SECTION IV

DISCUSSION
HEALTH POLICY AND HEALTH MODELLING

9.1. SUMMARY

Introduction The multi-state method has been explained and some typical applications have been reported. This chapter examines the policy relevance of the approach. As multi-state models allow for quantification of the health and costs influences of each health determinant, including health interventions, they may facilitate and enhance rational policy making. Broad policy questions in relation to the role of health determinants and health care provision can be specified, modelled and explored like e.g. the use of a zero health expenditure scenarios (chapter 4) and in the use of interventions proposed in guidelines (chapter 5-8). For other broad or detailed policy questions the model approach can be expanded or simplified according depending on the nature of the question. Ethical and political choices will have to remain with the domain of politicians and the public. A lot of the evidence-based approaches, prominent on the national and international agendas for health policy and health research, frequently and increasingly make use of health modelling approaches.

It is unclear what the implications of this policy approach are for the production and distribution of health in populations, given the notion of multiple determinants in health. It is equally unclear what kind of barriers there are to the adoption of evidence-based approaches in health care practice.

Methods Based on an extensive literature review, chapter 9 outlines the ways in which health policy is informed by the results from health research and health modelling. It summarizes approaches in health at three impact levels: inter-sectoral assessment, national health care policy, and evidence-based medicine in everyday practice.

Results Consensus is growing on the role of broad and specific health determinants, including health care, as well as on priority setting based on the burden of diseases. In spite of methodological constraints, there is a demand for intersectoral assessments, especially in health sector reform. Initiators of policy changes in other sectors may be held responsible for providing the evidence related to health. There are limited possibilities for priority setting at the national health care policy level. Hence, there is a decentralisation of responsibilities for resource use towards providers and health insurance companies. They are encouraged to assume agency roles for both patients and society and ask to promote and deliver effective and efficient health care. Governments need to design national frameworks to strengthen their organisation to enhance their roles. The formulation of national health guidelines supported by evidence on effectiveness and efficiency will be one essential element in this process. At all levels multi-state models may play a role as is demonstrated in this book.

Conclusion With the increasing number of advocates for the enhancement of population health in the policy arenas, evidence-based and model-based approaches provide the insights, information, and tools to help with priority setting.
1992; Murray and Lopez, 1996; Ruwaard, 1997; WB, 1993; WHO, 1997; UNEP, 1997). Their documents typically address issues such as the general health status of the population and various subgroups, broad and specific health determinants, the occurrence of specific diseases and the use of health services.

In a rational approach, health policy would address those health determinants and diseases that have a substantial and proven contribution to the health status of the population. The linkage, however, between the evidence in documents and formally stated policy objectives could be stronger (Murray, 1995; Murray and Lopez, 1996; Lerer et al., 1998). In practice, policy decisions are the outcome of complicated political processes among parties with different interests (Stronks et al., 1997).

There are few studies that have assessed the rationale behind national health care expenditures. They suggest that health policies are not necessarily based on research outcomes as they are wrongly targeted or show limited effectiveness. One study reports that high national health care expenditures in Europe may not relate to low mortality levels (Mackenbach, 1991). An older more extensive study allows for inclusion of lifestyle factors and has provided evidence of a more positive link between health care expenditure and low mortality (Wolfe and Gabay, 1987). Another example of policy assessment is the recent analysis by the Institute of Medicine of the National Institute for Health funding for health research (Gross et al., 1999). Their analysis shows a relation between the funding of disease programmes and disease burden when estimated in disability-adjusted life years (DALYs) lost (Gross et al., 1999). However, there is a poor relationship between funding and disease burden when measured in life years lost. This study gives additional examples, by the DALYs criterion, of under-funding, as for perinatal complications and chronic obstructive pulmonary disease, and of relative over-funding as for AIDS and breast cancer. In the three studies, the causality question remains unanswered: does a high disease burden lead to high expenditures or do high expenditures lead to a reduced burden?

In the international debates agreement seems to be growing, regarding the use of a burden of disease approach to select priority areas for policy and research using. In this approach, epidemiology provides the information on the occurrence of specific diseases and the estimated contribution of health determinants to their occurrence (WB, 1993; WHO, 1997a). Simultaneously, health economics can provide information on health equity issues and the selection of cost-effective interventions (Mooney, 1993; Murray, 1994; WHO, 1997b; Drummond, 1997; Elsinga and Rutten, 1997; GFHR, 1999). Priority diseases identified through this approach by the WHO are childhood infections, malaria, tuberculosis, cardiovascular diseases, other tobacco-related diseases, and mental health.

In conclusion, we may state that, given the increasing advocacy for health in the political arena over the past decades, there is an increasing attempt towards transparency and rationalisation of the decision making process in health policy. Consensus is growing on the interpretation of the role of both broad and specific health determinants, including health care provision, as well as on priority setting based on the burden of diseases.
9.4. INTERSECTORAL ASSESSMENT

National health status documents recognise the role of multiple determinants of health. It includes the influences of other societal sectors of governmental concern. Research, however, is still scarce. Some econometric modelling deals with entangling the relationship between economic developments, or health care development, and mortality change at the national level (Pritchett, 1997; Kwakani, 1993; Preston, 1975; Mackenbach, 1988; McGuire, 1993). In these kinds of studies, one usually finds some type of ‘health production function’ with determinants such as economic development as measured by GNP, or individual income levels or health care expenditure with diminishing marginal returns and increasing efficiency over time. Given a particular level of economic development and average income, variance in health status is also said to be associated with income distribution by socio-economic group (Kaplan, 1996; Van Doorslaer, 1993).

In these analyses, it is difficult to account for the net effect of changes in the many other direct or intermediate health determinants, although some attempts have been made (Cumper, 1984). More public health orientated studies (Mackenbach, 1988; Wolfe and Gabay, 1987) confirm the important specific contributions of health care in reducing mortality from specific diseases both through prevention and cure. The contribution of health in the increase in productivity has recently been documented and stressed at a macro- and micro-level (WHO, 1997b).

Existing analytic frameworks explaining ill health at the population level (Lalonde, 1974; Vallin, 1992; Frenk, 1993; Ruwaard, 1994; Lerer et al., 1998; WHO, 1997b) consider both broad determinants (such as income, education, nutrition, hygiene) and more specific determinants (such as smoking, hypertension, health care). Recently, the WHO and other UN agencies have recognised the role of environmental determinants of health (Brundtland, 1999; UNEP, 1997). The exact size of the marginal contributions of each health determinant is subject to continuing debate (Weil, 1990, Lerer et al., 1998). There are inputs from epidemiologists, public health specialists, economists, and also demographers (Murray and Lopez, 1997b; Pritchett, 1997; Niessen, 1997; Kwakani, 1993; Mackenbach, 1988; Preston, 1975).

Among the many analytical difficulties are at least three large ones: the measurement of ill health (e.g. in terms of mortality by cause or of reduced quality of life), estimation of the ‘net’ effect of a particular contributing factor and the phenomena of substitution of disease risks. Especially in countries with very low mortality rates, mortality as a outcome measure is insufficient and some measure of quality of life is needed (Murray and Lopez, 1997b). One can use regression analyses estimating the effect of single determinants (Murray and Lopez, 1997a) or use multi-state life tables which account for substitution of disease risks (Barendregt and Bonneux, 1998; Niessen et al., 1997).

Prospective formal appraisal of options in intersectoral and sector-wide health policy is defined as ‘impact assessment’. This has become rather established for policy outcomes other than health, especially in the environmental field (Swart, 1995, Scott-Samuel, 1996). Methods draw on a variety of disciplines and may focus on those groups affected most by policy changes. Scott-Samuel and others argue that health policy makers may make use of the existing experience in developing countries with health impact assessments (Rather et al., 1997; Lerer, 1999). This may be especially useful in relation to health sector reforms.
that are taking place in many countries. Here, a systematic overall approach is still needed (Murray et al., 1995).

We predict that there will be a growing demand for intersectoral assessment, in spite of the fact that its methodology is still developing (Lerer et al., 1998; Rather et al., 1997; Gunning and Hagen, 1987; Mackenbach and Gunning-Schepers, 1997). In the near future, one may see a shift regarding accountability towards the initiator of policy changes in other sectors than health care. They will have to provide evidence on the impact on health of such policy changes.

Nevertheless, focus of health policy, until now and probably in the future, is on the organisation of health care provision at the patient level, both in the area of prevention and cure. In the following two sections, we will, first, discuss the use of evidence-based approaches in health care policy at the macrolevel and, next, in health care delivery.

### 9.5. INFORMED HEALTH CARE POLICY

Several objectives of health care policy are mentioned in policy documents as universal access, comprehensive and uniform benefits, equitable financing, value for money, public accountability, and freedom of choice by consumers and providers (Daniels, 1996). When attempting to support health policy, it is important to understand how these objectives can be defined, operationalised and measured. This is by no means straightforward. At the start of an EC-funded programme on equity in the finance and delivery of health care, Van Doorslaer et al. (1999) studied policy statements concerning these two dimensions of equity in nine European countries. As a second step, they were forced to use their own interpretation to arrive at meaningful operationalisations of those concepts. Furthermore, the interpretation in terms of the policy implications of the redistributive effects of health care finance found in their study, is also tedious (Van Doorslaer et al., 1999). There are also methodological issues raised on how specific interventions can be evaluated. A community intervention trial with some experimental and some control populations may be most desirable, but will be costly (Mackenbach and Gunning-Schepers, 1997). So an important obstacle to evidence based health policy are a clear understanding of policy objectives and the availability of relevant measurement instruments.

In this paper, we have focussed on priorities in health policy and the efficient allocation of resources to population groups (Rutten, 1996). Several approaches are attempted to inform decision-makers at different levels in the health care sector on how to allocate resources (Patrick, 1993; Wang et al., 1999; Murray, 1994; WHO, 1986; NERA, 1993). The WHO review concluded that there has been a lack of understanding and of data to support the modelling needed. At the moment, programme budgeting and marginal analysis (PBMA) is enjoying a revival in the British National Health Service as a means of supporting of decisions on changing resource allocation to groups in the population, which are well defined in terms of having a particular disease or otherwise. Expert groups are often used as a source of information to generate options for resource shifts but critics suggest that these groups lack a shared understanding of current practice and are
inadequately informed about the impact of resource shifts on patient flows and resulting health benefit (Posnett, 1996). Others added that the savings resulting from taking away resources from a programme might only materialise after considerable time and that the transaction costs of resource shifts may be substantial. This is a serious, often overlooked, issue also relevant to economic evaluation in general, which may lead policymakers to doubt the relevance of these approaches. More detailed information such as a diagram of patient flows through the system showing the numbers going through each of the pathways of the diagram, the volumes of care activity and expenditures in each of the pathways, and their impact on health outcomes may inform and facilitate the assessment of resource shifts in PBMA (Posnett and Street, 1996).

Related to PBMA is the determination of topics that should be given priority in evaluation research and consequently be considered for possible resource shifts. This is done at the national level in a number of countries with social health care insurance. In the Netherlands, the Health Insurance Council advises national policy makers on how to improve the efficiency of the system and plays a growing role in the identification of priorities for economic evaluation research (Elsinga and Rutten, 1997). In 1993, a selection of 126 technologies was made by means of a two-round Delphi procedure involving some 30 experts. Recently, this procedure was repeated and improved (Health Insurance Council, 1999). Initially, 800 persons from important health care organisations were asked by questionnaire to suggest topics, this resulting in more than 1400 items for further consideration. After clustering these items, information on costs at the macro-level and on health benefit was collected for the remaining 194 clusters, which was checked by a panel of health service experts. Finally, a panel of experts / policy makers made a final selection in two one-day meetings. Here, the weights of the selection criteria were determined and the information complemented. This resulted in a list of 31 topics that will dominate the research agenda in the Netherlands for the coming years.

Among different disciplines relevant to health services research, health economics plays a prominent role in assisting health policy in general and priority setting in particular. Hurst (1998) considered the impact of health economics on health policy in England and identified a definite impact on the financing and organisation of the National Health Service (NHS), especially regarding the recent reforms and the introduction of new health technologies. Economic evaluation, which is rooted in health economics but has a more multidisciplinary nature, has certainly gained influence. For instance, in most countries public health programmes will not be introduced until careful assessment has taken place in terms of their cost-effectiveness. The same holds true for many curative programmes with large financial consequences. The studies by Buxton (1985) and by Van Hout (1993) on the introduction of heart transplantation and by Ludbrook (DHSS, 1986) and Van der Maas (1989) on breast cancer screening in the U.K. and the Netherlands are classical examples. They have been followed by numerous other studies that also have had substantial impact. For some types of decision-making, economic studies are officially required, both on the central level and at peripheral level (e.g. mandatory investment appraisal in the NHS). An illustration of this is the diffusion of the Australian type system of requiring evidence on cost-effectiveness before listing and/or reimbursement decisions on new pharmaceuticals are made (Langley, 1996). Such systems are going to be introduced in Denmark, Finland, The Netherlands, Portugal, Canada (CCPHTA, 1997) and the UK (Smith, 1999; Freemantle and Mason, 1999).
Managed care programmes in the United States required similar evidence on products from manufacturers, specifying the providers perspective (Langley and Martin, 1997). Furthermore, it is important to assess possible discrepancies between the maximum possible outcome as observed in more or less controlled studies and health benefits as seen in actual practice. Health policy may benefit from the identification of the determinants of shortages in the process of health care. Following Tugwell et al. (1985) a comprehensive assessment was organised by the National Institute of Public Health in the Netherlands (Ruwaard, 1997) to find evidence on the gap between efficacy and effectiveness. In this study five questions were considered: is there a timely contact with a health care provider?; was there a proper diagnosis?; was the indication appropriate?; was the therapy carried out according to the “state of the art”?; and was the patient compliant? For ten indicative diseases, these questions were tentatively answered. A large variation in problems associated with these five successive points in the care process was observed. For diabetes, it was estimated that 50% of patients requiring treatment had not yet established contact with the health care system, while for depression prescribing insufficiently low dosages of antidepressants was also seen in 50% of the cases. In asthma, patients’ compliance is a major problem, while in patients with heart failure the proper indications for medication are not made. Different programmes targeted at different points in the care process should be initiated and considered in terms of their relative cost-effectiveness in comparison to other options for investment.

We conclude that national health care policy making is increasingly evidence-based. Many governments are supporting agencies for evidence-based health care (Hailey and Menon, 1999). At the same time limitations to priority setting at the political level and insufficient availability of relevant evidence are apparent (Raine, 1998). The former can be seen in many health care systems where politicians tend to deviate from sound evidence-based advice in those cases, where they are asked to withhold certain treatment programs from patients. Public opinion then provides a stronger incentive when manipulated well by pressure groups.

We expect a tendency to shift the responsibility for resource allocation in health care from the central level to peripheral levels, where health care providers are encouraged to assume agency roles for both patients and society and as such to promote and deliver cost-effective health care.

In such settings, health policy deals with organising the national framework to use available evidence on such divers areas as diagnostics (e.g. screening programmes), medical treatment, nursing, and care of patients to its full extent. In the next sections, we discuss practice guidelines that may support doctors and other medical professionals in those roles.

9.6. EVIDENCE-BASED MEDICINE IN PRACTICE

Clinical guidelines can be defined as systematically developed statements to assist clinicians and patient’s decisions about appropriate health care in specific clinical circumstances. If evidence-based, they may contribute to further defining and improving
the quality of health care delivery (Sackett et al., 1996) and enhance population health (Field, 1990; Burnand, 1999). They may promote resource efficiency by identifying sources of inappropriate use of care and lead to decreased practice variation (Mason et al., 1999; US Congress, 1994; Woolf et al., 1999). The overgrowth of thousands of guidelines at various levels gives reason for doubts about their quality and validity and urges for concerted European or North-American action on standardisation and appraisal mechanisms (Burnand, 1999; Shaneyfelt et al., 1999).

A review of the published evaluations of guidelines in the BMJ (Grimshaw and Russell, 1993) showed that, indeed, guidelines might have positive effects on the care process and on outcome, although there are limitations. Collection of evidence on improved population health is difficult and costly and hence lacking so far. Recently, Eccles and Grimshaw edited a series of articles in the British Medical Journal on clinical guidelines (Woolf et al., 1999). We summarise some of their points and add our own experiences.

Methods used to develop guidelines differ according to the degree of reliance on formal literature reviews, the extent to which expert opinion prevails, the degree to which cost considerations are incorporated, and the process by which the ultimate recommendations are expressed. A shift is observable from recommendations based on experience and opinion (opinion-based) towards reliance on scientific evidence (US Congress, 1994; Shaneyfelt et al., 1999; Shekelle et al., 1999). Legal implications might be limited, as individual practitioners remain responsible for their own decision. It is up to them to follow a guideline or not in the case of a particular patient (Hurwitz, 1999).

Criteria for selecting a clinical problem to be addressed by an ‘evidence’ based guideline are typically: the degree of uncertainty about the best strategy e.g. as measured through practice variation, the clinical burden, the amount of evidence on (cost-) effectiveness, the likelihood of influencing practice, the participation of clinicians and the possibility to reach a consensus. Next, we summarise briefly the development of guidelines in different countries, with reference to the BMJ-series.

**United Kingdom**

Guidelines have been around in the country for years. Royal Colleges, other professional societies, Regional Health Authorities, and the NHS have developed their own versions. In addition, national guidelines are converted to local level to encourage adoption in daily practice.

Local Health Authorities are encouraged to use guidelines as a tool to improve the process of care, improve health outcomes, decrease practice variation, optimise resource allocation, guide contracting by the purchasers and commissioning decisions. The guidelines are derived from consensus conferences or expert opinion. There is a growing interest in the explicit, evidence-based and outcome-based methods (Woolf et al., 1999). There is technical support through the NHS Centre for Reviews and Dissemination, the Research and Development programme, and the UK Cochrane Centre. The new National Institute of Clinical Excellence is adding to the regional processes by appraising new technologies, issuing guidelines and encouraging national audit.

**The Netherlands**

Priority setting in health care has become an issue since the eighties, due to rising health care costs, to increased demand for care, to observed inappropriate care and to ageing of the population. One important way to establish this has been by giving the medical professions a central role in verifying medical effectiveness. Originally, guidelines have been meant to promote quality of care based on consensus. Nowadays,
professional groups develop guidelines that encompass evidence-based state-of-the-art statements based on an analysis of the scientific literature and consensus discussions (Dutch Institute for Health Care Improvement, 1999 and 2000; Van Os and Niessen, 2000). The evaluation of guideline implementation has become a focus of research (Wensing et al., 1998). Collaboration is necessary between all provider groups to secure good communication between different levels of care.

Canada and the United States In the United States and Canada about 28,000 guidelines have been issued through professional bodies, care institutions, managed care organisations and agencies support by the US Congress (US Congress, 1994). In Canada, evidence-based centres support development and implementation, like at McMaster University. Many guidelines have been systematically reviewed and do not follow standards (Shaneyfelt et al., 1999). The Agency for Health Care Policy, the American Medical Association, and the American Association for Health Plans have established a clearinghouse for guidelines to improve co-ordination. Only recently, one can observe the shift from opinion- to evidence-based guidelines and standardisation, especially at the national professional level. Commercially available guidelines may focus on resource savings. Both insurer and provider groups may use guidelines to influence clinical decision-making. This may result in discussions on who ultimately should decide (Rosenbaum et al., 1999). These discussions tie in with wider discussions on the control mechanisms of regulation and evaluation of clinical practice (Kassirer and Angell, 1998).

Australia/New Zealand National and state health authorities have developed guidelines since the seventies. In 1995, the Australian Quality of Care and Health Outcomes Committee emphasised the need for evidence-base methods and proposed standardisation. In New Zealand, a government policy committee recommended the use of guidelines to define clinical indications for services rather than endorsing rationing of services by exclusion. The committee produced guidelines on 11 topics. The guidelines on hypertension and cholesterol broke new grounds by linking recommendations to patients’ absolute risk probabilities rather than to generic treatment criteria.

Cost-effectiveness evidence and treatment guidelines

The prominence of evidence-based guidelines coincides with advances within health economics regarding the proper assessment of the cost-effectiveness of health interventions. Economists are emphasising more structured and standardised approaches (Drummond et al., 1997). There is a growing consensus on how to conduct studies at the theoretical level (Gold et al., 1998; Drummond et al., 1997) with the possible exceptions of how to deal appropriately with productivity costs, time preference and uncertainty (Briggs and Sculpher, 1995; Parmigiani et al., 1997). At the practical level, there is still large variation in the actual measurement and valuation of costs and the generalisation of results from a specific research setting. Major journals have made their conditions for publication of cost-effectiveness analyses explicit (Kassirer and Angell, 1994, Drummond and Jefferson, 1996). At the same time, one has concluded that the quality and frequency of papers in general medical journals on cost-effectiveness of interventions are increasing (Udvarhelyi, 1992; Holloway et al., 1999).
Hence, it only seems natural that, in the slipstream of clinical guidelines development based on evidence on effectiveness, demands have become louder to expand the required evidence to include economic information. The increased interest in the economic aspects of clinical guidelines stems from a policy concern about rising health care costs, an ageing populations, increased demand for care, the growth of new treatments and technology and a desire to make the best use of available health resources. The pleas are to be at least cost-conscious and to clarify resource implications (Haycox et al., 1999; Mitchell, 1997; Power and Eisenberg; 1998; Sloan and Grabowski, 1997). In addition to the inherent scarcity of resources, the motives behind these depend on the position of the involved actors in health care (Mason et al., 1999). They relate to cost containment, efficiency in resource use and opportunity costs (health policy makers), or to enhancement of guideline implementation and appropriate financing (clinicians and patient groups).

In pilot settings, both in the Netherlands and in England, participants in consensus meetings include health economists (Borst-Eilers, 1997; Mason et al., 1999). In England, the topics discussed in these meetings are in primary care. Criteria for the selection of topics in the Netherlands have been the involved burden of disease as expressed in DALYs, the involved costs, and the available cost-effectiveness evidence on the topic. In both countries, participants in the consensus meetings do explicitly take into account information regarding the costs of the guidelines as well as their cost-effectiveness. They conduct systematically an assessment of guidelines options along dimensions like effectiveness, health status, safety, accessibility of service, resource use and costs (Mason et al., 1999). The consensus process results in weighed recommendations that may reflect some or all of these dimensions. Previously published cost-effectiveness analyses might be helpful for comparison, still, it is in the nature of the guideline process that new costing and analyses need to be done.

First observations are typically related to combining health economics and guidelines development. They involve both methodological and operational issues. The methodological constraints include the lack of adequate cost data, the lack of effectiveness data to back-up efficacy data from trials, short trial time horizons and the lack of adequate quality of life measures. This increases uncertainties. An extension of the evidence grading system may account for the economic uncertainties (Mason, 1999). E.g. the highest grade for cost data may include those based on actually observed changes in health care consumption. At lower evidence levels of cost-effectiveness, economic evidence would be purely informative and not directive. In concordance with earlier recommendations (Drummond et al., 1997; Gold et al., 1996) also in the guideline process, panellists’ recommendations should be transparent to all involved. They should allow opportunities to alter costs, effectiveness, or utility input data to facilitate local adjustment and acceptance (Mason et al., 1999).

Operational constraints concern the involvement of the whole consensus group, the thorough exploration of effectiveness evidence, presentation of results including uncertainties and the arrival at a general value judgement. It is the Dutch experience so far that consensus can be reached relatively easy when there is published evidence (van Os and Niessen, 2000; Dutch Institute for Health Care Improvement, 2000).

An important condition for consistency in the application of cost-effectiveness information is an agreement on the criteria for cost effectiveness. In the Dutch guideline
on the use of statins for lowering cholesterol in the primary and secondary prevention of cardiovascular disease consensus among medical and economic experts has been reached to use a threshold value for cost-effectiveness of $18,000. (Dutch Institute of Health Care Improvement, 1999). The threshold value has evoked a lot of debate. We expect that more discussion will be needed on acceptable levels of cost effectiveness across guidelines, especially regarding curative versus preventive programmes. Also in our society, the responsibilities of politicians and medical providers need to be defined for setting the standards of care, for determining the societal willingness to pay for health benefits, for deciding on what kind of care patients will receive (Rosenbaum et al., 1999). Ultimately, the quality of the implementation of the guidelines determines their contribution to population health, including of those guidelines that include economic considerations.

Barriers in implementing evidence-based recommendations

Well-constructed guidelines may have a substantial impact on quality of care. Focussing on problems of overuse, costs may be reduced in the process. The complete implementation of a guideline should lead to improved health and changes in costs as estimated in the development process. However, the mere existence of a good, evidence-based guideline does not lead automatically to improved efficiency in clinical practice (Feder et al., 1999; Wensing et al., 1998).

The ultimate empirical proof of the effectiveness of the guidelines can only be established when its implementation is properly monitored and evaluated. In the Netherlands, the implementation of a selected number of guidelines for cost-effective health care (Niessen and Casparie, 2000; Dutch Institute for Health Care Improvement, 1999 & 2000) will be monitored. Several factors influence the implementation of a good guideline: individual beliefs, attitude and knowledge of the clinical professionals, local, organizational and economic circumstances, priorities and commitment of the parties involved and the implementation process itself (Wensing et al., 1998; Feder et al., 1999). Consequently, an inventory of these barriers is important in order to optimise the implementation of a guideline. Some practitioners are already working using high standards of care. They will require few incentives to capitalise on the value of guidelines in their efforts to improve. However, others will need additional inducements. Using reimbursement mechanisms to reward the attainment of high quality, publishing data on provider performance on various quality measures and recognising the advantageous effect of attachment to guidelines on liability may provide such incentives.

From our overview, we conclude that, for the present decade, clinical guidelines are there to stay and will continue to play their role in professional training and daily practice. Evidence on effectiveness and efficiency will further strengthen this role. Adaptation to local settings is necessary. During this adaptation process, problems in implementation may become clear and may be solved. Professional groups will be the main actors throughout this whole process, while (local) governments will support the organisation and legal framework.
Consensus is growing on the role of broad and specific health determinants, including health care, as well as on priority setting based on the burden of diseases and the opportunities to reduce such burden in a cost-effective way. There will be a demand for inter-sectoral assessments, in spite of methodological constraints, especially in the area of health sector reform. Initiators of policy changes in other sectors might be held responsible for providing the evidence related to health. Due to limited possibilities for priority setting at the national health care policy level there is a shift of the responsibility for resource use from the central level to peripheral levels. Health care providers are encouraged to assume agency roles for both patients and society and asked to promote and deliver effective and efficient health care. Governments will have to set up the national framework to facilitate their organisation and legal structure to enhance evidence-based health policy. Treatment guidelines supported by evidence on effectiveness and efficiency will be one essential element in this process. At all levels multi-state models may play a role as is demonstrated in this book. With the increasing number of advocates for the enhancement of population health in the policy arenas (Krieger and Birn, 1998), evidence-based and model-based approaches provide the insights, information, and tools to help with priority setting and to suit action to the word.
REFERENCES

Health policy relevance

Health policy relevance

9.2. INTRODUCTION

The multi-state method has been explained and some typical applications have been reported. This chapter examines the policy relevance of the approach. As multi-state models allow for quantification of the health and costs influences of each health determinant, including health interventions, they may facilitate and enhance rational policy making and priority setting. Broad policy questions in relation to the role of health determinants and health care provision can be specified, modelled and explored like e.g. the use of zero scenarios like for safe water supply and health services (chapter 4) and in the use of preventive and curative interventions proposed in guidelines (chapters 5-8).

For other, broad or detailed, policy questions the model approach can be expanded or simplified according depending on the nature of the question. Ethical and political choices will have to remain with the domain of politicians and the public. A lot of the so-called evidence-based approaches are prominent on the national and international agendas for health policy and health research, and make frequently and increasingly use of health modelling approaches. This chapter describes the various areas where the approaches might be used and relates them to the use of the results by health policy makers.

Evidence-based approaches in health can be described as health policy and health care delivery driven by systematically collected proof on the effects of health-related interventions from the social and health sciences. During the nineties, evidence-based approaches have become prominent on the national and international agendas for health policy and health research. Yet, it is unclear what the implications of this rational approach are for the production and distribution of health in populations, given the notion of multiple determinants of health. It is equally unclear what kinds of barriers there are to the adoption of evidence-based approaches in health care practice.

Depending on political vision, breadth of causal thinking, and the amount of accumulated evidence on the causes of ill health, health policy addresses health issues at different levels of impact. First, this paper will sketch general developments in the way in which health policy is informed by the results from health research and health modelling. Next, the paper summarises health-modelling approaches in health at three impact levels: intersectoral assessment, national health care policy, and evidence-based medicine in everyday practice.

9.3. INFORMED HEALTH POLICY

Health policy in the broadest sense can be defined as those actions of governments and other actors in society that are aimed at improving the health of populations. Ideally, there would be a cycle of policy formulation, implementation, and assessment. In the assessment of policy outcomes, scientific evidence should play an important role (MOH, 1986; Ruwaard, 1994; Tugwell, 1985; US Congress 1994; McGinnis and Lee, 1995). Over the past two decades, national and international agencies have been systematically collecting a growing body of knowledge in support of health policy (USPHS, 1979; SSH,