness of new health technologies

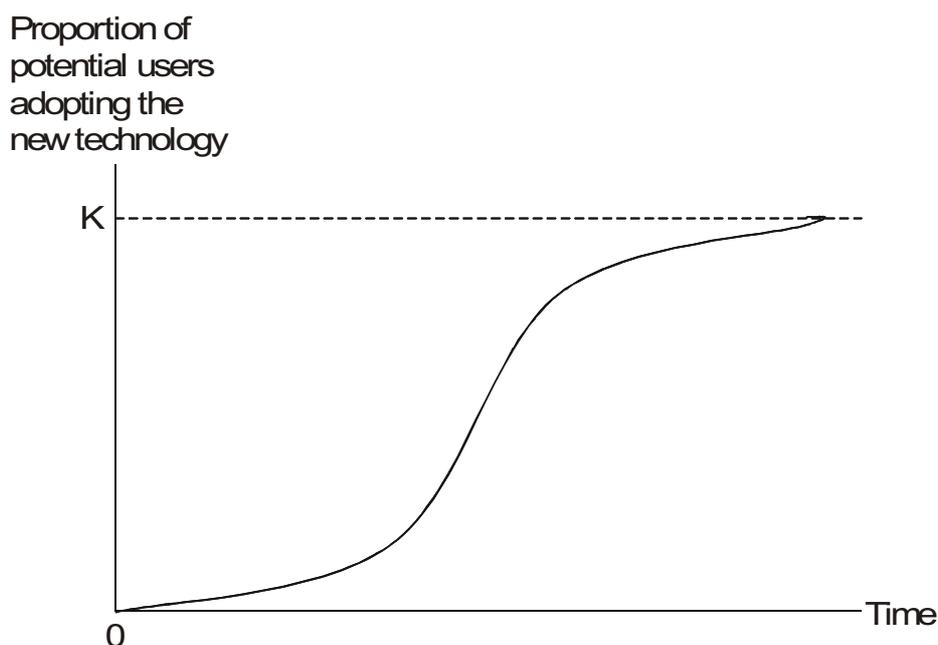
A new health technology is never automatically and simultaneously adopted by all who could use it or benefit from its use. Diffusion takes time and generally follows an S-shaped pattern (Fig. 1). The vertical axis measures the percentage of potential providers who have adopted the technology, while the horizontal axis measures the passage of time. Thus, adoption normally begins slowly but quickens. At some point, the percentage continues to increase but at a decreasing rate. The share of providers asymptotically approaches 100% by the passage of time.

Why do some providers adopt a new technology more or less immediately it is available, while others wait? One explanation is that it is seldom totally obvious whether early adoption or waiting is the best strategy, since the costs and benefits of using a new technology in practice could never be known with complete certainty in advance. Thus, while waiting means that individuals cannot benefit from the new technology (which represents a welfare loss to them), early adoption can be risky in that some serious adverse effect (undetected in clinical trials) may occur. So, there are two types of error that a provider can make: to introduce a new technology too early or too late. The degree of risk aversion may thus be one explanatory factor.

Other factors determining the rate of adoption may be whether or not the new technology (i) requires a greater investment, (ii) has an impact on the organizational setting, (iii) requires a change in the skills of the provider's staff, or (iv) implies a shift of expenditure from the public budget to the patient's pocket or from the private to the public sector.

Not all new health technologies follow exactly the same S-shaped pattern. Some technologies are diffused more quickly than others. Often the diffusion process is interrupted before all the potential adopters are reached. Still newer technologies may be introduced that will compete with the recently introduced one. Thus, an increase in the percentage of adopters will sooner or later be followed by a decline. Some technologies will survive, however, while others will leave the market completely.

Fig. 1. The diffusion of a new health technology



particularly those delivered on a population basis. For example, immunization or screening programmes and for the treatment of disease are likely to be more cost-effective in populations where the incidence of the disease in question is high. Differences in age structures between countries are likely to lead to different levels of incidence in various countries and hence the size of the overall economic burden. The cost-effectiveness of treatment is also likely to vary by patients' characteristics, including age, lifestyle and medical history. Therefore, when discussing the cost-effectiveness of health care treatments and programmes, it is important to specify the patient population to which any statements apply.

Availability of health care resources and variations in clinical practice

Countries differ in respect of the range of treatments and health care facilities available to their populations. In the case of treatment for ulcer, the availability of surgery could vary from place to place. In some countries with national health care systems, such as Sweden and the United Kingdom, there is rationing with waiting lists for hospital admission. The availability of important diagnostic facilities, such as endoscopy, could also vary from one location to another. In turn, the availability of resources may affect the way medicine is practised. For example, if there are long waiting times for endoscopy, a clinician may try a therapeutic dose of a drug for a patient experiencing ulcer-type pain without waiting to confirm the diagnosis. Another difference between countries, more directly related to drug therapy, is the range of licensed products and availability of generics.

Although clinical practice is partly constrained by the available alternatives, it is known that practice varies among clinicians in the same geographical area facing essentially the same range of treatment options (7). To the extent that clinical practice varies systematically between countries, this is likely to affect the relative cost-effectiveness of health technologies.

Box 4. The diffusion of health technologies to older age groups

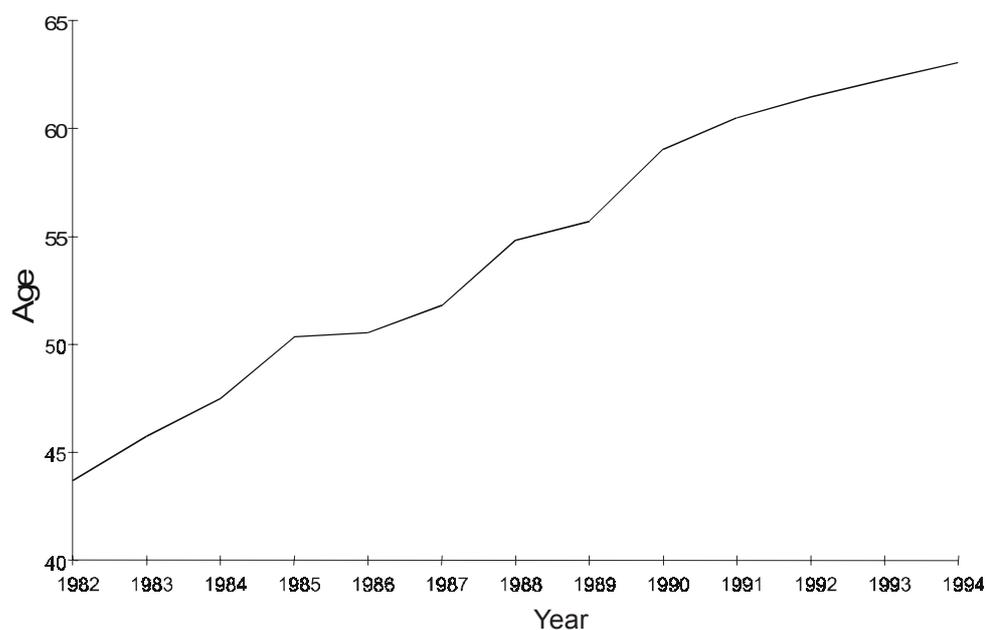
Once developed, new health technologies will be diffused. They can be spread across countries, to new health care settings and to new patient groups. Thus, the application of a new technology may initially be implicitly (or explicitly) restricted to individuals within a specific age span, which may gradually be extended to older (and/or younger) patients.

The rationale for restricting the access to new health technologies is often resource constraints in combination with limited or uncertain health gains to individuals above or below a particular age. One explanation why access to new health technologies is usually extended to older (and younger) patients is the fact that health care resources have increased over time. Another is the gradual improvement of technologies that increase the expected health gains from treatment. Diffusion across ages of an existing technology can have a substantial impact on per capita health care expenditure among the oldest people.

Uraemia is a disease which may affect only a small proportion of the population but still represents a significant share of health care costs. The two preferred treatments are kidney transplantation and/or dialysis. Dialysis is the process of removing blood from a patient, purifying and returning it to the patient's bloodstream. Even though the technology of kidney transplantation is fully known, the availability of this alternative is strictly constrained by the supply of organ donors; in some countries there is a waiting time of 2–3 years and greater use of dialysis than is desirable.

In Sweden, for instance, dialysis became common in the early 1960s and the first kidney transplantation was performed in 1964. Fig. 2 shows clearly how the use of dialysis was diffused among older age groups in Sweden between 1982 and 1994 (together with an increase in the total number of new patients taking up dialysis each year). The age structure for kidney transplantations, however, was more or less constant during the same time-period. Here, diffusion was obviously prohibited by the limited access to organ transplants; the total number of transplantations per year were roughly the same.

Source: Nystedt (8).

Fig. 2. Mean age of new patients on dialysis in Sweden, 1982–1994

Incentives to health care professionals and institutions

In some health care systems the level of remuneration of health care professionals and institutions is largely independent of the level of service delivered. For example, hospitals are given a global budget and physicians are paid by salary. In other systems physicians are paid by fee per item of service and hospitals are reimbursed by the number of cases in each category treated.

It has often been suggested that physicians operating under a fee-for-service system are more likely to generate extra demand for their services, whereas those paid by salary or capitation are more likely to deter demand. This may affect the number of visits to a physician by and diagnostic tests carried out for a patient suffering from (say) ulcer-type pain.

In the case of hospital treatment for ulcer, the method of reimbursement could affect which services are delivered on an outpatient basis and the length of stay for inpatients. A hospital being paid a fixed amount for treating a given case has more incentives to free the bed for the next patient than a hospital being funded through a global budget.

Relative prices or costs

It is well known that absolute price levels vary between countries. However, from the point of view of cost-effectiveness assessments, the critical issue is whether the *relative* prices of health care resources differ. Most obviously, if the relative prices of the main drugs for a given condition differ between countries, then their relative cost-effectiveness will differ.

Perhaps less obvious is the fact that the relative cost-effectiveness of drugs will differ if the relative prices of *other* health care resources differs between countries. For example, a drug with greater efficacy, a better side-effect profile, or a more convenient route of administration, will appear to be better value for money in a country where the costs of investigations, hospitalizations, surgery and visits to the physician are relatively higher, since consumption of these items is likely to be reduced. For example, Hull et al. (9) found that the relative price of venography (a diagnostic test for deep-vein thrombosis – DVT) differed between the United States and Canada. This affected the relative

cost-effectiveness of alternative diagnostic strategies for DVT in the two countries and would also affect the estimates of the value for money of drugs to prevent DVT.

Ways of adapting economic evaluation results

An analyst seeking to adapt the results of economic evaluation from one setting to another could be faced with one of three situations. First, only clinical data may have been collected in the clinical trials and there might be a need to produce economic evaluations for more than one country or setting. The only option in this case would be to undertake a modelling study, where the clinical data are combined with cost (and possibly quality of life) data from a number of sources (e.g. routinely available statistics or free-standing cost studies).

Second, economic data (e.g. quantities of resource use) may have been collected alongside a clinical trial undertaken in one country, but economic evaluations be required for other settings. In this situation a modelling study using only the clinical data could be undertaken, as above. Alternatively, the resource use data could be adapted in some way in order to make them relevant to another setting.

Third, economic data may have been collected alongside a multinational clinical trial and economic evaluations be required for all the countries enrolling patients in the trial. Here the analyst has a number of options for using the resource use data. Either they can be pooled, as is common for the clinical data, and priced separately for each country. Alternatively, the resource use data for patients from each country could be analysed separately and then priced for each country as above. In this case the analysts would also have the option of calculating cost-effectiveness ratios for each country using the pooled clinical results or the individual results for each country.

Questions for discussion

1. Identify three examples each of (a) non-technologies, (b) half-way technologies and (c) high technologies among the health technologies available in your country.
2. Name five health technologies that have been introduced in recent years in your country. Where were they developed?
3. Name five health technologies that have disappeared during the last few years and that are no longer in use.
4. Explain why these changes have taken place. Have they been appropriate? To what extent have they been the results of deliberate decisions, including economic evaluations of new versus old technologies?
5. Is there a lack of “high” (and “half-way”) health technologies in your country? In which areas?
6. Why have not “high” (or “half-way”) technologies been introduced to a larger degree? Are they not available in the world market – if so, why? Or has introduction been inhibited by domestic factors?
7. How could incentives be improved to develop “high” (or “half-way”) health technologies in areas where they are missing?
8. Creating incentives for the development of new health technologies may be a different policy from creating incentives for using existing health technologies efficiently. The former is primarily an issue for industrial policy (but with important indirect consequences for the conditions for health policy-making), whereas the latter is primarily an issue for health and health care policy (but with potential repercussions on the conditions for R&D). Discuss whether this is a dilemma

or not. To what extent would your answer depend on whether your country is small or big and whether there is an industry with significant R&D in health technologies in your country? (Is your country a free-rider in the world market when it comes to the development of new health technologies?)

9. Describe some examples of the diffusion of new health technologies in your country, including different settings and across age groups.
10. Why do some providers adopt before others? Which types of technology would you expect to be adopted most quickly (and which most slowly)? What factors can increase (or decrease) the rate of diffusion?
11. At what stage of the development and diffusion processes should an economic evaluation of the new health technology be made?
12. Give some examples of technologies that have been introduced but later shown no effects on health or even serious adverse reactions. Could such negative events be avoided? How?
13. What has been the impact so far from information technology on the health sector in your country? What potential for its use would you expect in the future?

Exercise 1. Using modelling to adapt economic evaluation results from one setting to another

This exercise is based on the study by Drummond et al. (10) of misoprostol, a drug for prophylaxis of gastric ulcers in patients on long-term non-steroidal anti-inflammatory drugs experiencing abdominal pain. A clinical trial, undertaken in the United States, had shown that patients given misoprostol (400µg daily) for 3 months had a lower rate of endoscopically determined lesions than those receiving placebo (5.6% versus 21.7%). With a higher dose of 800µg daily the rate of lesions fell to 1.7%.

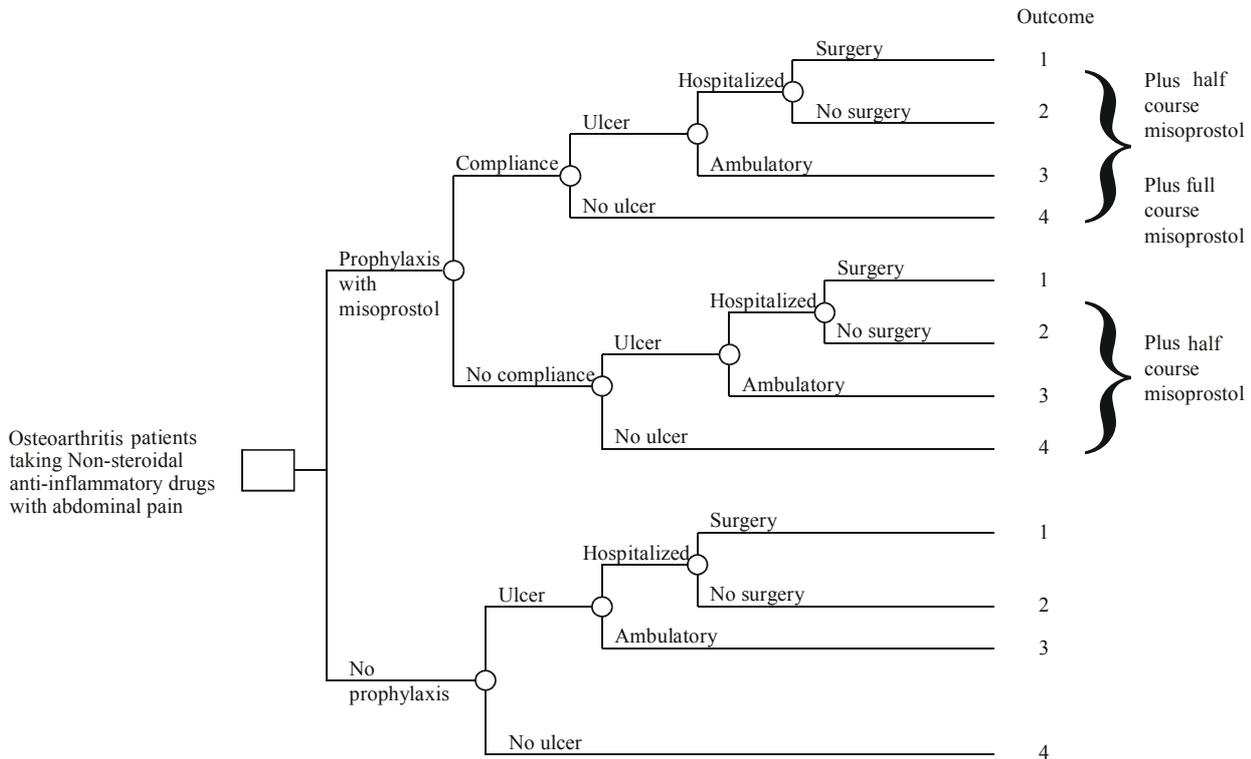
Apart from conferring clinical benefits, a lower rate of gastric lesions is likely to generate economic benefits: if fewer patients have lesions it is likely that fewer will require diagnostic work-up for suspected ulcer and few will require treatment in ambulatory care or in hospital. An economic evaluation can, therefore, assess whether these potential savings in resources justify the costs of adding misoprostol.

The influence on cost-effectiveness of setting (e.g. your country versus the United States or the United Kingdom, respectively) can be explored by using the decision tree given in Fig. 3. (See Module 5.4.1 on Modelling for more discussion of decision tree models.) The data required to populate the model for the United States and the United Kingdom are given in Table 1.

Table 1. Data for the decision-tree model

Variable	Value for United States	Value for United Kingdom
Cost of misoprostol for three months prophylaxis (400µg daily)	US \$160	\$120
Probability of patient complying with prophylaxis	0.6%	0.6%
Probability of ulcer (adjusted for silent ulcer) with prophylaxis	0.034%	0.034%
Probability of ulcer (adjusted for silent ulcer) without prophylaxis	0.130%	0.130%
Probability of patient with ulcer being hospitalized	0.086%	0.053%
Probability of hospitalized patient being given surgery	0.12%	0.43%
Cost of ambulatory care for ulcer	US \$901	US \$540
Cost of medical hospital care for ulcer (i.e. no surgery)	US \$3 450	US \$155
Cost of surgical hospital care for ulcer	US \$15 700	US \$2 530

Fig. 3. Using a decision tree to adapt data from setting to setting



Source: Drummond, M.F. et al. Issues in the cross-national assessment of health technology (10).

- (a) Before making the calculation, speculate on whether misoprostol will be more cost-effective in your country than in the United States or the United Kingdom, giving your reasons why.
- (b) Calculate the expected costs or savings per patient for three months prophylaxis in the two countries.

In the decision tree, prophylaxis is compared with no prophylaxis. With no prophylaxis it was assumed that the ulcer rate approximated to that in the placebo group in the clinical trial, although an adjustment was made for the fact that around 40% of lesions discovered endoscopically will be “silent” (i.e. they will not bother the patient) and thus will not require costs in diagnostic work-up or therapy. In the treatment arm the non-compliers were also assigned the trial placebo ulcer rate. The difference in expected cost is driven by the clinical data, but the calculation in both arms requires data that were not gathered in the trial.

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4.4 Specific examples

4.4.1 Primary health care

Chris Buttanshaw⁹

Key messages

- Primary health care is a broad concept that covers both a way of organizing health care and a set of beliefs about the best way of improving health. It underpins HEALTH21, the health for all policy framework for the European Region approved by the WHO Regional Committee for Europe in 1998 (1,2).
- Primary health care includes care directed at both individuals and communities. There is thus an important public health component that must be taken into account when economic analyses are made.
- Primary health care interventions are often diffuse and difficult to evaluate with the empirical quantitative methods frequently used in health economics.
- Primary health care resources are mainly provided by informal care by individuals, families or the community. Economic and social analysis needs to recognize and build on this co-production.
- Primary health care has much to offer in terms of cost-effective interventions, but there are many factors that prevent these services being given the appropriate priority.
- Changing demography and social patterns pose special challenges to primary health care, especially in terms of long-term care and the care of older people.
- Strong primary health care both supports and requires healthy communities if it is to be successful.

Tutors' notes

This module covers the health economic aspects of primary health care. Many of these points have been touched on in earlier modules, and some of these are cross-referenced. The module is best used towards the end of the series, as it is helpful for students to have covered the generic health economic concepts. No specialist knowledge is assumed.

⁹ This module was prepared by Dr Chris Buttanshaw, Director of Strategic Development, North Staffordshire Combined Healthcare National Health Service Trust, United Kingdom (e-mail: chris.buttanshaw@nsch-tr.wmids.nhs.uk).

The module should be of interest to a wide audience including:

- policy-makers
- clinical staff
- managers in health and other public service settings.

The exercises are designed to be relevant to participants from different countries and backgrounds. Wherever possible it would be appropriate to tailor these by using local or topical scenarios. Each exercise is intended to be used in small groups. However, it might help if some of the exercises are worked up in advance by individual students.

Introduction

The concept of primary health care has been introduced in a number of other modules. This module is an integrated discussion of how the generic principles covered in other modules apply in primary health care. An understanding of this material will help in successfully applying the health for all approach.

The nature of primary health care

The concept of primary health care has been summarized in the Declaration of Alma-Ata (3) and these values are reflected in *HEALTH21: The health for all policy framework for the WHO European Region (I)*. The concept of primary health care straddles individual practice and public health. It looks not only at the health of individuals but also at the health of communities and populations. There is no simple definition of primary health care, but a good starting point is contained in the Declaration of Alma-Ata:

Essential care based on practical, scientifically sound, and socially acceptable methods and technology made universally accessible to individuals and families in the community through their full participation and at a cost that the community and country can afford to maintain at every stage of their development in the spirit of self-reliance and self-determination.

This is a very broad concept. The term is confused in some parts of Europe with primary medical services (e.g. general practitioners) and other health services, but these are only one component. The list of further reading includes other discussions of this matter.

The approach is a holistic one that recognizes that health systems need to understand health care not just in the context of the individual, but also in the context of the family and communities to which that person belongs. Primary health care involves not only the health sector, but other sectors such as education and housing as well. The next section emphasizes that health production is an output from all sectors, and that health planning needs to reflect this. It also reminds us that health is largely a function of factors other than health services. It makes the additional point that the health of local communities is directly affected by their ability to retain discretion and control of local services and facilities across all sectors.

Primary health care is often thought of as a term descriptive of organizations, defining them as separate from secondary and tertiary care. However, the primary health care concept should permeate

all services. For instance, a tertiary cardiac service can increase its primary health care content by carrying out more operations locally, or by ensuring that patients see the same staff at each visit, or by supporting local community rehabilitation programmes. The potential for confusion between primary health care thought of as organizational units, and primary health care as a concept to inform practice across the entire health care sector, is an important barrier to achieving system goals in many settings.

Role of informal care

In primary health care, the resources for delivering health are predominantly informal. Individuals provide most care for themselves, supported by family, friends or local communities. The role of paid professionals providing formal care is to support and supplement this. This is often referred to as **co-production**. At its simplest, a giver of care (e.g. a nurse) and a receiver of care are involved. However, neither party in this simple relationship is purely a giver or a receiver. The “receiver” will normally also be providing part of his or her own care, and the “giver” will be receiving a benefit in terms of his or her own personal role in the community as well as more conventional monetary and other rewards. Broadening this example, individuals, families, friends, communities and carers must be considered as both contributors to and potential beneficiaries from any caring activity. Of course this is true of any aspect of health care, but in primary health care these links within communities are of central importance.

An increase in the supply of formal care may either support or replace informal care. Formal care may increase **independence** and interdependence and thus the health of individuals and communities, or it may generate dependence and poorer health. There is thus a double risk: additional formal resources may add to the financing burden but simply replace an existing resource; and by increasing dependence, formal services may directly reduce individual and community health.

In terms of **quality**, formal and informal care will frequently differ. For example, informal care tends to be more accessible, often being available 24 hours a day, and there is continuity of care. Informal care and formal care may vary in quality; both may be poor or inadequate. Informal care may cause carers' health to deteriorate under the strains of giving care. It can become a source of abuse. Thus it is not a question of one approach being better than the other, but of the right balance in the local context.

There are wide variations in the role of informal care in different systems. These variations are supported by historical, cultural, political and social factors. Co-production is nearly always relevant in decision-making, whether at a policy, allocation or delivery level. However, it is very often neglected.

Exercise 1

This exercise is designed to develop participants' understanding both of the limitations of formal analysis of costs and benefits in a realistic situation and the knock-on effects for patients and carers of a change in formal care. The emphasis of the discussion would be different with different participants. Policy-makers could concentrate on how the political, social and cultural climates affected the role of informal care, and the effects on communities as well as individuals. Managers could concentrate on the technical and allocative decision-making process. Clinicians could concentrate on the outcomes for patients and carers of the different approaches, and how the care processes they design would differ to maximize benefits and minimize costs.

A health authority is considering changing the nature of rehabilitation for stroke. At present, older people with stroke are admitted to a large hospital for acute care and then for a lengthy period of rehabilitation. In the alternative model, patients would be admitted for a briefer period and then be discharged to their home, where a community-based therapy team would complete the rehabilitation process.

- (a) Considering the issues raised by co-production, what are the anticipated effects on costs and benefits of the proposed change? Who would bear the changed costs and benefits?
- (b) How easy would it be to compare the costs and benefits of the alternative approaches?
- (c) How would the specific social, cultural and political environments in your country affect such a decision?

The relevance of the primary health care concept as demography and social background changes

Changes in the demography and social norms in the WHO European Region will profoundly affect the delivery of health care. Different work patterns and an ageing population are changing the ability of communities to provide primary health care. These changes include:

- the decrease in family size and more women working outside the home
- the increased distance between where people work and live and more frequent job changes
- lower retirement ages and longer life expectancy
- the persisting or widening differential between female and male mortality
- changing expectations of who should provide care and how it should be funded.

All these factors affect the ability of individuals, families and communities to care for their own health. Set against these changes in the **capacity of the community** to care for its members, advances in care are enabling people to live longer, but with longer periods of poor health.

There have been suggestions that advances in technology would result in a “**compression of morbidity**.” In other words, that the proportion of life lived with significant ill health would not increase, or might even decrease, with increasing longevity. To date this aspiration has not been met. While there has been some success in delaying the onset of certain diseases (e.g. heart disease), there has nevertheless been an increase in older people’s needs for care. These are often complex, although there is the potential for advances to change this situation. For example, Alzheimer’s dementia is a major contributor to the care needs of older people. The prevalence of Alzheimer’s disease has been rising, both because of increasing age and because of survival time being lengthened by better care. Current research efforts are directed towards understanding the aetiology of this condition and blocking the pathological process responsible. If this were to succeed, there would be a dramatic health gain of particular importance in reducing health care needs. Such changes do occur, for example the reduction in the incidence of tuberculosis in the 1950s and 1960s. However, it seems likely that even with such important gains, the need for care will increase over the long term.

These considerations are causing health systems to review the way health care is financed and provided. On the finance side, there are debates about what types of care should be funded and how that funding should be raised (taxation, insurance or self-funding). On the provision side, the debate is about the balance between self-care, informal care from family, friends and unpaid volunteers, and formal paid care. In many countries, aspects of this care will be provided by different sectors or

bodies. For example, long-term care in mental health will involve important components of health, social security, housing and vocational care. This emphasizes the importance of an **intersectoral approach**, and the potential inefficiencies that can be generated by a sector-by-sector approach.

During demographic and system change the costs of long-term care may change and the funding burden even be shifted between generations. For instance, a reform that moved from a tax-funded service for long-term care of older people to one that was based on individual insurance would mean one generation paying both for the care of the current generation of older people (through tax) and having to save to pay for their own care in later years (through insurance premiums).

All analyses show that there is considerable capacity for health-promoting interventions to avoid morbidity and mortality and improve health. The point is correctly made that such interventions are often more efficient at generating good health than subsequent curative interventions. However, this is often translated into a reduced need for health care services in future. This may sometimes be true (for example, measles immunization reduces the incidence of measles encephalitis with its care needs), but generally is not. For example, interventions that reduce smoking levels, while clearly desirable and good for health, will not reduce care needs in the longer term. The onset of ill health may be postponed but will still occur, although over a longer life span. Plans need to be made for these consequences of better health, on the understanding that health gain does not necessarily equate to lower health costs.

However, over time, new technologies will result in extensions of morbidity. As an example, the introduction of insulin for diabetes has improved the health of a significant number of people. However, it has also greatly increased the costs of health care. Costs rise to maintain the treatment of diabetes itself, and to deal with conditions to which diabetics are prone, such as heart and kidney disease.

Because of its burden, severe and **enduring mental illness** needs special mention. All health care systems spend a significant proportion of their resources in this area, with schizophrenia in particular consuming an important proportion of total health and social care resources. In many countries, people with schizophrenia and people with learning disabilities (mental handicap), who would in the past have been placed in institutional care, are now living in community settings and their life expectancy has increased. The rationale for shifting such care to the community was that it would deliver an improved quality of life, albeit that experience has tended to show that this is at higher cost. Whether the promise of quality is delivered depends on the strength of the communities in which they live and on the appropriateness of the system for commissioning and monitoring their care. It is clear that such needs have taxed the community's capacity to care in many European countries.

Primary health care as an organizational concept

While primary health care is a description of an approach to care, it is also embedded in the organization of health services. How this works may vary from country to country, but there are certain features that are important from the standpoint of health economics.

For some or most secondary and tertiary care services, primary health care professionals act as **gatekeepers**. Different behaviour in primary health care can have profound effects on the distribution of costs and benefits. For example, decisions to refer patients with angina (chest pain) can have major consequences for the demand for secondary and tertiary cardiac services and for the equity with which such resources are used. Both effects, on demand and on equity, are important.

Primary health care practitioners operate in a complex environment in which many factors impinge on decision-making. These factors include:

- the public's and patients' expectations
- the practitioner's level of training and knowledge
- financial payment mechanisms and incentives
- the practitioner's toleration of uncertainty
- expert guidance
- marketing by providers (e.g. of pharmaceuticals)
- professional guidance on appropriate roles.

All these factors have been changing. Consider the effect of the internet on patients' expectations, or the regulation of pharmaceutical promotions. Health systems should actively consider these influences and put in place an appropriate framework with the aim of managing them to produce greater health benefits at lower costs (and monitor the equity of existing or proposed arrangements). However, the results of changes in these factors are not always correctly predicted. For example, increased training and knowledge may lead to increased referral, because more opportunities for tests and interventions are recognized, rather than decreased referral with more conditions being treated within primary health care. In either case it is important to consider whether the changes are appropriate or not.

In the case of **pharmaceuticals**, many governments try to influence the behaviour of physicians. Many, sometimes crude, incentives for lower prescribing costs have been introduced. However, low prescribing costs are not necessarily appropriate. There are areas such as antibiotic prescribing where physicians may over-prescribe, but there are areas such as asthma-preventing treatments which may be under-prescribed. The same argument applies to referral for secondary services. Effective interventions need to be carefully designed and should be informed by cost-effectiveness rather than cost-containment.

Given the complexities of intervening at the micro level, many countries are taking on board a more sophisticated approach in the concepts of managed care, and with it integrated care pathways. These more sophisticated approaches look at patient care across different settings and providers, and seek to apply evidence systematically in the routine management and monitoring of care. This **integrated approach** can work with all the above influences simultaneously. Such approaches will profoundly affect the microeconomic environment for health care providers. There is good evidence to suggest that they can make systems more efficient and more effective.

The organization of primary health care differs across Europe. It is growing in complexity with doctors, nurses, therapists, social workers and others needing to work together effectively as a team. Care is being delivered in many different settings, including people's homes, schools, workplaces and clinics. This varied practice requires an **appropriate infrastructure**, both as regards buildings and facilities and, just as importantly, in terms of information systems.

The nature of illness in ageing populations means that most resources are directed at people with multiple problems, many of them chronic in nature. No one specialist, indeed no one sector, completely meets their needs. Much poor quality care results from a lack of communication and coordination. It is an important task of primary health care to address this need for coordination. How this is achieved will vary from system to system, but at a policy level it is an important means of increasing efficiency in the use of scarce resources and the quality of care.

The generation of inequity in primary health care is more complex. Indeed **equity** itself has a number of dimensions, as has been discussed in Module 3.2.1. Primary health care resources are distributed more evenly than those for secondary or tertiary care. Therefore factors such as distance to a specialist centre will not be as important. However, important inequities can arise in primary health care; and primary health care can affect equity in the use of secondary and tertiary care. For example, research in the United Kingdom has shown that socioeconomic factors influence the length of consultations in primary health care, and there is evidence that referral for angioplasty is influenced by proximity to the treatment centre (4).

In the light of the pivotal role that primary health care plays, some systems have developed reforms where primary health care practitioners (usually general practitioners) have greater control over how resources are used in secondary and tertiary care. Two of the best-known examples come from the United Kingdom in fundholding (which has been abolished) and primary health care trusts (which are currently being formed). Groves (5) talks about these changes.

Values, benefits and resources in primary health care

In a rational world, assisted by economic theory, decisions can be made about resource use based on the expected benefits. Economics provides us with a number of analysis paradigms, including those covered in Module 5.3.1, when discussing economic evaluation. These techniques are most effective when an intervention can be clearly defined, when it can be costed, when the outcomes can be measured, and when specific research findings can be generalized to a range of settings.

In primary health care, each of these four requirements is likely to cause difficulties. Interventions are often difficult to standardize; costs are difficult to define and ascertain and may vary considerably; outcomes are often diffuse, uncertain in terms of timing, and involve wider effects than just the patient; and there can be wide variations between different primary health care settings, so that results may be difficult to generalize. Of course, none of these points is unique to primary health care, but they are particularly complex and important here.

Exercise 2

This exercise is designed to develop understanding that lack of evidence is not necessarily evidence of lack of effectiveness. In the discussion, two points should be brought out: the difficulties of obtaining hard (e.g. randomized controlled trial) evidence for some parts of health care; and the danger that with the newer evidence-based initiatives (such as the United Kingdom's National Institute for Clinical Effectiveness), resources are allocated to areas with hard evidence and not necessarily to those areas where the needs are greatest.

Decision-makers in a health district are being asked to rate the relative priority of increasing the number of coronary angioplasties undertaken for heart disease and improving occupational therapy services for people with a learning disability. There is extensive published evidence concerning angioplasties including many randomized controlled trials. The literature for occupational therapy is less extensive.

- (d) How would this difference in the available evidence disadvantage occupational therapy in allocation decisions?
- (e) How could such a disadvantage be avoided?

Other modules have discussed the vexed question of **value**. Much economic analysis relies on measuring the benefits of a specific intervention and then applying some sort of analysis to allow comparison and decision-making based on a utilitarian model. In other words, the analyst seeks to identify how to use resources to achieve the greatest good for the greatest number. However, it is known that, in day-to-day life, people do not think and act in this way. They hold a series of values, which influence decisions and outcomes. Thus a utilitarian conclusion about the use of, say, a new and expensive cancer drug, may well differ from the decision that an individual or community will make. Health economics can inform decision-makers, but not take the decision.

Economic evaluations of secondary care interventions often look at the effects of a specific one-off event in isolation. The marginal costs and benefits of that intervention are then examined. But primary health care is not, in the first instance, about discrete interventions for ill health. It is about life and the **quality of life** as a whole. It is about frequent, sometimes continuous, interventions occurring in the life-span context. The individual's life span is framed by those of family, friends and community.

This highlights the problem of applying marginal analysis to what is appropriate at any given time, because there is a danger of losing the health and quality of life for individuals as a whole. Average health ceases to matter; only added longevity is a benefit. One consequence of this is that death can never be healthy. Death becomes the inability to squeeze additional life out of an individual at an acceptable cost. In other words, death is a failure.

One way of avoiding this paradox is to look at health across the whole life, and ask whether a particular intervention would make a significant difference to the average health of an individual across his or her life span. Neither approach is exclusive of the other, although marginal analysis tends to predominate in all health sectors. However, primary health care decision-making is more likely to draw on a whole life analysis than secondary or tertiary care. The decision-making of individuals, communities and professionals is influenced by these considerations. Warren et al. (6) explore these issues in more detail.

Exercise 3

This exercise is about thinking through values, and how people in real life think about and talk about benefits. Participants should draw out potential differences between the professional's, the individual patient's, and society's points of view, and discuss which view is predominant. For a more technical discussion, they might like to read Tsuchiya (7).

Consider the following scenario: a 70-year-old person presents to his/her doctor with incurable cancer. Treatment with a toxic course of chemotherapy and radiation adds an average six months to life. Without treatment, average life expectancy is four months. End-of-life symptoms are the same with or without treatment (in other words, the final course of the illness is neither better nor worse with treatment). Treatment is unpleasant, may cause complications and involves periods in hospital. It lasts for three months. Treatment accelerates death in 10% of cases.

- (a) Does analysis of marginal benefits differ from a whole-life benefits approach?
- (b) Is this of any practical consequence?
- (c) How important are any differences between whole-life and marginal approaches in the real world?

Community involvement

The concept of communities is at the heart of primary health care. Communities can be of many sorts. They are not just geographical but can include any group joined by a common interest. For most of us, good health includes a sense of belonging and the opportunity to participate in communities.

In many systems the burden of financing health care has become divorced from the consumption of health care. These issues were discussed in Chapter 3. If there is no payment at the point of use, and there is no direct financial consequence for a local community from consuming greater resources, then there will be an incentive to over-consume. If, in addition, expenditures in different sectors are ring-fenced and cannot be applied flexibly to achieve the greatest efficiency, then significant technical and allocative inefficiencies are likely to occur. In such situations, it is difficult to engage local communities in **decision-making processes**.

Primary health care advocates that there should be effective decision-making power vested in local communities and that their ability to exercise this power should extend across sectors. For example, a programme to help young people misusing drugs should be able to use resources flexibly across health, law enforcement, education, social services and other sectors. The means by which this happens will vary, but action can be taken both at a policy and legislative level, and at a local district level. In another example, one of the key determinants of health for older people is a feeling of security in their own community and home. Efficient systems would ensure that resources could be applied flexibly, if necessary between sectors, to meet this need. Such approaches may significantly change resource allocation decisions.

Effective means are required to involve local communities in the decision-making process. How such involvement occurs will depend very much on the specific setting. It may be through legislatively determined democratic structures, or through other means. Such participation can build the health of communities as well as contribute to specific decisions on the allocation of resources. In many areas, communities are caught in a catch 22 position. If there is no meaningful involvement in local decision-making, people do not participate. If people do not participate then there can be no process of meaningful involvement. Decision-making can easily become dominated by special interest groups.

As discussed in Chapter 3, the chief health care resource is **informal care**, provided within communities themselves. The capacity of communities to continue to provide this care is crucial, particularly for long-term care. Older people, when asked for their preferences, are consistent in their responses. They want to receive the necessary care the same as anyone else. They want to stay in their own home if at all possible. If they have to move, they want to stay as close to their home as possible and maintain their social networks.

This presents a challenge to society. It is always possible to maintain someone at home; it just becomes increasingly resource-intensive with **increasing dependence**. The demand for such care will rise with the increasing number of old people and the increase in their length of life with significant morbidities. The ability to meet this demand will depend on the social policies adopted, which will, in turn, affect the need to finance formal care and the ability to meet older (and other) people's preferences.

Throughout this module, the importance of **public expectations** is emphasized. In other modules the concept of consumer sovereignty is discussed. Public expectations work at many levels, and in very particular ways because of the asymmetry in knowledge between the consumer and the provider. Some examples of beliefs and expectations that may be widely held are:

- a sick person should see a doctor rather than a nurse
- an antibiotic should be prescribed for a cough
- specialists know more and give better treatment than generalists
- screening programmes should never give false negatives (e.g. for cervical cancer)
- doctors know best
- big acute hospitals give better care than local community hospitals
- back pain has a mechanical cause
- experts keep changing their advice on what is a healthy diet.

Of course, some of these beliefs and expectations may be true, or at least true in some contexts. But the point being emphasized is that where there is an asymmetry in knowledge about the need for treatment and the quality of that treatment, these expectations have special significance. In general, they run against the development of primary health care and overestimate the potential for clinical services to improve health. There are complex interactions between these expectations, the political processes and the media that are beyond the scope of this module. However, a reasonable conclusion is that whether it is at the individual level (e.g. prescribing of antibiotics), the district allocation level (e.g. big hospitals are better than small), or national policy level (e.g. experts keep changing dietary advice), these factors are of central importance to the efficiency and effectiveness of health systems.

Public health and primary health care

In this and other modules, examples of public health-type interventions have been discussed. Such interventions often score highly on cost–effectiveness analysis but may well involve sectors other than health. Examples given have included seat belt legislation (little health sector involvement), smoking (important component from the health sector as well as other sectors), and immunization (mostly the health sector). The need to consider health production in an integrated way across all sectors has been emphasized.

But there is a second more difficult dimension. This concerns the **orientation of health sector staff**. Traditionally, doctors and other health care staff have understood their roles in terms of a one-to-one relationship with patients. In all systems, this conception is supported by many factors, for instance ethical codes and public expectations. But there is a parallel component of clinical practice that has public health objectives.

This is most simply seen in the case of immunization. In many countries, family doctors are involved in the administration of immunizations, and in so far as an individual patient has the capacity to benefit from immunization (for instance against rubella), this can be regarded as an individual-based decision. But population coverage rates for such an immunization are crucial to its effectiveness, and immunization programmes attempt to protect through herd immunity as well as individual immunity. A dual goal of individual benefit and population benefit is, therefore, being pursued. In the case of rubella, the immediate benefits of immunization are not to the individual, but to the unborn children who might be infected during pregnancy if wild rubella virus circulates. Sometimes the advice given by clinicians immunizing a child is coloured by these differing objectives, but since the individual interest and the public interest usually coincide in immunization, it is rarely a problem.

But the public health aspects of clinical practice can be much more problematic, particularly when the **opportunity cost concept** is applied. Clinicians must ration their time between the competing

demands of patients. Time spent with one is often at the expense of time with another. Using resources for prescribing for one patient, or referring to secondary care, will limit the resources available to other patients. In some systems, this may be very immediate. For example, there may be a limit on the total cost that will be financed by the state for that doctor. In other circumstances the links may be more distant, for example that an overrun on the country's expenditure on drugs leads to restrictions on some service or another. But however it operates, opportunity cost is always pitting one benefit against another.

The important point here is that an open understanding and acknowledgement of responsibility for these wider public health consequences of individual clinical practice is likely to lead to a more efficient system and better health outcomes. Such understanding is in part a function of training and knowledge, but it is also deeply dependent on social and cultural factors that may be difficult or slow to change. However, the issue should be acknowledged, and appropriate action taken in the differing local contexts throughout the European Region of WHO.

Shifting the health care balance

Since HEALTH21 is focused on primary health care, the question arises of how the balance can be tipped towards such care. The promotion of the primary health care concept is not new. Yet, despite more than 50 years work, health care systems still invest predominantly in secondary and tertiary care. Many commentators have noted that much health care is either of unproven benefit or is known to be ineffective.

Powerful forces maintain this pattern, and understanding is required of the practical means by which change can be achieved. In this and other modules, many factors have been identified that militate against shifting the balance. These include:

- the poorly defined nature of interventions in primary health care
- the higher esteem in which specialists are held
- the invisibility of much primary health care
- the sometimes long intervals between interventions and benefits (e.g. health promotion)
- the loss of the personal interest factor in public health-type interventions
- the drama of high technology intervention in secondary and tertiary care.

So what are the opportunities for implementing this shift towards a greater emphasis on primary health care envisaged in HEALTH21? The shift is not a matter of taking from one sector and giving to another (which is unlikely to succeed), but a **reorientation** of the whole system to primary health care. Clearly primary health care is not a good in itself. It has to be justified on the basis of better health production. This will result either from lower costs than the alternatives or increased effectiveness, or both. Where it has been possible to estimate the cost–effectiveness of primary health care interventions, primary health care often looks attractive. Tables of cost per quality-adjusted life year, such as those given in the discussion of economic evaluation, show low cost per quality-adjusted life year. However, for many potential interventions, adequate economic analyses are still not available.

Two important areas where a shift has been occurring in many countries are day surgery and community care. The move to undertake many traditional inpatient surgical procedures as outpatient procedures has lowered unit costs, at least in the health service, but is equally effective. Indeed the move of such services towards primary health care probably delivers additional benefits. Moves from

residential to community-based care for those with learning disabilities (mental handicap) and long-term mental health problems have, usually, been able to demonstrate benefits for the individuals involved, although good quality has generally meant increased total costs.

Some other examples (but not a comprehensive list) of areas in Europe where the potential to develop primary health care has been recognized are:

- improved rehabilitation services enabling more people to go home rather than to institutional care;
- intermediate care inpatient facilities (such as community hospitals);
- more community-based palliative and terminal care services;
- increased use of telemedicine to aid diagnosis and primary health care management;
- managed care, often nurse-led, for chronic conditions such as diabetes and epilepsy;
- effective primary and secondary prevention, for example, in relation to high blood pressure and in aspirin prophylaxis after a heart attack;
- early supported discharge after acute and elective admissions.

The human capital approach was discussed in Chapter 2. While major illness and disability can have a large impact on individuals' health, such conditions are not common in the population. On the other hand, a great deal of ill health is related to **common chronic conditions** that are chiefly seen in primary health care. Some examples are: low back pain, anxiety and depression, and stress. These conditions not only result in poorer health for the individual, but (through work absence) have major costs for the economy in lost production. Such conditions commonly present to primary medical care, but the responses needed are varied and often involve other sectors. Alleviating the associated ill health requires an integrated approach that may include components of clinical treatment, but should also include a society-wide approach to prevention. So the potential is there, but realizing it is not straightforward.

However, the balance is only likely to tip towards a greater emphasis on primary health care if there is effective management of resources across the entire health sector and proper appraisal of new technologies before their widespread use. In particular, the effects on informal care and the impact on local communities must be taken into account. While the practical issues may differ across the sectors, these decisions need to be made (and the case for primary health care supported) by sound arguments appropriately informed by economic analysis. The decision-making process needs to be participative, and the balance tipped from professional sovereignty to community and consumer sovereignty.

Exercise 4

This exercise is designed to bring out the intersectoral nature of health, and the importance of factors such as public belief (e.g. about the physical cause of back pain injury), income maintenance systems, litigation and legislation, and employers' practices. Participants should understand the massive health impact of back pain and how dysfunctional most systems are in dealing with the problem, either from the point of view of improving health or from the point of view of production in the wider economy. An additional point could be made about treatment for back pain (it was bed rest; now the advice is to keep active through the pain), and how this change of advice is affecting the understanding and behaviour of different actors (patients, professionals, employers, judges, etc.).

In the United Kingdom, expenditure on diagnostic and treatment services for chronic back pain has increased. Yet over the last twenty years, the number of workdays lost has also increased markedly.

There is no evidence that there has been any increase in back injuries or in any disease of the spine to explain this.

- (f) What might be the causes of this increase in workdays lost?
- (g) What steps should a health district consider taking to improve health in this area?

In the specific context of one country's systems, consider how arrangements for working across different sectors help or hinder an integrated approach to implementing a strategy for reducing ill health in this area (or others).

Ageing and health care provision

This module has touched on a number of issues specifically related to ageing. These include:

- the importance of informal care
- the ageing demographic profile
- changing capacities in communities to provide informal care
- morbidity and complex health care needs later in life
- changing dependence ratios.

This section covers some specific issues that are important in health care provision for older people, which is an increasingly significant area in the WHO European Region.

Health promotion and prevention are often thought of in relation to children or younger people. However, it is important to realize that some health-promoting interventions are actually more effective in old age. Thus there is evidence that old people were being denied treatment with thrombolytics (clot-busting drugs) after a myocardial infarction (heart attack), although the evidence shows that such interventions are actually more cost-effective in older people because of their higher absolute risk of death and complications following a heart attack (11). In general, **preventive interventions** for older people have a quicker pay off (e.g. programmes to prevent falls) and a greater absolute benefit because of the greater risk of the adverse event occurring. It is important for health systems to recognize these opportunities for improving health.

In the older age groups, health care needs are more often multiple and long-term, and straightforward conditions more frequently become complicated. This is a challenge to the organization of health care and requires more complex systems to support care adequately. Older people need access both to the best specialist care (and often a number of different specialist areas at the same time), and to good general support and care. Few health systems would claim excellence in meeting this challenge, which often gives rise to significant inefficiencies.

In responding to this challenge health systems have generally come to a number of conclusions:

- health care needs to be organized around the patient; this requires care management and the creation of care pathways;
- because many different individuals and organizations are contributing to care, communication is important; this requires increased expenditure on information systems and technologies;
- care requires coordination and cannot usually be left just to specialists; primary health care is, therefore, of particular importance as it provides the continuing generalist support.

Each health system will tackle these challenges differently. But there are a number of common features that arise.

The health sector is often working alongside a number of other sectors, particularly income support, social care and housing. Very often, there are separate ways of financing and providing care in the different sectors. Thus the funding of care in hospital may be different from that in a nursing home or at home. Or people at home may get free health care but have to pay for social care. Income support may be dependent on the setting in which a person lives. Where a system is fragmented, these “**boundary issues**” will create inefficiencies. For example, patients may stay in hospital (which is expensive), because services to meet social care or housing needs are not in place or are not funded. Different actors may try to shift costs. For example, social care providers may encourage admission of a person to an institution to avoid the costs of home care. These inefficiencies will be both in terms of additional costs and in terms of poorer quality of care (lower benefits). Avoiding these inefficiencies is both a matter of good planning and design of the health and social care system, and good protocols and working arrangements for the staff who are actually providing care.

Informal care plays a larger role in the care of older people, but there is commonly an **asymmetry** between men and women. Women, on average, live longer than men do. Therefore a man is more likely to have a partner who provides care in old age than is a woman. As discussed previously, changing social patterns will have dramatic effects on the availability of informal care. In many countries such care is supported by **voluntary** (unpaid) services, for example meals on wheels and community transport initiatives. Where informal care is strong, there is a lower reliance on institutional care. But the strength of informal care is determined by a host of factors, including the availability of formal care. Communities need to think carefully, therefore, about what type of care they want for their older people, and understand the complex interrelationships that support their current system and how interventions and secular trends will affect it.

In every system, there is a tension between the demands of secondary and tertiary care for resources to fund acute health care interventions, and primary health care, where the emphasis is on care rather than cure. This does not just concern revenue to run services, but capital to develop facilities, investment in training staff and approaches to patients. For example, if health care staff are trained in isolated specialties, and the status of generalists is perceived to be low, it will be difficult both to recruit suitable generalist staff and to ensure that specialist staff understand the importance of interdisciplinary working. Thus health care systems need to look at how they plan their health workforce, and how different disciplines are trained.

It is important to recognize the special issues that health care for older people raises. However, most older people are healthy and able and want to play a full role in society. Healthy societies will not treat older people’s health and welfare as something apart, but will ensure that they have both equitable access to health services and a **full role to play in life**.

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4.4.2 Citizens' participation, patients' rights and ethical frameworks

Manfred Wildner and Oliver Sangha¹⁰

Key messages

- Traditional economic theories of individual preferences do not adequately describe the demand in health care markets, which is also influenced by providers and public health interventions.
- A knowledge of theoretical frameworks of ethics and rights and strategies for their implementation is of great importance for health economists when they regulate or influence the market.
- Citizens' participation, patients' rights and consumers' rights will play an increasingly important role in medical practice as well as in the health care market in the twenty-first century. Strategies for the implementation of these concepts range from advocacy models over implicit legal reinforcement to explicit charters of health rights.
- Utilitarian frameworks of assessment such as cost–effectiveness analyses are likely to be supplemented increasingly by approaches that are sensitive to health rights in discussions about rationing and priority-setting. Standardized strategies to assess health outcomes from a rights-based perspective are likely to be developed.

Tutors' notes

This module is highly relevant to economic thinking in relation to health and health care, although the matters discussed are often not discussed in much detail in health economics textbooks or courses. Traditional economic theories of individual preferences do not describe at all adequately the full

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complexity of the demand in health care markets. A knowledge of theoretical frameworks concerning ethics and rights as well as strategies for their implementation is highly relevant for health economists as they can regulate and influence markets and the behaviour of participants on both the supply side and the demand side. It is probable that citizens' participation, patients' rights and consumers' rights will play an increasingly important role in medical practice and in other health and health care markets in the future.

The module is relevant to all four of the groups of potential users that have been identified for these learning materials. Knowledge of the relevant theoretical concepts, the available strategies for their implementation, the main implications, and their interaction with more traditional health economic approaches (such as economic evaluations) is relevant to the following.

- Very senior decision-makers: for example, in many European countries a high proportion of citizens are very or fairly dissatisfied with their health care systems, and it is likely that much of this dissatisfaction is related to how patients and citizens view their rights as being met (or not).
- Managers and health professionals, who are the key components of how the health and health care systems work in practice. To the extent that many citizens and patients are dissatisfied there is, at least, room for questioning current approaches and performance, and probably room for significant improvement.
- Members of various concerned public groups. These often represent the channels through which dissatisfaction is articulated, for example, protests by unions, discussions on television or radio programmes or in the print media, comments by consumer organizations, voluntary bodies or nongovernmental organizations. The various concerned public groups often represent some of the avenues through which improvements are sought, or participate in the fora (e.g. hospital boards) where broad ethical frameworks, the specific rights of citizens and patients and decisions about priorities in the use of scarce resources interact.

The module can be used at the three levels of *appreciation*, *appraisal* and *analysis*. In contrast to many of the other modules, the levels of appreciation and appraisal are equally relevant in relation to this module for each of the four main groups of potential users. Even analysis, broadly conceived, could be relevant to participants from each of the four groups of users.

Indeed, this may be a module where it is particularly important that participants from all groups address the difficult issues that are raised, even if they are initially rather reluctant to do so. The ethical frameworks are relevant to them all, even if their practical implications may sometimes be uncomfortable for policy-makers, practitioners and commentators. A health service that seeks to retain the confidence of its patients, its political constituency and its funders cannot afford to ignore the important issues which are raised in this module.

The four exercises are all related to consideration of a particular example, the planned introduction of genetic screening for breast cancer predisposition, but focus on four different aspects. The first exercise is concerned with different forms of accountability; the second with different aspects of patients' rights; the third with different aspects of ethics; and the fourth with the different issues which can arise for advocacy. Each of the exercises could be used by a single one of the four groups of potential users. However, they could also be used with a group which included members of the four different groups or the different stakeholders in health and health care. They could really be members of the different groups or assume these roles for the purpose of the exercise.

Introduction

The purpose of this module is to provide an overview of patients' rights, citizens' participation and ethical frameworks in respect to health care systems. In order to do so, the module offers background in two areas: firstly, it provides a brief introduction to theoretical concepts, which are important for the understanding of these relationships. Secondly, it analyses the strategic options to strengthen citizens' participation and patients' rights in health care.

The recent surge of the patients' and consumers' rights movement in Europe is strongly influenced by developments in the United States which arose in the 1970s from a combination of factors: a higher level of public education; a rising awareness of the dangers of medical technology; distrust of experts and a professional crisis in health care; the rise of consumerism; and the civil rights movement. It has been claimed that the era of the patient has begun. Table 1 shows the level of dissatisfaction (very or fairly dissatisfied) of citizens in several countries with their health care system (1).

Table 1. Level of dissatisfaction with health care systems (%)

Country	Percent dissatisfied	Country	Percent dissatisfied
Austria	4.7%	Italy	59.4%
Belgium	8.3%	Luxembourg	8.9%
Denmark	5.7%	Netherlands	17.4%
Finland	6.0%	Portugal	59.3%
France	14.6%	Spain	28.6%
Germany	10.9%	Sweden	14.2%
Greece	53.9%	United Kingdom	40.9%
Ireland	29.1%		

Source: Mossialos, E. Citizens' views on health systems in the 15 Member States of the European Union (1).

The term "citizen" needs to be analysed further. Many roles of citizens as individual lay persons can be distinguished in health care: patient, insured person, employed person, consumer, customer, user, client, taxpayer, voter, member of a self-help group, parent or guardian caring for a child, or child caring for a parent. The legitimate representation of their interests is claimed by several groups: consumer organizations, self-help groups, self-appointed patients' representations, sickness funds, political and professional organizations. They have diverse motivations: to assure market transparency and fair market competition or to achieve cost-cutting by informing consumers, to empower citizens and to strengthen consumers' rights, to advocate the needs of specific groups or to lobby professional interests.

From a neoclassical market perspective, demand for health services is determined by the decisions of individuals who spend health care money according to their preferences. However, demand in the health care sector is embedded in a complex system of financing, solidarity and accountability. Although demand for health services reacts flexibly to the resources available, there are differences from traditional markets: a surgical procedure is very different from a holiday trip, and patients may want to avoid this experience if possible. Provider-induced demand may play an important role in increasing the request

for health care services, while the availability of preventive services may lower the demand for specific services. “Regulatory” activities such as immunization, mass media campaigns, environmental sanitation or provision of clinicians’ or patients’ guidelines may have a marked influence on the delivery of specific services. Health rights may also be a factor in rationing and priority-setting.

It is, therefore, important to realize that the demand in the health care market is influenced not only by individual preferences but also by providers with a privileged level of information and specific interests and by population-wide public health measures. Accountability for health service delivery rests not only with economic market theories but also with aspects of health care legislation, professional conduct, public health, ethics and politics. It is evident that patients’ rights and consumers’ rights will gain importance in medical practice as well as in the health care market in the twenty-first century. A knowledge of theoretical frameworks of ethics and rights as well as strategies for their implementation is of great importance for health economists as they may serve to regulate or influence the market.

Theoretical concepts

Citizens’ participation

Among the many roles that can be assigned to citizens in health care systems, the traditional label “patient” reflects a special situation of the sick individual which is characterized by illness, functional impairment or disability and increased vulnerability. Impairment ranges from a limited rationality due to pain and anxiety over somatic and cognitive functional deficits to a complete loss of consciousness. The patient–doctor relationship in this context is characterized by the special need of the sick individual to be protected and is best described as a relationship of trust. The role labels “consumer”, “customer”, “user” or “client” reflect an economic point of view and require that the sick individual is acting as a rational agent. He or she therefore needs full information and a transparent market. The doctor–patient relationship is understood as a business relationship. Role labels such as “citizen”, “voter”, “taxpayer” or “insured” reflect a rights-based approach and make reference to democratic values and basic rights. The doctor–patient relationship is here characterized by a contractual model.

Citizens’ participation in the health care system is often discussed under the major headings freedom of choice, patients’ rights, the autonomy of the patient and political influence. Freedom of choice and the autonomy of the patient are fundamental principles of health care ethics and will be discussed in this section. Patients’ rights will be discussed later together with international human rights legislation. The quest for political influence of citizens on the health care sector at the systems level is the realization of a basic democratic right. The discussion of citizens’ participation in the health care system can be focused by distinguishing levels of accountability. “Accountability” defines who has to report to whom and who is able to reward or punish actions. In health care systems there are various forms of accountability – clinical accountability, ethical accountability, professional accountability, legal accountability, economic accountability and political accountability.

Clinical accountability is the accountability for providing the highest possible standard of care. Clinical quality assurance may be discussed as to structure, process or outcomes criteria. Citizens or patients may be involved through participation in councils deciding on budget allocation to health care infrastructure, staff levels, training or quality assurance programmes. Moreover, they may demand information on complication rates, case mix or the volume of certain procedures in a given institution.

Ethical accountability is the accountability for the patients' autonomy and integrity. Ethical boards supervising biomedical research or supporting difficult choices help to secure the citizens' interest. At the systems level, legal mechanisms may have to protect these interests, for instance forbidding "gag clauses" (information restriction) in managed care systems or providing legal redress in the case of infringement of rights.

Professional accountability requires the setting of minimum standards for professional accreditation in health care. This accountability often lies with professional organizations and accreditation councils. The undertaking to observe codes of conduct is frequently part of the accreditation. These codes of conduct may also incorporate citizens' views.

Legal accountability relates to the legal regulation of health care financing and provision and may take place at national, regional or community level according to the constitutional provisions. Democratic procedures should assure citizens' representation.

Economic accountability relates to the efficient allocation of limited resources. There is considerable variation in practical resource allocation, as demonstrated by the variety of health care systems internationally and nationally. This variation reflects different priorities and political frameworks. Boards of overseers or councils deciding on resource allocation are entry points for the participation of citizens.

Political accountability relates health care decisions to the government and to society in a broader sense. In democratic states this means accountability to the citizens. It limits the influence of payers or providers on agenda-setting in health care. Citizens' participation in political issues may be more or less explicit, according to the political system in place.

The relative weighting of the various forms of accountability differs between countries. Tax-financed health care systems, as in the Sweden or the United Kingdom, emphasize the political accountability of health care decisions and also the professional accountability (e.g. delegating responsibilities to professional organizations). Market-oriented health care systems, as in the United States, put more emphasis on economic and legal accountability, as the health care market is regulated by a legal framework. Bismarck-type health care systems, as in Austria or Germany, prioritize professional and economic accountability in the framework of self-governance.

Exercise 1

Discuss the issue of introducing genetic screening for breast cancer predisposition under different forms of accountability. Each participant may choose a specific aspect of accountability.

Patients' rights

Patients' rights have become a high priority in health politics. The need for the development of patients' rights emanates from a new role that informed patients want to play, stemming from scientific, ethical and moral concern, and the human rights movement in health care, including experience with (mis)managed care. Patients' rights as **health rights** can be linked to human rights legislation, for example the Universal Declaration of Human Rights, the International Covenant on Social, Political and Cultural Rights, the European Social Charter or the European Charter of Fundamental Rights (<http://www.europarl.eu.int/charter/>, accessed 6 November 2002). Article 3 of the last-named affirms the right of informed consent, article 34 the right of access to social security and article 35 the right to preventive measures and health care at a high level, and article 38 protects consumer rights.

The “right to health” is often not explicitly specified in identifiable and legally binding obligations. Health and human rights as interlinked concepts, however, are a promising new avenue of practical and scientific progress in public health. The articles of international human rights documents follow four human rights principles: equity, dignity, participation and justice. These fundamental aspects of human rights legislation can be found in patients’ rights documents under more specific formulations, e.g. respectful treatment, confidentiality and privacy, equitable access to information and facilities, and provision of mechanisms for legal redress (ombudspersons, patients advocacies, litigation, etc.).

Generally, there is a distinction between “negative” rights, which assure freedom from infringements of certain essential liberties, such as freedom from inhumane or degrading treatment, and “positive” rights, which specify entitlements like the right to decent living conditions. Negative rights have been much less controversial in the past than positive rights, the fulfilment of which may require changes in the social systems of states.

What are the potentials of a human rights approach to the health of individuals and of populations? It has been proposed to direct research in the field of health and human rights in three directions:

- first, towards the health effects of human rights violations;
- second, towards the human rights effects of health service provision or legislation; and
- third, towards the investigation of the mechanisms underlying the relationship of health and human rights.

This approach reflects a comprehensive understanding of health as expressed by, for instance, the Ottawa Charter on Health Promotion (2). The political, social and psychological mechanisms underlying the relationship of health and human rights deserve attention. Political influences causing disparities in health status relate to the availability, accessibility, acceptability and quality of health care, external environmental or workplace factors, issues of governance, the globalization processes, legislation or the provision of information, among other things. The effect of social inequality on health is well established, as is the association with social class, race or ethnicity, gender, family and social networks, or work. Among psychological determinants of health, interactionist concepts are of special interest for the field of health and human rights. They focus on the health effects of the quality of relationships.

It is claimed that the patient is not only made vulnerable by illness, but also by the institutional processes of care and cure and the traditional role of the sick which legitimizes some privation of autonomy. The American Hospital Association issued a patients’ bill of rights in 1972 in recognition of this special situation, and a national bill of patients’ rights has been proposed for the United States (3). In 1996 the WHO Regional Office for Europe issued a Declaration on the Promotion of Patients’ Rights in Europe as a common European framework for action following the Amsterdam Consultation on Patients’ Rights (4). This document contains specific sections concerning human rights and values in health care, information, consent, confidentiality and privacy, care and treatment and their application. Patients’ rights and citizens’ views were endorsed by the Ljubljana Charter on Reforming Health Care of 1996 (5).

There are voices in favour and against elaborating patients’ rights further. An explicit consideration of health rights and of the patients’ perspective however fits well with a general democratic evolutionary process in many countries. The provision of reasonable standards of care is of equal importance for countries with a poor health care infrastructure, for countries with national health systems and an ongoing debate over rationing and priority-setting, and for countries with libertarian market systems and a competitive managed-care environment.

Exercise 2

Discuss the issue of introducing genetic screening for breast cancer predisposition from a patients' rights perspective. Each participant may choose a specific aspect of patients' rights (human rights and values in health care, information rights, consent, confidentiality and privacy, adequate care and treatment).

Ethical frameworks

Distributive justice and the autonomy of patients are fundamental principles of health care ethics, next to beneficence (do good) and non-maleficence (do not harm). Inequality and inequity are concepts that are related to distributive justice. **Inequality** relates to differences in health states, e.g. between groups or individuals defined by socioeconomic status, sex, ethnicity or place of residence. Although high quality health care systems will diminish such differences in health states, e.g. by comprehensive coverage and provision of services directed to the disadvantaged, it is clear that health inequalities will persist to a certain extent under any circumstances. **Inequity** relates to issues of fairness such as the access to health services, their financing and their practical provision. Inequalities in health outcomes, such as life expectancy, quality of life and satisfaction may, therefore, be influenced by inequities in the health care system. Measurement of health outcomes and their comparative analysis for vulnerable subgroups may contribute to assuring greater levels of equity of health care and equality of health states. It is important to note that distributive justice and efficient allocation of resources may sometimes be at odds.

It is claimed that the institutional processes of care and cure and the traditional role of the sick legitimize some privation of autonomy. Patients' autonomy comprises the meanings of free action, effective deliberation, authenticity and moral reflection. Free action focuses on health rights such as the right to decide on treatment options and effective deliberation on the rationality of the decision-making process in view of information levels and cognitive ability. Authenticity requires the consistency of a choice with personal preferences and life plans, while moral reflection makes reference to consistency with beliefs and values. The information given to the patient on his or her health state and options for treatment, the right for him or her to adequate access to health care facilities, self-determination and free choice of health care provider, as well as issues regarding consent to treatment, participation in studies and participation in teaching of health care professionals are all related to choice. They are part of most charters of patients' rights and hence are important procedural and structural aspects in the evaluation of health care systems and their outcomes.

Beneficence relates to the efficacy and effectiveness of health care, non-maleficence to risks and adverse events of medical diagnosis or cure. It is clear that, generally, the risks and benefits of medical interventions have to be counterbalanced.

It is important to be aware of the broader conceptual framework within which health care systems operate. Frequently a utilitarian economic framework is used in the evaluation of health care systems. This aims at the maximization of the aggregated health state, or health gain, for a population in respect to resources spent. To this end it is bound to conflate a multidimensional health state into a single number – a “utility” – for comparative evaluations such as cost-utility or cost-benefit analyses. Considerable work has been done supplementing traditional life tables and mortality statistics with morbidity-oriented utility measures such as quality-adjusted life years (QALY) or the disability-adjusted life years (DALY) used for the “global burden of disease” study. These utilities value not only the quantity of life years, but also their quality. Their values are summed up across a population or population

subgroup (e.g. a defined group of patients), and high losses of single individuals may be balanced by a net benefit for the group as a whole.

Consequent applications of the utilitarian framework, e.g. the creation of league tables of preferred health care interventions (State of Oregon in the US) or the comparative evaluation of health systems performance (6) have met considerable resistance and criticism. While utilitarianism favours the effective delivery of services with benefit for everybody's quality of life, egalitarian ethics in contrast focus on the worst-off in society and their rights and would regard a disproportionate allocation of resources to these individuals as fair. In practice this could mean that under one health care ethic the allocation of resources, e.g. to dental care, is preferred, as this has some benefit for a large number of people, while under another ethical framework organ transplantation or dialysis are funded in order to save the lives of the worst-off at high costs.

Exercise 3

Discuss the issue of introducing genetic screening for breast cancer predisposition from an ethical perspective. Each participant may choose a specific aspect of ethics (utilitarian concern for the aggregate good, egalitarian concern for the worst off, issues of inequality, inequity, free action, effective deliberation, authenticity or moral reflection).

Strategies for implementation

Advocacy and patient empowerment

The health rights approach is potentially an effective way to advocate change for the protection and promotion of health. The following are examples of questions that could be asked.

- Are there provisions to guarantee fair participation in decision-making?
- What are the health rights infringements of a proposed legislation?
- Do patients or citizens have the possibility to file complaints?
- Is personal dignity protected?
- Is there discrimination between population subgroups?

Although the United Nations have installed a regular reporting system on the fulfilment of human rights in their member countries, this is not specific for health care and may miss more subtle or hidden structural infringements of health rights. Several models of advocacy exist within a rights-based approach to fill this gap: the contract model of citizens' advocacy, the self-advocacy model, a collective or corporate political advocacy and the advisory casework model of consumer self-help groups.

Examples for actions are a health rights assessment of pending legislation, a human rights-sensitive approach in the evaluation of health care, the promotion of information rights, installation of ombudsman systems, patients' advocates and patients' rights charters, the confidentiality of personal data including genetic information, participation in decision-making, rules on terminal care and palliative medicine, monitoring of abusive practices in psychiatry, legislation against genital mutilation, restrictions on compulsory treatment, rules on experimentation on humans and especially on vulnerable persons, care for migrants' health and exploration of the ethical dimensions of genetic testing and manipulation.

For effective advocacy, the first step is to bring partners together. Eight categories of potential partner can be identified, and it is useful to have links to individuals in all these categories:

- (i) the professional category (health professionals, legal professionals);
- (ii) public institutions (state officials)
- (iii) nongovernmental organizations working with advocacy and service delivery
- (iv) intergovernmental organizations
- (v) ordinary citizens
- (vi) patients
- (vii) payers
- (viii) providers/the industry.

The second step is the definition of points of entry. Five entry points can be defined:

- (i) the policy-making process (e.g. councils and boards)
- (ii) the norm-setting environment (professional organizations, legislature, IGOs)
- (iii) the service delivery area
- (iv) research agenda-setting
- (v) education.

Advocacy can benefit from voluntary help, but effective action requires planning and, as a third step, funding, which may come from the potential partners listed above. Regarding the planning of actions, a typology of patient-empowerment, with options ranging from **moral suasion** through **formal political control** to **countervailing power**, has been proposed. Institutions for moral suasion could include patients' organizations, ombudspersons and patients' advocates. More formal medico-legal options are medical litigation laws or settlement councils. Economic influence can be exerted by free choice of the insurer (the payer), physicians and hospitals (the providers). More formal political control is instituted by a democratic legitimization of finances and the health services infrastructure. Patients' participation in treatment decisions is supported by the right to an option for a second medical opinion, shared decision-making or free access to medical specialists. Countervailing power is instituted by direct budget control or the budget relevance of the patients' choice of providers.

Exercise 4

Identify and discuss issues for advocacy arising from a planned introduction of genetic screening for breast cancer predisposition.

Legal provisions

There is a fear that expanding the privatization of health services restricts access to them to individuals who are privileged enough to participate in the health care market. In response, a debate has begun on supplementing economic rationalist arguments by rights-based legal standards of care for everybody. The right to health often exists only in statements of principle and has not yet been translated into positive, legally binding obligations at national level. The health rights approach constructs health as a legal entitlement, not as a privilege, a commodity or a product of charity. Laws may concern the prevention of violations of health rights ("negative" rights), or their fulfilment ("positive" rights). A monitoring capacity for the observation of health rights can be created, and the public can be informed of their health rights through the mass media and education. It is claimed that the right to health is

inextricably linked to other human rights and that they should be promoted together in a multifaceted way.

Generally three legal strategies can be distinguished: (i) not to create provisions for patients' rights, (ii) explicit parliamentary legislation of patients' rights, and (iii) the drafting of patients' rights charters by non-parliamentary conventions. A WHO-sponsored Consultation on the Development of Patients' Rights in Europe held in Gothenburg, Sweden in 1997, differentiated between European Member States which had endorsed their own national patients' rights charters (e.g. France, Ireland, United Kingdom), which had patients' charters at an institutional level (e.g. Austria), where such charters were in preparation (e.g. Sweden) or were patients' rights incorporated into different laws with varying specificity concerning patients' rights (e.g. Germany). Since then, some states have set up national patients' charters, while documents in other states have come under critical discussion.

A legal framework also has its disadvantages. The first limitation is the restriction of the obligations of the state to individuals living within its jurisdiction. This is at odds with increasing globalization and the transnational aspects of securing health care, e.g. in the European Union. The second limitation is its legalism and emphasis on the individual with highly formalized rules of process and evidence. This process may "decontextualize" and break down citizens' experiences of violations of rights and thereby disempower them. Third, the legal framework may slow down the dynamics of social change.

Health rights in health care assessment

Some problems are to be expected from the encounter of an egalitarian, rights-based approach with the current utilitarian framework of economic evaluation. This section suggests potential problem areas and strategies for overcoming them. Its speculative nature should be kept in mind, however. Only time will tell to what degree these problems and their solutions will influence the evaluation of health systems in the future.

The first problem area relates to the priority problem, that is the **recognition of a plurality of dimensions of evaluation**. This problem has been discussed in the past between economists on one side and health psychologists and outcomes researchers on the other side. There is continuing dispute about the validity of multidimensional constructs of physical and mental health in a single figure utility. The argument on this issue will gain new motion under a rights-based perspective, this time related to social and political ideas. It may be questioned whether fundamental aspects of health care, such as dignity or non-discrimination, can be traded against less fundamental dimensions such as satisfaction or even be disregarded completely. This may lead to the straightforward rejection of utility-based approaches of outcome assessment.

John Rawls, the principal proponent of egalitarian ethics, suggested the introduction of a "lexical" or **hierarchical** order (7). This implies that an evaluative dimension comes into play only if those previous to it are either fully matched or do not apply. This leads to the question of which dimensions should be given priority if a hierarchical order of principles is accepted. In analogy to the **priority of basic liberties**, an equal right to the most extensive basic entitlement to health care compatible with a similar entitlement for others could be favoured.

"Efficient" systems can produce unequal access to health care and health inequalities, resulting in a discussion of the trade-off between equity and efficiency. Such social and economic inequalities are accepted in an egalitarian framework only so far as they are to everyone's advantage. Egalitarian ethicists generally give justice priority over efficiency and welfare. They may argue that the priority

of liberty and justice over the accumulated utilities assures the observation of basic human rights and health rights, e.g. standards of care compatible with human dignity, non-discrimination, participation and the right to seek legal redress against unfair treatment or denial of care. More discussion is needed about the minimum standards of a health care system that have to be met prior to further assessment of, for instance, the efficiency of resource allocation.

Independent of these pending issues, it is likely that the assessment of health outcomes in a rights-based context will result in a three-step procedure. The first step is the analysis of the fulfilment of basic health rights (priority of basic liberties). Such basic rights are typically:

- respect for the dignity of the person
- information on the patient's state of health and options for treatment
- access to adequate care
- observation of the patient's autonomy
- informed consent
- free choice
- justice and the ability to seek legal redress.

In a second step the general states of health or specific health care outcomes for vulnerable population subgroups or individuals are analysed to control for unacceptable inequalities (the priority of justice over efficiency and welfare). These subgroups may be defined by, for example, socioeconomic status, sex, age, place of residence or ethnicity.

The third step is the assessment of aggregated utility-based outcome measures across populations (such as the DALY-based measurement of the burden of disease) and advanced comparative economic evaluations (cost-effectiveness analyses, cost-utility analyses or cost-benefit analyses) to assure allocative efficiency. In short, the traditional economic evaluation of health care may be preceded in the future by a rights-oriented evaluation.

Instruments for the standardized assessment of the fulfilment of health rights or patients' rights are rare. Qualitative assessment can be based on participant observation, expert interviews or focus groups. Quantitative assessment may entail the questionnaire-based assessment of the fulfilment of the entitlements of patients' rights documents in populations or patient groups. Health rights have been discussed under their fundamental principles of dignity, non-discrimination, participation and justice, i.e. the possibility to seek legal redress. Instruments that are designed to measure health rights should capture all four aspects in typical health care settings. Patients' rights are more specialized and have been detailed above. Instruments should cover these aspects, but little work has been done on their empirical assessment so far. Subgroup analyses directed towards non-discrimination can be based on a broad array of outcome measures, ranging from life expectancy to utility measures.

Implications

Demand in the health care market is influenced both by individual preferences and by providers and public health measures. Accountability for health service delivery thus rests not only with economic market theories, but also with aspects of health care legislation, professional conduct, public health, ethics and politics. It is evident that patients' rights and consumers' rights will play increasingly important roles in medical practice and in the health care market in the twenty-first century. Hence, knowledge of (i) theoretical frameworks of ethics and rights and of (ii) strategies for their implementation, is of great importance to health economists when they are regulating or influencing the market.

Much conceptual and legal work has been done in the context of patients' rights and their advocacy. In the words of the late Jonathan Mann, a human rights analysis has the potential to "disaggregate a seemingly overwhelming problem into many component parts capable of being acted upon" (8). This disaggregation of complex problems, however, requires suitable analytical tools. There is a lack of standardized and validated assessment tools for empirical research on human rights and health. Certain situations require different approaches such as expert interviews, participant observation or focus groups. Moreover, standardized strategies need to be developed to assess health care from a rights-based perspective.

Case study: genetic screening for breast cancer¹¹

Scientists from the National Institutes of Health in the United States showed that three specific alterations in the breast cancer genes BRCA1 and BRCA2 are associated with an increased risk of breast, ovarian and prostate cancers. In the largest study to date involving direct testing for these cancer-susceptibility genes in a general population, the researchers found that, on average, women carrying one of the three alterations have a 56% chance of getting breast cancer by the age of 70 (compared with a 13% chance for women without the alterations) and a 16% chance of getting ovarian cancer (compared with 1.6% for non-carriers).

The study involved more than 5000 Ashkenazi Jews (those with origins in central and eastern Europe, comprising about 90% of the 6 million Jews in the United States) from the Washington DC metropolitan area. Each of the 5318 volunteers donated a blood sample from a finger-prick and filled out a brief family history of cancer. DNA from the blood samples was tested for three alterations: two in the BRCA1 gene (185delAG and 5382insC) and one in the BRCA2 gene (6174delT). The DNA analysis showed that 120 of the volunteers had one of the three mutations (2.3%).

The researchers calculated that only about 7% of the breast cancer in Jewish women is due to these alterations in BRCA1 and BRCA2. Likewise, the vast majority of breast cancers in non-Jewish women are not due to inherited alterations in these genes. Many of the over 100 alterations in each of the BRCA1 and BRCA2 genes identified in cancer-prone families are unique to a single family. In a few circumstances, identical alterations have been found in multiple families. Besides Ashkenazi Jews, recent studies reported mutations that may be unique to Dutch, Icelandic or Norwegian families. To date, no other ethnic-specific mutation in the United States has been discovered with as high a frequency as the ones specific to Ashkenazi Jews. The frequency (1 in 44) reported in this and other studies is at least several times higher than estimates of all the mutations in BRCA1 and BRCA2 for the general US population. Although volunteers in the study will not receive their individual results, they will, if requested, receive a summary of the overall results of the study.

¹¹ Source: http://www.nhgri.nih.gov/DIR/GMBB/BRCA/media_release.html (accessed 6 November 2002). The results of the research, which involved a cooperative effort between the Washington, DC, Jewish community and scientists from the National Cancer Institute (NCI) and the National Human Genome Research Institute, were published in the New England journal of medicine of 15 May 1997 (9).

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Learning to live with Health Economics

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**Chapter V
Useful economic tools**



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5. Useful economic tools

5.1 Introduction

The final chapter of the learning materials provides modules on four useful tools in the economist's toolkit: health outcome assessment, costing, economic evaluation, and economic modelling and forecasting. These tools are relevant to each of the four main groups of potential users of the learning materials in terms of *appreciation* and *appraisal*. They can all benefit from knowing that such tools are available, their strengths and weaknesses, and when their use will be appropriate. However, the most senior users, and many of the concerned public groups, will tend to benefit from knowing they are available; where, when, and how they can best be used; their overall strengths and weaknesses; and the broad thinking which lies behind them; whereas the other two groups of potential users may have greater interest, in addition, in the more detailed aspects.

Module 5.2.1, by the late Dr Oliver Sangha and Dr Manfred Wildner from Munich, Germany, is concerned with outcome assessment in health care. This is an important topic, since it is essential to know what consequences follow, or are likely to follow, from specific actions in health care and other health-related systems. For example, scarce resources cannot be allocated efficiently if this information is not available for decision-makers (at all levels). Neither can appropriate decisions be made in relation to the pursuit of equity objectives. In recent years, growing interest has been shown in information about health outcomes by patients, providers, payers and policy-makers, and this seems likely to increase even further in the future. The authors stress that it is important to distinguish between efficacy, effectiveness and efficiency. There is also an important distinction to be made between process-related non-health dimensions and health outcomes. They recognize that health is a multidimensional construct, that individual and collective health care can be looked at separately, and that health care is only one among a number of determinants of health. They identify six major domains of health outcomes (the six Ds): disease (morbidity), death (mortality), discomfort, disability (limitations in functioning), dollars (costs) and dissatisfaction (preferences and satisfaction with care). Obviously, the appropriate measurement of health status requires the use of standardized instruments with proven psychometric properties, notably validity, reliability and sensitivity. Values are also important and the module argues that the objectives of health outcomes assessment are "based on equity and equality, quality of care, patient's autonomy and choices and responsiveness to patients". In their view, the explicit health rights of participants in the health care system, including patients and their carers, will play an increasing role in the future. This matter was discussed further in Module 4.4.2.

Module 5.2.2, on costing, was prepared by Professor Chris Selby Smith from Monash University in Australia. Since resources are scarce it is not possible to produce all the outputs which would be thought desirable. Thus, choices have to be made; and the cost of alternative courses of action is relevant to much decision-making in health care (consequences also need to be considered). For economists, costs refer to the opportunities foregone elsewhere because the resources are used for this particular purpose. Thus, costs are wider than financial expenditure alone. Other resources especially need to be considered if their opportunity costs are not adequately reflected in market prices. Examples include voluntary contributions; the time costs involved for patients and their carers; and services contributed by religious orders. Total costs are important; they can be viewed from various perspectives, such as the sources or types of costs or distribution of total costs. Changing the distribution of given total costs among the various parties to the complete resource allocation decision can alter the incentives they face and therefore the actions they take. Since the cost information sought by economists is often difficult to obtain, three stages can usefully be distinguished in costing studies: identification, measurement and valuation. Frequently the three stages become progressively more difficult. The module emphasizes that the purpose of collecting and analysing cost estimates is to contribute to improved decision-making. There are many purposes for which cost information is relevant; and the specific cost information required can only be determined by reference to the particular objectives of the decision-maker. While cost information is not the only input required, high quality decision-making is more likely to occur when adequate cost information is available. The module also notes that cost analyses can be undertaken, and cost information presented, in ways which are more or less helpful for decision-makers.

Module 5.3.1, on economic evaluation in health and health care (both in theory and practice), was prepared by Professor Michael Drummond of York University in the United Kingdom. Increasing pressures on health care budgets have led decision-makers throughout the European Region of WHO to search for methods of assessing the value for money from different health care treatments and programmes. In economic evaluation, programmes are compared in terms of their costs and their consequences, such as improvements in health outcomes and savings in health care resources. There are various forms of economic evaluation, such as cost-minimization analysis, cost-effectiveness analysis, cost-benefit analysis and cost-utility analysis. All of them include an analysis of costs, which underlines the significance of the factors considered in the previous module. It is important for all groups of potential users of these learning materials to understand the key methodological principles that are involved in economic evaluation approaches and to appreciate how they are applied (or misapplied) in the specific studies with which they are concerned. These principles include the consideration of an adequate range of alternatives, the use of good evidence of effectiveness, and allowance for uncertainty in the estimates of costs and benefits. The module includes a helpful checklist of matters to take into account when appraising an economic evaluation (or considering whether one should be undertaken). Economic evaluations have a range of uses in health care and related activities. For example, they can be used, generally in association with other policies, to encourage a rational diffusion and use of health technologies, including planning of specialist facilities, reforming payment schemes for institutions or health care professionals, and developing health care practice guidelines. Economic evaluations can also be used to assess health-producing measures in different sectors of the economy, including road safety, environmental protection and occupational health. For many of the potential users of these learning materials the way of thinking is likely to be at least as valuable as the

detailed arguments about costs and benefits, risk and uncertainty, and the distributional implications of the alternatives being compared. However, the way in which studies are conducted and reported can contribute to making them more or less useful for decision-makers elsewhere (e.g. reporting prices and quantities separately rather than only total expenditure).

Module 5.4.1, by Professor Reiner Leidl of the University of Ulm in Germany, considers economic modelling and forecasting. Economic models are a useful tool for the support of decision-making and policy development, since transparent models can structure problems, make explicit the assumptions used, and explore the consequences implied by particular decisions. Explanation, prediction and simulation are the main general purposes of economic models. The module contains a table which lists eight points to be checked by decision-makers who are considering modelling approaches. They are important since models are tools that have to be implemented properly and used adequately: “methodological expertise, expertise in the health problem investigated, and expertise in how to support decisions by model results is required.” However, so long as these preconditions are met, models can significantly improve the available information and support decision-making in a transparent and rational way. The remainder of the module, recognizing that there are many different problems and many different types of model, considers three major approaches: a decision tree model, scenario analysis and disease modelling, and econometric models. This module is potentially valuable for each group of users envisaged for the learning materials, but detailed knowledge of the various approaches is likely to be particularly relevant to managers and health professionals. The most senior decision-makers and members of the various concerned groups are more likely to want to know that they are available, their strengths and weaknesses, where they are likely to be useful and how they can be appropriately incorporated into wider decision-making processes. In this sense the module is typical of many others included in these learning materials.

5.2 Outputs and inputs

5.2.1 Outcome assessment in health care

Oliver Sangha and Manfred Wildner¹

Key messages

- In recent years, there has been an increasing interest in information about health outcomes from patients, providers, payers and policy-makers.
- The goal of health care is to protect, promote and preserve people's health. This requires standardized assessment of both organ morphology and function, as well as health status.
- To understand the concepts of health outcomes assessment, it is important to distinguish between efficacy, effectiveness and efficiency. The distinction between process-related non-health dimensions and health outcomes is also important.
- Moreover, it is important to recognize that health is a multidimensional construct, that individual and collective health can be looked at separately, and that health care is but one of many determinants of health.
- The objectives of health outcomes assessment are based on equity and equality, quality of care, patients' autonomy and choices, and responsiveness to patients. Observation of explicit health rights is likely to play an increasing role in the future.
- The main domains of health outcomes include the six Ds: disease (morbidity), death (mortality), discomfort, disability (limitations in functioning), dollars (costs), and dissatisfaction (preferences and satisfaction with care).
- Measurement of health status requires the use of standardized instruments with proven psychometric properties (validity, reliability, sensitivity).

Tutors' notes

This module introduces a valuable skill set which can be useful for all four groups of potential users of the learning materials. The economic way of thinking requires consideration of costs in relation to benefits for alternative courses of action by decision-makers at all levels of the health care system, and

¹ This module was prepared by Dr Manfred Wildner of the Bavarian Public Health Research Centre, LM University of Munich, Germany (e-mail : wil@ibe.med.uni-muenchen.de) and the late Dr Oliver Sangha, former Head of Research Unit at the Centre.

in related areas which affect health. This cannot be achieved without attention to the consequences, beneficial or adverse, from health interventions or their absence. Similarly, consideration of equity aspects of health care, health and wellbeing require that there be at least some broad attention to measures of the relevant outcomes.

The module provides a valuable introduction to this topic, including discussion of:

- the conceptual framework and theoretical concepts
- the objectives for which health outcome assessment is undertaken
- various methods and instruments of health outcome assessment
- criteria for choosing particular instruments.

The different groups of potential users of the learning materials could use the module in their separate groups. If so, the senior political and bureaucratic participants, and the members of the various concerned public groups, are likely to want a more general approach, while the other two groups may prefer a more detailed discussion. However, the module could also be used with participants who cross the boundaries of the different user groups, either in real life or by assuming roles in the context of the learning experience.

The first exercise is aimed at the level of *appreciation*. It can be used with separate (or mixed) groups of:

- policy-makers at the senior political and bureaucratic levels in health and health-related agencies;
- civil servants, other government staff in health or other agencies, and similar people in bodies such as nongovernmental organizations providing relevant services and voluntary, religious and charitable organizations;
- managers of health care facilities, such as hospitals, facilities for care of the elderly or community health centres, and managers in other health and health-related organizations;
- health care professionals, such as doctors, nurses, dentists, pharmacists or therapists;
- a wide range of other concerned public groups.

The second exercise is aimed at the level of *appraisal*. It can be used with a similarly broad range of potential users of the learning materials. It can be valuable for senior political and bureaucratic participants, and for the members of concerned public groups. However, managers, health care professionals and patients may be most interested in the details of where health outcome measurement can be usefully undertaken, how it can best be done and what implications it has. The former two groups of users may be especially concerned with how health outcome measurement relates to providing improved health for groups, whereas the latter two groups may be more focused on outcomes for particular individuals or small groups (e.g. their families or their patients).

Introduction

The purpose of this module is to provide an analytical exposé of different methodologies of assessing the health outcome of health care systems. In order to do so, the module offers background in two areas: firstly, it provides a brief analysis of theoretical concepts, which are important for the understanding of the relationship between health care and health outcomes. Secondly, it analyses the interrelationship between the broad objectives of health care provision and the patients' perspective.

In recent years, there has been growing interest in information about health outcomes for several reasons. Patients demand information to make informed decisions about their own care or the care of

their relatives. Health care providers are being made more and more accountable for what happens to patients. Doctors and hospitals are shifting their care towards evidence-based medicine with reliable data on efficacy and effectiveness of care. Finally, payers and policy-makers need to base their decisions about health care provision, insurance coverage and benefit planning on information about how policies might influence the health outcomes of individual patients and populations.

The goal of health care is to protect, promote and preserve people's health. This requires standardized assessment of both organ morphology and function as well as health status. Traditionally, measures of success or failures of health have addressed the four Ds – death, disease, disability and discomfort (1). In particular, mortality and morbidity data have been widely used because they were most accessible from medical records, hospital databases or governmental sources. While mortality rates, life expectancy or the prevalence of disease provide significant inferences on population health, they say little about any other point on the continuum of dysfunction between perfect health and death or on individual health.

In recent years, a wide body of research has enabled sophisticated measurement of health status. Moreover, White's four Ds have been expanded by two additional Ds: dissatisfaction and dollars, to address patients' satisfaction and the efficiency of health care. Furthermore, the fulfilment of patients' rights, with respect to health care, has become more important in the global discussion of health outcomes.

Before the reader is introduced to selected methods and instruments of outcome assessment, we will provide a brief introduction to the theoretical concepts and objectives of health outcomes assessment.

Theoretical concepts

Definition of health

Good health is assigned the highest value in most societies. Definition of health as an operational and thus measurable concept has, however, been elusive. From antiquity health has been thought as a physical or mental state with assessments focusing on the presence or absence of diseases. Departing from prior definitions, Henry Siegerist stated in 1941, "... health is therefore not simply the absence of disease: it is something positive ..." (2). Building on Siegerist's definition, WHO's Constitution stated in 1947, "Health is a state of complete physical and social wellbeing, and not merely the absence of disease or infirmity" (3). Since then, health status has incorporated measures of the physical, mental and social functioning of individuals.

In 1977, the World Health Assembly decided that the main social goal of governments and the World Health Organization should be the attainment by all citizens of the world by the year 2000 of a level of health that would permit them to lead a socially and economically productive life ("health for all").

Conceptual framework of health outcomes

Modelling is the basis for understanding health outcomes. All models of health outcomes are principally based on the WHO definition of health. WHO compares the aetiology and processes (pathology) of illnesses with the following three levels of disease consequences. **Impairment** is defined as any loss or abnormality of psychological, physiological or anatomical structure or function. It refers to the

level of an individual or organ system. Altered organ morphology or “damage” may cause organ dysfunction. Impairment is concerned with abnormalities of body structure and appearance and with organ or system function resulting from any cause. **Disability** is the physical and psychological functional limitation caused by an impairment which is described by an individual when there is a discrepancy between his or her capacity and an actual or perceived need for a specific function. Handicaps reflect the effects of disability, and of adaptations to it, on an individual’s ability to perform social roles (e.g. work, parenthood) and thus the degree of social disadvantage conferred by the disability.

Although “outcome” is often used in a simple and global fashion, it is actually a complex construct composed of several independent dimensions. Hence, the use of “outcomes” in the plural form is intended to reflect the multidimensional nature of the term.

Monitoring of health care systems

Health outcomes can also be used to monitor health care systems. Health care systems have been described as all people and all activities whose primary purpose is to improve health. These systems may be formally integrated and centrally directed, or may consist of a multitude of particular services directed at promoting, restoring or maintaining health. Assessment of the quality of these services may be directed towards their structure, processes and outcomes. Evaluation of the performance of health care systems therefore takes account of measures of process and structure, such as responsiveness and fairness of financial contributions, in addition to health outcomes. Responsiveness relates to the non-health aspects and reflects the ability of the system to respond to all patients’ needs swiftly. Fair financial contributions relate to the financial risks of households which should be distributed according to ability to pay and not according to the risk of illness or disability.

As diverse as the activities of health care systems are regarding structure and process, their common **outcome** is “producing health”. Thus it may seem straightforward to monitor health care systems by assessing the overall health state, but it must be noted that:

- health is a multidimensional construct
- individual and collective health can be looked at separately, and
- health care is but one of many determinants of health.

The implications of the idea that health is a multidimensional construct have been detailed above. The necessity of a distinction between individual and collective health can be illustrated by the paradoxical fact that high quality health care may improve health at the individual level, while it increases at the same time the disease burden at the population level due to prolonged life in a less than perfect health state. While the individual may appreciate his or her health gain, the collective is experiencing an increase in prevalent disease – and vice versa. Moreover, the population’s health may under certain circumstances improve at the expense of, or with disregard to, the needs of a minority within the population whose health status is deteriorating. These circumstances may be the consequence of, for example, rationing expensive services such as dialysis or transplantations.

Finally the fact that health is a “byproduct” of a number of activities and determinants must be considered. Examples of such diverse determinants are: the higher rate of cardiac death rates in a cold climate; the interaction between sanitation, climate and vector control; the influence of body height on fall-related deaths; cultural norms regarding food composition and the availability of healthy food; the influence of general education levels; population density and the geographical dispersion of health care infrastructure; the inverse association of road traffic death rates with increasing motor vehicle density; and the influence of legislation such as seat belt laws or speed limits and safety engineering standards.

In short, a distinction between process-related non-health dimensions and health outcomes is necessary. As regards health status, a multidimensional assessment should be performed, the absolute health status must be distinguished from the relative health gain related to health care system activities, and the health of individuals likewise distinguished from the health of populations.

Exercise 1

Discuss the ways in which resources are distributed to competing health care programmes in your country. Assuming that each programme should yield clearly defined benefits, elaborate on how you would define and measure health benefits (outcomes). Each participant may choose a specific perspective (e.g. patient, provider, payer, policy-maker).

Objectives of health outcomes assessment

Efficacy, effectiveness and efficiency

Health outcomes are primarily used in the contexts of efficacy, effectiveness and efficiency. **Efficacy** is the ability of an activity to achieve its goal under ideal or laboratory conditions. An example would be the successful transplantation of cartilage cells into defects on the surface of a joint in a specialized centre. This proven efficacy does not, however, guarantee the success of this procedure when it is performed by less specialized surgeons as part of their routine. **Effectiveness** hence describes the performance of a health care activity under conditions of “normal” health care. To go back to our example, the transplantation of cartilage cells may also be effective under these conditions when the surgeon is specially trained and increasingly skilful. However, this requires the allocation of specialized personnel, time in the operating theatre and the availability of tissue cultures. **Efficiency** therefore puts the health gain of an activity in perspective against the resources spent, which could also have been used for an alternative health activity: the patient could have had intensive physiotherapy instead and a knee replacement in the case of persistent problems.

It is important to note that the outcome measure for efficacy and effectiveness can be either traditional physician-centred clinical measures, for example a reduction in pain or improvement in functions such as the range of motion of a joint or multidimensional, or patient-centred health outcomes. Efficiency measures and values the costs for a certain health gain, e.g. the costs for each knee replacement avoided. If a cost–effectiveness analysis comparing alternative measures is planned, care must be taken that the same dimension of effectiveness is assessed for the concurrent measures. Efficacy, effectiveness and efficiency relate primarily to natural units of success as they are understood in clinical practice, e.g. reduction of pain or improvement in function. This is different from the approach of calculating so-called “utilities”, a unifying concept for measuring health outcome for advanced economic analyses, which allows the comparison of the outcomes of very different diseases and treatments.

Quality of care

Assessment of the outcome of hospital treatment – mainly survival – has been the historical basis of current approaches to assure the quality of care. Quality management requires the feedback of meaningful outcome information into the assessment component of a “plan–do–check–assess” cycle. Such meaningful information may be simple survival information, for example following major surgery, or information on complication or adverse event rates such as for maternity services or immunization

programmes. It may also be comprehensive information on multidimensional health status assessment, e.g. in phase 3 and phase 4 trials of new drugs or in the management of chronic diseases. It has been demonstrated that a patient-centred approach to health outcomes assessment supplements the clinician-based assessment with important and at times very different outcomes information. Quality of care is ultimately determined by the patient's experience of improvement in the state of his or her illness and functional limitation. Modern multidimensional outcome measures are patient-centred and capture the patients' perspective well.

Responsiveness has been added more recently to the assessment of health systems. Responsiveness relates to non-health aspects of the provision of preventive services, care or non-personal services. It includes respect for the dignity of the person, confidentiality, autonomy to decide on treatment options, prompt attention, quality of the amenities (e.g. cleanliness, space, food), access to social support networks and free choice of providers. Hence rudeness in relation to patients, long waiting times, denial of access to care, unnecessary isolation or insensitivity to cultural values of connectedness, denial of choice and gag clauses in managed care systems all reflect poor responsiveness on the part of health care systems. Poor responsiveness may result in poor take-up of preventive services or treatment options. As responsiveness also reflects *expectations*, its assessment may vary with, for instance, the education level or socioeconomic status of the assessor. Moreover health systems often consist of compartments, for example defined by remuneration for services, so that their perceived responsiveness may be as heterogeneous as the system.

Some aspects of responsiveness, e.g. long waiting lists for surgery, are captured by health outcomes such as survival or quality of life. Other aspects, for instance respect for the dignity of the person need a special assessment, e.g. by satisfaction questionnaires or expert interviews.

Methods and instruments of health outcome assessment

Morbidity and mortality

Perhaps the most basic outcome measure of health care is death. The death rate of newborn babies (neonatal mortality rate) or of children under five years (infant mortality rate) and the maternal mortality rate are established indicators for the quality of a health system's performance. Other indicators are the standardized overall mortality rate within a population or the average life expectancy at birth. The influence of factors unrelated to health care on these measures has been pointed out earlier. The survival time is often an important outcome indicator following major therapeutic interventions, e.g. organ transplantations. Another approach to death as an outcome measure is to count the potential years of life lost and add them up for a population (setting an upper age limit). The total amount of potential years of life lost thus depends on the average loss of life years and on the frequency of these deaths in a population. Alternatively, the further life expectancy can be calculated from population-specific period life tables (period-expected years of life lost), from a cohort life table (cohort-expected years of life lost) or from an ideal standard (standard-expected years of life lost).

However, the consequences of many diseases are not adequately captured by focusing on reduced life expectancy. In particular, chronic diseases such as asthma, diabetes or rheumatism may have no significant influence on life expectancy while being a considerable burden to both the individual patient and the health care system. Traditionally, morbidity is captured by the physician as anatomical or physiological **impairment**: e.g. as a reduced forced expiratory volume, a reduced glucose tolerance or range of joint motion. If this impairment is experienced by the patient as functional limitation it is

called **disability**, e.g. the inability to run fast, stay without food for extended periods or do manual labour. If this disability interferes with the social role, e.g. the profession, a **handicap** is present. Due to their heterogeneity, organ-based clinical morbidity measures by and large have a narrow application in the context of the management of specific diseases.

An early attempt to capture **non-fatal health outcomes** more generally was the development of quality-adjusted life years (QALY). This method assigns weights between 1.0 (perfect health) and 0.0 (near death) to various health states, and sums up the QALYs by multiplying the time spent in each state by the respective weight. Frequently an additional age-weighting is used giving lower weights to years of old age. Murray et al. have promoted the concept of disability-adjusted life years (DALY) as a unifying concept to quantify the burden of disease within populations (4). The focus on disability rather than the socially constructed handicap should ensure comparability of like conditions. This time-based health status measure aims to capture both loss of life years and loss of quality of life years, incorporating non-fatal health outcomes. Moreover, it aims to provide a unifying measure for cost-effectiveness analyses. Twenty-two indicator diagnoses were selected as a reference for the calculation of utilities, which are discounted for future life years in accordance with economic theory. An age-weighting gives highest weights to years of young adult age. A discussion of the necessary characteristics of a measure to qualify as a utility – utility independence, constant proportional trade-off and risk neutrality – goes beyond the scope of this introductory text.

Health status and health-related quality of life

Generally accepted dimensions of health status include physical, social, and emotional functioning. Two classes of measure can be used to assess health outcomes: generic measures and condition-specific measures. Among generic instruments, a further distinction is made between health profile and utility measures. **Health profile measures** are instruments that intend to measure all important aspects of health status or health-related quality of life. **Utility measures** are derived from economic and decision theory. They reflect patients' preferences for different health states. The chief element of utility measures are that they integrate utility measures and relate health states to death. The results from utility measures are frequently used as outcomes in cost-utility analysis.

In accordance with the WHO definition of health, **generic health status instruments** measure multiple aspects of health, including physical function, social function and pain. They are suitable for comparing health status across multiple diseases or the value of competing clinical programmes. Generic health status instruments are useful in the evaluation of subjects with multiple chronic conditions, since they can detect changes arising from different organ systems. This is of particular interest when interventions can have (adverse) effects on several organ systems.

Widely used representatives of generic health status measures include the Sickness Impact Profile (SIP), the Quality of Well-Being Index (QWB), the Nottingham Health Profile (NHP), the WHO Quality of Life Assessment (WHOQoL), the EuroQol (EQ)-5D, the Health Utilities Index (HUI) and the Short-Form 36 (SF-36).

The **Sickness Impact Profile** (SIP) (5) is a widely used general health status instrument containing 136 items answered true or false. Scores use predetermined weights based on rater panel estimates of relative severity of the dysfunction. The categories of ambulation, body care and mobility are aggregated into a physical dimension, and the four categories of emotional behaviour, social interaction, alertness behaviour and communication are aggregated into a psychosocial dimension. The remaining categories are work, sleep and rest, eating, home management, and recreation and pastimes.

The **Quality of Well-Being Index (QWB)**, and an earlier version the **Index of Well-Being (6)**, assess mobility, physical activity and social activity. An interviewer asks what the patient did because of illness during the previous six days. Scoring for particular functions is based on preference weights derived from the normal population.

The **Nottingham Health Profile (NHP) (7)**, and its predecessor the **Nottingham Health Index (NHI) (8)**, assess perceived physical, social and emotional health with 38 items answered yes/no. It uses weighted scores from panels' judgments about the severity of individual items. The NHP covers physical mobility, pain, emotional reaction, energy level, sleep and social isolation, and can provide dimension-specific scores.

The **WHO Quality of Life Assessment (WHOQOL)-100 (9)** contains 100 questions over six broad domains of quality of life within which 24 facets are covered. The six domains include physical health, psychological health, level of independence, social relationships, environment, and spirituality/religion/personal beliefs. Four items are included for each facet, as well as four general items covering subjective overall quality of life and health, producing a total of 100 items in the assessment. There are many international translations including in Croatian, Dutch, English, French, German, Hebrew, Hindi, Italian, Japanese, Russian, Shona, Spanish, Tamil and Thai.

The **WHOQoL-BREF** contains 26 items, 2 from the Overall Quality of Life and General Health, and 1 item from each of the remaining 24 facets included in the WHOQOL-100. The WHOQoL-BREF is scored over four major domains: physical, psychological, social relationships and environment.

The **EuroQoL (EQ)-5D (10)** is a measure of health status for use in evaluating health and health care. It provides a simple descriptive profile and generates a single index value for health status on which full health is assigned a value of 1 and death a value of 0. EQ-5D has been especially designed to complement other health status measures such as the SF-36, NHP, SIP or condition-specific measures. The EQ-5D covers the following five domains: mobility, self-care, usual activities, pain/discomfort and anxiety/depression. By combining different levels from each domain, the EQ-5D defines a total of 243 health states. These may be converted to a score using sets of values derived from general population samples.

The EQ-5D has been translated into several languages including Afrikaans, Catalan, Croatian, Czech, Danish, Dutch, English, Finnish, French, German, Hungarian, Italian, Japanese, Norwegian, Polish, Portuguese, Spanish, Swedish and Turkish.

The **Health Utilities Index (HUI) (11,12)** is a system for measuring health status and health-related quality of life, and producing utility scores. It is generic, preference-scored and comprehensive, based on an explicit conceptual framework of health status and health-related quality of life. Applications of the HUI require that data be collected to classify the health status of each subject at a point in time, relying on self-completed or interviewer-administered instruments in either self-assessment or proxy-assessment formats. The HUI documentation includes a health status classification system and formula for calculating (single and multi-attribute) utility scores, which in the Mark 3 version of HUI define 972 000 unique health states (by comparison, Mark 2 describes 24 000 states) that are based on eight attributes (vision, hearing, speech, ambulation, dexterity, emotion, cognition and pain) with five to six levels each.

By the end of 2000, over 300 investigators had used HUI in a wide variety of studies in over 20 countries worldwide, and more than 200 000 subjects had been assessed using HUI.

The **Medical Outcome Study Short Form 36 (SF-36)** (13) comes from a larger battery of questions administered in the Medical Outcomes Study. The SF-36 includes eight multi-item scales containing 2 to 10 items each and a single item to assess health transition. The scales cover the dimensions of physical health, mental health, social functioning, role functioning, general health and vitality. Forms cover a week or a month. The use of subscales is encouraged and it can be self-administered or interviewer-administered. The SF-36 is the most widely used general health status instrument and has been translated in many languages.

The SF-36 allows scoring of the eight subscales and the construction of two summary scales: the physical component summary and the mental component summary scales. Further evaluation of these two summary scales provided the foundation for the construction of an instrument that is much shorter than the SF-36 (14). This short form, the SF-12, uses 12 items from the SF-36, and demonstrates satisfactory reproducibility of the physical and mental component summary scales. The SF-12 is likely to perform well enough for monitoring general populations; it does not, however, allow for the scoring of individual SF-36 subscales such as bodily pain or social functioning.

Disease-specific instruments are useful for measuring clinically important changes in response to treatments. Since these instruments include elements most relevant to a particular disease, they are usually more sensitive to subtle improvements in health status. Disease-specific instruments are available for many different diseases and afflictions. There are principally two types of condition-specific measure: (i) measures that focus on clinical signs, symptoms and tests, and (ii) measures that capture the impact of the disease or problem on the patient.

A comprehensive collection of condition-specific health status measures can be found in the literature (15–18) or on the internet (<http://www.leeds.ac.uk/nuffield/infoservices/UKCH/home.html>, accessed 6 November 2002).

Measurement of satisfaction with health care

Over the past decade, the legitimacy of patients' satisfaction as an outcome measure of health care has grown considerably. In the main, patients' satisfaction is considered an indicator of quality of care. Moreover, satisfaction is used to assess the performance of health care delivery at multiple levels, e.g. health system, organizational (hospital, health maintenance organization, outpatient clinic, etc.), service unit (laboratory, radiology, etc.) and individual (physician, nurse, therapist, etc.). Empirical research on patients' satisfaction has demonstrated various problems, including: (i) a lack of conceptual or theoretical models of the determinants of patients' satisfaction, (ii) methodological challenges and a lack of standardized approaches to assessment, (iii) few studies that compare care across settings, and (iv) a lack of consensus within the medical profession and policy-makers about what role patients' satisfaction should play.

Patients' satisfaction can address multiple aspects of care. The dimensions that are most frequently assessed include:

- interpersonal aspects of care (the way patients feel about those caring for them)
- accessibility, availability and convenience of care
- continuity of care
- physical setting
- technical quality of care
- efficacy
- financial considerations (costs).

The results of evaluations of patients' satisfaction depend on the measurement method selected (e.g. surveys, interviews, focus groups). Contrasting opinions have been expressed regarding appropriate measures of patients' satisfaction. Although few measures exist, comparative analyses of different methods/instruments to validate these measures are rare.

Economic outcomes

Economic outcomes cannot easily be reduced to expenditure on health interventions at different levels of care provision. On the other hand, such figures are most frequently used since they are readily available from provider, payer or governmental sources. In the past, utilization of health services has been used as a proxy of health status. However, it is difficult to interpret as a measure of health because of differences in access to care and other factors related to the population's utilization of health services. Cultural and economic factors in the population of interest may further distort the relationship between health and utilization information.

Economic outcomes, whether they reflect the monetary value of a health consequence or integrated measures of health status and patients' preferences (e.g. quality-adjusted life years), are the centrepiece of different methods of economic evaluations. All methods of economic evaluation have in common that they examine one or more possible interventions and compare the resources necessary to carry out such interventions (input) with their consequences or effects (output). The various methods of economic evaluation – cost-minimization analysis, cost-effectiveness analysis, cost-utility analysis and cost-benefit analysis – differ in the way they itemize and value inputs and consequences. Although they all value the inputs and consequences following the same approach – (i) identifying inputs and consequences, (ii) measuring them using appropriate physical units, and (iii) valuing them – difficulties can be encountered throughout the three phases. Some health care interventions have hidden or unknown costs. Not all inputs and consequences can be evaluated in appropriate physical units (e.g. some interventions have intangible consequences, such as pain reduction or improvement in physical function).

Valuing inputs and consequences is the most difficult aspect of conducting economic evaluations. This is because the only readily available measures of value, prices, exist only in true markets, and these cover only a minority of health inputs and consequences.

Choosing outcome instruments

In general, only instruments with demonstrated psychometric properties which have been published should be used. The attributes of any quantitative measure are validity, reliability, responsiveness and practical usefulness.

Validity refers to whether an instrument measures what is supposed to measure. Ideally, a measure would be compared with a standard, for example, comparing a suspicious nodule on a chest X-ray with a biopsy showing cancer (criterion validity).

For health status no reference or standard exists to judge the validity of a particular instrument. Instead, an assessment is made of the extent to which a measure is consistent with a theoretical concept (construct) concerning the phenomenon of interest (construct validity). Face validity (it "looks like" it measures what it intends to measure) and content validity (it represents the domain of interest) are other techniques to strengthen the validity of a construct.

Reliability is the extent to which a measurement yields the same result on repeated administration of the questionnaire under the same circumstances (reproducibility). If scores of a health status instrument have little random error, they are considered reliable.

Validity and reliability are the minimal criteria to differentiate individuals at one point in time. However, when used to evaluate changes over time, an instrument needs to be able to capture clinically meaningful changes. Sensitivity denotes the capacity of a measure to show any change whether it is meaningful or not.

Responsiveness, on the other hand, is the capacity to show a change that is clinically meaningful to the patient and/or the physician. The **responsiveness** of a measure is the criterion which ultimately determines the usefulness of any outcome measure in the evaluation of chronic conditions, but it is the measurement criterion least established for health status instruments.

Finally, the **practical utility** of a health status instrument needs to be assessed for a given setting.

In practice and research applications, the time needed to complete a questionnaire should be no more than 10–15 minutes to ensure compliance. In general, self-administered questionnaires are more practical than instruments requiring a trained interviewer. However, in multicultural populations, or where literacy levels are variable, a standardized interview might be the only way to obtain reliable information.

Strictly speaking, the validity and reliability of an instrument are characteristics of the instrument for a specific population and should be re-evaluated for a new population. This may not always be possible, but at the least, individual items should be inspected carefully to evaluate face validity and to make sure that all relevant outcomes and potential adverse consequences are included. The scale should cover the range of severity and the magnitude of the changes expected. A small pilot on individuals who are representative of those to be studied can be extremely informative.

Exercise 2

Imagine that you are asked to evaluate the effects of a defined health policy intervention (e.g. the implementation of a general health examination at the age of 40 years covered by health insurance). Define relevant outcome measures on the patient, provider and policy-maker level that would allow you to judge whether such an intervention is beneficial or not. Try to implement an evaluation strategy that will allow you to make inferences on short- and long-term effects.

The “costs” and “benefits” of health outcomes assessment

One of the principal tasks of health policy-makers is to decide how to translate health expenditure into more benefits. Increasingly decision-makers ask that every additional expenditure be justified according to expected outcomes. On the other hand, most countries have barely applied explicit criteria to establish a standardized set of health outcome measures and a methodology of assessment. Outcomes assessment on a broader level using morbidity and mortality – although frequently available from national data sources – are often insensitive to measure the effects of certain health interventions, particularly of those that target improvements in physical, mental and social functioning. In contrast, measures capturing multiple domains of health, such as generic or condition-specific measures, require substantial resources when applied on a larger scale. This has definitely held back a broad dissemination of such

measures. Moreover, until now, there has not been much empirical evidence on the true benefit of using population health status information in health policy decision-making. However, this will change when more data become available. Several countries have introduced measures of health status (such as the SF-36 or SF-12) into national or regional population-based health surveys, and an increasing number of health care providers are implementing patient-centred outcome measures to monitor the health of their patients.

Most multidimensional health status measures allow different modes of analysis, for example assessments on the level of health-related domains or an aggregation to global scores that reflect physical or mental health. Aggregated measures, however, may hide the underlying reality (e.g. defined aspects of health which have been targeted by a particular action). Hence, the selection of an outcome measure should be based on a clear sense of what it is anticipated will be measured and why. Outcome measures can be both generic and specific to a given problem. The generic measures are useful for looking at policy issues or reflecting the bottom effects of care on health status or aspects of quality of life.

Assessment of health status and patient-centred outcomes – on an individual or on a population level – is a continuous effort. Some outcomes (for example satisfaction with care) are very sensitive to policy actions, while others require time to achieve substantial changes (such as physical functioning). Since most health status and quality of life measures reflect a defined “time window” (e.g. the past month), it is necessary to implement several measurements to monitor the effect of a particular intervention. This is truly impractical on a population level (e.g. employing large-scale surveys), but manageable on the provider level. The challenge would be to aggregate this information into large databases to make it useful to policy and decision-makers.

Once health status information is available, it is necessary to guide potential users in interpreting it. Stratified analysis should allow a closer look at particular groups of the population, and graphical displays may be a useful tool in monitoring longitudinal data and the achievement of predefined health status targets. Users should also be educated in the magnitude of changes in health status that might be achieved by certain actions. While a 5% improvement in physical functioning might sound small for the individual, it is a substantial change on the population level.

Implications

In order to assess outcomes in health care it is necessary to make a distinction between process-related non-health dimensions and health outcomes. To assess health status, a multidimensional assessment should be performed, the absolute health status must be distinguished from the relative health gain related to health care system activities, and the health of individuals likewise distinguished from the health of populations.

Generally, measurement instruments for both health and non-health outcomes should be standardized, reliable, valid and responsive.

Health status and quality of life outcomes should become commonplace in the measurement of benefits from health expenditure and in the assessment of the structure and process of health care delivery.

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Further reading

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5.2.2 Costing²

Chris Selby Smith³

Key messages

- Costs refer to the benefits that are sacrificed elsewhere (foregone) when a given resource is used in the health care system. Resources have alternative uses: if they are not used in health care they could generate benefits elsewhere, for example in education, housing or the environment.
- Costs are wider than financial expenditure alone. Other resources especially need to be considered if their opportunity costs are not adequately reflected in market prices. Examples include voluntary contributions, the time costs involved for patients and their carers, and services contributed by religious orders.
- The total costs for a given health care activity should be compared with the benefits generated, to ensure that reallocation could not result in an increase in the total benefits achieved by society from the limited resources that are available. Thus, total costs must be estimated as accurately as possible.
- Total costs can be viewed from various perspectives. For example, different **types** of cost could be identified, such as the cost of staff compared to the cost of facilities, capital compared to recurrent costs, direct compared to indirect costs. Costs can be separated by reference to the **sources** from which they are met. They can also be distinguished by their **timing** and their level of **uncertainty**.
- Changing the distribution of the total costs for a given health care activity among the various parties to the complete resource allocation decision can alter the incentives they face and therefore the actions they take.
- The cost information that is, ideally, required by economists can be difficult to obtain. Three stages are often distinguished in costing studies: identification, measurement and valuation. Frequently the three stages are found to be progressively more difficult. As far as possible the approaches followed at each stage should be consistent in different studies, to facilitate comparisons and longer term learning.
- Cost information can be presented in ways which are more or less helpful for decision-makers. In general, cost information is not an end in itself but an aid to improved decision-making, better use of scarce resources in health care and improved outcomes.

Tutors' notes

This module provides material which is useful for:

- senior decision-makers in health care at national, regional or local level;
- managers of health care institutions;
- practitioners in the health care system;
- other decision-makers such as legislators; patients, their carers and families; and decision-makers in other sectors, which are competitive or complementary with health care in terms of resources used.

² Further references on costing matters are given at the end of the module. The book by Drummond et al. is particularly clear and useful (1). It has been drawn on extensively in preparing this module.

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An improved *appreciation* of the material in this costing module is valuable for all participants in the health care system, especially those with important decision-making responsibilities, for whom *appraisal* is also particularly relevant. The ability to conduct costing *analysis* need not be so widespread, especially in terms of the technical detail. However, the broad way of thinking can have wide applicability.

The exercises focus on costing aspects at the level of: national or regional decision-makers (Exercise 1), managers of health care institutions (Exercise 2) and health care professionals (Exercise 3). Each exercise asks participants to consider how the resources that are required can be analysed, used effectively and, if possible, augmented, and what implications there are elsewhere, either inside or outside health care. Participants are asked to distinguish between situations where the available resources are expected to grow and those where they are likely to diminish.

It is suggested that tutors seek to focus the discussion on how the costing information can be used to inform and improve decision-making, e.g. to enhance effective choice, to ensure scarce resources are used as effectively as possible, and to throw light on the equity or inequity of the cost distribution; and the effect of the distribution and redistribution of costs on the incentives for stakeholders (such as governments, individual health care institutions, health professionals and patients) and their subsequent decisions (in health care and perhaps elsewhere).

Tutors are requested to collect relevant costing studies of which they become aware (at each level and for the variety of possible decision-making situations) and to provide them to WHO in Copenhagen. Over time, the additional case studies will be a valuable supplement to the existing material.

Introduction

Resources are scarce. As a result, it is not possible to produce all the outputs which would be thought desirable. Thus, choices have to be made in health care as in all areas of human activity. These choices are made on the basis of many criteria, some explicit and some implicit. Economic analysis seeks to identify and make explicit one set of criteria which are useful in deciding how to allocate the resources that are available among the various competing uses for them.

The cost of alternatives is relevant to much decision-making in health care. Policy-makers in the health sector at national, provincial/state or regional level frequently compare the costs (and the consequences) of alternative programmes. For example, they may compare preventive care with curative care, one way of treating a disease with another, or the extra cost of drugs compared with the reduced hospital costs attributable to them through shorter lengths of stay. Similarly, policy-makers at national, provincial/state or regional level will be comparing health programme costs (and consequences) with those elsewhere, say in education, transport or housing. The relative costs and consequences are also relevant for decision-making by the managers of health care institutions and (although probably to a lesser extent) by health practitioners.

Costs are relevant for each type of economic evaluation in health care, including cost-minimization, cost-effectiveness analysis, cost-benefit analysis and cost-utility analysis. In fact, costs tend to be relevant to most, if not all, health care choices. When costs vary widely they can be a powerful influence on the decisions that are taken. However, costs cannot be considered in isolation; they have to be weighed against the consequences arising from the different courses of action.

An important point to remember when embarking on a costing study is that, to an economist, cost refers to the sacrifice of benefits involved when given resources, say trained labour or financial resources, are consumed in activity A, say in a particular health care programme, rather than in activity B, say elsewhere in another health care programme or in an activity in another sector, such as education, housing or transport. The true cost or sacrifice being made is represented by what is foregone, what economists term the “opportunity cost”. Therefore, in a costing study the analyst’s attention should not be confined to financial expenditure alone. The activity may use other resources.

The consumption of some of these resources may not be adequately reflected in existing market prices. Examples include the time patients or their families have to take off work or spend travelling for a health care treatment, the time contributed by volunteers, the below market wage earned by some health care workers (such as those in religious orders) or clinic space which has been donated rather than purchased or leased.

Koopmanschap and Rutten (2) argue that indirect costs (e.g. production losses from ill health) can make up a substantial part of the costs of health care programmes, and propose a method of measuring them. They conclude that indirect costs tend to play an important role if health care programmes produce health care effects relatively quickly, if there is a considerable effect on (short-term) absence from work, and if a significant proportion of the target population is employed at the moment they benefit from the programme.

This module focuses on general matters. More detailed discussions are available in the items in the list of further reading at the end of the module. In many practical situations the options available to the analyst are limited by the availability of data. In the longer term it is worth considering the utility of improving the data, but in the short term the limitations of the data may seriously constrain the precision of the cost estimates.

It is also important to recognize that many costing issues can be context-specific. For example, the viewpoint adopted for the analysis can be significant. Thus, what patients spend on travel is a cost from the point of view of the patient (and society generally), but not from the perspective of the ministry for health (unless it offers reimbursement). Similarly, workers’ compensation payments, which are a cost to the paying government and a gain to the patient (recipient), are a “transfer payment” and thus neither a cost nor a gain in society generally.

In some cases, certain costs are likely merely to confirm a result which would be obtained by consideration of a narrower range of costs. In such cases, it may not be worthwhile to complicate the analysis. However, such cost categories should be identified and some justification given for their exclusion (perhaps based on their small size, probable insignificant influence on the outcomes and the results of previous empirical work).

Total costs

To make a satisfactory estimate of total costs it is essential to know exactly what is to be costed. It is perhaps surprising that, in many costing studies, it is not possible to be clear about who is doing what, to whom, where and how often. Such clarity is a *sine qua non* for a satisfactory costing study. It also helps readers of a study to assess for themselves whether any relevant costs have been omitted. A similar point applies for consequences, but this is less relevant for the present module.

From the point of view of society as a whole, it is total costs for a given activity that are relevant. These are the total alternative opportunities that are being foregone to undertake this particular

programme. However, for individual participants in the health care activity only some costs may be directly relevant to them.

Total costs can be viewed from a variety of perspectives. This is considered further in the next section. However, one relatively simple and frequently used approach is to consider the total costs of a particular health care activity as consisting of three elements, as follows.

- (i) **The costs of organizing and operating the programme, including dealing with any adverse events caused by the programme.** In some costing studies, identifying such costs involves little more than listing the resource items used in the health care activity. Variable costs should be included, such as the time of health professionals, supplies and the leasing of equipment. Overhead costs should also be included, including such items as light, heat, rent or capital costs. Valuing these elements tends to be more difficult for the capital costs than for the recurrent costs.
- (ii) **Resources contributed by the patients or their families.** This would include the value of their time, for example while absent from work due to ill health or looking after family members when they are ill. These costs represent additional resources contributed to the treatment process. Patients may also make payments which cover some of the costs of organizing and operating the programme. To the extent that these contributions reduce the costs of (i) above, which were initially borne by other parties (such as the hospital or the government), patients are transferring costs between the various parties to the complete resource allocation decision rather than changing the total costs incurred by society generally.
- (iii) **Resources consumed (or reduced use of resources) in other sectors as a result of the health care programme or activity.** Some health care programmes, such as those for the elderly, consume resources from other public agencies or the voluntary sector. Occasionally, it may happen that the operation of a health activity or programme changes the use of resources in the broader economy. If these factors are substantial they should be included in the economic analysis, although for many health care programmes they are likely to be insignificant.

Once the relevant range of costs has been identified for the particular health care activity or decision under consideration the individual items must be measured and valued. Here there are two elements: (i) measurement of the quantities of resources used, and (ii) the assignment of unit costs or prices.

The measurement of **quantities** of resources often depends on the context for the economic analysis. For example, if an economic study is being conducted alongside a clinical trial, data on the quantities of resources may be collected on an integrated base, for example through the case report forms. On the other hand, if the economic study is free-standing, the quantities of resources may be estimated by a review of case notes or from routine data systems. However, it may only be possible to estimate the quantities of some resources by developing special data collections, for example by asking patients directly or getting them to keep a diary.

Generally, market **prices** will be available for many of the items of resources. Where this is the case the costing process is simpler and more robust. Theoretically, the proper price for a resource is its opportunity cost, i.e. the value of the benefits foregone because the resource was not available for its best alternative use. However, the pragmatic approach to costing, which is normally adopted, is to use existing market prices unless there is some particular reason to do otherwise. For example, the prices of some resources may be subsidized by a third party, such as a charitable institution or foreign donor. Other resources may be provided by volunteers.

Although the costing of resource items is often relatively unambiguous, there are a number of issues which can arise in costing studies. Some of these are discussed in the section on identifying, measuring and valuing costs below.

Various perspectives

Total cost can be divided into its components in a number of different ways. For example, Creese & Parker (3) have made a useful analysis of costs for programme managers, including a classification of costs, in terms of capital and recurrent inputs, by reference to the activity or function for which the resources are used and by the source (or provider) of the resources. Creese & Parker define costs as the value of resources used to produce something, including a specific service or set of services as in a health programme. Complementary material is also available, such as the methodologies and worksheets developed by WHO to assist managers of HIV/AIDS programmes who want to use cost analyses to facilitate their own decision-making. More generally, WHO headquarters in Geneva is developing a template for costing across health programmes, to improve methodologies, facilitate comparisons and strengthen accumulative learning.

At a more specific level, costing can be considered in relation to particular aspects of the health care system. Abernethy (4) argues that an understanding of hospital costing systems and their strengths and limitations is essential if the information these systems can provide is to be used in economic analyses. For example, an understanding of cost behaviour is critical for the planning of new services or the expansion of existing services.

In relation to the development of clinical costing systems, say in hospitals, Abernethy identifies two fundamentally different approaches. One approach is based on “cost-modelling” principles and the other on “cost-finding” principles. The cost-modelling approach could, for example, be based on the Yale Cost Model, developed by a team of researchers from Yale University, where the cost object is a diagnosis-related group (DRG). This is a top-down approach to costing which uses general ledger data and predetermined allocation statistics to assign all hospital costs to a particular DRG. The final result of the cost allocation process is an average cost for a patient within the particular classification.

The cost-finding approach is based on the cost accounting principles that are used in the product costing systems developed and implemented in the manufacturing sector. This approach is often referred to as a patient-costing system, because the cost object is the patient. The approach is based on actual costing principles. Thus, the cost of a treated patient is determined by tracing the direct costs associated with the individual services received by the patient as well as an allocation of indirect patient and non-patient care expenditure (e.g. hospital overheads). This type of system adopts a bottom-up approach. The smallest cost object is the actual service, for example a laboratory test, received by a patient. The cost of this test can then be added to the costs of all other clinical services provided to a patient to arrive at a cost measure for the treated patient or other defined cost object.

In many costing systems in health care the absence of capital cost information is a significant limitation. Capital costs are particularly important in some types of service and in the treatment of certain types of patient.

The resources consumed by a particular programme in the health care system can also be considered in terms of sector, source of funds and type of cost. The total resources used in the programme are the same but they are viewed from different perspectives. In money terms, the quantities of each component are measured and the total cost is calculated by multiplying the quantities by the relevant prices for each component.

In reporting as well as calculating the costs it is important to show the units of each input and their prices separately (the “ingredients” approach). This facilitates comparisons, the generalization of results across settings, and the extrapolation of historical experience to new settings or new combinations of prices and quantities. Thus, work undertaken in one context can have maximum relevance for decision-makers in other contexts. The reservoir of knowledge (5,6) increases more rapidly, with benefits for other decision-makers and researchers.

Sectors

In terms of resource consumption by the sector which bears the costs, a threefold distinction can be made: the health care sector, participants in the programme and their families, and other sectors. This is the approach outlined above. Note that the net costs borne by a sector can be positive or negative, as when participants’ true costs are more than compensated for, say by generous travel allowances or per diem payments. Resource consumption in the health care sector includes those costs borne by the sector, such as organizing and operating the programmes (ideally in terms of opportunities foregone). Note, however, that the costs to the health care sector include not only the initial programme but also any continuing costs associated with it. For many health activities there are substantial continuing costs.

Secondly, costs can be incurred by the participants in a health care programme (or their families). For example, participants may not be fully recompensed for the cost of participating (travel, attendance fees, accommodation, etc.). The leisure activities or work time of participants can be reduced, which in turn affects the valuation of the time contributed to the health care programme in terms of opportunities foregone. If participants were unemployed or underemployed the opportunities foregone tend to be less. Note that the opportunity cost of participation is not necessarily equal for each family member. For example, if in some countries or regions the opportunity cost of an absence from home of the mother of a family, say for an activity lasting a week or a fortnight, is substantially greater than for her husband or son, this is likely to affect programme participation by gender.

Thirdly, resources can be consumed in other sectors. For example, some health care programmes use resources in the education sector such as universities, technical institutes or research organizations. Many health care programmes also rely on resource inputs from the voluntary sector, with implications for such matters as costing, sustainability and continued availability for an expanding programme. To the extent that these resources are diverted from other worthwhile activities, opportunity costs will be incurred. These can be substantial.

Sources of funds

Four sources of funds are particularly relevant for health care activities in many less developed countries: national sources, whether public or private, including those from the health sector; WHO resources; other official sources of funds, such as the World Bank or similar regional bodies; and contributions from the voluntary and nongovernmental sector. Resources can be provided in cash or in kind. Since the sources of funds are additive, the total cost of a programme is the sum of the national contribution and the contributions from other sources.

There is a tendency for particular stakeholders to view costs in terms of what it costs them. Thus a national health authority which funds two thirds of one programme but only a third of another, whose total costs are equal, is likely to favour the latter even if the former programme has a higher ratio (up to twice as high) of overall benefits to overall costs (i.e. is a much more desirable programme on the basis of overall economic evaluation). To the national health authority one programme can look

less costly than the other, although in truth their total resource costs, including the costs borne by all parties, are equal. Other stakeholders are likely to act similarly.

From the donors' point of view, varying the levels of subsidy for particular programmes can provide differential incentives for national health authorities to act in particular ways. This would be a method of achieving maximum health care outcomes for the donors from their limited resource budgets, but it requires information on costs and consequences which is often not available. National health authorities can act in analogous ways to encourage particular activities by subordinate levels of government or by the private sector.

Another classification of health care costs, overall or by reference to particular programmes, focuses more on the internal sources of resources. For example, a distinction might be made in federal systems between resources contributed by the national authorities and the resources contributed by state, provincial and regional governments. Another distinction which is often drawn is between costs borne by the public sector and those borne by the private sector. In most advanced countries the proportion of total health care costs borne by the public authorities has been rising, but in some countries the private contribution is still as high as a quarter to a third. A further distinction is sometimes made within the private contribution to health care expenditure, between contributions through health insurance arrangements and contributions made directly to providers by patients or their families at the point of service.

Types of cost

Here, a major requirement is consistency, for example between the classification of costs in different programmes, in different countries (or regions) and for the various sources of funds. Comparisons tend to be unreliable if the data are not consistent. Consistency in the data is likely to be more readily achieved prospectively than retrospectively. It is important that double counting of costs does not occur. In the real world, it may be necessary to ascertain what classifications are most widely available and, so far as good practice permits, build on them. Note that some of these costs are represented by financial expenditure whereas others are opportunity costs. Ideally, the financial estimates would approximate closely to the true opportunity costs of using the resources for these activities. In practice, this is not always so.

Against this background a classification of cost headings could include such items as the professional staff in continuing employment who provide the health care activity. This would include the wages, salaries and on-costs⁴ for the health care workforce – doctors, nurses, dentists and allied health professionals. The health care activity would represent the entire workload of some staff but only a part of it for others. In the latter case an estimate is required of the appropriate proportion of their salaries and on-costs which should be allocated to the particular health care activity which is being costed (including any follow-up activities). In many cases estimating the appropriate proportion is likely to involve judgement and approximations. In some cases the particular health care activity being costed will involve additional costs for the participation by members of the health workforce, such as for daily allowances, food or accommodation.

Secondly, the costs would also include the wages, salaries and on-costs of those professional staff who are temporarily employed to undertake the necessary work for the health care activity being costed. They may be employed solely for this health care activity, in which case costing is facilitated because there is no need to apportion their costs between more than one health care programme. The

⁴ The costs of a person while engaged in a health care activity other than salaries/wages.

intention is to estimate the full cost attributable to the programme, again including any follow-up activities involved.

A third category of costs relates to facilities, equipment and materials. When there are dedicated items which are used solely for the particular health care activity being costed their total annual costs would be included. This may often be the case for materials. However, in the frequent cases where, for example, facilities and equipment are shared between health care activities or programmes the total costs would need to be apportioned between them.

A number of methods have been proposed to allocate such shared costs between health care programmes, such as direct allocation, step down allocation, step down with iterations or simultaneous allocation (1, pp. 62–66 and the worked example at pp. 74–81). Judgement and approximations tend to be required. Often there is no unambiguously correct way to apportion such common costs between different users or health care programmes. Frequently, facilities and equipment will be used for a number of years, in which case the overall costs also need to be allocated over time. The cost of facilities, equipment and materials includes the recurrent costs of using them for the health care programme, say over an annual period, and a portion of the capital cost which equates to their use over that period for that health care programme.

A fourth element of cost relates to administration. This includes the wages, salaries and on-costs of administrative staff, including support staff, cleaners, cooks, janitors and those who work in the central administrative services such as finance and budgeting, human resources, planning, public relations and information technology support. There are also related costs, such as their accommodation, equipment and consumables. In theory, these overhead costs should be allocated, in an appropriate proportion, to the individual health care activity being costed. In practice, this often proves difficult and rough approximations are adopted for estimating these costs by health care programme.

Some implications

First, if the costs of a particular health care intervention (the point applies also to consequences) have been evaluated in a setting that is technically inefficient, while the costs of another intervention have been estimated in a setting that is technically efficient, conclusions on relative costs (and relative efficiency and their relations) can be biased. The confounding effect of variations in technical efficiency across study locations for the development of generalized comparisons of costs and consequences from alternative health care interventions, for example on cost–effectiveness league tables, needs to be minimized. At the same time, systematic variations in technical efficiency (due to such factors as health system characteristics or epidemiological patterns) should be incorporated.

Second, there can be stronger linkages between certain types of cost and certain sources of funds or sectors than others. It is worth looking out for such linkages when undertaking cost studies. For example, it may be that national or regional health authorities are more likely to finance local support services, participants are more likely to fund the opportunity costs of participating in health care activities, and external donors are more likely to finance visiting experts. If particular stakeholders focus on some costs rather than others, there can be a danger that no party is primarily concerned with the overall balance of costs (and benefits) for the health care programme or between programmes. Yet that is essential for achieving the optimal allocation of resources. It is a particularly serious problem if the national or regional health authority adopts a partial view, for example, if it focuses only on the costs it bears. Improved information on overall costs and their distribution among all the parties to the complete resource allocation decision tends to act as a counterweight to any partial viewpoints which may be fostered by prevailing arrangements.

Third, there is a challenging managerial and coordinating role to bring the disparate cost components together in a coherent whole so as to facilitate informed decision-making by national health authorities. Consideration of costs in terms of the different types of cost, the different sources from which the costs are defrayed, and the different sectors which bear the costs, raises implications for managerial decisions in the health care sector about alternative ways of providing health care in general or an individual programme in particular. Consider the following.

- At what scale should the programme be provided? Some costs, such as the initial development costs, may increase relatively little with growing participation in the programme. If the fixed costs are large, the average costs can fall sharply as participation increases. Other costs, such as the opportunity costs of participation, may fall relatively little. If the total costs are mainly fixed costs, average costs decrease markedly, whereas if total costs are mainly variable costs, average costs do not decrease much at all as the health care programme increases in size.
- What should be the breadth of geographical participation? Knowledge of the cost function can be most helpful in informing managerial decisions. For example, there may be a decreasing average cost of providing the health care activity as participation increases, but each participant may incur extra costs, for example for travel, accommodation and absence from employment. If the public authorities (or a donor organization) meet the cost of providing the programme, but participants have to bear the costs of attendance, equitable access (including geographical participation) is likely to be limited.
- What should be the balance between the capital and recurrent costs when providing particular health care programmes? Greater use of distance approaches or electronic participation increases some costs, including capital costs for infrastructure. However, such approaches could sharply reduce travel costs for (at least some) attendees or the recurrent costs of participants who previously had to be absent during working hours (assuming they had access to the necessary facilities). Capital costs may be paid from a different budget than recurrent costs. Knowledge of the cost function facilitates appropriate decisions by managers about the substitution possibilities between capital and recurrent costs.

Fourth, various equity aspects of health care programmes can be highlighted through consideration of resource use in terms of the different types of cost, the different sources from which costs can be defrayed, and the different sectors which bear them. Analysis of the costs of different programmes, or programmes provided in different ways or different places, can reveal interesting patterns. Are the most expensive or most heavily subsidized programmes accessed equally by the rich and poor, the powerful and the powerless, women and men, young and old? Do programmes involving an absence from home and workplace enable men and women to participate equally? Do programmes provided face-to-face in a particular location (say the capital city) enable non-metropolitan staff in that country or relevant health care workers in other countries to participate as much as programmes which are delivered by distance approaches or electronically? The total costs and their distribution, while not all the information required, often throw light on some of the reasons why there is unequal access to health care programmes and how cost aspects contribute to inequitable outcomes.

Identifying, measuring and valuing costs

The cost information required for the optimal allocation of health care resources is often difficult to obtain. Three stages can be usefully distinguished in costing studies: identification, measurement and valuation. While these occur simultaneously in some economic analyses, it is good practice to consider each as a separate phase of the analysis (and for users to evaluate the results in this way). The three stages often tend, in practice, to be progressively more difficult.

Identification

Even though it may not be possible to measure and value all of the costs and consequences of the health care programme under consideration, a full identification of the important and relevant ones should be undertaken. Identification consists of listing the likely resource implications of the health care intervention or activity as comprehensively as possible. Decisions can then be made about which effects should be included and which might reasonably be excluded. The perspective which is adopted for the study influences these decisions (e.g. society in general, particular groups or individuals who are affected, or other stakeholders) but, as mentioned previously, the perspective (at least) of overall society should generally be considered.

Measurement

Once the important and relevant costs have been identified, they must be measured in appropriate physical and natural units. For example, “measurement of the operating costs of a particular screening programme may yield a partial list of ingredients such as 500 physical examinations performed by physicians, 10 weeks of salaried nursing time, 10 weeks of a 1000 square foot clinic, 20 hours of medical research librarian time from an adjoining hospital, etc. Similarly, costs borne by patients may be measured, for instance, by the amount of medication purchased or the number of times travel was required for treatment, or the time lost from work while being treated.” (1).

Situations commonly arise where resources are used jointly by one or more programmes. These situations present a particular challenge. For example, in every hospital and in many other health care activities, numerous clinical services and programmes share centrally provided common overhead services, such as cleaning, administration, heating, light and power.

In general, there is no non-arbitrary solution to the measurement problem. “Costing in a multi-product firm is a difficult task, particularly when the final product is an amalgam of many intermediate products. There is no easy solution.” (4), especially where a large proportion of costs, as in many hospitals, is both indirect and fixed. However, users of results should satisfy themselves that reasonable criteria, such as number of square feet, number of employees or number of patients, have been used to distribute the common costs. Sensitivity analyses can also be helpful in showing whether (and where) different assumptions would make a significant difference to the cost estimates. Users should definitely ascertain that the shared costs have, in fact, been allocated to the participating health care activities or programmes.

The form in which the measured costs are reported also justifies attention. When making certain decisions it is helpful to know the distribution of costs, as well as their mean and median. There can be situations where the outliers are of particular interest. Aggregation of costs may result in more accurate costings for subgroups of interest being lost in the overall results.

Valuation

The sources and methods of valuation of the costs should be clearly stated. Costs are normally valued in units of local currency, based on prevailing prices of, for example, personnel, commodities and services. They can often be taken directly from programme budgets. All current and future programme costs are normally valued in constant dollars of some base year (usually the current year) in order to remove the effects of inflation.

The objective in valuing costs is to obtain an estimate of the opportunities foregone by using the resources in the particular health care activity rather than elsewhere. This may necessitate adjustments

to some apparent programme costs. For example, this would be the case for donated facilities, subsidized services or labour contributed by volunteers that are received by one programme but not another. It is also relevant where such services would not be available in larger quantities if the programme was to be expanded.

Valuing the cost of institutional care for a specific condition can present particular difficulties. The use of an average cost per day, calculated on the basis of the institution's entire annual case-load, is almost certainly an over- or underestimate of the actual cost for any specific condition. The difference can sometimes be quite large. For example, accommodating an extra patient in a hospital bed which would otherwise have been unused generally results in extra costs that are well below the average cost for the whole institution.

Top-down or bottom-up costing

In principle, and with great effort in practice, it is possible to identify, measure and value each depleted resource, such as drugs, nursing time, lighting and food, in treating a specific patient or group of patients. This yields a relatively accurate cost estimate but the detailed monitoring and data collection can be expensive and time-consuming. Another broad costing strategy is to start with the institution's total costs for a particular period and then to improve upon the method of simply dividing by the total number of patient-days to produce an average cost per day. Quite sophisticated methods of cost allocation to individual hospital departments or wards can be used. An intermediate method is to accept the components of the general average cost for hotel functions (since these are relatively invariant across patients) and to combine this with more precise calculations of the medical treatment costs which are associated with the specific patients in question. Of course, the effort devoted to accurate estimates depends upon their overall importance in the study. However, in general, unthinking use of average costs should be avoided.

Non-market items

There are particular problems when values are imputed for non-market items, and also when it is judged that existing market prices should be adjusted. In relation to the former, the major non-market resource inputs to health care programmes tend to be contributed services or facilities, volunteers' time, and patients/families' leisure time. One approach to their valuation is to use market rates. For example, unskilled wage rates might be used for valuing the time contributed by volunteers, on the basis of a value of lost leisure time of anything from zero through average earnings to average overtime earnings (on the grounds that this is the price that an employer must pay, at the margin, to buy some leisure time from the worker). A common practice is to value lost leisure time at zero in the primary analysis and then investigate the impact of other assumptions through sensitivity analysis. A slightly different approach is to identify and measure units of, say, voluntary input and document these when reporting results. The decision-maker can identify those programmes that rely heavily on volunteers and make appropriate adjustments if these are judged necessary.

In relation to the need to adjust market prices, it has long been recognized that, owing to imperfections, market prices may not reflect opportunity costs. For example, hospital charges will not equal costs if the cost of one activity is subsidized by another; and physicians' fees may not reflect the relative skill level for different procedures. Drummond et al. (1) suggest that before analysts adjust market prices, they should be convinced that two conditions are satisfied: first, that leaving prices unadjusted would introduce substantial biases into the study; and second, that there is a clear and

objective way of making the adjustments. These issues have been explored most extensively in the context of hospital charges in the USA (7).

Note that if the economic study is being undertaken from the viewpoint of a third party payer, the actual charges may be more relevant than the costs. Yet even this approach is not necessarily clear cut, for instance when the third party does not pay the full amount billed. And from the point of view of society, the total opportunity costs continue to be relevant.

Two other matters are worth noting. First, the boundaries of a health care activity or programme, and thus its costs, are not always easy to define precisely. They may require careful consideration. For example, many health care programmes involve not only initial expenditure but also updating and refresher activities, which require further uses of scarce resources. Health care programmes may require changes in cooperating factors, such as operating procedures, work organization, technology and management (even changes in other sectors which are complementary to the health care activity), if the full benefit is to be obtained from the programme in terms of health care outcomes. In addition, the human capital created by many health care activities often yields benefits over a long period of time.

Second, how the resources to defray the costs incurred for a particular health care programme are raised can have implications for how they are spent. Both the aggregate level of health care expenditure and how it is distributed can be affected by how the required revenue is raised. For example, if health care consumers have to meet costs from their own pocket at the point of service they are likely to act differently (e.g. seek less services) than if the costs are defrayed from public revenues raised through taxation. Total health care costs will tend to be lower in the former case, and the distribution of total costs between the various parties to the complete resource allocation decision will also be different.

Handling capital costs, average and marginal costs, timing and uncertainty, and incentives inherent in the distribution of costs

Handling capital costs

Costs include capital as well as recurrent costs. Recurrent costs are included in the estimates of resource use for the time period in which they were used, e.g. the current year. But how should capital outlays be handled, such as those for land, buildings, equipment or other long-lasting assets? The flows of resources from these capital assets being used for the process of providing the health care activity should be added to the relevant recurrent costs, not the entire stock of the capital assets (which can be expected to continue to produce flows of useful resources for productive health care activities over a number of years). "Capital costs represent an investment in an asset which is used over time" (1): in time, they wear out or depreciate (although land may not depreciate). Frequently, capital costs are not listed in the accounts or budgets of the organization (especially public organizations) because they have been funded in advance, sometimes by a one-off grant.

Capital costs can be thought of as comprising two components. The first component is the opportunity cost of the resources represented by the capital asset. For example, the land used for a hospital could have been used for something else, perhaps a school, public housing or a park. The cost is the foregone opportunity to use the resources in some other activity which would yield positive outcomes. This value is usually calculated by applying an appropriate interest rate to the amount of

resources invested. The second component of the capital cost represents the depreciation over time of the asset itself. Various accounting procedures, such as straight line or declining balance, can be used in the accounts of the organization. However, accounting practices may relate more to company tax laws governing the depreciation of assets than to the real change in the value of the asset. Note that if capital outlays relate to resources that are used by more than one programme, they require to be allocated between them.

Average costs and marginal costs

Economists draw an important distinction between **average costs** per unit of output in a given health care activity and **marginal costs**, which are the extra costs of producing one more (or less) unit of output. Where average costs are falling, for example where there are high fixed costs for the programme and participation is increasing, marginal costs are below average costs, sometimes well below. Conversely, if average costs are rising, for example in a poorly managed health care facility, marginal costs will be higher than average costs as participation in the health care activity increases. To remain viable a health care programme has to cover its average costs over a reasonable period of time, but in terms of small changes in the level of activity it is the marginal costs that should be related to the extra benefits likely to be received. It is desirable to record capacity utilization, so that the cost figures can be interpreted appropriately (and remedial action taken, if required).

When making a comparison between two or more health care activities (or a health care activity and an activity in another sector of the economy) it is worth asking what would be the extra costs (and consequences) of having a little more or a little less. In practice, it is important to recognize the difference between average and marginal costs (and to appreciate its potential significance for decision-making), although it is often the case that the issue can only really be explored in the context of specific locations or situations. For example, the extent to which costs can be saved when the average hospital stay for patients is shortened depends on the flexibility which is available locally and the time period over which the change is made. Freed resources will not always be redeployed efficiently. For example, if unemployment is high, reduced labour requirements may well not result in higher output elsewhere. Analysts have a responsibility to point this out explicitly where it is significant for the cost estimates and has implications for decision-making.

Timing and uncertainty

The cost estimates may need to be adjusted for timing and for uncertainty. This is not a problem if all the costs are incurred immediately, but often costs are spread over a period of time. In particular, alternative uses of resources may have different time profiles of costs (and consequences). The time profile of costs and benefits can also differ within a single health care programme. Future cost streams are reduced or “discounted” to reflect the fact that the resources spent or saved in the future should not be weighted as heavily in programme decisions as resources spent today. This is primarily due to the existence of what economists call time preference. Individuals and societies prefer to incur costs later (and receive benefits sooner) because they can benefit from them in the meantime.

Time preference arises for various reasons: individuals (and to a lesser extent societies) may have a short-term view of life: the future is uncertain – with positive economic growth, individuals and societies expect to be more wealthy in the future, and since most individuals appear to have a positive rate of time preference, a positive return can usually be obtained when making a riskless investment. Note that the notion of wanting to postpone costs (or preferring benefits today) extends beyond money transactions to goods and services that cannot easily be traded.

Also, life contains uncertainty and imprecision, and so do cost estimates. Careful analysis can help to identify critical methodological assumptions or areas of uncertainty. Analysts often attempt to rework their analyses, employing different assumptions or estimates to test the sensitivity of their results and conclusions. If large variations in the assumptions do not produce significant alterations in the cost results, they tend to have more confidence in the original estimates. If the converse occurs, more effort is required to reduce the uncertainty and improve the accuracy of the variables that are particularly significant for the cost estimates. Such sensitivity analyses are an important element of a sound costing exercise. Where the cost data are stochastic (i.e. have a mean and variance), rather than the point estimates which have often been used in the past, tests of statistical significance can be performed or confidence intervals presented.

Incentives inherent in the distribution of costs

The distribution of total cost among the various parties to the complete resource allocation decision, that is the costs they bear, can have important incentive effects and affect the actions of decision-makers. To take a simple example, a particular health care activity may clearly be a worthwhile use of scarce resources when viewed in terms of its total costs in comparison with its total benefits. However, if the costs are all borne by one party and the benefits are all received by another party, the former will be unenthusiastic. If they are powerful, either economically in a market situation or politically in a public-provision situation, they may well block the effective implementation of the programme. Of course, many real life situations are not as blatant as this, and reallocation of the costs (and benefits) can promote a less confrontational situation. Nevertheless, the distribution of total costs generates a particular pattern of incentives for participants which is likely to influence their decisions (such as whether to participate in the programme). Participants may react to incentives which exist but were not consciously intended, or to incentives resulting from cost distribution patterns which have been proactively designed to encourage particular actions, such as participation in screening programmes. Knowledge of the distribution of costs, as well as of their total size and composition, is necessary for effective health care decision-making, whether this is aiming at achieving an efficient use of scarce resources or equitable outcomes.

Presentation of cost information

The **purpose** of collecting, refining and analysing the cost estimates for different health care programmes, or for the health sector as a whole, is to improve decision-making. Cost information is not the only input required for decision-making in health care, but high quality decision-making without adequate cost information is generally impossible.

There are many purposes for which cost information is relevant, and the particular cost information required can only be determined in the light of the specific objectives of the decision-maker. Abernethy notes that “costing information may be required to determine the cost of a particular patient for cost reimbursement purposes, or for comparing costs of different diagnosis-related groups, or for determining the cost of a laboratory test to establish a price. Alternatively, the management of a hospital may wish to use costing information for developing a clinical budget and subsequently to monitor performance. These decisions require different types of cost” (4). No decision-makers are likely to achieve their goals unless they are clear about what they want to achieve and carefully marshal the means (including cost information) by which they can reasonably expect to get there.

Different decision-makers will, perfectly legitimately, have rather different objectives, or a rather different balance between different objectives. For example, politicians or bureaucrats in central agencies at national level are likely to be concerned with the appropriate balance between the overall public and private sectors, and between health care and other competing uses for resources, while politicians and bureaucrats in the health sector at state, provincial and regional level are likely to give a greater priority to health care, their geographical area, and perhaps public sector activities. Those decision-makers responsible for particular health care institutions, such as hospitals, facilities for the care of the aged or community health centres, are likely to focus more on obtaining what they regard as their fair share of resources and using them effectively to produce efficient and equitable health care outcomes. Individual practitioners and the consumers of health care services are likely to focus more on their specific concerns within the overall structures and incentive patterns established by higher level decision-makers. Cost information is relevant to the decisions of all these participants in the health care system. However, their focus differs as does the cost information they want, when they get it and how they use it.

The **way** in which cost information is collected, analysed and presented can make it easier or more difficult for decision-makers to use it effectively. “The importance of identifying the limitations of the costing information and the potential effects on the results of economic analysis cannot be overstated” (4). For example, it has been increasingly recognized that disaggregated information is required by decision-makers, as well as the final summary result. They need to know how the information was obtained, what assumptions had to be made, what approximations were employed, how sensitive the cost results were to different (plausible) assumptions or approaches and so on, in order to know how much reliance to put on the final cost estimates and their components. Writers of economic studies are now encouraged to report prices and quantities separately, rather than expenditure totals alone. Similarly, if costing studies are not publicly available they are not likely to be subject to the same level of critical scrutiny. In the long run this militates against improvements in technique, the growth of shared knowledge and accumulative learning, all of which contribute to growth in the reservoir of knowledge available for future users, whether policy-makers, practitioners or researchers (6).

Thirdly, it can be helpful to decision-makers – depending on precisely which questions they are concerned with – to have cost information not only about total costs, but also about their composition and distribution. It is necessary to know the magnitude of **total costs**, for example, when decision-makers in central agencies, the government or parliament are considering whether to use scarce resources in the health care sector or elsewhere, or comparing alternative uses for resources within the health care sector. When other things, especially the expected benefits, are similar, activities that are less demanding in their use of resources will be preferred over more expensive activities. The **composition** of costs, for example between different types of expenditure or between different sources, can also influence decision-making. For example, if an existing activity is heavily dependent on contributed facilities or on voluntary labour, it may not be possible to expand its scale without a significant increase in costs. Or if foreign donors provide many more resources for some health care activities than for others, the former will tend to be preferred over the latter by domestic decision-makers (assuming other things are equal). The **distribution** of costs can influence the actions of individual parties to the complete resource allocation decision by changing the incentives they face to participate or withdraw. If the existing pattern of incentives resulting from the current distribution of costs (and consequences) is judged to be undesirable from the point of view of efficiency or equity, it may be possible to reallocate the costs (even if the total costs to society are unaltered) to achieve more satisfactory outcomes.

Finally, the linkages between costing studies and health care decision-making can often be improved. Decision-making in health care is a complex process, involving many actors, and costing information is only one input into their decisions (often it is not the most important input). Research and investigation, including for costing purposes, is a domain which has many differences from decision-making, whether at policy-making or practitioner level. Sometimes decision-makers are concerned about the quality of costing studies, including the large number of assumptions that are made. Health care practitioners, who usually have some knowledge of biomedical research, tend to be more comfortable with evidence based on randomized controlled trials rather than on modelling studies. Thus, the type of costing study can affect where it has an audience and how it might be used in decision-making. Sometimes studies, particularly those conducted at a distance, do not adequately reflect the concerns of local decision-makers. For example, many economic studies in health care do not examine the costs of implementing the preferred course of action. Other studies appear to assume that savings, such as in reduced hospitalization costs, can be realized easily. However, from a local decision-making perspective these can both be significant issues. It is important that decision-makers have adequate access to costing information and that the results are communicated in a way that busy decision-makers can readily understand.

Research, including improved knowledge about costing matters, is cumulative. Much research does not stand on its own as isolated work but adds to that which existed before. This accumulating body of knowledge (it can also be diminished or unavailable) can contribute to the improvement of particular techniques or methodologies as well as to the creation of a climate of opinion and the development of a set of ideas, so that at any given time certain ideas, approaches or ways of thinking are “in” while others are not. The outputs of research and development, including costing studies, also include human capital, such as research skills and attitudes and trained personnel.

The potential for different emphases by researchers and decision-makers underlines the importance of linkages between them, the desirability of two-way flows of information throughout the costing study (not solely when it is completed) and the benefits from collaboration, based on diverse contributions including costing expertise, to improve health care processes and outcomes. An emphasis on linkages increases the mutual responsibilities of the parties. Enduring linkages, based on sustained mutual esteem and an understanding of the potential contribution of each party, are critical to enable costing studies and approaches to contribute effectively to high quality decision-making by policy-makers and practitioners.

Exercise 1

You are a senior decision-maker at national level in the health ministry. You are seeking:

- a. to obtain as many resources for the health sector as you can in competition with potentially valuable uses of the resources in other sectors, such as education, transport, defence and public order;
- b. to ensure that the resources provided for the health sector are used in the most efficient, effective, economical and equitable fashion.

What cost information would you use for each purpose, if it was available? If it was not available, to what extent would you seek to develop it?

Exercise 2

You are a manager of health services, say a hospital, facility for care of the aged or community health centre. How would you use the information available to you on costs to combine resources and produce health care outputs in the most efficient and equitable way?

What other information on costs would be useful? To what extent would the extra cost of generating it be justified?

To what extent would your use of costing information encourage continuing improvements in the future?

Do actions taken by you either increase or decrease the costs borne elsewhere in the health care system (including by patients or their carers)?

Finally, if the resources available to you are shrinking, would you use cost information in the same way as when they are growing? If not, what would be the differences and why would they occur?

Exercise 3

You are a practising health care professional, say a doctor, nurse, pharmacist or dentist. How can you use the resources which are available to you to produce the best outcomes for your patients?

To what extent can you reallocate the resources to which you have access? In what ways would reallocation improve the outcomes for your patients (and any other stakeholders)?

Are there any ways in which the available resources could be augmented by you? Are there constraints on your practice which increase costs, especially if they do so without improving outcomes?

Do actions taken by you either increase or decrease the costs borne elsewhere in the health care system (including by patients or their carers)? Do you take these factors into account when making your decisions?

Finally, if the resources available to you are shrinking rather than increasing, how would you decide which activities to reduce and to what extent? How would your approach differ from the approach you would follow when resources are increasing (and why)?

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5.3 Evaluation

5.3.1 Economic evaluation

Michael Drummond⁵

Key messages

- There are a number of criteria that might be used in evaluating health care treatments and programmes.
- Economic evaluation is concerned with assessing efficiency or value for money.
- There are many forms of economic evaluation (e.g. cost–effectiveness analysis, cost-benefit analysis) but all compare the costs and consequences of treatments and programmes.
- It is important to understand the key methodological principles of economic evaluation, including the consideration of an adequate range of alternatives, the use of good evidence of effectiveness and allowance for uncertainty in estimates.
- Economic evaluation can be used in association with a range of policies to encourage the rational diffusion and use of health technologies, including planning specialist facilities, reforming payment schemes for institutions or health care professionals, and developing health care practice guidelines.
- Economic evaluation can be used to assess health-producing measures in different sectors of the economy, including road safety, environmental protection and occupational health.

Tutors' notes

A wide range of groups within the health care system would benefit from understanding more about economic evaluation.

The core exercise in this module (Exercise 1) is aimed at the level of (critical) *appraisal* of economic evaluation methodology. It can be used with the following groups:

- civil servants and other governmental technical staff
- health service managers
- health care professionals (e.g. doctors, nurses).

⁵ This module was prepared by Professor Michael Drummond, Centre for Health Economics, University of York, York, United Kingdom (e-mail: chedir@york.ac.uk).

Particular benefit can be achieved by running the exercise with a multi-professional group.

The exercise requires the group to have access to a published study relevant to their own setting. The choice of the study is left to the tutor, but as a fallback the paper by Mark et al. (1) can be used, as a worked answer is provided in the book by Drummond et al. (2).

The second part of the module (including Exercise 2) is aimed at the level of *appreciation* and can be used with the following groups:

- policy-makers (e.g. elected officials)
- civil servants and other governmental technical staff
- health service managers.

It may also be used with health care professionals, but would probably need to be structured around a specific issue, such as the purchase of a piece of equipment, the listing of a drug on the formulary, or the development of a health care practice guideline.

The third part of the module will be of most interest to individuals with broader responsibilities for health and health care. It is aimed at the level of *appreciation* and could be used with policy-makers and civil servants. It could also be of interest to such officials in finance and ministries other than health.

Introduction

There are a number of criteria by which health care treatments and programmes can be evaluated. These include effectiveness, equity, access and efficiency. Different actors outside and inside the health care system (e.g. politicians, managers, health care professionals and patients) will place different emphases on the various criteria. For example, politicians may be particularly interested in equity or fairness in the distribution of health care resources, professionals will normally be most interested in effectiveness and managers will be most interested in the budgetary consequences of health care interventions.

Increasing pressures on health care budgets have led decision-makers to search for methods of assessing the value for money from health care treatments and programmes. In economic evaluation, programmes are compared in terms of their costs and consequences. The consequences typically include improvements in health outcomes and savings in health care resources.

There are a number of forms of economic evaluation, each following the same general methodological approach but differing in the extent to which the health outcomes are measured and valued. For example, in **cost–benefit analysis** attempts are made to value all the costs and consequences in money terms. On the other hand, in **cost–effectiveness analysis** the health outcomes are measured in the most appropriate natural units, such as life-years gained or disability-days avoided.

Economic evaluation is a multidisciplinary activity, to which many health care professionals can contribute. For example, clinicians and epidemiologists can advise on the quality of evidence on the effectiveness of the interventions being evaluated. Conversely, administrators and finance personnel can provide data on the costs of interventions. Usually, economic evaluation requires a synthesis of information from a number of sources, including clinical trials, observational studies and routinely available data sets.

It should be remembered that economic evaluation is an aid to health care decision-making, not a substitute for decision-making itself. Indeed, it incorporates a number of important value judgements and its contribution is to make these more explicit for the person ultimately taking the decisions.

The first part of this module deals with aspects of the methodology of economic evaluation, since it is important that health professionals and policy-makers understand how to tell a well conducted study from a poor one. The second part deals with the application of economic evaluation in health care decision-making, by exploring the potential decision-making mechanisms in which economic evidence could be used. Finally, the third part of the module extends the discussion to a broader range of interventions to improve health, including not only health care but also investments in other sectors of the economy such as road safety and environmental protection.

Methodological features of economic evaluation

The basic components of economic evaluation are set out in Fig. 1. The methodological features of economic evaluation have been well documented elsewhere (2,3).

Fig. 1. Components of economic evaluation in health care

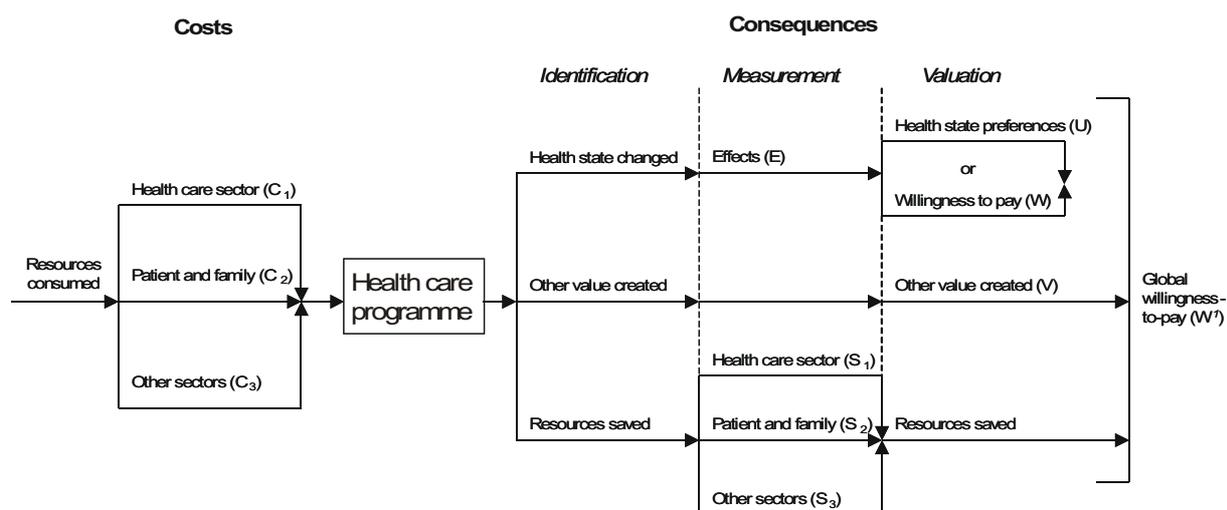


Table 1 contains a checklist of questions to ask of a published study. The main features of this are as follows.

- (i) The **study question** should be clearly stated. In particular, it should be clear whose point of view is being considered when costs and consequences are assessed. (Possible viewpoints are those of the hospital, health care system, government or third party payer, patient and family, or society as a whole.) Normally the viewpoint of society as a whole is preferred.
- (ii) The **alternatives** for evaluation should be clearly described. Normally a new health care treatment or programme should be compared with current practice or a widely used existing treatment. Comparisons can be made in terms of health, money or utility.
- (iii) The **effectiveness** of the alternatives being compared should be reliably assessed. In the case of health care treatments, the most reliable evidence comes from randomized clinical trials, although some modelling may be required. Module 5.4.1 on economic modelling considers how to adapt clinical trial results to reflect regular practice or to extend results beyond the end of the trial (e.g. to lifetime).

- (iv) The **costing** should reflect the viewpoint adopted. The relevant costs should first be estimated in physical units of resources consumed (e.g. hospital days, visits to a physician) before being valued using a set of prices or unit costs relevant to the setting concerned. In some settings (e.g. hospitals) certain resources are used to produce a number of joint outputs. For example, the heating plant of the hospital services a number of clinical departments. Therefore, when costing a particular clinical intervention or treatment, only some of the resources will be unambiguously attributable to that intervention. Others will be shared resources, sometimes called “overheads”. Therefore, in costing a given treatment, either a method for allocating shared resources (or overheads) is required, or attention should be focused on the additional resources, at the margin, that are required to provide the intervention concerned. (Benefits can also be wider than health narrowly defined: for example, externalities or health and development.)
- (v) The study should allow for **differential timing** in costs and consequences, through discounting to present values, and for **uncertainty** in estimates, either through sensitivity analysis or statistical test.
- (vi) The **presentation of results** should include an incremental analysis of costs and consequences, comparing one alternative with another, and comments on the major weaknesses in the study. If comparisons of cost–effectiveness are made with other studies, care must be taken to ensure that they employ similar methodologies.

Table 1. A check-list for assessing economic evaluations

1.	Was a well defined question posed in answerable form?
1.1	Did the study examine both the costs and effects of the service(s) or programme(s)?
1.2	Did the study involve a comparison of alternatives?
1.3	Was a viewpoint for the analysis stated and was the study placed in any particular decision-making context?
2.	Was a comprehensive description of the competing alternatives given (i.e. can you tell who did what to whom, where, and how often)?
2.1	Were any important alternatives omitted?
2.2	Was (should) a “do-nothing” alternative (be) considered?
3.	Was the effectiveness of the programmes or services established?
3.1	Was this done through a randomized, controlled clinical trial? If so, did the trial protocol reflect what would happen in regular practice?
3.2	Was effectiveness established through an overview of clinical studies?
3.3	Were observational data or assumptions used to establish effectiveness? If so, what are the potential biases in results?
4.	Were all the important and relevant costs and consequences for each alternative identified?
4.1	Was the range wide enough for the research question at hand?
4.2	Did it cover all relevant viewpoints? (Possible viewpoints include the community or social viewpoint, and those of patients and third-party payers. Other viewpoints may also be relevant depending upon the particular analysis.)
4.3	Were capital costs, as well as operating costs, included?
5.	Were the costs and consequences measured accurately in appropriate physical units (e.g. hours of nursing time, number of visits to physicians, lost work-days, gained life-years)?
5.1	Were any of the identified items omitted from measurement? If so, does this mean that they carried no weight in the subsequent analysis?
5.2	Were there any special circumstances (e.g. joint use of resources) that made measurement difficult? Were these circumstances handled appropriately?

6. Were the costs and consequences valued credibly?
 - 6.1 Were the sources of all values clearly identified? (Possible sources include market values, patients' or clients' preferences and views, policy-makers' views and health professionals' judgements.)
 - 6.2 Were market values employed for changes involving resources gained or depleted?
 - 6.3 Where market values were absent (e.g. voluntary labour), or market values did not reflect actual values (such as clinic space donated at a reduced rate), were adjustments made to approximate market values?
 - 6.4 Was the valuation of consequences appropriate for the question posed (i.e. has the appropriate type or types of analysis – cost–effectiveness, cost–benefit, cost–utility – been selected)?
7. Were the costs and consequences adjusted for differential timing?
 - 7.1 Were the costs and consequences which will occur in the future “discounted” to their present values?
 - 7.2 Was any justification given for the discount rate used?
8. Was an incremental analysis of costs and consequences of alternatives performed?
 - 8.1 Were the additional (incremental) costs generated by one alternative over another compared to the additional effects, benefits or utilities generated?
9. Was allowance made for uncertainty in the estimates of costs and consequences?
 - 9.1 If data on costs or consequences were stochastic, were appropriate statistical analyses performed?
 - 9.2 If a sensitivity analysis was employed, was justification provided for the ranges of values (for key study parameters)?
 - 9.3 Were study results sensitive to changes in the values (within the assumed range for sensitivity analysis, or within the confidence interval around the ratio of costs to consequences)?
10. Did the presentation and discussion of the results of the study include all issues of concern to users?
 - 10.1 Were the conclusions of the analysis based on some overall index or ratio of costs to consequences (e.g. cost–effectiveness ratio)? If so, was the index interpreted intelligently or in a mechanistic fashion?
 - 10.2 Were the results compared with those of others who have investigated the same question? If so, were allowances made for potential differences in study methodology?
 - 10.3 Did the study discuss the extent to which the results could be generalized to other settings and patient/client groups?
 - 10.4 Did the study allude to, or take account of, other important factors in the choice or decision under consideration (e.g. distribution of costs and consequences, or relevant ethical issues)?
 - 10.5 Did the study discuss issues of implementation, such as the feasibility of adopting the preferred programme given existing financial or other constraints, and whether any freed resources could be redeployed to other worthwhile programmes?

Exercise 1

Select a published economic evaluation of health care treatments or programmes relevant to your own setting and assess its quality using the checklist given in Table 1. In answer to each of the main ten questions give your response (yes/no/can't tell) and provide a brief commentary on the major strengths and weaknesses of the study.

Using economic evaluation in health care decision-making

The existence of studies with good methodology is a necessary but not sufficient condition for economic evaluation to be useful in health care decision-making. In addition, it is necessary to identify decision-making mechanisms in which economic evidence could, in principle, be used. These are likely to differ from setting to setting, but a number are discussed below, with examples of how the results of economic evaluation have been used.

Planning specialist facilities or specific technologies

This mechanism is obviously most relevant to the “big ticket” technologies (technologies with a single, large financial commitment, such as major items of equipment) and to those health care systems where central or local government has the power to influence decisions about the location of (say) open heart surgery units, neonatal intensive care or specialist diagnostic facilities. Although such power exists primarily in predominantly public health care systems, or those with a national health insurance plan, there may also be opportunities to influence decisions in “liberal” health care systems if the development of specialist facilities either requires significant medical research funding or a large number of patients whose bills are paid by the government.

There are a number of ways in which economic analysis could contribute to decisions about the number and location of specialist facilities. First, there is the question of the optimum size of such facilities, where information about the shape of the long-term average cost curve would be useful, although presumably the costs (borne by the health care system or patients) of travel to specialist facilities should not be neglected. This suggests examination, by economic analysis, of another choice: that of transporting patients to specialist facilities as an alternative to providing more facilities closer to a greater number of centres of population.

Excluding technologies from public reimbursement

This mechanism can be applied to both big ticket and small ticket technologies. A number of countries have organizations which decide on the suitability of new technologies for public funding. In addition, health care insurers in some countries are guided by a central organization (e.g. the Sickness Fund Council in the Netherlands). In principle, such agencies could consider evidence on costs together with effectiveness when taking decisions about the size of the health insurance “envelope.”

There is evidence that this is beginning to happen. An early example is the Netherlands where the Health Insurance Executive Board has commissioned a number of economic evaluations (4). However, the problems should not be understated. It is important that such bodies have clear remits with respect to considerations of cost-effectiveness. Also, whether or not a particular technology is the most cost-effective approach to the treatment of a patient may often depend on the specific circumstances, such as the severity of the patient’s condition or the diagnostic and therapeutic procedures that have already been applied.

In Australia and Canada (Ontario), guidelines have been proposed for the pharmaceutical industry on the preparation of economic analyses to be included in submissions to the government committee deciding on the reimbursement of pharmaceuticals (2). It has to be shown that a new drug gives good value for money before it is listed in the national or provincial formularies. These policy initiatives demonstrate that governments are beginning to take value for money evidence seriously and that guidelines for undertaking studies can be specified. The company wanting to market a product is

increasingly being made to bear the burden of proof that the product is safe and clinically effective and provides value for money.

Reforming payment schemes for health care institutions (especially hospitals)

One of the most significant reforms over the past few years has been the movement towards prospective reimbursement for hospitals, the most well known scheme being that based on diagnostic related groups (DRGs) operated by Medicare in the United States. Therefore, the calculation of reimbursement rates could take note of evidence on the relative cost–effectiveness of alternative treatment methods for clinical conditions, and this evidence should be more actively disseminated. At present there is perhaps too much of a tendency to set the rates and leave the hospitals to cope with the consequences. This is potentially inefficient, especially if hospitals take decisions based on their own costs and benefits rather than on those of the community at large. This reaffirms the importance of carrying out economic evaluations from a number of viewpoints, including that of society as a whole, so that appropriate incentive structures can be devised for the key actors in the health care system, as mentioned above.

Changing payment systems for health care professionals

In countries where physicians are paid by a fee-for-service system, or where special additional payments are made for some services, there have been concerns that the payment system leads to inappropriate use of technology. Some analysts suggest that this system leads to supplier-induced demand. Others are concerned that the rewards to the physician may be relatively higher for time spent using expensive technology than for time spent talking to the patient or counselling. Given these concerns, it is surprising that there has been relatively little study of fee schedules and few attempts to change them. For example, it would be interesting to study whether there are consistent incentives (implicit in the schedules) to encourage physicians to spend their time using expensive technology, whether physicians are consciously aware of these incentives, and whether they influence their behaviour. This would be an important precursor to studies of how the fee schedule could be used more aggressively to change clinical practice in the direction of greater cost–effectiveness, by withdrawing payment for procedures known to be inefficacious and by offering attractive fees for procedures for which benefits are known to exceed costs. The cost–effectiveness approach can also be useful in health care systems where physicians are mainly paid by salary.

Developing health care practice guidelines

A few years ago the WHO Regional Office for Europe reviewed the schemes operating in a number of countries, with a view to the potential for incorporating economic criteria (5). Two schemes were of particular interest: the Scandinavian model health care programmes, where guidelines are developed for the management of key diseases such as hypertension; and the medical audit schemes developed by the National Association for Quality Assurance in Hospitals in the Netherlands (the CBO), where groups of physicians are provided technical support to review local clinical practices. In both cases there was evidence that economic criteria could be incorporated into the development of guidelines and that attempts were being made to assess the impact of guidelines in terms of cost–effectiveness.

There are other examples of economic appraisal being used to help develop guidelines recommended by medical bodies, such as the work by Eddy (6) on cancer screening and that by the Royal College of Radiologists (7) in the United Kingdom on routine skull X-rays for patients admitted to casualty departments with head injuries. Against the background of increasing pressure on health care budgets, there is no reason why more studies could not be encouraged. The influence of professional

bodies and medical opinion leaders has probably been under-exploited by those undertaking economic evaluation and those funding health services research.

The relevance of economic evaluation to decisions in clinical practice is further explored in a series of articles published in the *Journal of the American Medical Association* (8,9). These use the example of developing guidelines at the hospital level for the use of tissue-type plasminogen activator (t-PA) in the treatment of acute myocardial infarction.

Exercise 2

Consider the decision-making mechanisms outlined above and any others relevant to your own setting.

- (a) Are there any examples, in your setting, of economic evaluation evidence being used in decision-making? If so, how was the evidence used and what was the outcome?
- (b) Do you see any greater potential for using economic evaluation evidence in your setting? What are the major barriers to the more widespread use of economic evaluation and how could these be overcome?

Economic evaluation of health-producing measures in different sectors of the economy

Modules in Chapter 2 discussed the linkages between health, health care and the wider economy. It is clear from this discussion that activities in other sectors can either produce or reduce health. Therefore, if the objective is to improve health, it would be unwise to concentrate solely on activities in the **health care sector**. It might be more efficient, at the margin, to invest in health-promoting measures outside the health care sector.

In the United States, Tengs et al. (10) have begun to address this issue. They produced a ranking of more than 500 lifesaving interventions, ordered in terms of their incremental cost per life-year saved. These included not only interventions in the health care sector but others in road safety, environmental protection and occupational health. An abridged version of their data is given in Table 2. It can be seen that the implied price to save a life-year varies greatly between different interventions.

Exercise 3

Consider the data in Table 2.

- (a) What are the major advantages and drawbacks of this type of analysis? In the event that the drawbacks outweigh the advantages, what type of analysis would you propose instead?
- (b) Assuming, for a moment, that the data in the Tengs et al. analysis apply to your setting, what mechanisms would have to be put in place to ensure a more rational use of resources (in improved health) across sectors?

Table 2. Cost per life-year of life-saving interventions in different sectors

Intervention	Cost/life-year (US \$)
Fatal injury reduction	
Mandatory seat belt use and child restraint law	98
Smoke detectors in aeroplane lavatories	30 000
Widen shoulders on rural two-lane roads to five feet versus two feet	120 000
Seat belts for passengers in school buses	2 800 000
Flammability standard for children's clothing size 7-14	15 000 000
Toxin control	
Reduced lead content of gasoline from 1.1 to 0.1 grams per leaded gallon	50
Ban asbestos in brake blocks	29 000
Benzene emission control at pharmaceutical manufacturing plants	460 000
Ban asbestos in thread, yarn, etc.	34 000 000
Radionuclide emission control at coal-fired industrial boilers	260 000 000
Health care	
Measles, mumps and rubella immunization for children	50
Beta-blockers for myocardial infarction survivors	850
Postsurgical chemotherapy for premenopausal women with breast cancer	18 000
Annual mammography for women aged 55-64 years	110 000
Sickle cell screening for newborns	65 000 000

Economic evaluation: linking theory and practice

This module has discussed both the methodological features of economic evaluation and its potential for use in decision-making. The following conclusions can be drawn.

- (i) Health care decision-making inevitably involves a number of social, economic and political considerations. Assessments of the cost-effectiveness of alternative treatments and interventions will, therefore, only ever form part of the overall decision.
- (ii) Despite this modest aspiration for economic evaluation, it is nevertheless important that the results of studies are reliable. The methodological principles outlined in Part 1 of this module should, therefore, be adhered to.
- (iii) In addition to adhering to sound methodological principles, economic evaluations need to be made relevant to the health care decision-maker's own setting. This issue is discussed further in Module 4.3.1 on the development and diffusion of health technology.
- (iv) Several mechanisms for using economic evaluation in health care decision-making have been discussed. Although several instances of the use of economic evaluation can be cited (e.g. in decisions about the reimbursement of pharmaceuticals in Australia), in most cases the potential for use is greater than actual use.

Some of this unfulfilled potential may be due to the problems with economic evaluation methodology discussed above. However, the main reason for lack of use is that decision-making procedures in health care do not easily incorporate evidence of any description. Therefore, those in decision-making positions consulting this module should reflect on the decision-making procedures operating in their own countries in order to assess the potential for incorporating economic and other forms of evidence.

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5.4 Modelling

5.4.1 Economic modelling and forecasting

Reiner Leidl⁶

Key messages

- Economic models can support decision-making and policy development.
- Transparent models structure problems, make explicit the assumptions used, and explain the consequences implied.
- Decision models help a rational decision-maker to choose the best strategy among clearly defined alternatives.
- Scenario models provide an approach to reasoning in situations characterized by uncertainty, complexity and even lack of data. Based on “what-if” reasoning, they describe possible developments. Disease models describe epidemiological and economic processes that are linked to disease and health intervention in populations. Both types of model can provide insight for policy-makers.
- Econometric models describe a set of statistical techniques for quantitative empirical analysis. They serve analytical purposes, for example by measuring the influence of determinants on a target variable or by forecasting the variable’s values.
- In order to ensure high-quality support for decision-makers, both the methods and the results of a model must be used properly and adequately. To achieve this requires methodological expertise, expertise in the health problem investigated, and expertise in supporting decisions.

Tutors’ notes

Key learning objectives of this module are:

- to recognize the relevance of modelling in the support of decision-making in health care, the quality criteria for good modelling approaches, and the limitations of modelling providing information to decision-makers (General remarks);

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- to understand how a simple, well defined and static economic decision problem can be quantitatively formulated, how its result can be calculated and how it can be interpreted for use in decision-making (Decision analysis);
- to develop an idea of how complex decision problems in health care and in health policy can be simplified and quantitatively tackled by modelling, and how models can then be further extended in a module-based approach (Scenario analysis and disease modelling);
- to develop an idea of the role of traditional statistical modelling techniques (i.e. of econometrics in the case of economic issues) in analysing data and testing theoretical hypotheses on the basis of well established quantitative methods (Econometric models).

For a better understanding of the various modelling approaches and their possible limitations when used to support decision-making, it is recommended that participants discuss the practical examples included in the text. Emphasis should be put both on the technical aspects of modelling and calculation, and on the implications of using this information for decision-making. It is important to stress all critical aspects of the modelling approaches, but it should also be considered on what information decision-making is based when modelling is not used. Together with the examples, it is also suggested that participants should try to solve the exercises, the main results of which are given at the end of this module. Tutors are further recommended to consider the texts suggested in the references and further reading (if they are not covered already).

General remarks on economic modelling

This module is intended to give readers an *appreciation* of a broad range of quantitative methods in economic analysis. Modelling issues are investigated from an applied perspective only, with an emphasis on support for decision-making in health care. Accordingly, readers who are not familiar with the formal side of quantitative analysis may develop an understanding of the expertise required when decisions are to be supported by sound scientific work. A formal treatment of the quantitative methods introduced is beyond the scope of this paper. Readers are, however, invited to consider the simple examples (and the exercises) presented in this module in order to develop a more concrete understanding of the methods underlying economic modelling results. A first understanding of modelling and its potential and limitations is best achieved when working with its tools.

To some, modelling economic issues may seem to be one of the folklore dances celebrated in academic ivory towers. But consider the following questions. Will the general use of a new treatment, for example the eradication of *Helicobacter pylori* in every dyspeptic patient, lower or increase health care costs? What will be the impact of an ageing population on health care financing in the coming decades? Which are the most important determinants of health care expenditure? The answers to such questions may be of considerable relevance to decision-makers in the health care system. The issues at stake may, however, be complex, involve long-term developments, and offer some data seemingly suitable for analysis. Short consideration quickly reveals that the immediate responses to the above questions can only rely on “off the cuff” estimates, the basis of which remains unclear. Experiments and empirical analysis of their results can hardly be conducted with these types of problem. Thus, cases exist where modelling may be the only realistic alternative left for scientifically-based reasoning.

Rational decision-making should be based on the best available evidence. Modelling is a transparent and rational way of reasoning in complex situations in which other appropriate evidence is not available. There are also limitations to modelling approaches and, in consequence, to the use of their results. Yet before completely disregarding such approaches because of their limitations, it should

be considered on what type and on what quality of information decisions can be based when modelling is not used. Models may produce extra information for decision-makers which can best be used both by taking into account its limitations and the evidence available otherwise.

There is a broad range of modelling methods that can be used on health care issues, and there are many different types of economic decision at different levels of the health system which can be supported by modelling. Whether or not a modelling approach is appropriate to inform a decision cannot be generally stated but will depend on the type of result available and on the decision at stake. The results of modelling aim to inform decision-makers on the economic aspects of the problems needing their decisions, for instance the costs and effects involved in alternative treatment options, the capacity of hospitals beds needed, or the major determinants of a policy parameter such as health care expenditure. Several major types of approach to modelling will be introduced in this module and examples of their application shown.

Explanation, prediction and simulation are the main general purposes of economic models. Even before explaining, predicting and simulating, however, modelling produces some important advances. Models require the investigator to structure a problem clearly, to make the precise question investigated transparent and to explain the methods used. Application of a model must include a section on the strengths and on the weaknesses of the approach chosen. Models thus clarify the way and the methods by which answers to complex problems are found. High-quality models do so in a way that is fully understood by the model's audience.

As with other approaches used to inform decision-making, models may have some disadvantages. They may distract the analyst or the reader to technical issues, and they may move the audience away from the issue at stake. Bad models may miss the main relevant points to be investigated. Even worse, some models may make assumptions that are too simple to reflect reality, and may thus suggest policy conclusions drawn from an inadequate analytical framework. In addition to all these problems, models may still give the impression of sound science due to the formal elegance of the approach they present. Accordingly, decision-makers should be well aware of the quality of the models available – which, in the end, they can use or disregard in their decisions.

Besides the general pros and cons of modelling, there are a number of technical aspects which must be considered in approaches to modelling. A highly salient starting point is whether or not the model's theoretical structure appropriately reflects the underlying causal structure of the issue investigated. This theoretical structure must be set up before a quantitative analysis is conducted – there are statistical search techniques that help to identify the best theoretical structure for a model. Accordingly, it needs to be decided whether the purpose of the model is to explore the best theoretical structure, or whether it is empirically to test a well founded theory. The latter tends to be of more interest to decision-makers than the former (which may feature an earlier phase in scientific work).

Models should clearly state their purpose and justify their theoretical basis. Complex models may consist of a number of modules which should be consistent with respect to the definitions and variables that they employ. In any case of empirical modelling, the quality of data and indicators used must be carefully assured. This includes an investigation of criteria such as validity, reliability, completeness and representativeness. Decision-makers should regard these quality criteria when evaluating the information which a model contributes.

In general, the model should be implemented as transparently as possible. It should thus clearly state its structure, the methods used, data input, analytical procedures, results and interpretation. Assumptions must be discussed and well founded. Results need to be tested. In stochastic models

(which contain probability elements), this can be achieved by calculating and reporting confidence intervals. In deterministic models, the assumptions used should be varied within plausible ranges. Such an exercise is called sensitivity analysis. This analysis can be conducted with individual variables, or with combinations of more than one variable, of a model. In any case, the variables selected and the ranges calculated in sensitivity analysis should be well justified. The effects of these variations on results should be carefully investigated and reported. Decision-makers should be aware of the range of uncertainty surrounding the information basis of their decisions.

Last but not least, it should be clearly stated for which decision context the model's results are considered useful, and which restrictions can be foreseen. Some models may directly support the choice between alternative decisions, and some may be more suited to guide policy-makers through situations which may have to be tackled. In general, decision-makers must check whether or not the approach of a model is appropriate and useful in the context where the decision is to be taken. As an example of study focus, the cost–effectiveness resulting from a decision model that takes into account the age structure of an insured population could be more useful to a health insurer than results derived from an experimental study that would render harder evidence but feature patients of a different age structure. Decision-makers must assess the appropriateness of models' results for their intended uses.

There may be situations where models are the only transparent and rational way to deal with complex issues. In order to assure the methodological quality of models and their suitability to the issue being investigated, modelling approaches should be confronted with the same scientific rigour as the traditional empirical analysis of an experiment. Both in the analysis of experiments and in modelling, careful consideration must be given to the design issues, appropriate structure of analysis, and quality of data and indicators. Decision-makers can use the checklist in Table 1 for an instant control of the information provided by a modelling approach. They should be aware that a competent scientific assessment of a specific model would require detailed technical expertise which cannot be gained from this overview. What can be gained, however, is a recognition of the important issues that need to be assessed and managed when supporting decisions on the basis of economic models.

Table 1. Eight checkpoints for decision-makers looking at modelling approaches

1.	Is the model adequately designed to contribute to the issue of interest?
2.	Is the model backed by relevant theory and by a confirmed structure?
3.	Does the model use high-quality data and indicators?
4.	Are individual modules linked with each other consistently?
5.	Are model design, methods, inputs and analyses well documented?
6.	Is uncertainty dealt with appropriately?
7.	Is the model analysis appropriate for the decision context?
8.	How does the quality of model results compare with other sources of evidence?

In sum, models must be implemented properly and used adequately. In order to assess the methods and use of models in health care, a decision-maker needs methodological expertise, expertise in the health problem investigated, and expertise in how to support decisions by model results. Given these preconditions, models can significantly improve the state of information available, and support decision-making in a transparent and rational way.

The further structure of this module

There are, of course, many different problems and many different types of model. Health care models can be directed at individual patients or at populations. Static models focus on one point in time, dynamic models integrate time as a variable and consider the course of the model over time. Complex models may describe and integrate many different areas relevant to a problem, whereas simple models may concentrate on the core issue only and disregard other aspects. From the wide variety of models, this module introduces three major modelling approaches and briefly describes the basic technical aspects of each. This is followed by a simple exercise.

The section on decision analysis introduces the quantitative analysis of a static decision problem. The example used is a simple decision-tree model describing the choice of a medical intervention from an economic point of view. The section on scenario analysis and disease modelling discussed more general forms of models. A simple example deals with demographic impact on costs and financing in a health system. The final section deals with traditional econometric analysis. This method is widely accepted for analysis and prediction. The example used refers to an often investigated problem, the explanation of the level of health care expenditure.

Decision analysis

Decision analysis is directed at the best choice between clearly defined decision alternatives. It is concerned with the detailed and transparent description of all parts of a decision. This includes the events that can occur, the impact of these events, the type and number of relevant decision-makers, their preferences, and the rules that are being applied in the decision-making process. When such an approach is applied in situations of uncertainty, with complicated sequences of events, multivariable preferences and the participation of several decision-makers, analysis can become very complex. Presented here is a simple model which incorporates the basic idea of decision analysis: a decision tree. A simple decision-tree model is characterized by a sequence of events which occurs only once and does not include any feedback loops. More complicated types of model where, for example, cohorts of patients pass through different stages of disease but may recur to earlier stages, are not dealt with here.

In a decision-tree model, the problem to be addressed must be clearly defined. This includes specification of the choices that can be made, the possible events and sequences of events that can occur, the probabilities of events occurring, and the impacts of interest that are linked to these events. In economic evaluation, these impacts would be the effects on costs and health. By computing the probability-weighted outcomes of the various possible choices (“strategies”), the best strategy (aiming, for example, at minimum cost per health effect gained) can be chosen. Many assumptions may be incorporated into the decision tree. In order to assess the impact of assumptions on results, it is strongly recommended that a variety of assumptions be investigated up to possible extreme values. However, the ranges of assumptions investigated in this so-called sensitivity analysis should be well justified.

Decision-theoretical models have the potential to combine the best available data in order to enable rational comparisons of choices in complex decision situations. They have been criticized because they are often not based on data measured in experiments, but on (sometimes crude) assumptions. It has been recommended that these models should be used in cases where experiments with direct measurements are not feasible. As far as possible, data from experimental studies should be used as inputs to decision models.

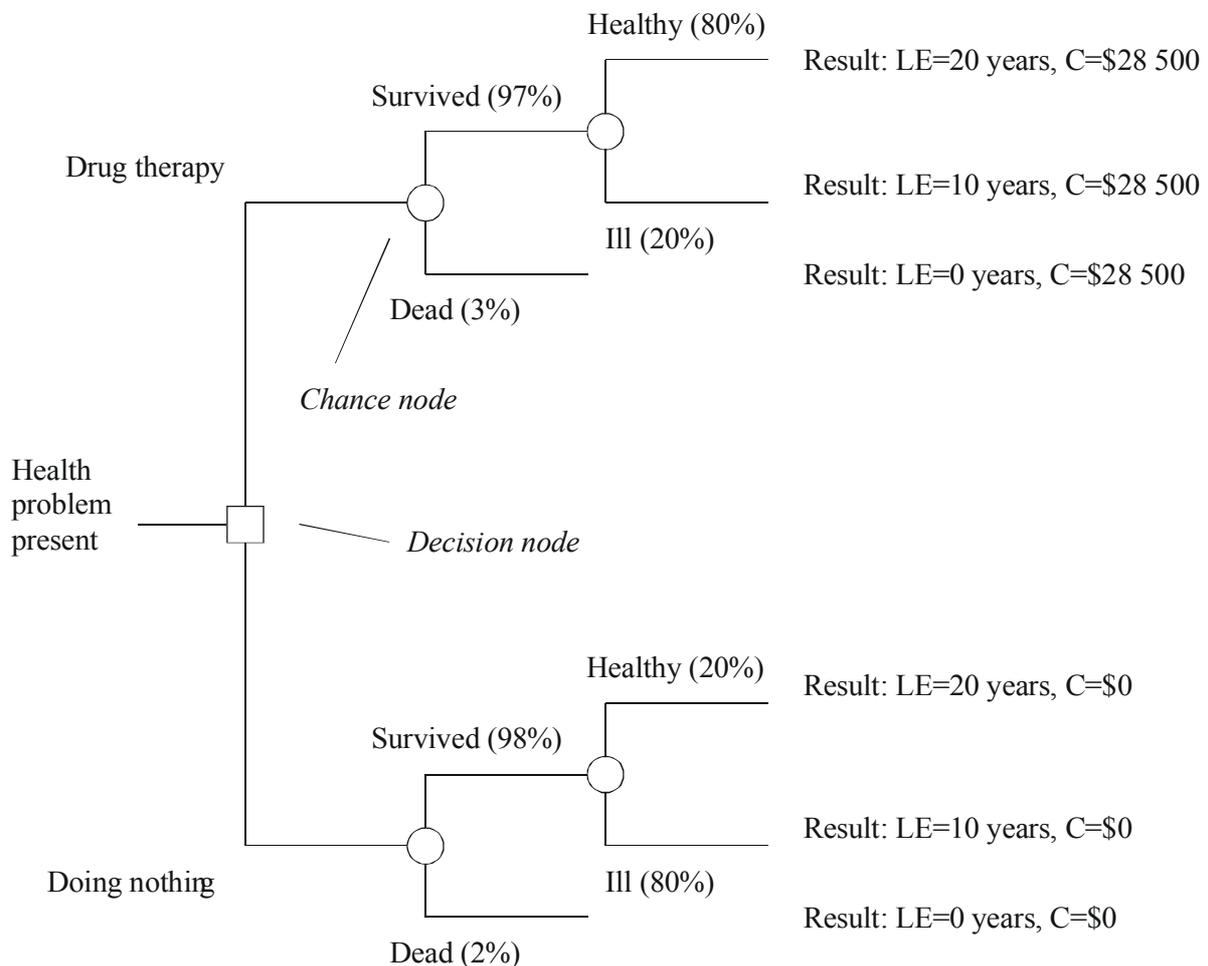
Example 1: A decision tree

Assume that, in a particular population, a disease can be dealt with either by a new drug therapy with some severe side effects, or by doing nothing. Doing nothing incurs a 2% mortality from the disease, while just one fifth of the survivors regain full health. With drug therapy, mortality increases to 3% due to side effects, but four fifths of the cases will be completely cured. For those who achieve full health, another 20 years of life can be expected on average. Those surviving but not being fully cured remain chronically ill and have a life expectancy of 10 years. Drug therapy costs US \$28 500.

These data can be used to support a decision on the provision of the drug in a health care system. It is estimated that for quite a number of the currently provided interventions in this system, the costs of a life-year gained by medical care exceed US \$5000. Given this, can a clear suggestion be made as to whether or not this new drug therapy should be provided?

Starting with the above data, the decision problem can be exactly structured according to the decision tree in Fig. 1. The events following the choice for drug intervention or for doing nothing are reported in terms of mortality and survival, the latter differentiated by survival in full health and survival in the state of chronic illness. The probabilities of each event are reported. The total probability of an event at the end of a branch can be calculated by multiplying the probabilities of the events passed through retrospectively from the end of the branch back to the root of the tree, i.e. the starting choice on whether or not to use the drug.

Fig. 1. A decision tree for the economic evaluation of a drug treatment



Multiplying total probabilities with the outcome (costs and effects) linked to each branch, the total outcomes for each choice can be summed up. Thus, the expected outcome for each strategy can be calculated.

The additional life expectancy (D LE) in years which is gained by drug therapy and the additional costs (D C) incurred can thus be computed. Together, the two indicators render an incremental cost-per-life-year-gained ratio for the drug intervention, as opposed to the option of doing nothing:

$$\begin{aligned}\Delta \text{LE} &= [0.97*(0.8*20+0.2*10)+0.03*0] \text{ years} - [0.98*(0.2*20+0.8*10)+0.02*0] \text{ years} = 5.7 \text{ years} \\ \Delta \text{C} &= \text{US } \$28\,500 \\ \Delta \text{C}/\Delta \text{LE} &= \text{US } \$5000 \text{ per life-year gained.}\end{aligned}$$

As the cost-per-life-year-gained does not exceed the cost accepted in a number of existing interventions, the model's result would not go against a provision of this treatment from an economic point of view. However, the assumptions in the model would have to be discussed in detail and would have to be varied in order to find out how stable this result is. Another aspect might be to investigate the impact of therapy on health-related quality of life. For further detail on economically assessing medical intervention, the reader is referred to Module 5.3.1 on economic evaluation.

Exercise 1. Economic modelling to minimize treatment cost

During the 1990s, there was intense discussion on how to use the newly discovered drug treatments to eradicate *Helicobacter pylori* (hp). Hp is thought to be an important determinant of dyspepsia, peptic ulcer and even gastric cancer. Among the issues discussed is the question of whether eradication treatment should be generally offered to all dyspeptic patients found to be hp-positive, irrespective of whether there is evidence of further disease. A previous study, which describes a simple decision-tree model and a restricted economic evaluation (1), has reported the following data (only the branch of hp-screening and follow-up treatment is modelled and some assumptions have been adapted to ease computations):

A test that perfectly identifies all hp-infected individuals costs US \$50. Of the dyspeptic patients tested, 30% are expected to be hp-positive. Using a drug therapy costing US \$218 on those testing positive, hp will be eradicated in 60% of cases. Eradication prevents chronic dyspepsia and peptic ulcer in 10% of the patients and gastric ulcer in 0.1% of the patients (and has no preventive effect in the rest of the patients). Treatment costs are estimated to be US \$5000 for chronic dyspepsia, US \$7000 for peptic ulcer and US \$30 000 for gastric cancer.

Given these data, and cost minimization as the aim, should the hp-screening and treatment strategy be introduced or not? What limitations do you see in the underlying calculation?

Scenario analysis and disease modelling

Decisions regarding health policy sometimes have to be taken in situations of significant uncertainty, complexity, and scarcity of data and lack of evidence about interventions. The early phase of the global HIV epidemic was one example. Scenarios may provide a helpful basis to deal with such situations. Scenario analysis is characterized by "what-if" reasoning. Using a variety of assumptions, possible developments are transparently described. Developments mostly concern the future but

sometimes also refer to the empirically not known, or not well understood, past or present. When applied to health care systems, scenario analysis often features modelling at the population level, including a description of the population and its health problem, and usually involves the investigation of future trends or alternative interventions.

Disease models are usually applied to difficult health problems. Disease models require:

- (i) a sub-model on the epidemiological spread of the disease in the population, for example a risk factor model in a stochastically emerging disease, or a model of spread for an infectious disease; and
- (ii) a sub-model on progress of the disease dealing with the future course of the disease in an individual after onset; this typically includes both the natural history of the disease (i.e. its course without any intervention) as well as its development following health care interventions.

Scenario analysis and disease modelling may become quite complex. They usually require detailed knowledge of the problem investigated, such as the determinants of future need for physicians or the impacts on health of early interventions in HIV infection. In the following example, a simple scenario analysis is described. Important aspects, or modules, for more comprehensive analysis are then looked at.

Example 2: Scenario analysis of demographic impact on health care financing

The populations of a number of countries are ageing. To a significant extent, this results from declining fertility rates. Changes in size and composition of a population will influence health care utilization as well as costs. Furthermore, a common way of financing health care is the pay-as-you-go system: the working population has to earn the income from which care is financed for the total population, including care of children and the elderly. Scenario analyses of future health care utilization, cost and financing may provide highly salient information for health policy-makers.

Consider the following fictitious population (Table 2) of 106 million people, which experiences a 10% reduction in births over the period 1998–2018. In the simplified example, health care costs are indicated for children (0–15 years), the working population (16–64 years) and pensioners (65+ years). According to the pay-as-you-go system, each member of the working population has to contribute US \$1925 (= total costs/working population) to health care in order to cover the costs incurred in this population. Substituting population figures for 1998 by population projections for 2018 provides the reference scenario for future costs and contributions. Everything else is kept constant in this exercise – epidemiology, health care technology, capacity for care, and the preferences and behaviour of all participants. These assumptions are very restrictive, but the factors listed cannot be predicted simultaneously for the next two decades. This leaves the simple methodology introduced as a starting point that indicates the “pure” demographic effect (2). Extension of the analysis could involve changing one or more of the above listed factors in alternative future scenarios.

Exercise 2

Start from the scenario described in Table 2. What is the 20-year growth rate of contributions? What impact would the inclusion of technical progress have on this rate? In order to quantify this impact, assume the following alternative scenarios resulting from increasing costs of health care technology over the two decades (other things being equal):

Table 2. Demography, health care cost and financing in a population, 1998 and 2018

Age groups (years)	Population in millions	Cost/capita in US \$	Total cost in billion US \$	Contribution in US \$
year 1998				
0–15	10	1 000	10	–
16–64	80	1 000	80	1 925
65+	16	4 000	64	–
year 2018				
0–15	9	1 000	9	–
16–64	66	1 000	66	2 470
65+	22	4 000	88	–

- (i) all health care costs in the population grow by 35%, which corresponds to a yearly growth rate of a little more than 1.5%; and
- (ii) health care costs for children and the working population grow by 35% but those for the elderly grow by 70%, the latter corresponding to a yearly growth rate of almost 2.7%.

In the light of the problems that emerge from scenarios such as those described above, it is often suggested that a capital funding system would be a better alternative. In this approach, total health care costs for each individual over his or her whole lifetime are calculated and then covered by a constant premium rate over the whole lifetime. From a modelling perspective, is it easy and realistic to choose this option?

In example 2, projections of a “demographic module” have been combined with figures from a current “cost module”. Two assumptions regarding changes in technology and, subsequently, costs provided the basis for further scenarios. Modelling other than demographic and cost changes may require the use of additional modules, such as an “epidemiology module” when investigating the effect of changes in disease incidence and prevalence; a “health care utilization module” when investigating the impact on health care capacities; or an “effects on health module” when analysing cost–effect relationships at the population level. These five modules are listed in Table 3. This table also includes examples of the relevant data and indicators that must be identified when empirical information is collected for use in the model. One important requirement in scenario analysis and disease modelling is that the different models to be combined match with respect to their theoretical scope, technical definition of indicators, and representativeness of the data used.

The five modules may be used in quite different combinations, and may be part of a variety of modelling approaches. Table 4 gives an overview of the main types of modelling approach, although it does not claim to be exhaustive. The first three types show that economic modelling of the impact of demographic change can be directed at health care needs, at the development of costs, or at the description of health care costs and effects. For the next three types of model, only the cost modelling type is shown:

- epidemiological models emphasize the relevance of changes in disease patterns by including an epidemiological module;
- trend models focus on technological change and include projections of what current costs per case will be in the future; and
- disease models concentrate fully upon the developments in a cohort of patients once a disease has already started, while leaving out the demographic module.

Table 3. A conceptual approach to scenarios and disease models in 5 modules

	Module 1 Demography	Module 2 Epidemiology	Module 3 Health care	Module 4 Costs	Module 5 Effects
Theory	population models	risk factor models, development of disease models	concepts of care appropriate to need and to the health care system	costs according to measurement concepts from different perspectives	clinical endpoints, survival modelling, quality of life and utility concepts
Data	population statistics, socio-economic data	register data, epidemiological and clinical studies	data on diagnoses, services and prescriptions from insurers and providers	expenditure data from insurers' data bases, cost data from providers' accounting systems	data from clinical or observational studies
Indicators	size of population by sex and age groups	incidence, prevalence, progression of disease, mortality	diagnosis-specific capacities of care, frequency and intensity of services, length of stay	total cost per case or per period	cases prevented, life years gained, QALYs produced

Table 4. Modules used in different types of scenario or model

Type of modelling approach	(1) Demography	(2) Epidemiology	(3) Health care ^a	(4) Costs	(5) Effects
a) demographic projection of health care needs projected	projected ^b		current ^c		
b) demographic projection of costs	projected			current	
c) demographic projection of costs and effects	projected			current	current
d) epidemiological projection of costs	projected or current	projected		current	
e) trend cost scenario	projected			projected	
f) disease model of costs		current ^d		current	

Note: "Projected" means that a description of the future course of the module is made, "current" means that the state as of today is used.

^a utilization

^b general and clinical epidemiology

^c "Current" means that the state as of today is used

^d General and clinical epidemiology

Within all the types of modelling presented, comparison of a basic scenario with a further alternative is possible, e.g. comparing intervention versus no intervention, or new intervention versus old intervention. The models introduced can also be considered starting points for further analysis.

Exercise 2 referred to models type (b) and (e) in Table 4, but combined these with the financing issue in the context of pay-as-you-go systems. Other examples can easily be identified and discussed using the framework of Table 4.

Scenario analyses do not claim to generate predictions in the sense in which statistical extrapolations of time series data do. Rather, scenarios link possible sets of assumptions with the consequences these assumptions imply within the modelling framework. Scenario models have, however, been criticized because they are often hard to validate. Another problem is that their construction or the data they include may not feature the scientific rigour of other methods. Disease models intend to describe, analyse and predict the epidemiological and economic processes linked to disease and health care in populations (3,4). First-quality standards that may apply for this type of modelling have recently been developed (see Sonnenberg (5) for a focus on decision-type models). In general, the scientific rigour of scenario analyses and disease models can be assured by applying traditional concepts for the testing of scientific methodology: consistency of the theoretical approach; validity and reliability of data and indicators; matching of the different modules that are combined; and representativeness of the data used for the decision context that is to be supported by the scenario analysis.

Econometric models

Econometrics has been defined as the science and art of building and using models that quantitatively reflect the real world. As with any other modelling, econometric models should be based on good theory. Econometric methods comprise a large set of models for empirical analysis and forecasting, such as simple and multiple regression analysis, simultaneous equation systems, time series analysis and several other types. The data useful for sound econometric analysis must fulfil a number of requirements such as sufficient number of observations, certain distributional properties, and completeness of data in multivariable models.

An important group of econometric models is explanatory models. These models relate a dependent variable, the variations of which are to be explained, to one or more independent variables, whose variations are to explain that of the dependent variable. After an econometric model has been run, a number of assumptions must be checked, for example the properties of the variable gathering up the unexplained variability, the so-called “error term”. This term should not be correlated with the independent variables. Another example is that two (or more) independent variables should not be correlated with each other, a case called (multi-) colinearity. Furthermore, specification tests can be used to assess the appropriateness of the model structure. Scientifically, econometrics is probably the most developed field among the methods discussed in this module.

In practice, however, this means that skill and thought are necessary when using econometrics. In a number of situations, the conditions required for this type of modelling may not be met. The appropriateness of what is being modelled thus has to be assessed in practice. In some situations, decision-makers may ask for faster information support than an econometric model may be able to render on the basis of the data available. For example, how much burden will the financing of a new drug treatment put on our budget, and will it be worthwhile? For such questions, models of the type discussed earlier could be considered.

In the following discussion a very simple example is considered based on regression analysis. The emphasis of the example is on understanding the approach to the analytical problem and the impact of results on decision-making at the macro-level of a health care system. Technical issues of the analysis are not dealt with here.

Example 3: Explanation of health care expenditure

A number of econometric studies have tried to explain health care expenditure at the level of the health care system. All the studies include income as a determinant of health care expenditure. In theory, it seems intuitively plausible that income will explain – at least in part – the level of health care expenditure. In addition, many other determinants have been considered, for example, variables indicating the organization of the health care system (e.g. whether or not it features a national health service, or remuneration by a budgeting or a fee-for-service system), or factors such as consumption of alcohol and tobacco. In many studies, the approach to explain health care expenditure is to run a regression of national per capita health care expenditure (HCE, as the independent variable) on income, expressed as gross domestic product per capita (GDP, as the dependent variable). The typical units of observation in such analyses are countries, thus featuring an international cross-sectional analysis.

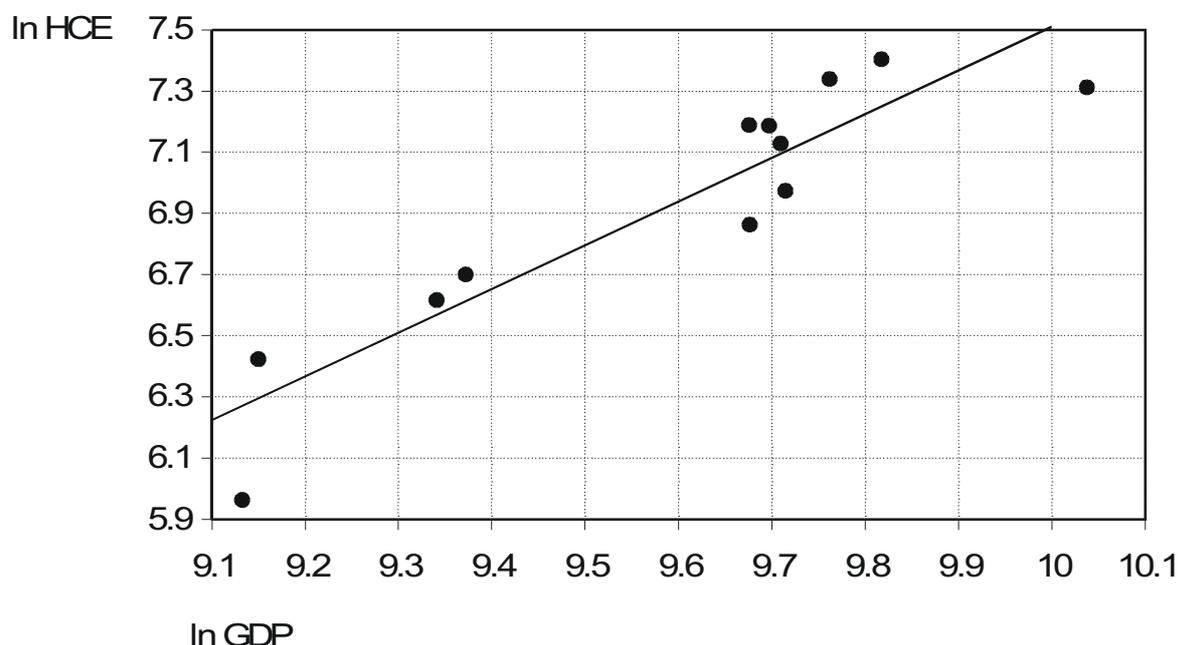
Fig. 2 shows an example of a basic result found in many studies. This shows the observation points for HCE and GDP for the twelve member states of the European Community in the year 1990 (data from the OECD health database as of July 1997). The econometric model uses a frequently found specification, employing the logarithms (\ln) of HCE and GDP instead of baseline values (6). The regression line minimizing distance to the points of observations has a slope of 1.43. For the model specification used and the set of countries observed, this means that if the level of GDP grows by 10%, the level of HCE will increase by 14.3%. The slope is thus called the income elasticity of health care expenditure. In this model, 84.4% of the total variance of HCE is explained by GDP. Looking at the development of baseline per-capita income, historical observation over the last forty years shows that it took poorer member states between less than one up to more than two decades to reach the mean income in the European Community which existed at the beginning of an observation period (6).

Exercise 3

Discuss the appropriateness of the above econometric analysis. What conclusions would you draw from the results reported concerning the following three issues:

- the determinants of health care expenditure
- the possibility of cost-containment
- the impact of economic growth on the health care system?

Fig. 2. Gross domestic product per capita (GDP) and national health care expenditure per capita (HCE) in the European Community in 1990 (1990 purchasing power parity US\$)



Note: From left to right, the observations display the following EU member states: Greece, Portugal, Ireland, Spain, Netherlands (upper point), United Kingdom, Italy, Belgium (upper point), Denmark, France, Germany and Luxembourg.

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Further reading

To the author's knowledge, there are no textbooks on the methodology of economic modelling in health care which cover all three approaches presented here. Suggestions for some further reading for each approach are given below.

1. On **decision theory**, there are a number of general textbooks. Special reference to health economics is found, for example, in:

KEELER, E. Decision trees and Markov models in cost-effectiveness research. *In*: Sloan, F.A., ed. *Valuing health care*. Cambridge University Press, 1995, pp. 185–205;

RITTENHOUSE, B. *Uses of models in economic evaluations of medicines and other health technologies*. London, Office of Health Economics, 1996.

2. No comprehensive methodological textbook is, unfortunately, available on **scenario analysis and disease modelling**. An instructive methodological overview of scenarios to support health policy, using the example of AIDS, is found in:

JAGER, J.C. & VAN DEN BOOM, F.M.L.G. Scenario analysis, health policy, and decision-making. *In*: Kaplan, E.H. & Brandeau, M.L. *Modelling the AIDS epidemic: planning, policy, and prediction*, 1994, pp. 237–252 (Chapter 13).

Important elements of constructing disease models come from decision analysis, dynamical mathematical modelling, and basic epidemiological methods, each a field for which general textbooks exist.

3. On **econometrics**, there are numerous textbooks available. A very brief, nice overview on statistical tools for health economics, including the econometric ones, is found in:

FOLLAND, S. et al. *The economics of health and health care*, 2nd ed. Englewood Cliffs, Prentice Hall, 1997 (Chapter 3).

A comprehensive introductory text not directed at health care is:

PINDYCK, R.S. & RUBINFELD, D.L. *Econometric models & econometric forecasts*, 3rd international edition. New York, McGraw-Hill, 1991 (4th edition forthcoming).

Quantitative solutions to the exercises

Exercise 1: The screening and treatment strategy for helicobacter pylori saves US \$106. This is derived by multiplying monetary outcomes and probabilities in the decision tree, progressing backwards from the ends of the branches to the root of the tree: $-US \$50 + 0.7 * \$0 + 0.3 * \{-US \$218 + [0.4 * US \$0 + 0.6 * (0.1 * US \$5000 + 0.1 * US \$7000 + 0.001 * US \$30\ 000 + 0.799 * US \$0)]\} = \$106$.

Exercise 2: The baseline 20-year growth rate of contributions in the table (1998: US \$1925.0; 2018: US \$2469.7) is 28.3%. Adding technical progress raises the growth rate of contributions to 73.20% in case (i), referring to a 2018 contribution of US \$3340.9), and to 97.44% in case (ii), referring to a 2018 contribution of US \$3800.8. The average yearly (“compound”) growth rates are 1.25% for baseline, 2.78% for case (i) and 3.46% for case (ii), respectively.

Health Economics as a Tool for Leaders

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WHO Regional Office for Europe

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HEALTH ECONOMICS
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COST–BENEFIT ANALYSIS – methods
OUTCOME ASSESSMENT (HEALTH CARE)
PROGRAM EVALUATION – methods
FORECASTING
TEACHING MATERIALS

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Overview

The WHO Regional Office for Europe has published on the Internet the book *Learning to live with health economics* (hereafter known as “the book”), containing 25 health economics study modules, most of which are 15–20 pages long.¹

The book has been prepared to assist the following groups of people to become more familiar with the importance of health economics in health care:

- the highest level of policy-makers
- administrators and managers
- health care professionals
- media commentators, health lobbyists, senior officials in other sectors, etc.

The highest level of health care decision-making comprises ministers of health and their most senior officials. These are the people who establish appropriate parameters for decision-making by practitioners and health care administrators, manage intersectoral relationships and obtain adequate resources for the health sector. They are, however, extremely busy and are most unlikely to work systematically through the full book.

Given the importance of this group and the benefit they could derive from familiarity with health economics concepts, tools and ways of thinking, WHO has produced this abridged version of the book for their use. Entitled *Health economics as a tool for leaders*,² it is organized in two parts:

- part 1: materials for private study
- part 2: materials for tutors to organize a one-day seminar.

The two elements are separate, but it may be that senior decision-makers who have used the materials in part 1 will conclude (at least in some cases) that interaction with colleagues and a high quality resource person would justify subsequent participation in a one-day seminar. For those who are unable to attend a seminar, the learning materials can provide an introduction to health economics. This could be considerably enhanced by recourse to a suitable resource person, either at WHO or elsewhere.

Part 1 consists of an abbreviated version of the materials contained in the full book for use on an individual, private study basis. It includes:

¹ ZÖLLNER, H. ET AL., ED. *Learning to live with health economics*. Copenhagen, WHO Regional Office for Europe, 2003.

² GUNNARSSON, D. ET AL., ED. *Health economics as a tool for leaders*. Copenhagen, WHO Regional Office for Europe, 2003.

- an introduction;
- study material on four themes summarizing the contents of the programme for the one-day seminar.

Part 2 contains material prepared for tutors, although components could be distributed to participants in the seminar if the tutor thought this appropriate. It consists of:

- a model for a one-day seminar, with a description of what is included from the full set of learning materials and why;
- the suggested organization and timing of the seminar and some other matters for the tutor conducting it; and
- the contents, organized by key themes, including overheads as well as exercises and role-plays to be used during the seminar.

Access to the learning materials and participation in a one-day seminar could be organized through the WHO liaison offices in countries, individual WHO programmes using them or sponsorship of colleagues by an interested senior decision-maker in the WHO European Region or through other interested organizations (such as aid agencies). The materials could also be offered for use in other WHO regions. Users of the materials might also seek further advice from experts in the WHO secretariat, the authors of the modules, the International Economic Association or participation in a formal course.

Part 1

Learning materials for private study

Introduction

Health policy and practice is a large and complex area. It benefits from a range of perspectives, including that of economics. The WHO Regional Office for Europe has developed a set of health economics learning materials, *Learning to live with health economics* (“the book”),¹ organized in 25 modules, with the aim of assisting various potential audiences to benefit from the valuable insights that can be afforded by the discipline of economics.

The highest level of health care decision-makers, comprising ministers of health and their most senior officials, are important potential users of these modules. However, they are extremely busy and unlikely to be able to find the time to work systematically through the full book. In addition, some of the elements in the modules are more relevant than others to very senior decision-makers, for example, ways of thinking as opposed to specific tools of analysis.

This abridged version, entitled *Health economics as a tool for leaders*, has therefore been produced for this group of users to serve as an introduction to the subject. The materials are intended to enable senior decision-makers to:

- make a more extensive and prudent use of health economics;
- judge better what are appropriate or inappropriate circumstances for their application;
- appraise more perceptively the advice they receive from economists.

Value added for senior decision-makers is especially to be found in:

- specific cases where economic input is provided (or should be included);
- the economic way of thinking (e.g. incentives, balancing costs and benefits, marginal analysis, equity and efficiency);
- specific economic tools, concepts and reasoning.

The learning materials can help the user:

- to gain a fuller understanding of where particular economic concepts, approaches or tools can appropriately be used (*appreciation*);
- to make critical assessments of particular studies or uses of health economics in decision-making (*appraisal*);
- to a lesser degree, to apply techniques or tools (*analysis*).

³ Zöllner, H. et al., ed. *Learning to live with health economics*. Copenhagen, WHO Regional Office for Europe, 2003.

Four broad health economics themes are looked at. The material has been organized into a page or so on each theme and selected topics, containing summaries of the major points in the corresponding elements of the full set of health economics modules.

Theme 1. Economics of health

Overview

1. Theme 1 includes:
 - how health is produced
 - how health does not equate to health care
 - how health relates to the broader:
 - economy
 - society.
2. Four aspects are especially important for decision-makers:
 1. the many interacting *influences* on health (such as health care and the environments in which people live, work and play), and thus the wide range of activities and policies which have consequences for health;
 2. issues concerning the possible allocation and reallocation of *resources* for health, including the differing viewpoints of various participants (illustrated by those of health compared to economic ministries);
 3. how the economic, social and other environmental *determinants* of health interact with individual behaviour and public policy and have powerful implications for efficiency and equity in health;
 4. the *complexity* of the situations which decision-makers often face, with particular emphasis on possible futures, how their essential features can be provided in a helpful form, and what implications they have for developments in health policy and practice.

1.1 Interrelationships, and everybody's concern

3. Since health systems and economic systems are interrelated in complex and important ways:
 - health care can be an important influence on health but it is only one of the determinants of health;
 - the environments – social, economic, cultural and physical – in which people live, work and play interact with individual factors (such as genetics) to influence strongly who gets ill;
 - health does not equate to health care, and they need to be analysed separately.

4. Since health policy encompasses much more than merely health care policies (important though those are):
- many activities and policies outside the health sector nevertheless have important consequences for health;
 - these activities and policies can legitimately be viewed as the subject of health policy;
 - intersectoral collaboration and action are needed to improve health;
 - health should be everybody's concern.

1.2 Reallocation of resources for health

5. The optimum use of scarce resources to achieve health gains involves continuing consideration of the possibilities for allocating and reallocating resources within the health care sector.
- This can involve both existing resources and additional resources that become available.
 - Intersectoral collaboration for improving health frequently requires reallocation of resources from one sector to another.
6. Reallocation can be of five main types:
- among health care activities
 - among non-health care activities within the health system (e.g. seat-belt legislation)
 - between health care and non-health care activities within the health system
 - between the health system and other systems (e.g. education)
 - among other systems.
7. Other important dimensions of resource reallocation are:
- the type of resource being reallocated (e.g. people, time)
 - different levels of decision-making (e.g. school)
 - the public as compared to the private sector.

1.3 Economic, social and individual determinants of health

8. There are important economic and social influences on health, which interact with genetic endowments and individual behaviour. Five important factors are:
- genetic endowment
 - life risks
 - the individual's environment
 - behaviour of individuals and their social groups
 - the health care system, including prevention and promotion.
9. There is an apparent health divide in the population between educated and less educated people. These two groups can differ markedly in evaluations of their own health and in their attitudes towards professional health services. These differences can have consequences for their health behaviour, including their use of health care.
10. Nevertheless, individuals can have a considerable influence on their state of health. Economic analysis can be used to understand individual health behaviour and differences in health among people. Many other parties, including families, have incentives for investing in the health status

of an individual, but the extent, ways, possibilities and impact are different. Senior decision-makers help to determine the frameworks within which these decisions are made, and the incentives for particular actions and choices.

11. Public policy measures can improve health: (i) directly through improvements in the environment, or (ii) indirectly through changes in the regulation and incentive structures that influence health behaviour. Population health depends on both the health of its individual inhabitants and its distribution.

1.4 A futures orientation

12. The environment for taking decisions on health has become more complex, more uncertain and more stressful at all levels, even before the threat of increased international terrorism.
13. Futures work goes beyond forecasting and prediction. It is a useful approach to addressing complex issues and coping with the uncertainties of policy-making. It includes the participative development of alternative scenarios and the scanning of developments in the internal and external environments for new opportunities and new threats.
14. The purpose of futures work is not to make predictions but to provide foresight. It explores alternative futures and supports long-term strategic thinking on pressing issues. Both quantitative models and qualitative assessments can contribute. Futures work should not be ad hoc but an integral part of continuing foresight intelligence systems. It embraces significant interlocking dimensions, such as key actors, context and timing.

Theme 2. Economics of health systems development

Overview

1. Theme 2 is concerned with thinking about the development of health systems, with particular reference to countries in the WHO European Region. Aspects of knowledge about the economic approach (often lacking among potential users) are addressed.
2. Economists judge the development of health systems by two key criteria (2.1): (i) equity, thought of as fairness, relating to both processes and outcomes; and (ii) efficiency, including technical efficiency, cost–effectiveness and allocative efficiency.
3. An important aspect of the overall reform of health systems (2.2) is the identity which exists between expenditure, income and revenue, and its implications for senior decision-makers (and other potential users of the learning materials).
4. Two issues are especially important, financing systems and privatization (2.3 and 2.4, respectively).

2.1 Equity and efficiency

5. Equity can be thought of as fairness. A framework is presented for thinking about how to make a fair distribution of the various resources that are available, building on three elements:
 1. certain features of health care mean that it should be distributed differently from other goods and services;
 2. it matters who receives health care goods; and
 3. the process chosen to distribute health care services must be equitable.
6. There is no correct technical answer to a question about the fairness of a given distribution of resources. Values matter. What is acceptable in one jurisdiction may not be acceptable in another.
7. In focusing on efficiency, health care must be distinguished from health and the even broader concept of wellbeing. The three main elements of efficiency are:
 1. technical efficiency (“do not waste resources”);
 2. cost–effectiveness (“produce each output at least cost”); and
 3. allocative efficiency (“produce the types and amounts of output which people value most”).

The first two requirements relate only to production, while the third introduces consumption, thereby bringing together the supply and demand sides.

8. Efficiency does not necessarily imply social desirability, since distribution of the costs and benefits can make an important difference to decision-makers. For almost any use of society's resources, there will be winners and losers. Thus, considerations of equity are often linked inextricably to considerations of efficiency.

2.2 Expenditure = income = revenue

9. The national income–expenditure accounting principles that apply to other economic sectors also apply to the health sector. Thus, every item of *expenditure* on health care is also an *income* to someone in the health care industry, and it must be financed through *revenue* of one type or another.
10. An examination of all three dimensions of proposed or actual health care reforms can provide important insights, for example:
- into the redistributive income effects of policy changes
 - into the likely impact on expenditure levels
 - into the real availability of health care services.
11. The identity can be extended in various ways, e.g. by introducing a “health production” function, a “health care production” function, a demand relationship or a capacity relationship.
12. The identity can be used to record and understand *retrospectively* the changes that have occurred, and also to examine *prospectively* the probable consequences of proposed health care reforms.

2.3 Implications of financing systems

13. There are many objectives of health policy, including macroeconomic efficiency, microeconomic efficiency, quality, feasibility, choice and responsiveness. The objectives can also conflict. Thus, various choices can be made in seeking to satisfy objectives.
14. There are various methods of financing health services (general taxation, social insurance, user charges, etc.), of paying providers (such as doctors, hospitals and the providers of pharmaceuticals), and of allocating resources (including budget allocation formulae, a purchaser-provider split and evidence-based approaches).
15. Each method of finance, payment and resource allocation has advantages and disadvantages, is more suitable for some circumstances than others, and generates incentives to act in particular ways. There are also interactions between the method of funding, the purchasing agents and the providers of health care.
16. In all health systems a balance has to be struck which enables three objectives to be achieved, wholly or in part:
1. *allocation*, including the cost-effective production and procurement of appropriate health goods and services;
 2. *distribution*, including fair financing, fair access to health goods and services and fair payment to providers;
 3. *sustainable development* over the longer term, including appropriate incentives for performance and health, policy development and the management of change, and a sustainable resource base.

2.4 Privatization issues

17. The term “privatization” can refer to several different economic functions which occur in health care systems. When using the term it is important to be clear about which function(s) are involved, for example:
 - ownership of facilities and delivery of services
 - financing
 - management and administration
 - regulation
 - provision of information.
18. These functions are only the *means* by which countries attempt to achieve important policy objectives or *ends*, such as:
 - improved health outcomes
 - equity in access to, and payment for, health services
 - efficiency in health service delivery
 - provider and patient satisfaction
 - overall expenditure control.
19. The choice of ends requires that important value judgements are made. These value judgements can differ across societies (and within them). There is no single “best” way to organize and finance health care systems that “wins” on all performance criteria. Proposals to move from one system to another need to be examined for the potential for disadvantages as well as advantages to emerge.
20. The public versus private debate is becoming blurred in health care by the development of new models of joint public-private partnership. Increasingly, it is necessary to conduct analyses at the level of specific proposals, with clearly identified objectives (rather than at the level of stereotypes). Nevertheless, overall stewardship of health care functions remains a core responsibility of the public authorities.

Theme 3. Economics of management and the change process

Overview

1. Theme 3 is concerned with change, a pervasive feature of European health systems (and societies). Change, and how to manage it, is relevant to all stakeholders in the health and health care systems. It also affects their relationships with other sectors, disciplines and stakeholders.
2. The discussion is organized in three parts.

1. An introduction to concepts for health policy analysis (3.1), which is the study of:
 - why groups respond to some health problems or issues and not others;
 - why groups develop some health policies and not others, and
 - why groups implement some health policies and not others.

The decision-makers will develop skills in identifying patterns in agenda-setting, health policy development and health policy implementation, and understanding the reasons for those patterns.

While analysis is a valuable aid for understanding and empowerment, the policy world is, of course, a messy place where the implementation of change generally involves bargaining, negotiation and compromise.

2. The ways in which the political system, in the sense of organized society or civil government rather than in the narrower party political sense, seeks to manage public health (3.2), especially its protection, promotion and stewardship functions. The underlying ethic is that of equity, in the sense of fairness.

The material considers the valuable contribution which can be made by economics and economists to achieving the objectives of health for all; and identifies the key success factors for an effective approach to the political management of health policy and changes in health practice.

3. Citizens' participation, patients' rights and ethical frameworks (3.3). These topics are often inadequately considered in health economics textbooks, and traditional economic theories based on individual preferences do not adequately describe the full set of conditions that influence demand in health care markets. In fact, a knowledge of theoretical frameworks of ethics and rights and the possible strategies for their implementation are of great importance for senior decision-makers, as they can regulate or otherwise influence the market and the behaviour of participants on both the supply side and the demand side. Furthermore, citizens' participation, patients' rights and consumers' rights are widely expected to play an increasingly important role in health care markets in the future.

3.1 Policy analysis, bargaining and negotiation

3. Identifying patterns in agenda-setting, health policy development and health policy implementation, as well as understanding the reasons for these patterns, are important skills.
 - Why are some health problems or issues included on the agenda for discussion (and not others)?
 - Why are some health policies developed to achieve particular objectives, using particular policy tools (and not others)?
 - Why are some health policies acted upon by people in the field (and not others)?
4. Health policy can be considered at each level of decision-making. Senior decision-makers are particularly important in relation to agenda-setting, the development and determination of policy, and setting the parameters within which implementation occurs (e.g. resourcing, timing).
5. Three factors are typically cited to explain action or inaction in policy development at the most senior levels:
 - interests – who wins and who loses
 - institutions – the rules for decision-making
 - ideas – both values and research.
6. Policies are more likely to be developed when:
 - the benefits are concentrated among more influential groups (and the costs across less influential groups);
 - decision-making structures concentrate influence at the same level of policy-making;
 - policies are less visible (especially to those who have costs imposed on them); and
 - both values and empirically tested “facts” support the policy.
7. The insights can be used to:
 - assess the feasibility of change; and
 - establish a strategy for bringing about change, when it appears to be feasible.
8. Strategy is likely to include the following steps:
 - start with a stakeholder analysis:
 - determine who wins and who loses
 - what this means for the political feasibility of the proposal;
 - set a framework for change:
 - determine the rules for decision-making, and
 - whether values and empirically tested “facts” support the policy;
 - establish political strategies for improving the chances that the policy will be adopted:
 - bargaining and negotiating
 - strengthening the position of supporters (and weakening the position of opponents)
 - mobilizing unorganized supporters (and deterring organized opponents).

3.2 Public health: protection, promotion and stewardship

9. Public health approaches can be narrowly or more broadly focused, covering the organized efforts of society to protect and promote the population’s health, prevent and control disease, mitigate the effects of disability and handicap, and ensure the wellbeing and care of those with

chronic health problems and the terminally sick.

10. Primary health care (as advocated originally by WHO) provides a set of principles and identifies actors to be involved and ways of mobilizing resources. The underlying ethic is equity, in the sense of fairness.
11. Public health management makes use of economic concepts and reasoning (such as substitution, pricing, utility, knowledge, costs and benefits, timing, distribution, incentives, returns to scale) and of economists as advisers. However, it is aware of the limits of their frame of reference, the assumptions they make, and the questions they cannot answer.
12. The health for all agenda distinguishes between the:
 - musts, e.g. ensuring a safe environment, minimizing hazards;
 - choices, e.g. creating alternatives that reflect social and individual preferences;
 - challenges, e.g. developing appropriate policy responses to acknowledged social problems with health consequences.

Note that practical responses, not rhetoric alone, are the test. This includes effective and sustainable implementation. Top leadership needs to be combined with widespread community participation. There are various potential outputs, including political, activity and health outputs.

3.3 Citizens' participation, patients' rights and ethical frameworks

13. A knowledge of theoretical frameworks of ethics and rights, as well as strategies for their implementation, are of great importance for senior decision-makers, as these factors can regulate or influence the market. Traditional economic theories of individual preference need not adequately describe the patterns of demand in health care markets, since they can also be influenced by providers and public health interventions.
14. Citizens' participation, patients' rights and consumer' rights are likely to play increasingly important roles in the overall health care market in the future. Strategies for the implementation of these concepts range from advocacy models through implicit legal reinforcement to explicit charters of health rights. These changes are significant for the work of senior decision-makers in all health care systems.
15. Utilization frameworks of assessment, such as cost-effectiveness analyses, are likely to be supplemented increasingly with approaches that are sensitive to health rights in discussions on, for example, rationing and priority-setting. The legally based and economically based approaches to decision-making in health care can be competitive or complementary.
16. Senior decision-makers are becoming more accountable and responsible, to a broad range of individuals, groups and institutions, for health care outcomes and processes. This trend is likely to continue; with more emphasis on positive as compared to negative rights.

Theme 4. Some economic tools

Overview

1. Some of the tools available are:
 - (i) health outcome measurement
 - (ii) costing
 - (iii) economic evaluation
 - (iv) development and diffusion of health technology
 - (v) economic modelling and forecasting.
2. The emphasis is on when the tool is useful and on elements requiring critical assessment. There is detailed information about each tool in the full set of learning materials. A range of other tools, e.g. human resource management, are available elsewhere.

4.1 Use of tools in supporting decision-making

3. You can judge for yourself when economic tools can be helpful in your decision-making, although the production of economic information requires expert knowledge.
4. The information is not an end in itself, and can be presented in more or less helpful ways. For example, in assessing economic evaluations the following ten-point check list would be useful.
 - (i) Was a well defined question posed in answerable form?
 - (ii) Was a comprehensive description of the competing alternatives given?
 - (iii) Was effectiveness of the programme services established?
 - (iv) Were all the important and relevant costs and consequences identified for each alternative?
 - (v) Were costs and consequences measured accurately in appropriate physical units?
 - (vi) Were costs and consequences valued credibly?
 - (vii) Were costs and consequences adjusted for differential timing?
 - (viii) Was an incremental analysis of costs and consequences of the alternatives performed?
 - (ix) Was allowance made for uncertainty in the estimates of costs and consequences?
 - (x) Did the presentation and discussion of study results include all issues of concern to users?

Do not let the perfect become the enemy of the merely good.

Part 2

Materials for tutors to organize a one-day seminar

The target audience

The WHO Regional Office for Europe has developed a set of health economics learning materials, *Learning to live with health economics* (“the book”),⁴ organized in 25 modules. The purpose of this book is to assist various potential audiences to benefit from the valuable insights that can be afforded by the discipline of economics, broadly defined. The material is complementary to other material on health economics that is already available.

The modules in the book are concerned with a broad range of matters. They should enable the various potential users to make a more extensive and prudent use of economic concepts and tools, to be better equipped to judge what are appropriate or inappropriate circumstances, and to appraise more perceptively the quality and relevance of the advice they receive from economists.

Health policy and practice is a large and complex area. It can benefit from a range of perspectives, including that of economics, which is particularly useful for decision-makers since resource limitations and financial constraints apply in all health systems and at all levels. There are always more useful activities competing for priority than can be resourced, and this has significant implications for resource allocation decisions, health outcomes and equity.

The economic approach fits particularly well with the public health view of the issues, problems and possible solutions included in WHO’s overall health for all strategy, and specifically HEALTH21, the health for all policy framework approved by the WHO Regional Committee for Europe in 1998.

There are various potential users, as discussed in the introduction to the book. Some of the most important are policy-makers for health at the highest level, including ministers, their advisers, concerned members of parliament and the most senior officials, such as the heads of countries’ health agencies. Such people are extremely influential in relation to health policy, the framework within which health practice occurs, and the relationships with other important players such as the finance ministry, other ministers, the private sector or the media. Their decisions also affect significantly the context in which other potential users (such as managers and practitioners) operate, the incentives they face, and the decisions they make.

For the benefit of policy-makers at the highest level, WHO has also produced this abridged version of the book entitled *Health economics as a tool for leaders*.² Part 2 of this book, aimed at

⁴ ZÖLLNER, H. ET AL., ED. *Learning to live with health economics*. Copenhagen, WHO Regional Office for Europe, 2003.

⁵ GUNNARSSON, D. ET AL., ED. *Health economics as a tool for leaders*. Copenhagen, WHO Regional Office for Europe, 2003.

tutors, (i) shows how the full set of learning materials can be tailored to decision-makers at the highest level, (ii) suggests a specific learning approach (a one-day seminar) to meet their particular needs, and (iii) provides tutoring material to help prepare overheads and exercises.

The material is based on the book. No additional modules have been developed, although no doubt this could be done at a later stage to meet the special interests of particular groups of senior decision-makers.

Tailoring learning materials to the highest level of decision-makers

It is emphasized in the book that the learning modules need to be carefully customized for the different groups of users, taking account of their particular interests and experience. The most senior policy-makers at the political and official levels in health care establish appropriate parameters for decision-making by practitioners and lower level managers, set the framework for intersectoral relationships and obtain resources for their sector. It is particularly important for them to know what economics, including its concepts, tools and way of thinking, can add to their capacity for making effective decisions. Where is it useful (and where less so)? How does it interact with other issues of importance (e.g. in intersectoral relationships, in discussions with key stakeholders, in negotiations with the finance ministry)? How should they appraise the economic component of the advice they receive, or identify situations when it should be present but is missing?

In developing the tutoring material it was assumed that these very senior decision-makers would be more likely to be interested in the economic way of thinking than in the minutiae of techniques and approaches – the “thinking” rather than the “practical” modules. The contents and learning processes should also, whenever possible, build on matters of immediate interest to participants and develop from them the broader insights and knowledge which will be beneficial in the longer term. This point is illustrated, for example, by the relative time scales for decision-making by senior politicians and officials compared to economists (or risk compared to uncertainty in current discussions on bioterrorism).

The complete book and its full set of modules can be used at the levels of appreciation, appraisal and analysis. Appreciation helps users to gain a fuller understanding of where particular economic reasoning, concepts or tools can be used in health policy-making or practice. Appraisal assists users to make critical assessments of particular studies or uses, including potential uses, of health economics in their work or the related work of others. These two levels are judged likely to be the most appropriate for very senior decision-makers. The third level, analysis, assists users to apply the concepts or tools (e.g. health outcome measurement, costing, or cost–effectiveness analysis). Although this is not a primary purpose here, increasing skills in analysis (even fairly rudimentary analysis) can hone appreciation and appraisal capacities, and thus enable health economics to be applied more appropriately and consistently.

Against this background the material in this abridged book is organized around an introduction, four key themes and a conclusion.

- The *introduction* emphasizes: (i) the contribution which the learning materials can make to senior decision-makers in health care, (ii) areas where particular value is added for them (specific cases; specific concepts, tools and reasoning; and the economic way of thinking), and (iii) the three levels of use (appreciation, appraisal and analysis) with their different degrees of relevance for senior decision-makers.
- The *economics of health* is concerned with: how health is produced; how health does not necessarily equate to health care; and how health relates to the broader economy and society. Both processes and outcomes are important. The theme includes consideration of how the economic, social and other environmental determinants of health interact with individual behaviour and public health; and the importance of intersectoral activities for health. This theme includes material from all of the relevant modules in the book, but in an abbreviated form which focuses on those aspects of particular importance for very senior decision-makers.
- The *economics of health systems development* is concerned with the development of health systems, with particular reference to the WHO European Region, and addresses aspects of knowledge about the economic approach in health care which are not always appreciated, even by senior decision-makers. The two key criteria by which economists judge the development of health systems are discussed: equity, thought of as fairness, relating to both processes and health outcomes; and efficiency, including technical effectiveness, cost-effectiveness and allocative efficiency. The identity between expenditure, income and revenue in health care is presented, a simple concept with powerful implications (and which can be elaborated considerably). The identity relationships can be used to record and understand *retrospectively* the changes that have occurred in health care expenditure, income and revenue, and also to examine *prospectively* the likely consequences of proposed health care reforms. This theme draws on the relevant “thinking modules” of the book, but omits or drastically reduces the main context-specific applications, to fit the time which senior decision-makers can make available.
- The *economics of management and the change process* is concerned with change and how to manage it. Change is a pervasive and continuing feature of European health care systems and the broader economic, social and political environments with which they interact. Change and how to manage it is critical for senior health care decision-makers; for their relationships with other decision-makers in health care, such as managers and practitioners; and for their relationships with other sectors, disciplines and stakeholders. This theme includes discussion of agenda-setting, policy development, policy implementation, and negotiation in health care; how public health is managed, considering especially the protection, promotion and stewardship functions; and citizens’ participation, patients’ rights and ethical frameworks. For example, a knowledge of theoretical frameworks of ethics and rights and possible strategies for their implementation is of great importance for senior decision-makers, as these factors can regulate or otherwise influence the market and the behaviour of participants on both the supply side and the demand side. The relationship between legally-based and economically-based approaches to decision-making in health care is of great interest; and citizens’ participation, patients’ rights and consumers’ rights are widely expected to play increasingly important roles in future throughout the European Region. This theme for the seminar draws on a number of the modules in the book, but in an abbreviated form, given the sharp time constraints, and omitting most of the discussion concerned with practitioners and managers.
- The final theme, on five *economic tools*, is treated in brief, since there is detailed information on each tool in the book, a range of other tools are available elsewhere (e.g. on human resource management, or information, research and other evidence for decision-making), and the most senior decision-makers in health care are unlikely to undertake such analyses themselves. The emphasis in this theme is on the sort of tools which are available, where they can contribute to decision-making by ministers and senior officials (and where their absence should raise queries

about why) and the elements of the tool's application which warrant careful scrutiny. It is emphasized that the analyses are not an end in themselves, but an aid to better decision-making, and that the results can be presented in more or less helpful ways.

- The *conclusion* summarizes what has been learned and reiterates that the learning will not have made the readers economists but was meant to assist them to undertake their demanding duties better.

Overheads and exercises are included for each theme, to explore important aspects and to vary the format of the educational setting. The exercises can be modified or supplemented for particular groups, if required. They are intended to be discussed in working groups and then considered in a plenary session. Two role-plays are also included, one involving a finance minister and a health minister, and the other simulating negotiations over a pay claim between the government and the national association of doctors.

Thus, the detailed contents of the learning package are:

Theme 1. Economics of health
1.1 Interrelationships, and everybody's concern
1.2 Reallocation of resources for health
1.3 Economic, social and individual determinants of health
1.4 A futures orientation
Theme 2. Economics of health systems development
2.1 Equity and efficiency
2.2 Expenditure≡income≡revenue
2.3 Implications of financing systems
2.4 Privatization issues
Theme 3. Economics of management and the change process
3.1 Policy analysis, bargaining and negotiation
3.2 Public health: protection, promotion and stewardship
3.3 Citizens' participation, patients' rights and ethical frameworks
Theme 4. Some economic tools
4.1 Use of tools in supporting decision-making
Exercises
Conclusion

The learning objectives are set out in the introduction to Part 1 of this book.

Model of a one-day seminar

There are several ways and formats in which very senior decision-makers can be brought together to learn. As an example, a prototype seminar on “Health Economics as a Tool for Leaders”, involving a one-day commitment, is described below.

Timing and organization

The considerations are dominated by the limited time which the participants can make available. The judgement was made that they would not make more than one day available.

Given this there appeared to be two alternatives. The first would be to start at lunch-time on day one and continue that afternoon and evening and the next morning, ending with lunch on day two. This is the preferred option, and a detailed organization for it is set out in Fig. 1.

Fig. 1. Suggested programme for a one-day seminar spread over two half-days

Day 1		
Afternoon	13.30 - 15.30	Lunch/arrival Introduction Theme 1: Economics of health <i>Afternoon tea/coffee</i>
	16.00 – 18.00	Theme 2: Economics of health systems development <i>Dinner</i>
Evening	19.30 – 20.30	Exercises on themes 1 and 2 in working groups
	20.45 – 21.30	Role-plays in groups
	21.30 – 22.15	Plenary discussion of role-plays
Day 2		
Morning	8.30 - 10.30	Theme 3: Economics of management and the change process Theme 4: Some economic tools <i>Morning tea/coffee</i>
	11.00 - 12.30	Exercises on themes 3 and 4 in working groups
	12.30 – 13.00	Discussion of exercises in working groups Conclusion <i>Lunch/departure</i>

The second alternative would be a single day. The dangers here include the difficulty for participants in getting away from their normal responsibilities for a whole day (rather than two part days), the disadvantage of not being in the evening (e.g. for a dinner or role-play) or offering the opportunity of overnight reflection; and the lack of a buffer at the beginning and end of the seminar for late arrivals and early departures.

The contents could be used as a core element in a longer, more detailed programme of, for example, three days if (some) participants can make additional time available (e.g. in the parliamentary recess), or combined with other material (e.g. more on the legally-based approaches to decision-making).

Two general matters could be considered at some stage in the seminar.

- (i) The first matter relates to certain *misconceptions* about economists, e.g. they only work with small aspects of the overall picture and are thus not in a position to understand the full implications; they possess a master model which could answer any question as soon as sufficient data of high quality become available; or, while bringing some interesting insights, they always seem to appear at the wrong time. These matters could, for example, be included in the introductory remarks, with some comments on their accuracy or inaccuracy and some suggestions as to how to ensure that the best value is derived from the economists' potential contribution.
- (ii) The second is just *when* the senior decision-maker would expect economists to make their contribution. This issue can arise at a number of points in the seminar. It relates to what sorts of problem are particularly amenable to economic ways of thinking; the stage of the decision-making process where economics is most likely to be helpful; the specific tools to be applied to which problems; and where the absence of economic input suggests caution in reaching a decision.

In the final section of the seminar themes 3 and 4 could be treated separately (rather than together, as proposed), with each presentation followed by a discussion of the relevant exercise in working groups, and a final plenary discussion of both exercises together. This is on the whole less preferred, as it would provide fewer opportunities for the groups to follow their own particular interests in discussing the two areas. For example, some groups may wish to devote more attention to management and the change process than to a detailed discussion of economic tools. The proposed arrangement allows greater flexibility to meet differing interests over time and between and within groups.

The emphasis in the section which discusses the five economic tools should be on what each tool is useful for, from the viewpoint of the most senior health care decision-makers (or other participants). It is worth emphasizing that a wider range of tools is available elsewhere, for example on information for decision-making or human resource management. With respect to each tool individually, and the tools of economic analysis generally, the focus for the discussion is primarily on:

- when consideration should be given to using them (and when their omission should be queried); and
- which elements of the tool require critical assessment to support judicious use.

It is not envisaged that participants should receive a copy of the full set of learning materials (although it is publicly available for use, if required). However, it is expected that tutors will distribute copies of the overheads they propose to use at the beginning of the relevant sessions, and provide copies of the exercises and role-plays to the participants. An introduction for participants, including material similar to that included above under "The target audience" and "Tailoring the material", would be distributed at the beginning of the seminar. It is not proposed that any of the material be distributed prior to the seminar.

The number of participants influences the structure of the meeting. This proposal assumes that there would be about 15 participants. This permits a range of perspectives to be represented, each participant to be engaged actively and three working groups to be formed. There is some flexibility, of course, but it is suggested that numbers not exceed 20.

Adapting the model

Although this seminar material has been developed for an audience of the highest level of decision-makers in health care, there are other groups of senior decision-makers for whom the material, with some modifications (including the exercise and the role-plays), could also be helpful.

- *Politicians*, such as those in portfolios which interact with health or members of parliamentary committees, both continuing committees and ad hoc inquiries. Most of the material appears to be pertinent to their interests, but given their high status and limited time it is suggested that scope be provided for them to modify the structure (particularly the exercises and role-plays) to suit their current concerns. This may be particularly important for ad hoc committees or non-health ministers, both of whom are likely to have a more targeted focus than continuing health committees. Similar comments apply for seminars which focus on senior bureaucrats in agencies that interact with health care agencies or that have a significant independent effect on health outcomes, such as transport, education, income security, housing or the environment.
- *Major funders of health research*, including those who are developing material for evidence-based medicine and practice guidelines. These bodies can be dominated by medical perspectives and could benefit significantly from a greater appreciation of what economics, management and public policy approaches could contribute to their activities. However, they would, in many cases, probably seek a rather different balance in the material to be included. For example, they might want more on information, evidence and decision-making, dissemination, change and the role of professional associations; on the interface between patient care, epidemiology and economics; and generally more on outcomes and less on processes. They might be more concerned with the perspectives of providers relative to users and less interested in some topics which are currently included, such as privatization. It would be helpful if their material stressed the economic contribution to both prospective (including priority areas for research) and retrospective analyses. The exercises (and role-plays) might need to be modified or supplemented to meet the particular requirements of this audience.
- *Courts and other judicial bodies* whose activities include regular or occasional consideration of health-related matters, e.g. compensation for injuries at work or on the roads, complaints about poor quality health care or allegedly inequitable treatment by health care providers or in health care institutions. Again, much of the material currently included appears relevant to their concerns (e.g. equity and efficiency). Some matters are likely to be of less interest to them (e.g. privatization), and other matters would warrant additional consideration (e.g. citizens' participation, patients rights and ethical frameworks, and the relationship of legally-based to economically-based approaches for decision-making in health care). The exercises (and role-plays) could be modified, and new ones added, to meet the special needs of this audience. The focus of these decision-makers may tend to be retrospective, in which case care should be taken to ensure attention is given to prospective elements, including incentives and indirect effects. It would be appropriate to consult them about their special requirements and concerns, including current issues and specialist responsibilities.

In addition, for each of these specialist groups it is open to question whether an experienced tutor with economics knowledge should be supplemented by another contributor whose expertise is closer to that of the participants, such as a (former) minister or parliamentarian, the head of a research funding body or a judge, respectively.

Teaching material: overheads

The material has been developed for an audience of the highest level of decision-makers in health care, such as ministers of health or very senior officials. Sample overheads have been prepared on the most important topics and messages to assist tutors. Also provided are texts in telegram style which could form the basis for additional overheads. You may not wish to use them all, but to select those that are most relevant to particular audiences and to use the additional texts provided for constructing your illustrations. Ideally, matters of pressing, immediate interest to participants can be used to develop the broader insights that will be beneficial for them in the longer term.

The intention is that, in the seminar itself, there will be opportunities throughout all the sessions for discussions to be stimulated among the participants by the material presented. While capitalizing on matters of special interest to the group presents a challenge for the tutor, it enables their current concerns to be used to introduce more general economic principles, techniques and approaches. This is more likely to engage the interests of participants, to bring out relevant aspects of their experience, and to stimulate active learning.

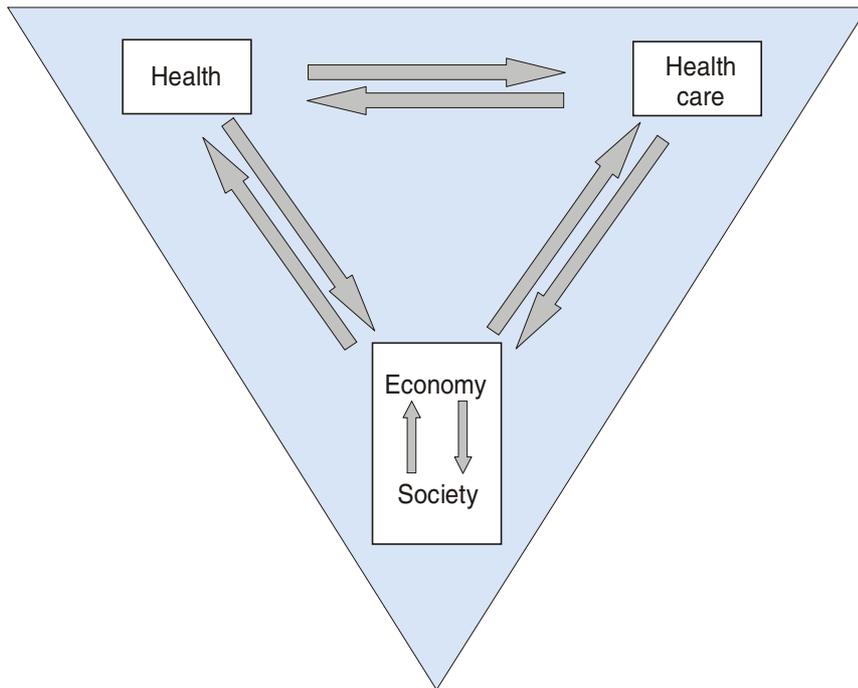
If, as a result, they consider in their subsequent decision-making the possible relevance of economic factors (even if they decide deliberately to ignore them), the seminar will have been successful. The tutor needs, of course, at the end of each session, to ensure that all relevant points have been covered. Otherwise enthusiastic discussion of some matters may cause other important aspects to be overlooked, with the result that the overall learning experience is unbalanced.

The themes are the same as in the learning materials, which also summarizes the messages to be understood and learned.

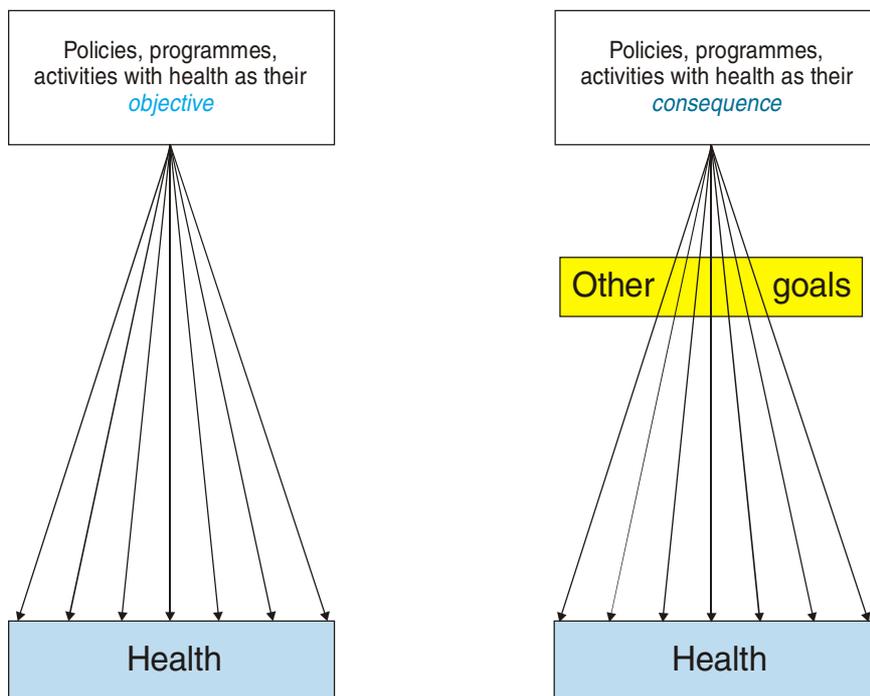
Theme 1. Economics of health

1.1 Interrelationships, and everybody's concern

Overhead: The macro triangle



Overhead: A different view of health policy



Overhead: The health objectives–consequences matrix

Does this policy or action have ...		Health as a <i>consequence</i> (positive or negative)?	
		Yes	No
Health as an <i>objective</i>	Yes	A	B
	No	C	D

Additional material for 1.1

Background

1. The book *Learning to live with health economics* is available.
2. Economics applied to:
 - the public policy process
 - health policy content
 - implementation and practice.
3. Economics considers both individuals and groups. Note that:
 - contexts vary
 - contexts are important.
4. Purpose:
 - to assist users
 - reflects WHO’s role and *modus operandi*.

Using the materials

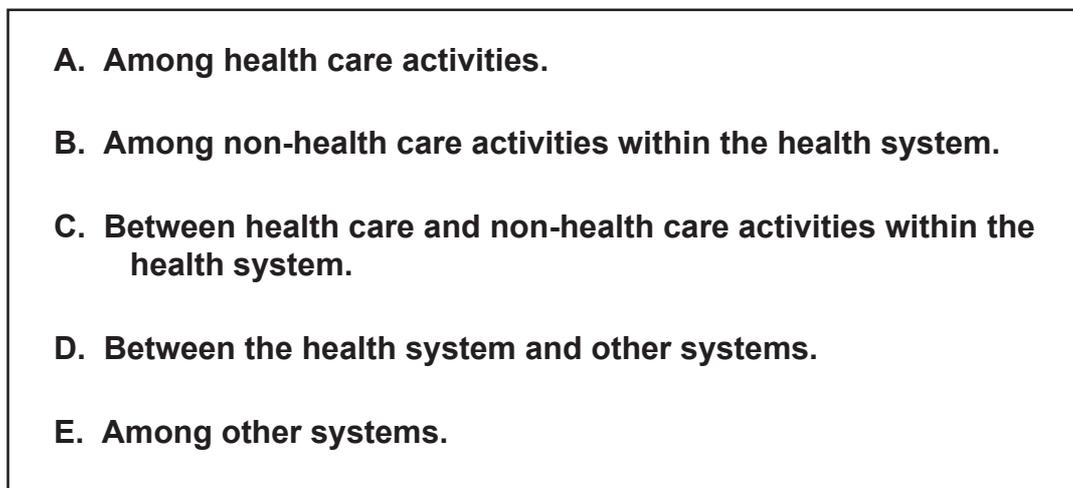
1. Value added for senior decision-makers
 - examples, where economic input is either provided or missing
 - the economic way of thinking
 - sensitivity to local traditions, circumstances and values.
2. Three levels
 - appreciation
 - appraisal
 - analysis.
3. Senior decision-makers affect:
 - the context for others
 - others’ decisions.

Interrelationships

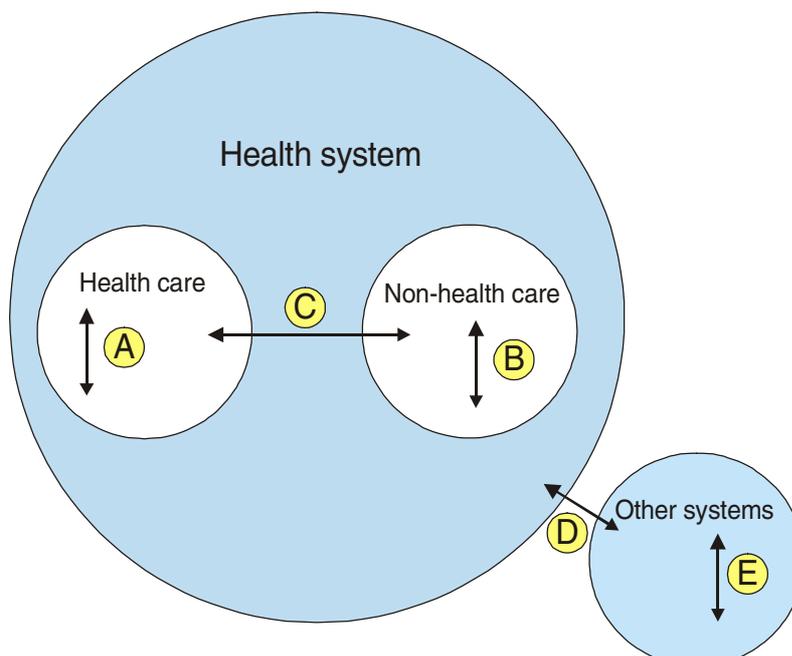
1. Health systems and economic systems are:
 - complex
 - have direct and indirect relationships.

1.2 Reallocation of resources for health

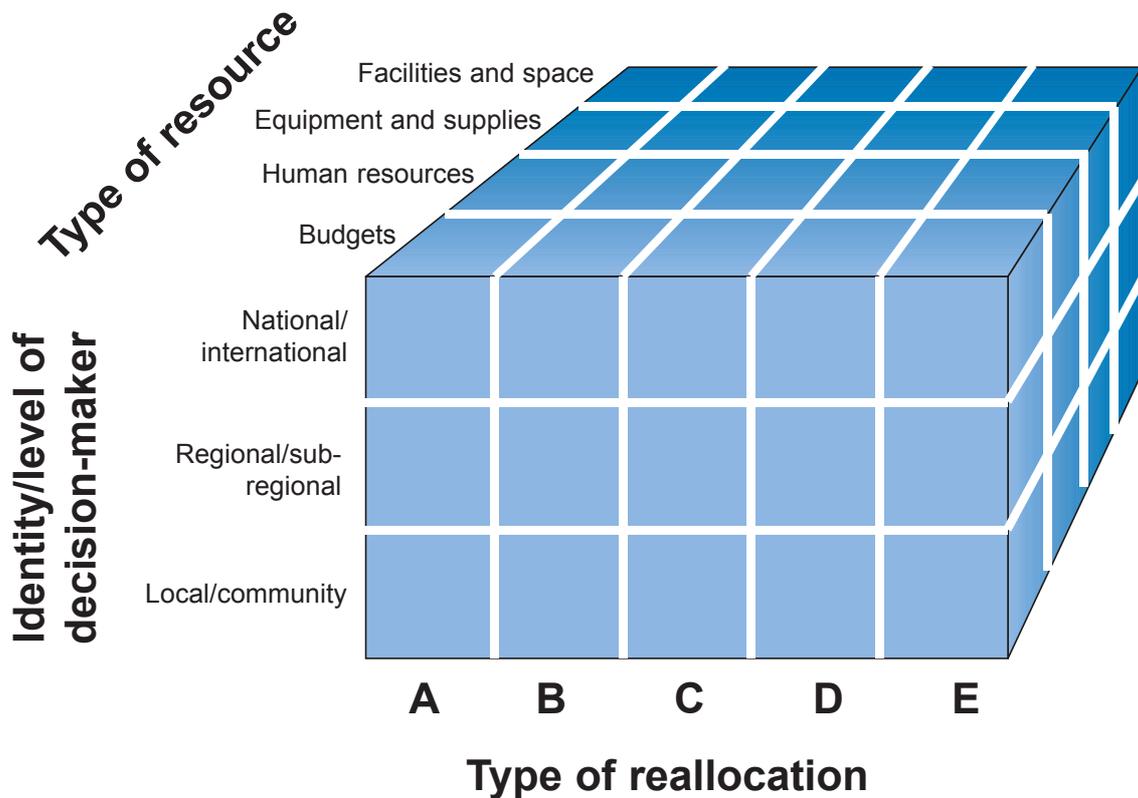
Overhead: Five principal types of reallocation: flows of resources



Overhead: Conceptual framework: flows of resources



Overhead: Conceptual framework: three dimensions



- A Among health care activities
- B Among non-health care activities within the health system
- C Between health care and non-health care activities within the health system
- D Between the health system and other systems
- E Among other systems

Additional material for 1.2

Conceptual framework components

1. Reallocations can take place
 - (i) within the health system, between:
 - different types of health care
 - health care and other health action (e.g. seat-belt legislation);
 - (ii) between the health system and other systems in the economy and society.

Two additional dimensions

1. The types of resource being reallocated, e.g.:
 - command over resources
 - the resources themselves.

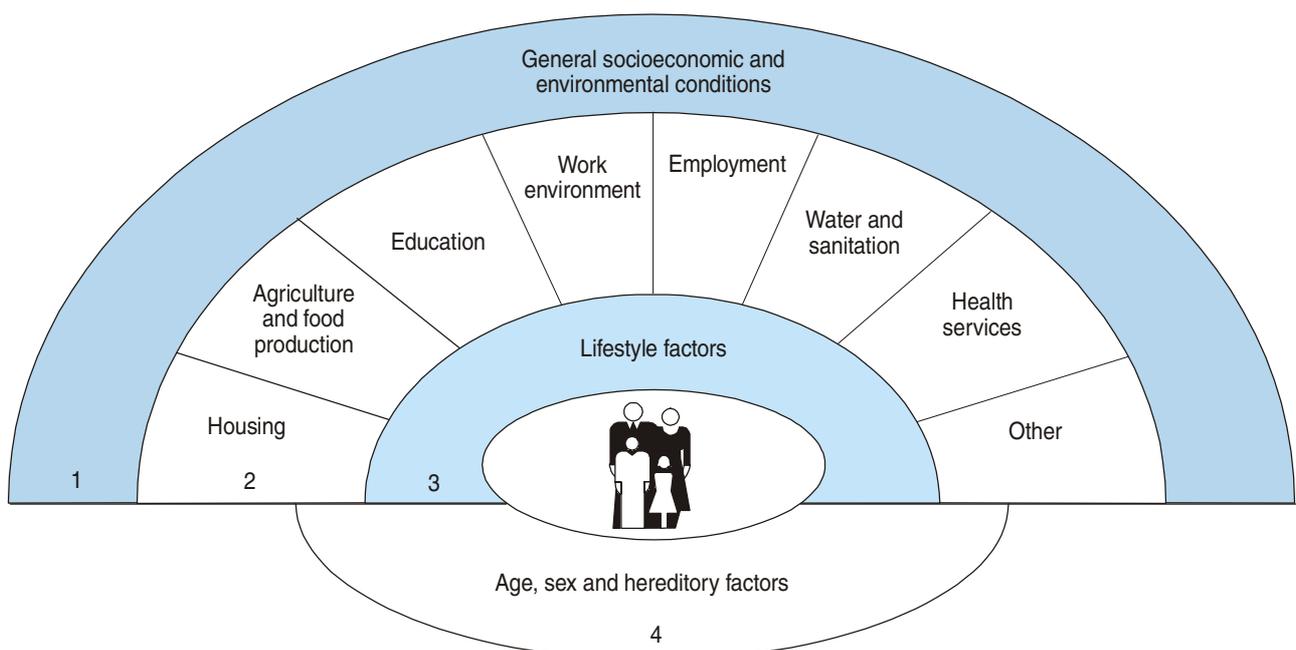
2. The responsible decision-makers
 - different levels of influence
 - public compared to private sector.

The three-dimensional conceptual framework

1. Enables the intersectoral reallocation of resources for health to be:
 - conceptualized
 - discussed.
2. Possible applications:
 - a useful planning tool
 - a monitoring or auditing mechanism
 - prospective as well as retrospective.
3. The local context may require:
 - adaptation
 - development.
4. Preparing the ground for effective implementation.
5. Application in an economy which is:
 - growing
 - declining.

1.3 Economic, social and individual determinants of health

Overhead: Main socioeconomic determinants of health capital

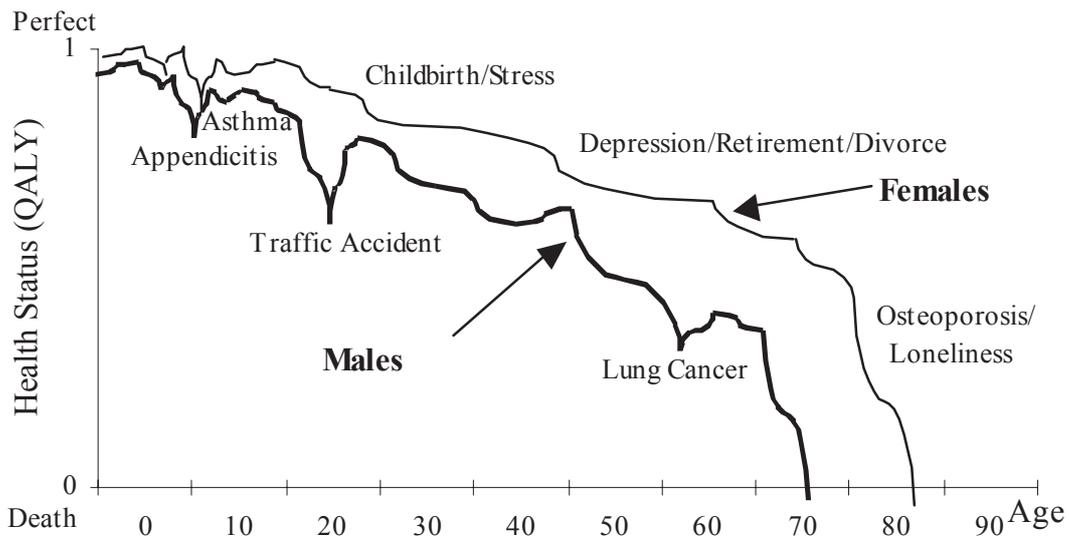


Overhead: Critical transitions and life events

1. **Depend on five factors:**
 - generic endowment
 - life risks
 - the individual's environment
 - behaviour (individuals and their social groups)
 - health care system (including prevention, health promotion).

2. **An apparent health divide in the population:**
educational level is a key variable
 - differences in:
 - individuals' valuation of their own health
 - attitudes towards professional health services
 - consequences for:
 - their health behaviour
 - including use of health care

Overhead: Life events – an illustration



Overhead: The individual as a producer of health**1. Transformation of health inputs into health outcomes:**

- state of health technology
- individual knowledge

2. Constraints include:

- time; money; prices; regulation.

3. Individual preferences:

- differ; may change.

Therefore, maximizing individual preferences is not equal to maximizing individual health.

Additional material for 1.3**Individuals, health and families**

6. Most individuals lead their lives in families:
 - substantial potential impact on health.
7. The early years of life, e.g.:
 - family, income, education and behaviour
 - gradual change from parental to individual decisions.
8. Adult life:
 - endowment from earlier life
 - adult living arrangements, e.g. single or married
 - children encourage specialization in the household
 - impact on health of family breakdown: for children, for adults.
9. Ageing, e.g.
 - living without a partner
 - intersectoral aspects
 - rising political voice
 - under-utilized resource.

1.4 A futures orientation

Overhead: A futures orientation

1. **The environment for health care decision-making becomes:**
 - **complex and uncertain.**

2. **Futures work includes:**
 - **the participative development of alternative scenarios**
 - **the scanning of developments for new opportunities and challenges.**

3. **It helps to:**
 - **address complex issues**
 - **cope with uncertainties in policy-making.**

Additional material for 1.4

Stakeholders

1. With many stakeholders, action may be required:
 - by different decision-makers
 - in different organizations and sectors.
2. In such circumstances, a command and control approach:
 - is not feasible
 - is not appropriate.
3. There can be many stakeholders, including:
 - scientists
 - the media
 - decision-makers, taking account of internal and external environments.

Futures work

1. Purpose is not to make predictions but to provide foresight.
2. Explores alternative futures.
3. Supports long-term strategic thinking on pressing issues.
4. Quantitative models can contribute.
5. Should not be ad hoc but part of foresight intelligence systems.

Target audiences

1. The wider community (or some groups within it).
2. Policy analysts and advisers within government.
3. Senior policy advisers, who tend to want:
 - simple messages
 - succinct statements with firm content
 - clear relevance to pressing matters.

Scenario writing

1. Storytelling about possible future situations with a particular purpose.
2. To help decision-makers engage with the choices to be made.
3. To identify where choices are likely to have to be made.
4. To clarify how the changes can be made best.
5. Embraces key interlocking dimensions:
 - the key actors
 - context
 - timing.
6. Develops a foresight capability:
 - ongoing
 - incorporate accumulative learning.
7. Benefits compared to costs: include timing, distribution and uncertainty.

Theme 2. Economics of health systems development

2.1 Equity and efficiency

Overhead: Four important concepts

- **Equity**
Can be thought of as fairness. HEALTH21 cites “equity in health and solidarity in action between and within all countries and their inhabitants” as one of the three values that form its ethical foundation.
- **Efficacy**
Is concerned with how effective, say a pharmaceutical drug is in preventing, relieving or curing diseases (or their symptoms or complications).
- **Efficiency**
There are three main elements of efficiency: technical efficiency (“do not waste resources”); cost–effectiveness (“produce each output at least cost”); and allocative efficiency (“produce the type and amounts of output which people value most”).
- **Productivity**
What beneficial consequences are achieved by particular activities? The more benefits can be achieved for a given use of resources, the better; similarly, if the same level of benefits can be achieved using less resources (e.g. people, time or facilities).

Additional material for 2.1

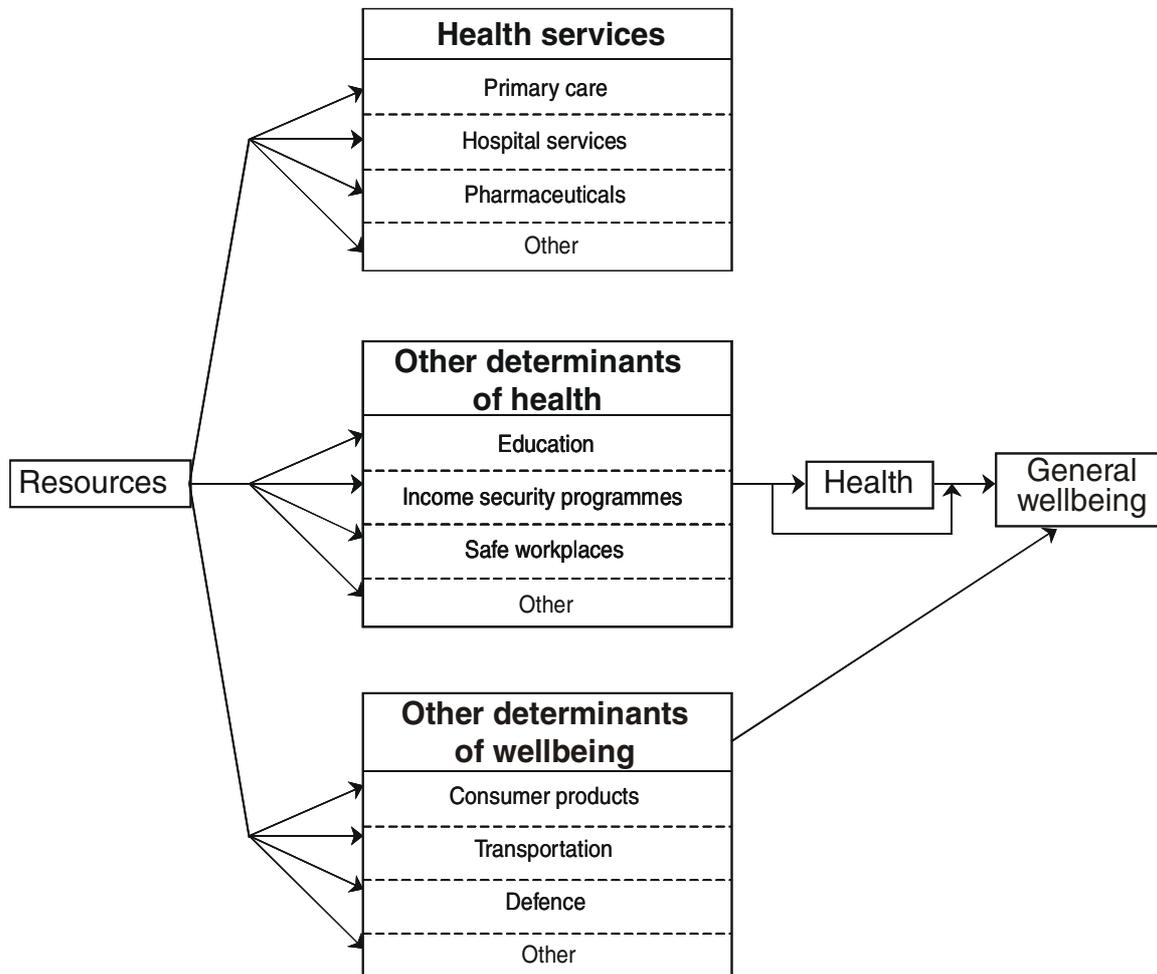
Fair distribution of resources

1. Do features of health care mean it should be distributed differently from other goods and services?
2. Does it matter who receives health care goods and services?
3. Does only the process chosen to distribute health care have to be equitable?
4. Does it matter, as well, how care ends up getting distributed?

Note:

- (a) There is no technical answer. Values matter.
- (b) What is acceptable in one jurisdiction may be unacceptable elsewhere.

Overhead: The magnitude of a society's resource allocation problem



Overhead: Six ways in which there can be too much health care

1. **Effective health care that is more costly than necessary.**
2. **Health that is more costly than necessary.**
3. **Health care that is valued below its cost.**
4. **Health that is valued below its cost.**
5. **Health care that is not effective.**
6. **Wellbeing that is more costly than necessary.**

Equitable distribution

To distribute equitably health-producing goods and services, or health, means distributing them:

- in a way that is acceptable, given the characteristics of the goods and services such as:
 - their physical nature, specifically divisibility and scarcity
 - prevailing cultural beliefs, e.g. essential versus discretionary services;
- in a way that is acceptable, given the characteristics of the recipients:
 - some recipients may have claims to a greater proportion of resources
 - for example, according to group membership, contribution to society, need;
- according to acceptable processes, or criteria about acceptable outcomes of these processes, i.e. fair process or fair end states:
 - processes include: market exchange, queuing, governance processes
 - end states include: equality, horizontal equity, vertical equity.

Three main elements of (economic) efficiency

1. Technical efficiency (do not waste resources).
2. Cost-effectiveness (produce each output at least cost).
3. Allocative efficiency (produce output which people value most):
 - the types of output
 - the amounts of output.

Note:

- (a) Equating costs and benefits at the margin:
 - may be met through prices and markets
 - often the required conditions are violated.
- (b) Technical efficiency and cost-effectiveness relate to production; allocative efficiency introduces consumption, thereby bringing together the supply side and the demand side.

Criteria for judging whether a change is an improvement

1. The Pareto criterion:
 - measures allocative efficiency
 - is an individualistic notion
 - assumes a given distribution of income and wealth.
2. For most policies, there are both gainers and losers.
3. Potential Pareto criterion:
 - gainers could compensate losers
 - compensation not actually paid.
4. Allocative efficiency is not necessarily equal to social desirability.

2.2 Expenditure \equiv income \equiv revenue

Overhead: The expenditure \equiv income \equiv revenue identity

1. Every expenditure on health care:
 - is also an income to someone
 - must be financed somehow through revenue.
2. Especially valuable insight for:
 - senior decision-makers
 - those involved in reforms.
3. Thus:
 - *expenditure on health care, goods and services necessarily equal*
 - *income earned from the provision of health care, goods and services necessarily equals*
 - *revenues raised to pay for health care goods and services.*

Additional material for 2.2

In more detail

1. The relationship is an identity: the three items must be equal.
2. Expenditure = $P \times Q$ (where P is the unit price and Q is the quantity of each type of health care good and service).
3. Income = $W \times Z$ (where W is payment per unit of input, and Z is the various inputs which are combined).
4. Revenue = $TF + SI + UC + PI$ (where TF is taxation, SI is social insurance contributions, UC is direct charges to users, and PI is private insurance provisions).
5. The identity can be used:
 - retrospectively
 - prospectively, e.g.:
 - for controlling publicly financed health care expenditure
 - for addressing real (or perceived) shortages of doctors
 - for responding to the increasing use and cost of drugs.

Other complexities

1. $P \times Q \equiv W \times Z \equiv TF + SI + UC + PI$.
2. Z includes all who derive income from the provision of health care goods and services, including management.
3. A health “production function”, linking Q to the population’s health status.
4. A health care “production function” linking Q to Z.
5. A demand relationship, linking C to Q.
6. A capacity relation, linking Q to a maximum available stock of inputs and resources.
7. How could this identity assist other users (e.g. managers or practitioners)?

2.3 Implications of financing systems

Overhead: Objectives of health policy (they may conflict)

1. **Macroeconomic efficiency.**
2. **Microeconomic efficiency.**
3. **Quality.**
4. **Choice and responsiveness.**
5. **Feasibility and sustainability.**

Overhead: Methods of financing health services

1. **General taxation.**
2. **Social insurance.**
3. **Voluntary, supplementary and private insurance.**
4. **Hypothecated taxation.**
5. **Medical savings accounts.**
6. **User charges.**

Overhead: Methods of paying providers

- 1. Paying doctors:**
 - fee-for-service
 - capitation
 - salary.
- 2. Paying hospitals:**
 - retrospective remuneration
 - prospective remuneration, e.g. line items, global budgets, DRG's.
- 3. Paying for pharmaceuticals:**
 - supply-side measures, e.g. pricing, formularies, cost-effectiveness
 - proxy demand-side measures (especially physicians; pharmacists)
 - demand-side measures, e.g. cost-sharing; health promotion.

Overhead: Health systems: development and finance

- 1. Make allocation cost-effective**
 - cost-effective production of appropriate health goods and services.
- 2. Make distribution fair**
 - fair financing
 - fair access to health goods and services
 - fair payment to providers.
- 3. Make development sustainable**
 - policy development, continuous learning, management of change
 - sustainable resource base
 - incentives for improving performance and health.

Additional material for 2.3

Allocating resources

1. Budget allocation formulae, e.g.:
 - political versus health needs
 - long-term incentives.
2. Purchaser–provider split:
 - what actually works
 - influencing providers on how to deliver care.
3. Information needs for efficient purchasing, e.g.:
 - appraisal of population health needs
 - monitoring and evaluation, e.g. outcomes, institutions and clinicians
 - monitoring costs of provision
 - design of incentive-compatible contracts.

2.4 Privatization issues

Overhead: privatization

1. **Can refer to several different economic functions that occur in health care systems.**
2. **Economic functions include:**
 - ownership of facilities
 - delivery of services
 - financing
 - management
 - administration
 - regulation
 - provision of information.
3. **When using this term it is important to specify clearly the function(s) involved.**
4. **The above functions are only the means by which countries seek to achieve policy objectives/ends.**
5. **Choosing ends requires that value judgements be made that:**
 - may differ between countries
 - may differ within countries.
6. **New models of public-private partnership:**
 - the public versus private debate is becoming blurred
 - conduct analysis – at level of specific policy proposals
 - with clear policy objectives.

Overhead: five other matters

1. **All models have their respective advantages and disadvantages.**
2. **Countries proposing to change, need to examine the potential for new problems, e.g.:**
 - **the move from a tax-financed to a social insurance model may increase the need for managerial and actuarial skills.**
3. **Private is not equal to competition:**
 - **public and private refer to a status**
 - **Competition is a process.**
4. **Complexity of modern health care systems renders public/private distinctions difficult:**
 - **boundary of what is “public”**
 - **joint ventures and shared ownership models**
 - **capital market and financing arrangements.**
5. **The overall responsibility of governments remains.**

Additional material for 2.4**Privatization principles**

1. Evaluate the type, scope and degree of privatization.
2. Privatization is:
 - a means to achieve desired ends
 - not an end in itself.
3. Privatization is a question of determining property rights.
4. Selective privatization is more likely to work effectively in service provision than in funding.
5. Consult as widely as possible in setting policy objectives.
6. Never let the perfect become the enemy of the merely good.
7. Limited, small-scale experiments, trials or pilot schemes, may often be better than trying to implement new policy ideas across the entire health system.

An example from a central Asian republic

1. Privatization ought to be part of a broader strategy:
 - for health reform
 - more generally.
2. The need for complementary policies, e.g. any core or guaranteed package.

3. Operation of the capital market:
 - effect on sale price
 - sales relative to recurrent costs, investment needs
 - effects on future investment and innovation.
4. Create an appropriate regulatory environment, e.g. to control:
 - private institutions
 - professional power.
5. Train experts, including managerial cadres.
6. Contracting framework (do not have to be fixed contracts).
7. Creation of purchasing power, e.g. public, private insurance, individuals.
8. Interaction between:
 - privatization process, and
 - subsequent operation of private sector, and
 - coherence of public and private sectors.

Theme 3. Economics of management and the change process

3.1 Policy analysis, bargaining and negotiation

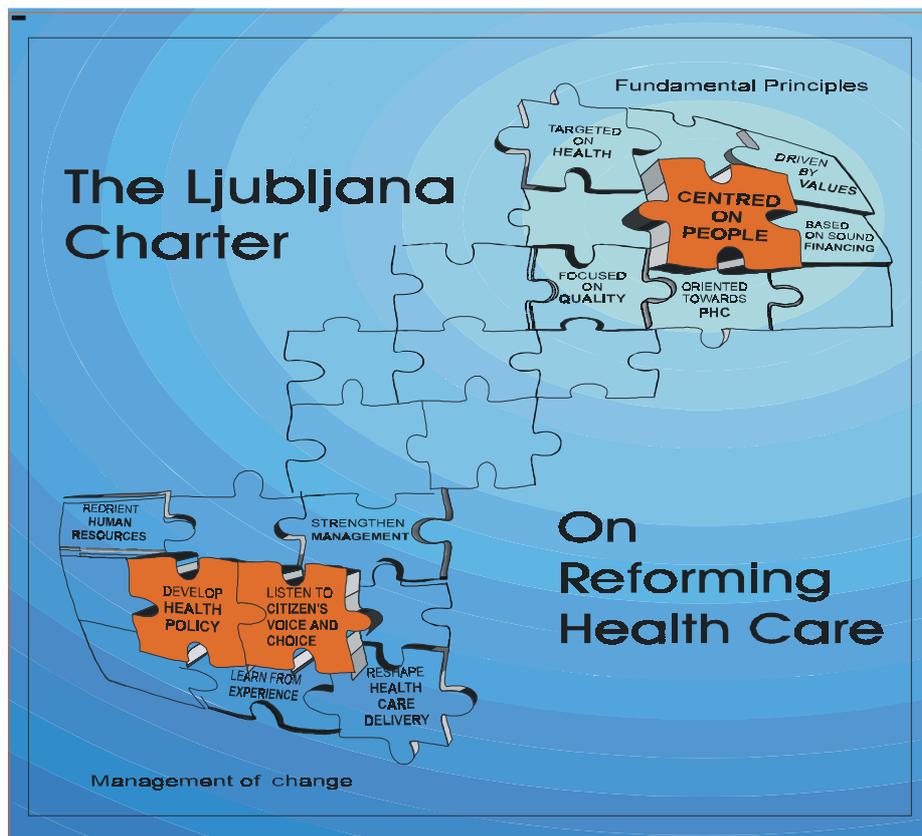
Overhead: Health policy analysis

- 1. The study of:**
 - agenda-setting
 - health policy development
 - health policy implementation.
- 2. It is not:**
 - political strategy
 - political advocacy.
- 3. Can be considered at three (linked) levels:**
 - legislative
 - administrative
 - clinical.

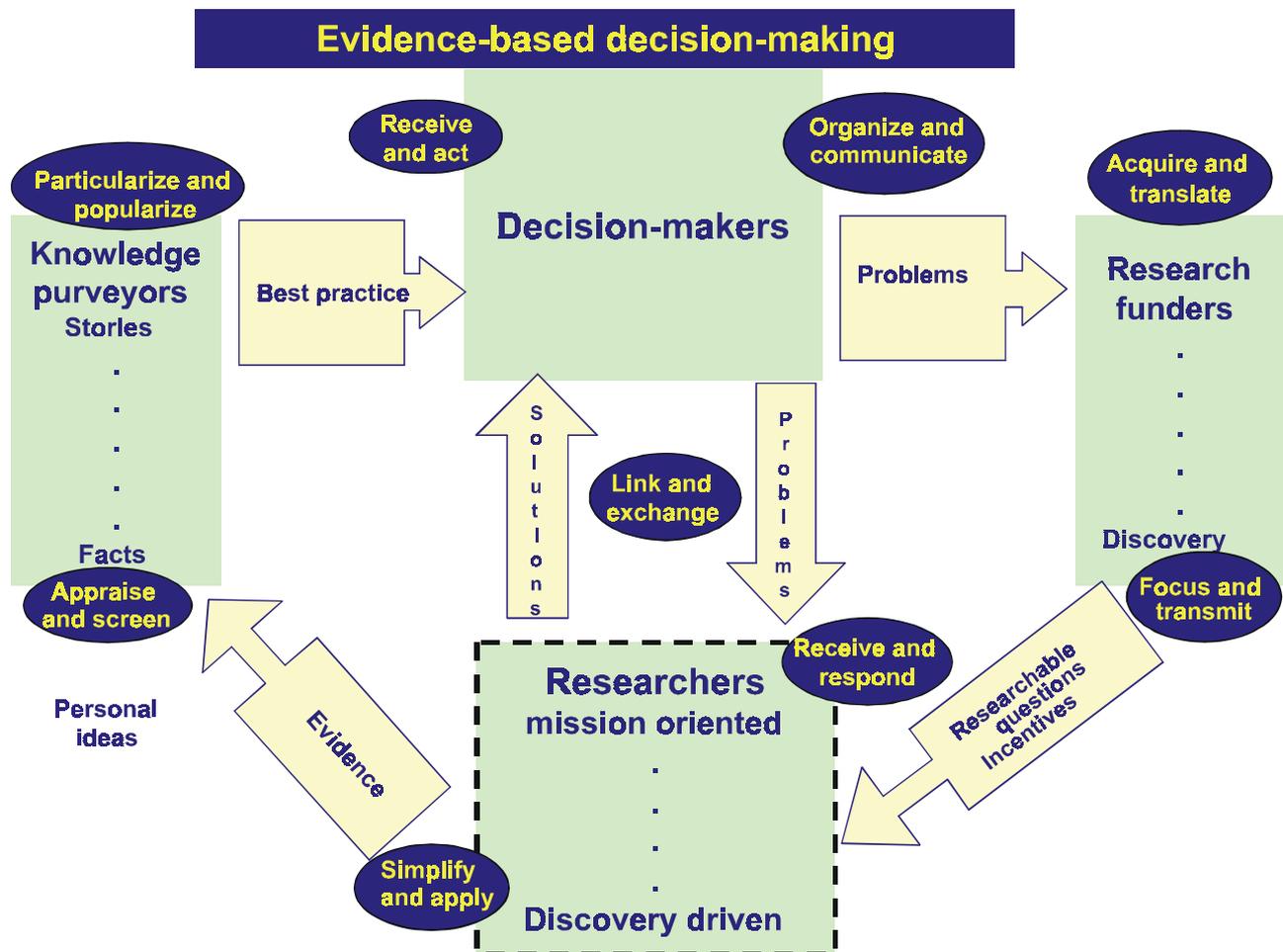
Overhead: Examples of topics addressed by health policy analysts

Steps in the policy-making process	Levels of policy-making		
	Clinical	Administrative	Legislative
Agenda-setting	Why are particular practice guidelines developed?	Why do needs of a particular group become an issue?	Why does privatization of health care become an issue?
Development	Why do practice guidelines for the same condition differ?	Why do some managers of primary care centres focus on young children and others on the elderly?	Why do some governments privatize health care and others not?
Implementation	Why are some practice guidelines implemented?	Why do some programmes targeted at particular groups succeed?	Why do privatization initiatives sometimes succeed?

Overhead: The Ljubljana Charter



Overhead: Evidence-based decision-making



Based on Fig. 4 in: Canadian Health Services Research Foundation. *Health Services Research and Evidence-Based Decision-Making*. Ottawa, Ontario. 2000. <http://www.chsrf.ca/docs/resource/>

Additional material for 3.1

From understanding to action

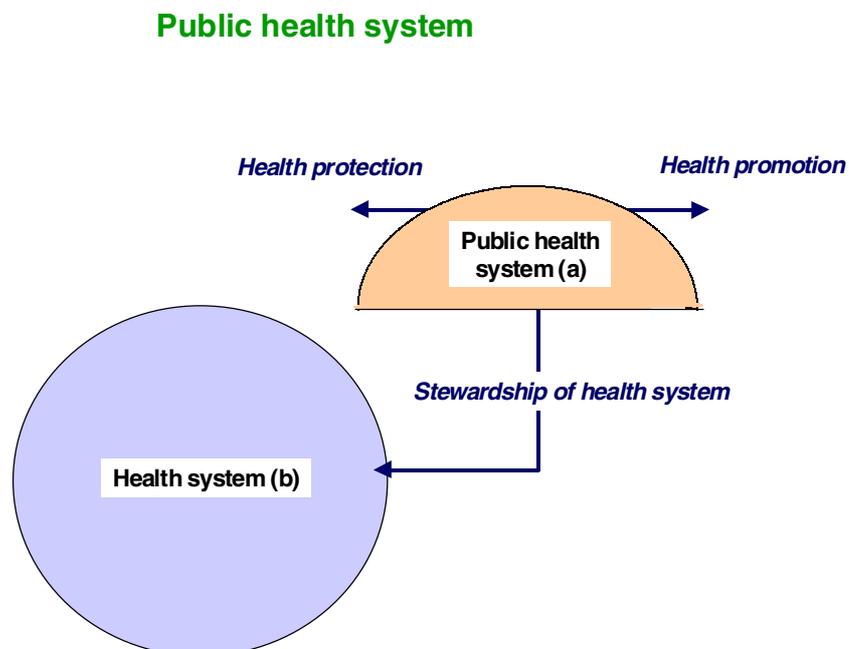
1. Stakeholder analysis, and political feasibility.
2. Rules for decision-making:
 - values
 - facts.
3. Establish strategies for improving chances of adoption, e.g.:
 - bargaining
 - strengthening the position of supporters; weakening the position of opponents
 - mobilizing unorganized supporters; deterring organized opponents.

Some key elements

1. Objectives:
 - must be clearly defined
 - may be difficult to achieve completely.
2. Hallmarks of a quality health service:
 - commitment to health gain: add years to life, add quality life to years
 - commitment to people
 - commitment to resource effectiveness:
 - (a) the four E's: efficiency, effectiveness, economy and equity
 - (b) outcomes and processes are both important.
3. Maximizing policy gains, subject to constraints (or giving satisfaction):
 - bargaining, negotiating, compromising when unavoidable
 - balancing a range of risks
 - orientation to action and demonstration of gains.
4. Combination of a range of resources:
 - people (labour) especially important
 - rapid change requires continuing learning.

3.2 Public health: protection, promotion and stewardship

Overhead: Public health system



- **International, national, subnational, local levels**
- **Actors and actions having an explicit health purpose**

Additional material for 3.2

Public health approaches

1. Narrowly focused:
 - a range of technical services, especially environmental health and communicable disease control.
2. Broader, covering the organized efforts of society to:
 - protect and promote the population's health
 - prevent and control disease
 - mitigate the effects of disability and handicap
 - ensure the wellbeing and care of those with chronic health problems and the terminally sick.
3. Primary health care (as originally defined by WHO):
 - provides a set of principles
 - identifies actors to be involved
 - includes mobilization of resources outside health care.
4. The underpinning ethic is equity (in the sense of fairness).
5. Health for all agenda moving through setting goals towards deciding rights (or vice versa).

Issues on which the economist's contribution can be helpful

1. Public goods in the health field.
2. Notion of consumer sovereignty applied to health care, including:
 - the feasibility and limits of user choice
 - importance of knowledge.
3. Effects of dissemination and use of knowledge.
4. Monopolies, such as public institutions, professions, health insurance.
5. The appropriateness for the health field of:
 - laissez-faire
 - collectivism.
6. The concept of utility applied to the health field.
7. Pricing in health care.
8. Principle of substitution.
9. Costs and benefits; timing; distribution; and incentives.
10. Returns to scale and the division of labour.

Effective implementation

1. Identify:
 - the courses of action required
 - the interested parties who should be involved
 - what consequences follow.
2. Seek political commitments, build networks, and encourage grassroots activities and support.
3. Negotiate action planning:
 - on specific issues
 - with preparation and consultation
 - building-in monitoring and evaluation.
4. Recognize:
 - the resources required and the benefits from early successes
 - that action can be, but often is not, taken
 - that implementation is more difficult in a declining than a growing economy.

Primary health care

1. Resources are mostly provided:
 - by informal care, e.g. individuals, families or communities
 - some paid, some voluntary
 - by women.
2. Interventions:
 - are often diffuse rather than discrete, and long-term in their outcomes
 - closely linked to family, friends and community
 - difficult to evaluate using the empirical quantitative methods frequently used by health economists.
3. Changing demographic and social patterns pose special challenges to primary care in, e.g.:
 - long-term care
 - caring for older people
 - relationships among health professionals
 - the balance of cure and care.
4. Many health systems have concluded that:
 - health care should be organized around patients
 - communication is important
 - care requires coordination and cannot usually be left to specialists.

3.3 Citizens’ participation, patients’ rights and ethical frameworks

Overhead: Level of dissatisfaction with health care systems (%)

Country	Percent dissatisfied	Country	Percent dissatisfied
Austria	4.7%	Italy	59.4%
Belgium	8.3%	Luxembourg	8.9%
Denmark	5.7%	Netherlands	17.4%
Finland	6.0%	Portugal	59.3%
France	14.6%	Spain	28.6%
Germany	10.9%	Sweden	14.2%
Greece	53.9%	United Kingdom	40.9%
Ireland	29.1%		

Source: Mossialos, E. Citizens’ views on health systems in the 15 Member States of the European Union (1).

Overhead: Citizens’ participation

<ol style="list-style-type: none"> 1. Clinical accountability 2. Ethical accountability 3. Professional accountability 4. Legal accountability 5. Economic accountability 6. Political accountability <p>Note: Their relative weighting varies between countries</p>

Overhead: Patients' rights

- 1. Can be linked to more general human rights:**
 - equity, dignity, participation, justice
 - United Nations system, European Union
- 2. Greater specificity in patients' rights documents**
- 3. Assuming a higher priority in practice (not only rhetoric)**
- 4. Negative rights have been less controversial than positive rights.**
- 5. Political, social and psychological pathways; financial consequences**
- 6. Relevant for countries with widely different health systems**

Additional material for 3.3**Citizens' participation, patients' rights and ethical frameworks**

1. A knowledge of frameworks of ethics and rights and strategies for their implementation:
 - is of great importance for senior decision-makers and health economists
 - they are factors that can regulate or influence the market.
2. Citizens' participation, patients' rights and consumers' rights will play increasingly important roles in:
 - the health care market
 - medical practice
 - treatment across countries, especially inside the European Union.
3. Various implementation strategies, e.g.:
 - advocacy models
 - implicit legal reinforcement
 - explicit charters of health rights.
4. Utilization frameworks of assessment (e.g. cost–effectiveness analyses):
 - likely to be supplemented with approaches sensitive to health rights in discussions on rationing and priority-setting.

Strategies for implementation

1. Advocacy and patient empowerment:
 - joining partners together
 - range of possible entry points
 - range of options for planning and funding, e.g.:
 - moral suasion
 - formal political control
 - countervailing power.
2. Legal provisions
 - generally rights are restricted to statements of principles
 - a legal entitlement, not a privilege, a commodity, or a product of charity
 - can have disadvantages, e.g. coverage, legalism, may slow social change.
3. Health rights in health care assessment
 - recognition of a plurality of evaluation dimensions:
 - trade-offs
 - hierarchical order (Rawls).⁶
4. Assessment of health outcomes in a rights based context may result in:
 - analysis of the fulfilment of basic health rights
 - control for unacceptable inequalities
 - aggregate (population) utility-based outcomes and measures.

⁶ Rawls, J. A theory of justice. Cambridge, MA, Harvard University Press, 1971.

Theme 4. Some economic tools

4.1 Use of economic tools

Overhead: Economic tools include (4.1)

1. Health outcome measurement (e.g. quality-adjusted life-years).
2. Costing (e.g. total costs, the components of cost and their distribution).
3. Economic evaluation (e.g. the cost-effectiveness of a new drug).
4. Development and diffusion of health technology
(e.g. incentives for R&D and for how technologies are used).
5. Economic modelling and forecasting (e.g. a decision-tree model or econometric approaches).

Note:

See details in *Learning to live with health economics*.

Other tools are available in textbooks.

Emphasis on usefulness of tools; elements requiring assessment.

Additional material for 4.1

Health outcome measurement

For example, the Quality of Well-Being Index assesses mobility, physical activity and social activity. An interviewer asks what the patient did as a result of illness during the last six days. Scoring for particular functions is based on preference weights derived from the normal population. The benefits represented by particular outcomes can be compared with the costs of doing so.

1. The goal of health care and action, to protect, promote and preserve health status:
 - requires standardized assessments.
2. To understand the concepts of health outcomes assessment, distinguish between:
 - efficacy
 - effectiveness
 - efficiency
 - process and outcomes.

3. Health:
 - is a multidimensional construct
 - health care is only one determinant of health.
4. The objectives of health outcomes assessment are based on:
 - equity and equality
 - quality of care (plan–do–check–assess cycle)
 - patient’s autonomy and choices
 - responsiveness to patients.

Note: In future, explicit health rights will be more important.
5. Main domains of health outcomes include the six D’s:
 - disease, death, discomfort, disability
 - “dollars”
 - dissatisfaction.
6. Measurement of health status outcomes requires standardized instruments with:
 - proven psychometric properties, especially validity, reliability, sensitivity
 - practical utility for a setting.

Costs

Costs refer to the opportunities foregone when a given resource is used in a particular way. Total costs can be compared with benefits to see if the resource use is worthwhile. The distribution of costs influences the incentives faced by participants, i.e. whether to take the action or avoid it.

1. Refer to the benefits sacrificed elsewhere (“foregone”):
 - resources have alternative uses
 - are wider than financial expenditure alone
 - can differ according to the viewpoint adopted.
2. Comparing costs and benefits
 - Requires accurate estimation of total costs.
3. Total costs can be viewed from various perspectives, e.g.:
 - types
 - sources
 - timing, uncertainty.
4. Changing the distribution of total costs can alter:
 - the incentives faced by participants
 - the actions they take.
5. The cost information:
 - can be difficult to obtain
 - three stages, progressively more difficult
 - identification
 - measurement
 - valuation

- consistent approaches facilitate:
 - comparisons
 - longer-term learning.
6. Cost information:
- can be presented in more or less helpful ways
 - an aid to:
 - improved decision-making
 - better use of scarce resources
 - improved outcomes.

Economic evaluation

Economic evaluation – comparing the costs and consequences of, say, introducing a new drug, building a new hospital or purchasing equipment – can help to make the best use of scarce resources.

1. Concerned with assessing efficiency or value for money.
2. Economic evaluation compares the costs and consequences. Many forms, e.g.:
 - cost–effectiveness analysis
 - cost–benefit analysis
 - cost–utility analysis.
3. Key methodological principles include:
 - framing the question clearly
 - consideration of an adequate range of alternatives
 - the use of good evidence about effectiveness
 - allowance for timing differences and uncertainty
 - incremental analysis of costs and consequences.
4. Can be used in association with a range of policies:
 - to encourage rational diffusion and use of health technologies
 - to reform payment schemes for institutions and health professionals
 - to develop health care practice guidelines.
5. Can be used to assess health-producing measures:
 - in different sectors of the economy, e.g.:
 - road safety
 - environmental protection
 - occupational health.

Development of health technology

Health technologies are not confined to the clinical patient care sector but comprise all health promotion, disease prevention, diagnosis, treatment, rehabilitation and care activities. Economics can help to explain why some technologies are developed, and why some are used more than others.

1. Technologies for health are mechanisms that:
 - combine scarce resources to produce health improvements for the individual and the entire population.

2. They are developed in the public and private sectors, e.g.:
 - publicly funded research at universities and in research institutes
 - privately funded research and development (R&D) by the pharmaceutical industry.
3. New technologies are not developed haphazardly. They are:
 - influenced by the existing incentives
 - created by government regulations and market incentives.

Diffusion of health technology

1. Considerable inefficiencies can occur in:
 - how technologies are produced (through R&D)
 - how they are used, e.g.:
 - on inappropriate patients
 - in the wrong settings
 - by untrained professionals.
2. New health technologies:
 - are diffused gradually
 - adoption generally follows an S-shape pattern.
3. Various factors inhibit or encourage diffusion and use, e.g.:
 - basic demography and epidemiology of the disease
 - the payment mechanisms for:
 - health professionals
 - institutions
 - relative prices and costs
 - financial incentives and direct regulation.

Economic modelling and forecasting

There is a range of models available: for example, epidemiological models emphasize the relevance of changes in disease patterns, trend models can incorporate technological change (e.g. project what its costs will be in the future), and disease models concentrate on the developments in a cohort of patients once a disease has already started. Models facilitate comparison of a basic scenario with a further alternative, such as comparing intervention with no intervention, or a new intervention with the old intervention.

1. Economic models are a tool to support:
 - decision-making
 - policy development.
2. Transparent models:
 - structure problems
 - make explicit the assumptions used
 - explain the consequences clearly.
3. Decision models help rational decision-makers:
 - to choose the best strategy among clearly defined alternatives.

4. They should clearly:
 - state their purpose
 - justify their theoretical basis.
5. The detailed module provides discussion of:
 - a simple decision-tree model
 - scenario models
 - disease models
 - econometric models.
6. To ensure high quality support for decision-makers requires:
 - methodological expertise:
 - expertise about the health problem
 - expertise in supporting decisions
 - critical stance by decision-makers.

Teaching material: exercises

Exercises are very important. Those that follow have been developed in addition to those in the book. The exercises could be set by you prior to the workshop, or developed by the group following discussion with you. They could be chosen, for example, by you from those which have been prepared; supplemented by other exercises as required (e.g. for different groups of participants) or discussed with interested participants to see if alternatives are preferred. You can select the exercises likely to be most valuable for the particular group being assembled. Depending on the composition of the group of participants it may be necessary to consider developing additional exercises. For example, the exercises suitable for ministers or very senior bureaucrats may well need to be modified or supplemented for major funders of research or those with judicial responsibilities. It would be desirable to complete the selection of exercises before the group meets, since time for these senior decision-makers at the meeting itself will be at a premium.

Two role-plays are also included with the learning materials, one taken from Module 2.3.1 in the book and the other (developed for these seminars) on negotiations for a pay increase between the national association of doctors, the finance minister and the health minister. The most suitable time for these role-plays is likely to be the evening of the first day. There should be an opportunity for the participants to have a plenary discussion about the different approaches, results and trade-offs which emerge from the negotiations in each working group.

Theme 1. Economics of health

Exercise 1.1. Interrelationships, and everybody's concern

The main goal of the highest level of decision-makers in the health care system (e.g. ministers of health, the most senior officials) is to improve health. However, health outcomes are not derived solely from the activities of the health care sector. How can the most senior decision-makers:

- best prioritize their activities, so that benefits are maximized relative to costs;
- foster the necessary cooperation between economic sectors, so that the contribution of other ministries to health gain is obtained;
- achieve the appropriate contributions from the public and private sectors, so that not only the public sector is considered in ministerial decisions;
- decide which economic analysis tools help them to make those decisions better?

Exercise 1.2. Reallocation of resources for health

Since there are many determinants of health, how can senior decision-makers in health care maximize the favourable impacts of:

- the economic, social and other environmental factors (e.g. lower unemployment, higher levels of income);
- influences at the workplace (e.g. fewer accidents);
- factors operating at the level of individual behaviour (e.g. less alcohol and smoking, better diets); and
- the influences operating through families (e.g. better mental health).

Given the range of factors that contribute to health outcomes, to what extent are:

- decisions properly collective (e.g. made by governments) or individual (e.g. made by private individuals or families);
- outcomes emphasized (e.g. health status) compared to processes (e.g. treatment with dignity, waiting times);
- decisions thought of as having long-term or more immediate consequences (e.g. after the next election)?

Exercise 1.3. Reallocation of resources for health (role-play)

Having read the play below, discuss the following two questions.

1. Barbara Luke, the minister of health, is concerned about the percentage of national income spent on health. Which factors do you think should be considered when deciding this? Do these factors differ from those you would consider when deciding the percentage to be spent on education, telecommunications or subsidizing agriculture?
2. Robin Matthew, the minister of finance, is concerned that important health problems are not being tackled rigorously. Which improvements could be made in health programmes in your own country which might appeal to the minister of finance because they would help the national economy?

Panel of Ministers: Economic policies and health care reform

Introduction by moderator

Ladies and gentlemen, ministers of health, I am delighted to welcome you to Ljubljana for an extraordinary session to exchange experience on health care reform. Before we get down to business, just imagine, that we are moving to EUROPIA, a country psychologically if not physically near the heart of the region. We are privileged to observe Robin Matthew, the rising star of the government, as the clever minister of finance, who is waiting in a restaurant for a private meeting with a colleague ... Here she comes, the seasoned minister of health, Barbara Luke. Just listen to what they are saying.

Scene: In the restaurant: a dialogue on health policy between colleagues

Robin: As you know, we might become a candidate country to join the European Union. Therefore, we will look carefully at things like the European monetary system and other criteria by which our case will be judged. Frankly speaking, it will be a big headache for any finance minister.

Barbara: How so? I thought it was supposed to be a big opportunity.

Robin: Well, we need to slim down public expenditure, cut taxes and remove some of the costs which are now falling on employers. I am just giving you a chance to look at the issues from my perspective. I think that you will have to rethink ideas in your sector.

Barbara: But surely we cannot cut health expenditure any further. The percentage going to health is already way below our neighbours', and our doctors and nurses continue to be relatively poor.

Robin: I am sorry I must be blunt. How could I explain to other ministers why I should treat you differently? Why are you so special, this is what they will say. These are tough times for all of us, even if there was no economic decline.

Barbara: Well, I don't see myself behaving differently from any other health minister. When I meet my fellow health ministers from other countries, they all ...

Robin: Exactly! When I look at your colleagues in the other countries, they are also having a hard time making the health industry more efficient and competitive.

Barbara: I am sorry, Robin, you are quite wrong there. You are ignoring all the serious reform initiatives that have taken place in countries across Europe. In our different ways we are trying to find the balance – the public/private mix, as some of us call it. Everyone of us, we are trying to bring expenditure under control. Precisely because health is not an industry, we have to think about the quality of care people get and how it meets their needs.

Robin: Look, in education, they tell me how many schools and teachers they need, and why. They tell me how many university places, and we all agree that we are investing in education and training. In social security, they tell me how many elderly people there are, how many disabled, how many long-term employed, and I work out what we can afford. But you ...

Barbara: Wait a minute!

Robin: You tell the public that we are getting healthier, and yet every year you tell me that you need more money. Is your budget supposed to be open-ended upwards? You lead people to think that their care is free, but someone must be paying the bill.

Barbara: No, no, I do not mean that everything needs to be free. There is a lot of self-care in families and among friends. People buy drugs over the counter. There is a tremendous interest now in things like nutrition and promoting health. None of this comes into your calculations. The fact is that whenever

we maintain or restore someone's health, we have helped the individual as well as the economy. We have enabled a disabled person to go on living an independent life, we have a schoolchild who can study uninterrupted and we have made workers become more productive.

Robin: That I do not doubt. My job is to get public expenditure under control. Consumer goods improve the standard of living, remove household chores, maximize people's leisure possibilities. They give them the chance to get on with the kind of lives they want to live. The health sector only drains resources away from the nation. Where is the profit?

Barbara: Of course we do not have profit in the health care sector, nor are we trying to turn our health care into a trading company. We have health gain, but it is also clear that family doctors and community nurses reduce and prevent the need for expensive services.

Robin: If it's that straightforward why are you always asking for more money and expecting the health insurance people to hike up their premiums? Or is it because some important health problems are not tackled vigorously, for example accidents, suicides and heart attacks, especially among young men?

Barbara: On the contrary. We have made a good start with making people more aware of how to use appropriate services appropriately and how to look after themselves. The quality of services is constantly being improved.

Robin: I have not tried to cut your budget for its own sake. Anyhow, I cannot get this country's economy on the right track unless all ministers are seen to exercise restraint. For example, there are several countries which use fewer beds and doctors. And let me remind you that we have closed quite a number of old-fashioned industrial plants in other sectors.

Barbara: I don't think that you have grasped my message. Good social policies, including health, will make people believe that this is the country they want to live in. People will then truly make our country a place worth living in. Good social policy supports economic policy. I need your help to provide our people with a set of decent essential services. Do that for us, and we can assure you, you will eventually see the economy grow, as we all want to see it grow, and that will lift the pressure off both of us when we come to talk about budgets in the future. You see, really you should ask me what I would do with a 5% increase in my budget. I have plenty of practical ideas.

Robin: I have to rush now. It was nice talking with you. We can discuss this again when the economy has recovered.

The scene fades ...

Theme 2. Economics of health systems development

Exercise 2.1. Equity and efficiency

Consider the implications of a substantial proposed policy change in your country in terms of the expenditure \equiv income \equiv revenue identity.

- Who gains (e.g. health workers) and who loses (e.g. taxpayers)?
- What implications are there for
 - health care production, e.g. will you get better health outcomes or productivity;
 - health production, e.g. will health improve as a result of changes in areas other than health care, such as transport, the environment, education?
- Are the implications similar for decision-makers at the three levels (ministers and very senior officials, managers and practitioners)? If not:
 - how do they differ (e.g. policy compared to practice);
 - what are the implications for
 - the incentives they face (e.g. the balance of costs and benefits for them)
 - the decisions they take (e.g. popularity, prestige, quality compared to quantity of care)?

What is good for the hospital or the overall health system may be a problem for doctors (e.g. lower salaries) and a danger to the re-election chances of politicians (and do not forget the patient!).

Exercise 2.2. Expenditure \equiv income \equiv revenue

In your country is the health care:

- not effective (e.g. over-treatment);
- effective but more costly than necessary (e.g. over-priced drugs or health provision by doctors when nurses could provide it satisfactorily); or
- valued below its cost (e.g. the benefits to the patient, who pays nothing, are less than the cost to society of providing the treatment)?

Why has this happened, and how could economic analysis improve the situation in the future?

Exercise 2.3. Implications of financing systems

In many health care systems consideration is being given to greater privatization. If this applies in your country, consider the following questions.

- What is to be privatized, and what is it intended to achieve by doing so
 - explicitly
 - implicitly?
- What role is being proposed for economic analysis in the decision-making process, and what other contributions *could* it make?
- How is the process of privatization to be undertaken (and what complementary changes are required, for example in training managers)?

- How are equity, effectiveness and responsiveness to be achieved?
- How will the continuing overall responsibilities of the government, its stewardship function, be discharged under the new arrangements?
- After privatization, how will you and other senior decision-makers know if you have achieved what you intended? On what information will these conclusions be based?

Theme 3. Economics of management and the change process

Exercise 3.1. Policy analysis, bargaining and negotiation

Most decision-makers probably spend more of their time on health policy development and less on agenda-setting and implementation.

Consider three significant advisory or policy-making episodes in which you were involved recently. How much time and effort did you devote to:

- agenda-setting
- health policy development
- health policy implementation?

In terms of maximizing your contribution to the achievement of improved health outcomes and processes:

- do you consider these allocations optimal
- should they be changed (if so, how)
- how would you know if the change was an improvement?

To what extent do these allocations of your personal resources facilitate optimal decisions by others?

Exercise 3.2. Public health: protection, promotion and stewardship

Economics are involved in many decisions. It is important to know the questions for which economics are relevant, what tools can be used and how you can best use them.

1. Where is economics currently contributing to your decision-making, and what other areas are there where it could be helpful?
2. How would you know, from your existing monitoring and evaluation mechanisms, whether progress was being made towards your objectives?

Exercise 3.3. Citizens' participation, patients' rights and ethical frameworks

Surveys show that many citizens are dissatisfied with their health care systems, e.g. in Italy 59%, in Greece 54% and in the United Kingdom 41%, according to a survey.⁷ Also, why are so many fewer people dissatisfied in other countries in the WHO European Region, say in Denmark and Finland (6%), in Germany (11%) and in France (15%)?

Can you use health economics to challenge such findings? Can health economists find effective ways of improving the situation? Are senior decision-makers responsible for these results?

How can health economics be used to pinpoint responsibilities and accountabilities, say by managers and practitioners, for health care outcomes and processes (e.g. by health status measurement, quality assessment or cost-effectiveness analysis)?

Approaches to decision-making in health care can be legally based or economically based. Do you see these two approaches as competitive or complementary?

Exercise 3.4. Citizens' participation, patients' rights and ethical frameworks (role-play)

The role-play involves negotiations about a claim for increased salaries for doctors. The negotiators are:

- the doctors' association, represented by the chairperson of the national medical association and its chief industrial relations officer;
- the finance minister, as the chief government negotiator; and
- the minister for health, who has an adviser from the health ministry (if numbers in the group sessions permit it).

Each working group undertakes the same role-play, involving the doctors' initial claim, the response from the government, the resulting negotiations and the final agreed settlement. The settlement could include an overall salary increase, variations for a range of purposes (e.g. areas of medical shortage or geographic regions) and any quid pro quo the government obtains for its additional expenditure.

After the group discussions are completed the results and the process by which they were obtained are considered in a plenary session. The focus should be particularly on the similarities, the differences and the reasons for them in each group.

⁷ Mossialos, E. Citizens' views on health systems in the 15 member states of the European Union. *Health economics*, 6(2): 109–116 (1997).

Theme 4. Some economic tools

Exercise 4.1. Relevance of economic tools

Imagine that you are limited to taking up two of the five tools of economic analysis included in the learning materials:

- health outcome measurement (e.g. quality-adjusted life-years);
- costing (e.g. total costs, the components of the costs and their distribution);
- economic evaluation (e.g. the cost–effectiveness of a new drug);
- development and diffusion of health technology (e.g. the incentives for R&D and for how technologies are used);
- economic modelling and forecasting (e.g. a decision-tree model or econometric approaches).

Consider particular decisions you are going to be making.

- For what sorts of decision would the economic tools be useful to you, and at what stage of the decision-making process?
- In using the economic tool(s) to assist you in reaching a better decision, what elements of the analysis and its interpretation would you subject to critical assessment?

Exercise 4.2. Use of economic tools

Consider a significant health care decision in which you were involved recently.

- Did you use economic analysis tools in the decision-making process?
- Knowing what you know now, could greater value have been derived from their inclusion than actually occurred?
- In summary, what changes (e.g. in the analysis, its interpretation, its use and its broader context) would contribute to better uses of the tools in the future?

Final comments

1. The learning materials do not produce a fully trained health economist.
2. A short seminar enables users to:
 - judge better what are appropriate and inappropriate circumstances for the application of health economics;
 - appraise more perceptively the advice senior decision-makers receive from health economists (and when it is missing);
 - understand some specific economic tools, concepts and reasoning;
 - benefit from the economic way of thinking (e.g. incentives, marginal analysis, costs compared to benefits, equity and efficiency);
 - benefit from meeting and interacting with other senior colleagues and input from an experienced resource person in the field.
3. The full set of learning modules in the complete book:
 - contains much more detail and additional topics
 - provides detailed references, examples and exercises.
4. Economic advice to support decision-makers can be provided in numerous other ways, including:
 - by staff with economic expertise;
 - by experts in WHO or elsewhere (many are included or referred to in the full set of learning materials);
 - through support for research (and training) in high priority areas.