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Perspectives on the Future of Health Care in Europe

by

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1. INTRODUCTION: THE CHANGES FACING EUROPEAN HEALTH SYSTEMS

A. J. Culyer and Anne Mills

Four mighty rivers of economic and social change have in recent years flowed together to produce a flood that, not long after the end of the century, may well have transformed our health services beyond all recognition and, at the same time, created a revolution in our attitudes to and expectations of the health sector, the practice of medicine, and its finance and management.

The first of these rivers of change is a dramatic change in traditional attitudes to the appropriate role of the public sector. There is scepticism about the efficiency of public sector providers relative to those in the private sector, coupled with a widespread political desire to control the growth of public expenditure. There is also a new perception that many of the equity objectives of the welfare state can be - in large part - accomplished by focusing on the demand side rather than the supply side. In health care these changes have meant that a concern for cost-effectiveness in supply has reached a status never before accorded it and that the separation of public finance from public provision may open up new opportunities both better to help the attainment of equity objectives (such as equal access for equal need, or to divorce use from ability to pay) and to provide a financial environment that encourages better resource use (by, for example, encouraging competition within the public sector and between the public, voluntary and for-profit private sectors).

In all provider sectors of the health care system, concern for effective and efficient delivery now increasingly insists that widespread appraisal be undertaken of all that our health services do.

The call is increasingly for value for money. And that in turn implies, if we are to avoid the philistinism of mere cash accounting, that far more attention be paid to what our health services can do - and actually do - for the health of the people. It also implies a revolutionary change in our accounting systems, for it is increasingly crucial to know what the various services, serving various client groups, cost and how these costs should be divided between the interlocking authorities that provide care in institutions and the community services, and between the public sector (the state), private institutions, the voluntary sector and the individual.

The second river of change is demographic - the 'greying' of Europe as increasing numbers of people survive to old age and become both vulnerable and dependent. This demographic fact would yield policy dilemmas enough on its own. But it has been accompanied by further confounding sociological factors: the changing role of women, particularly in their labour force participation and their availability as 'family carers', and an increasingly mobile society. Both factors make the family or household unit a less appropriate place for the care of elderly (and also young) dependants with the result that increasing numbers of the elderly live alone or in institutions and young children are increasingly cared for (at least in part) outside their immediate families. The result is a higher - and continuously increasing - need for various patterns of institutional and domiciliary care and for the available services to act flexibly in response to changes in the dependency of individuals. All too often the balance of caring services is wrong. All too often there is a mismatch between needs and resources with, for example, relatively low need elderly people blocking acute hospital beds and

relatively high need people living with inadequate support at home. All too often the established pattern and ownership of caring agencies militates against the matching of resources and needs, and the problem is often further compounded by the aberrant incentives offered by social security systems (in some countries, for example, entitlement to social insurance benefits varies markedly between hospital, nursing home and family home environments of care).

Moreover, particularly as the number of elderly rises, there is the question of how most effectively to expand the resources available for them, which modes of care to provide, how to monitor changing needs and how to promote effective cooperation between homes, hostels, day care facilities, hospitals and social work and other domiciliary services. The potential expense is large. The need is there and it is growing.

The third river of change is the technological revolution in medicine, particularly diagnostic medicine. We have now entered the era of computerised diagnosis in clinical practice and in some branches of medicine the era of high technology is firmly established. Radiology has been revolutionised by the advent of new imaging techniques that partly supersede the traditional X-ray, angiogram, etc. Ultrasound was a precursor of what was going to happen. Today CT scanning has diffused throughout Europe. Round the immediate corner lie digitalised radiology, (nuclear) magnetic resonance and positron emission tomography. These techniques are immensely costly, they diffuse quickly (for the combined forces of industry and the medical professions urge their use), and they become rapidly obsolete. Astonishingly, there is scarcely any evidence of their having improved patients' health (as distinct from diagnosis) and, such is their rate

of introduction, there is scarcely any time to perform the careful evaluations that would seem to be a reasonable preliminary to their widespread use in routine procedure.

But it is not just the large and spectacular equipment that is costly. Cost is price times quantity and the costliness of these techniques derives from their high price rather than large quantity. There are, however, other "smaller" technologies, like those used in pathology laboratories, whose profligate use makes them very costly even though unit prices are low. Similar profligacy with the newer and costly drugs is also widespread. Moreover, technological medicine is not concentrated solely in drugs or diagnosis. Renal dialysis and organ transplantation are two familiar examples of other procedures. In all cases the demand exceeds the supply and the potential expenditure in these areas is far greater than the already considerable expenditure of today.

Again, then, there are priorities that require painful assessment - an assessment that necessitates scrutiny of costs as never before, and that can now be further supplemented by the measures of outcome which the research community has signally developed.

The final river of change is sociological, political and ecological. It is reflected in the advent of new political ('green') parties and workers' movements. Its concern is with an immense range of issues that are all, at root, concerned with the relationship of the individual to the wider society - the individual's role in political decision making at every level; in decisions in work places and trade unions; in the family; in relationships with the professions and "experts" in an increasingly technocratic society; in the differential positions of individuals in member states of institutions

like the European Community which have concerns for equalisation of status; and in controlling the wider environment as the devastating potential of modern industrial activity on the environment is increasingly forced on to the political agenda.

In health, these trends are reflected from both right and left in the political spectrum on increasing the role of individual responsibility. From the right we see this in the rising chorus of demands for cost-sharing by patients and for new ways of making those who choose riskier life-styles (the smokers, drinkers, drivers and so on) pay a higher share. From the left we see it in the rising chorus of complaint that technology and the division of labour in medicine - as in the work place - alienates the individual who becomes an object (a "patient" or even an "input") and is thereby dehumanised, losing control of personal life.

The general tensions produced by these great rivers of change are too obvious to need further elaboration. How they are to be resolved will constitute the central debate in health to and beyond the end of the twentieth century. They will also generate, or intensify, conflict amongst those whose task it is to evaluate, supply and use technology and, in parallel with these, amongst those who control health care finance, who recommend its use, and the general public anxious for the fruits of technological innovation. In this Occasional Paper, it is on the implications of the revolution - which is already upon us - for particular groups in society that we focus. The groups we have selected cover the whole gamut from central political decision making about the finance and organisation of health services through to the individual patient. In particular, the following chapters will focus on the implications for

- political debate
- health services planning and management
- health service supply industries
- health professions
- patients
- insurance funds and other finance agencies.

Although of the four great rivers of change only one is specifically economic in nature, all four have profound economic and financial implications. Moreover, economic analysis is, more than any other, capable of picking the issues apart and suggesting where solutions, or at least methods of coping, are to be found. We do not believe that health economics alone can provide solutions, for many of the answers that we are searching for are essentially ethical, managerial and political. Moreover, the medical sciences, whose domination of health services decison taking has not been a force entirely for the good, have a crucial role to play. Nor, perhaps should we be looking for "final solutions" of the sort that tell us "leave it to state planners" or "leave it to market forces" in a changing world of staggering uncertainty and bewildering complexity. What, instead, we should be seeking is "ways of coping": devising processes of decision making that enable flexible responses to the problems that arise and that are not uniquely associated with a particular type of problem, a particular institutional structure, a particular method of finance or a particular social system.

For the four great rivers of change are everywhere apparent: in socialist as well as market economies; in centralised and decentralised health care systems; in tax financed and insurance financed systems; and pervade - albeit in varying degrees - all

aspects of modern medicine.

1. The first river: the drive for efficiency

There are two principal economic implications here. On the one hand is the growing demand for methods of evaluation to complement epidemiological and clinical studies to aid resource allocation decisions. On the other hand is the complementary development of financial environments and information systems to provide relevant information about resources, needs and the incentives by which the former can be effectively and efficiently used to meet the latter. These include the development of new budgeting and management systems to allocate, monitor and control resources and their use; information systems relating to measures of needs by client group, geographical location, disease type, and so on; outcome measurement: assessment of the effective impact of resources upon such needs; and new organisational and ownership structures that harness the forces of competition via internal markets, health maintenance organisations, and the like.

2. The second river: changing demographic patterns

Here the principal needs are to identify via economic and other techniques (for example, operational research) appropriate "balance of care" patterns for the elderly and other groups of clients; (again) to design incentive/penalty systems to influence in appropriate directions the behaviour of the various professional groups that provide health care (and other social services); and to analyse the effects of incentives/penalties provided by existing policies, tax regulations and organisational patterns on the behaviour of service providers and recipients.

3. The third river: technological advances

Here the major needs are likely to be for more economic evaluation as the sine qua non of good practice in health care planning, including methods of appraisal that are appropriately designed to suit the degree of diffusion of a technology; for re-examination of methods of regulating health care supply industries with due regard to implications for the pace of innovation and development, prices and outputs; and for new methods of monitoring and controlling the use of technology by health care providers with due regard to the type, quality and quantity of care and - ultimately - to the impact of technology on the health of populations.

4. The fourth river: changing social values

Here the main needs are for further examination of the effects of private and public finance and provision of health services on demand, supply, expectations and - ultimately - the health of populations; for further examination of the role of patients and potential patients (the general public) in expressing the ultimate values that lie at the root of all evaluation and decison making and, of course, that are necessary also in economic appraisals; and for an intensification of enquiry - and more quantification in it - into the effectiveness and efficiency of community and institutional care and preventive and remedial care.

The Economic Notion of Efficiency

Common to all appropriate responses to these forces for change is the need for clarification of the central concept of economic efficiency. It is as well to emphasise two things that this abstract

notion is not. A concern for efficiency is not synonymous with a concern for cost control. What it is synonymous with is a concern that costs be appropriate to the achievements expected of a service. An appropriate level of cost - and an appropriate level of overall expenditure as well - is to be appraised in terms of the benefits that accrue. Cost minimisation in a vacuum is precisely that: a vacuuous exercise. Divorced from benefit, services cannot be judged to be either over- or under-funded. The second thing economic efficiency does not entail is the counting only of financial elements in any appraisal. Indeed, since the very purpose of health care is to sustain and promote particular aspects of the quality of people's lives, to focus only on financial matters would be grievously to misdirect the entire exercise.

It is useful to separate three "layers" of efficiency analysis corresponding to three kinds of question:

Is a procedure technically efficient? A procedure is technically efficient when a given level of accomplishment (e.g. throughput of patients, improvement in measured health, prevention of decline in measured health) is attained using minimal inputs or (what is the same thing) when for a given application of inputs, the accomplishment is maximised. This is a supply-side notion of efficiency but it is clear that it involves careful attention to the content, meaning and measurement of accomplishment or outcome. Outcomes are the ends for which the inputs are the means and only the ends can, in the last analysis, justify the means. There is usually more than one way (many more) of accomplishing a particular level of outcome (to which the great variety of approaches within and across European countries attests) so this definition of efficiency does not normally imply a

unique balance of resource inputs.

Is a procedure cost-effective? A procedure is cost-effective when, for a given level of accomplishment, the cost is minimised or (what is the same thing) for a given cost the accomplishment is maximised. This is also a supply-side concept. It embodies technical efficiency (clearly if one were using more inputs than are technically necessary one cannot be cost-effective). But being cost-effective also necessarily excludes some technically efficient combinations of inputs because, for example, they use more relatively costly inputs than other equally effective procedures.

Is a cost-effective procedure on the right scale? A procedure that is efficient in this third sense not only does whatever it does in a cost-effective fashion but is also set at a rate of activity (overall, across localities, across patient groups, etc.) that is judged to be optimal. This entails answering the hardest question of all (or at least judging the most likely best answer): is the benefit to be gained by extending this activity "worth" the extra cost? The estimate of "worth" need not - and often cannot - be made in financial terms and will almost always involve rather painful judgements about humanitarian factors such as reduced anxiety and pain, and enhanced mobility and ability to self-care.

The notion of economic efficiency can thus be seen to be humanitarian (in terms of what is accomplished) and ethical (for being inefficient must imply that for any given level of resource commitment one could achieve a greater relief of suffering, a greater life-expectancy, a greater promotion of health than one is achieving). It is not economic in the sense of an exclusive concern with matters financial; it is economic in the sense of requiring a conscious and

systematic assessment of pros and cons, costs and benefits, the advantages and disadvantages of a little more or a little less, and in seeking to quantify the pros and cons wherever it is possible and helpful so to do (e.g. by the use of QALYs - Quality-Adjusted Life Years).

The notion is also applicable to "procedures" of all kinds - from modes of care of end-stage renal failure patients to methods of financing and delivering health care to the client population.

Productivity

Given the foregoing, it is plain that economic efficiency is much concerned with assessing the productivity of health care resources. At one time it was common to measure the accomplishment of health care resources in terms of throughputs (e.g. patients discharged from hospital) without asking what being there had done for them! Also commonly met is the view that more in invariably means more out: more spending creates more health and another $1m worth of resources will always produce the same increase in health (reduction in mortality and so on).

A close cousin is the view that more in is synonymous with quality. If quality of care is defined in terms of inputs, then more in surely means better quality of care. Many seem to believe this, assuming that more in - usually, more spent - axiomatically implies better quality. The question of the actual productivity of resources is thus neatly side-stepped. Yet none of these views is tenable in the abstract: one needs to find out what is most productive, not make assumptions about it. It may be plausible on general empirical grounds to suppose that in poor countries, where there are large numbers of sick and potentially sick people who remain untouched by

health-promoting programmes (whether medical care proper or sanitary programmes, preventive medicine, and so on), the pay-off to increased resources in health care per dollar does not diminish over an attainable range. Yet in such situations, much the same can be claimed for other programmes too, so it does not follow that health care programmes will necessarily be those favoured as the need for them increases or as economic growth proceeds.

In most countries, especially those in Europe, it is far more plausible to suppose that the curve looks like the one in Figure 1. Here the argument is much more to do with where we are on an input-outcome curve that flattens out. Are we at point a - as many doctors urge - where the pay-off to increased spending is high? Or are we at b - the point Alain Enthoven has called "flat of the curve" medicine, where the pay-off to spending more is zero? Or are we at c - as Ivan Illich has argued - where the pay-off is negative, where our health services manufacture ill health?

In global terms it is very hard to establish even roughly where we are. One reason for this uncertainty is that the measures of global increases of health outcomes are very crude. For example, they mostly have to do with death rates, although no one seriously expects that, say, computerised axial tomographic (CT) scanners will have any major impact on death rates. Their pay-off is to be measured in other ways. (For example, they enable the avoidance of some other extremely unpleasant and sometimes hazardous investigative procedures and may possibly be justified on those grounds.) So an unchanging death rate cannot be held to mean that CT scanners are useless.

Another reason why the pay-off is hard to measure is that health care is but one factor affecting health. It seems, nonetheless, that

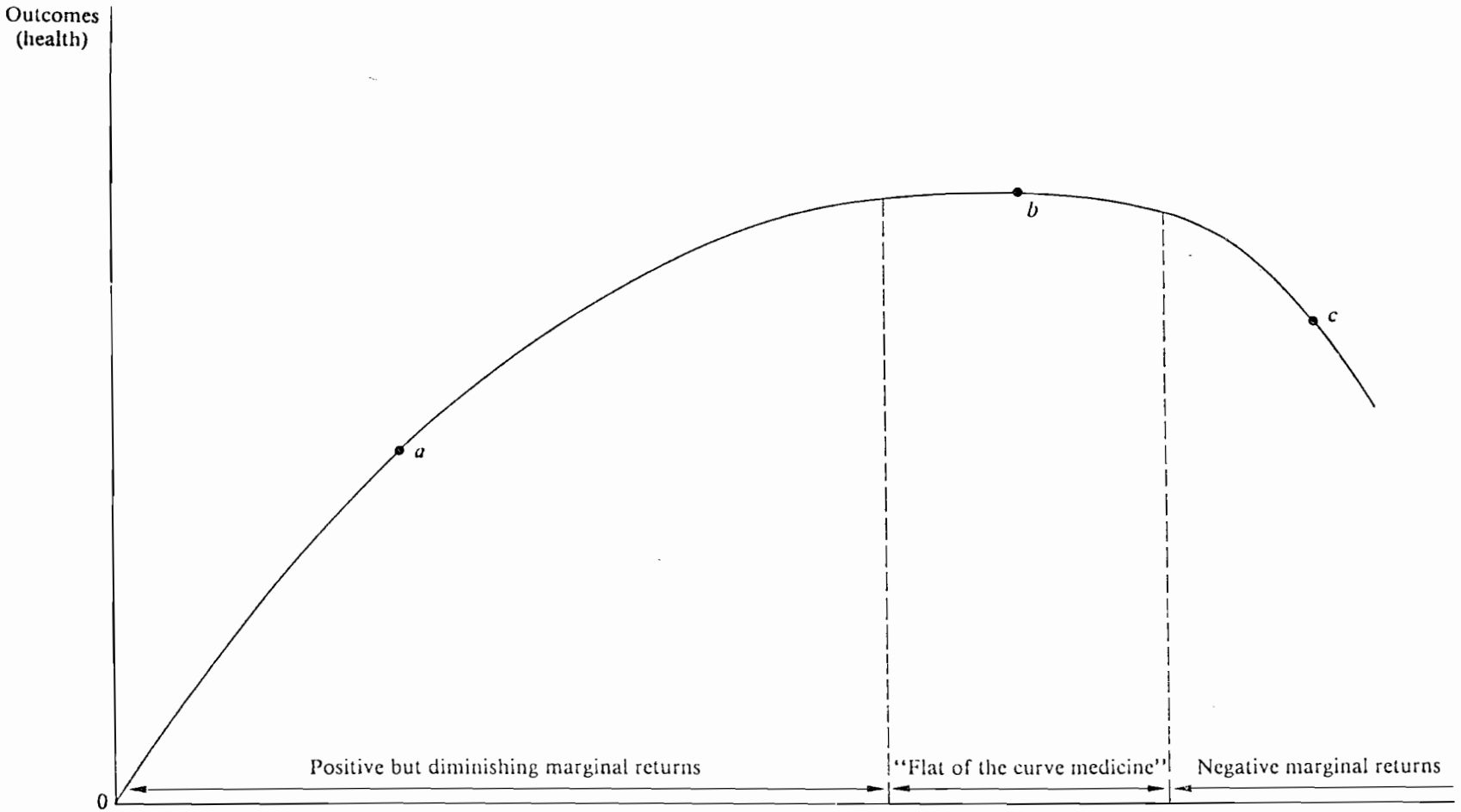

Figure 1: **Diminishing Marginal Returns to Health Care Expenditure**

the marginal product of health care is, on average, positive - which is not to say, of course, that all types of spending are equally worthwhile at the margin.

Yet another difficulty in assessing the overall productivity of medical care resources in terms of their impact on health is that even in countries of the West, medical practice consists of a range of procedures of varying productivity. Some have a negative productivity. Some are experimental. Some have a high productivity but are very costly. Some have a low productivity but are cheap. An embarrassingly large number of procedures have an unknown effectiveness.

That variability raises a further problem in interpreting graphs such as Figure 1. The usual assumption is that at each level of resource commitment the height of the curve shows the maximum attainable output (cost-effectiveness). But if a given level of resources is distributed so as to have a highly variable productivity (high per dollar in, say, Southern Italy relative to Berlin; high in, say, neonatal intensive care relative to hospital hemodialysis), that interpretation of the curve is no longer possible. One needs to examine precisely <u>on what</u> the additional resources for the health sector will be spent in order to assess their <u>marginal</u> productivity (the extra output derived from the extra resources). In other words, it is no longer sufficient to know that health care as a whole has some high marginal productivity sectors; one needs to know that they will be the sectors getting the extra resources. Moreover, if the marginal products are already highly variable (as they certainly are), that variability gives plausibility to the argument that internal redistribution of an existing budget may be at least as important as

effecting increases in it.

The Decision Makers

The principal "levels" of decision maker and types of decision considered in this discussion paper are the following:

- political: the highest level political decisions about designing rewards/penalties structures, budgeting systems, investments, resource allocation, insurance systems and information systems for making decisions and monitoring results.
- planning and management: planning approaches and organisations; planning procedures including regional and local decisions about investment in new technologies; choosing an appropriate balance of care between institutional and community services; informational needs for monitoring actual, and assessing prospective costs and benefits.
- medical supplies and equipment industries: R and D strategies, marketing and pricing decisions, industrial regulations of safety, quality, prices, profits, etc.
- health professionals: decision making links with other managers, finding ways of reconciling clinical freedom and managerial accountability, monitoring and controlling quality of care.
- patients: the roles for patients as participants in decisions and ways in which patients' preferences can be embodied by decision makers at the political, managerial, industrial and professional levels.
- insurance and finance agencies: their role in financing

health care and influencing the efficiency and equity of the health system.

The remaining chapters take up these issues with particular emphases selected by the authors themselves drawing on their own experience.

2. THE POLITICAL AND POLICY-MAKING PERSPECTIVE

A. Correia de Campos

In a sector where increasing amounts are spent for what are believed to be meagre benefits at the margin, the economic and financial implications of the developments outlined in the previous chapter will leave all concerned restive and anxious for solutions or, at the very least, methods of coping. At the highest level the coming of these "four great rivers of change" will present new problems and exacerbate those already faced by policy makers.

This chapter examines the causal factors behind the appearance of these new problems, describes their actual dimension in the European Region, and identifies possible alternative scenarios for the future, thereby raising the questions which will confront high-level policy makers in coming years. The identification of implications for future debate naturally reflects present power relations and the influence of dominant ideologies. It will also highlight, where appropriate, the contribution of health economics to the clarification of this debate. The discussion which follows examines separately each of the four themes, and brings together, in a final section, the potential role of economists. No quick and ready answers can be expected from this discussion, given the uncertain nature of the problems under examination. Rather, for the most part we are content with raising questions which, though based on an appraisal of the arguments and facts, will in the main be answerable only as the uncertain

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development of the political process unfolds.

1. The technological imperative

Medical technology is charged with responsibility for a significant part of the increase in health expenditures. Its growth is insidious and seemingly uncontrollable by almost any strategy. By introducing a new technology we risk it being permanently accepted as part of scientifically sound medical practice before the entire range of its social and financial consequences are clearly understood (Engelhardt 1984). Consider an example from Portugal. The total number of chronic renal patients either treated by dialysis or transplant rose from 27.8 to 160.0 per million between 1980 and 1984 (Departamento de Gestao Financeira dos Servicos de Saude 1984). Currently, public expenditure on this subgroup has reached 2.2 per cent of total state expenditure on health, while in most other European countries covering a greater proportion of chronic renal failure patients the number varies between 1 and 2 per cent of total expenditure (Pederson 1983). Were Portugal to attain the level of Switzerland (260 per million) it would need to devote 3.6 per cent of its public budget for health to the treatment of this small subgroup, which represents only 0.03 per cent of the population, sacrificing, needless to say, other high priority programmes. No less important is that in the future it would be extremely difficult for policy makers to choose between complete care for chronic renal failure and, say, programmes of care for the elderly or the mentally ill. The nature of the diffusion of medical technology is such that its drive is irreversible.

To make constructive, well-informed, choices policy makers will require sound evaluation. This presupposes that we determine who should evaluate medical technology. Those to whom it is applied?

Those who use it? Those who pay for it, or their representatives? The first question is largely rhetorical given the importance of consumer ignorance in the health care market. A positive answer to the second question is clearly in the interest of the medical profession. Yet much of the profligacy of new medical technologies is due to professional pressure for "clinical freedom" and a claimed safeguarding of patients' interests, while the type of evaluation usually proposed by clinicians - peer group consensus - does not meet the rigorous scientific criteria required in such an important area of public concern (The Lancet 1984). Randomized clinical trials (RCTs) are usually opposed on operational and ethical grounds. In favour of a purely medical evaluation an important argument is often put forward: it is the practitioner, not the administrator, that faces the difficult daily decisions of rationing care within the existing constraints. Further, it has been argued that some health systems implicitly delegate collective decisions on the financial limits of resources to individual clinicians (Klein 1984).

To the health economist, administrator, epidemiologist or politician - all involved in the decision making process at the community level - a positive answer to the third proposition, that those who pay for it should do the evaluation, would appear unarguable (Reinhardt 1983). If we look beyond the trees and into the wood we observe that the level of dissemination of new technology is not independent of the type of health system. It is therefore not surprising to see that in some countries political and ethical factors have directed priority to young adults in the use of hemodialysis. It may also explain different rates of domiciliary dialysis and transplantation between countries; different prevalence rates of

chronic renal patients under treatment: 127 (per million) in the UK, 178 in Sweden, 208 in the Federal Republic of Germany, 228 in France, 259 in Switzerland (1978); and different mortality rates: 69 (per million) in the UK, 83 in Sweden, 177 in the Federal Republic of Germany, 186 in France, and 163 in Switzerland (Schmitt and Klinkmann 1983).

Similar diversity in dissemination is also found in the case of computerized tomography. In the USA, CT scanners are widely available since they are used as instruments of inter-hospital competition; in Japan, demand grew fourfold following the introduction of a reimbursement scheme (Racoveanu 1983); but in most European countries some degree of planning has been achieved following directives from governments aimed at regulating dissemination. Such an outcome was possible only because of the quasi-public nature of these European health systems. It would appear advantageous if similar policies were to be followed for future generation technologies such as digitalized radiology, nuclear magnetic resonance and positron emission tomography.

How should such evaluation be performed? Medical evaluation is generally limited to the clinical efficacy of one treatment, and in a few cases the comparison of the efficacy of various modes of treatment. It is, nevertheless, the starting point for all other methods of evaluation in the health field. These comprise first, epidemiological evaluation, where the effectiveness of alternative treatments is compared according to their alternative efficacies. Second, financial evaluation, based on accounting techniques and budgetary analysis, considering only financial flows and disregarding questions concerning effectiveness. Though limited, this analysis is

indispensable if we are to move to the next stage of the evaluation process - economic appraisal - where average costs are supplemented by marginal costs and the scope of the cost concept is broadened. Finally, the concept of opportunity cost is used when we move to social cost-benefit analysis, where equity is also one of the criteria (Weisbrod 1983).

At this final level, the contribution of the economist in gathering and explaining critical information is especially important, although ideally the economist should work in co-operation with other health professionals. Economic analysis should be introduced initially with clinical evaluation and complemented with epidemiological and financial information. The absence of these components unfortunately tempts politicians to concentrate on financial evaluation alone (Wahba and Visinescu 1983).

A common problem arises in most economic evaluations: the quality of information. Clearly it is within our grasp, in the coming twenty years, to improve indicators of pain and discomfort (the quality of life), to identify inequalities in health, and to elaborate the accounting of non-market values, such as time, family support and voluntary work. Yet priorities in these areas will depend on political debate and developments, determining trade-offs between research on equity measures and research on health status measures; or social costs and benefits versus individual costs and benefits. Research orientation will depend largely on incentives from politicians. These tend to be guided by an instinct to remain in power, but it seems clear that nowadays there is more emphasis on value for money and consequently evaluation.

When should evaluation be performed? The policy of governments

towards medical technology assumes four phases of action: initially, government promotes research on technology, adopting it in the health services without prior criticism; in the second phase, government intervenes to improve efficient use of technology; in the third, the benefits and effectiveness of medical technology are explicitly questioned; and in the fourth, governments concentrate on the diffusion of technology, in an attempt to balance the costs with potential benefits (Rutten 1983).

In this model, evaluators intervene only at an excessively late period, when technologies are widely disseminated and market forces have gathered sufficient strength to countervail the systems' rationalizers. Most countries have not up to now gone beyond the second phase, with governments showing more concern for the efficiency of medical equipment.

The model we have described applies only to countries which are simultaneously users and producers of technology. Those who are only importers reveal a dissimilar behaviour with difficulties in the development of an independent research effort, having a consequent reliance on other countries' literature. They become sensitive to the problem only upon the realization that they are spending resources on medical technology beyond their capacity and at high opportunity cost. There is a temptation then to limit cash expenditures rigidly both in capital or in services provided by the private sector. But at this stage it is too late, public opinion is aware of the technology's existence. Various pressures from consumers, medical professionals, industry and commerce combine to fight the imposed cash limits, and opportunity cost arguments are barely heard in this vortex of powerful and vocal influences.

Medical technology is exclusively produced in some European countries, the USA and Japan. These advanced capitalist countries have a direct interest in the diffusion of technology not only in home but foreign markets. In times of economic crisis, competition becomes more fierce with export credits, low interest rates and leasing conditions to stimulate potential purchases.

The peripheral European nations are in a particularly vulnerable position in the face of new technology. Medical culture tends to be tributary, with training perpetuating foreign models and with practice essentially hospital-based. The evaluation of technology is highly underdeveloped due to a lack of methodology and information, while aggressive promotion by industry always anticipates economic evaluation. Further, public institutions are poorly prepared to obtain efficiency gains in the utilization of equipment, given the cumulative practice (public/private) of many health professionals.

All this suggests that unregulated market forces in these countries would tend to perpetuate their foreign dependence and lead to two-tier health systems, even though legally and politically the systems are unified and universalized. Thus the market alternative does not seem to be viable for such countries and they will inevitably have to increase state intervention, planning the diffusion of technology so as to increase accessibility and equity rather than allowing its unrestricted use. The alternative is a dual health system, with a universal sector providing primary and low quality care, and a private sector where technology has no barriers but is accessible only to a limited segment of the population.

The health economist is not normally committed to either alternative. His role is to make explicit those future scenarios

which are the possible consequences of present decisions. This requires the development of research techniques and evaluation indicators, the long-term planning of technology, good practice and guidelines for efficient use, behavioural studies on the clinician as gate-keeper and decision maker, and the design of incentive and disincentive systems.

The adoption of a committed approach would lay the economist open to discredit. Positive analysis should be increasingly used in the preparation of health policy measures (Culyer 1982).

2. An ageing population and the health system

According to the UN Division of Population estimates, the proportion of the elderly (60 and over) in the total population of Europe will rise from 17.4 per cent in 1975 to 19.9 per cent by the year 2000 and 24.7 per cent in 2025. There are significant differences between the subregions of the Continent. In 1975 Northern Europe contained the highest proportion of elderly people (19.3 per cent), followed by Western Europe with 18.8 per cent, Eastern Europe 16.3 per cent, and finally Southern Europe 15.4 per cent. These differences are mainly determined by birth rates, so that by the year 2000 it is estimated that the respective positions will change. Western Europe will attain the top position followed by Southern, Northern, and finally Eastern Europe. The global increase of 34.7 per cent between 1950-75 in the elderly population of the region will fall to 14.2 per cent in the period 1975-2000, only to rise again after 2000 up to 2025 by 24.5 per cent.

The economic implications of an ageing population can be estimated if we look at developments in the past three decades. In this period

three factors reveal the indivisibility of demographic and economic phenomena:

- the universal coverage of the population by health insurance schemes and national health services, both in terms of population and the range of benefits;
- a concurrent universal coverage by pension schemes, some with no previous capitalization;
- the adoption of the pay-as-you-go principle to finance present welfare expenditures. The capitalization system was abandoned in virtually every country in favour of a redistributive philosophy, where the present generation pays entirely for social expenditures on retired workers (The Economist 1984).

The principal economic implications of an ageing population have to do with the burden of ever growing dependency ratios. The dependent population, as a percentage of that which is active, has been increasing in virtually every country, reaching 45 per cent in West Germany. Even countries such as Portugal that have delayed the introduction of a universal pension system have suffered a rapid increase in the last 10 years, from 8.3 per cent to 40.0 per cent (UN World Assembly on Ageing 1982). The retirement age is important in terms of its economic implications. In a hypothetical population in which the birth rate equals the death rate and everyone dies at the age of 80, having worked from the age of 20 to 65, the ratio of workers to retirees will be 3 to 1; however, if the retirement age is 70 there will be 5 workers for every retiree, allowing for a substantial increase in benefits or decreases in taxation or both (Fuchs 1984).

The implications for health services are not yet clear. Hospital utilization rates are suspected to be four or five times greater among the over 65s than the rest of the population. In ambulatory care the ratios are 2:1 and 3 or 4:1 in the case of medical supplies utilization (OECD 1982). The main reason, it seems, is to be found in the difference between the year preceding death and those immediately before it. Health expenditures in the last year of life are much higher than other health expenditures incurred by the aged. Comparative studies have shown that the economic effects of ageing are more ambiguous than some years ago. Results from a 1982 study prepared by the OECD Secretariat in some European countries were inconclusive. In one country the effect of ageing was diluted in the population increase effect; in others ageing could be responsible for 6 to 8 per cent of the increase in health expenditures over a 10 year period, and its impact is greater for hospitals than for ambulatory care (OECD 1982). More recent work shows, again, a reduced importance of demographic factors on social expenditures (OECD 1984). A Swedish study points to a 15 per cent share in the increase of total health expenditures attributable to demographic changes during the 1970-1979 period (Secretariat for Future Studies 1982).

If the effects of an ageing population may not be as decisive for health services as was once thought, would not the aged, indirectly, be able to attract resources from politicians given their relative importance in the electorate? It seems plausible to suppose that politicians will attempt to capture votes by promising and offering social and economic benefits to the elderly proportional to their electoral weight. This hypothesis, however, does not appear to be confirmed. The aged tend to be fairly conservative in their voting

choices, remaining loyal to options chosen during active life, or at most, choosing abstention from voting. Nonetheless in some advanced societies there are increasing criticisms of the "disproportionate attention to this group at a time when many school children are neglected or abused, when the schools are at a low ebb, and when teenage suicide is at epidemic proportions" (Fuchs 1984).

Care for the elderly is today dominated by the hospital technology cultural model. Prevention is neglected, as is research of alternative methods of care for the elderly. The medical profession is generally not attracted by the pathologies of the elderly, and geriatrics finds difficulty in establishing itself as a medical discipline in many countries. Further, referral systems from hospital care to rehabilitive or community care are not well-developed. Medical and nursing training in some countries has not yet recognised the role of community resources in the care of aged patients. The economic incentives of health and welfare systems tend to work against the efficient use of resources: they perpetuate unnecessary hospital use, providing free hospital care for every pensioner and penalizing the family who keeps the elderly at home by not providing financial support in these situations. New programmes of care for the elderly, for political reasons, still tend to favour capital investment in residential homes rather than home support or domiciliary care for those in need.

Considerable difficulties arise with the political balkanization of health and welfare services. Commonly divided between different ministries, with diverse financing sources and philosophies of intervention, the public/private mix tends to be different in each. In the health field the public sector predominates whilst the reverse

is true for welfare services. Information does not flow easily between ministries, health sectors, and even the referral system suffers from compartmentalization: community support has only tenuous links with the hospitals and vice-versa.

Simultaneously, modern society creates additional pressure on the demand-side. The trend towards a reduction in family size is general in European countries, as is the increase in divorce rates and female participation in the labour force. The elderly become even more isolated, even more vulnerable and need even more social support.

In the political arena, there is increasing concern about these problems. Existing European health systems face the challenge of adapting to the new social environment and of tightening links with the welfare network. Professionals' training should place greater emphasis on care rather than cure. The classical hospital model should be complemented or even substituted by less costly but no less effective alternatives: day hospitals, night hospitals, week-day hospitals, domiciliary care, day care centres, and so on. Hospital care for the elderly may be connected to the primary care services, mainly the GP, the community nurse, the social worker and the home help, in order to provide a flexible range of care according to different dependency levels. Present elderly care financing systems can be changed in order to create incentives for home care, gathering community low-cost (either remunerated or volunteer) support from the family, friends and neighbours. An entire reform of contemporary health systems is in the offing (Secretariat for Future Studies 1982).

Finally, the financing of pensions and its link with retirement age should be reconsidered. The trend to shortening legal active life will probably be reversed, making the decision to work in later years

more flexible by changes in timetables, salaries and workers' responsibility (Fuchs 1984). If we accept the present trend towards early retirement, the ratio of the active population to the retired will become so small that serious problems could emerge, threatening the survival of the present health and welfare systems.

3. The changing role of the individual in the productive system

In industrial society one often finds elite groups or major economic forces to be indifferent towards the adverse effects of economic development on health. The population, on the other hand, experiences any negative consequences of material progress, albeit after a time lag. The difficult role of acting as an early warning system is left to the health sector which, in assembling and evaluating isolated pieces of information, is expected to identify preventive measures that society as a whole might adopt. This is an unenviable and difficult task and one, moreover, that transcends the health sector narrowly defined.

The major objective is to determine the causal connection between environmental changes and effects on health (Gilad 1981). Pertinent to this task is the issue of whether the health of individuals is more endangered by factors related to the environment than by personal unhealthy lifestyles. In a society where material values predominate, it is likely that those with power tend to favour economic growth, believing that any deterioration of the human environment can be subsequently put right. Taken to the extreme such views lead to explanations of individual susceptibility to risky behaviour as a psychological deficiency: the "ideology of victim blaming" (Crawford 1977). Conversely, all external effects influencing health can be seen as dangerous consequences of aggressive market forces. This

debate - which the health sector has not been able to escape - repeats the nineteenth century dispute between determinism and free-will doctrines. Then, it was proposed that responsibility should be shared between the individual and the environment. It is argued now that the object of protection is not only the world around the individual, but that the individual himself is both object and subject of the required action. In essence, this has meant an enlargement of the concept of environmental health from traditional areas of clean air, balanced nutrition, potable water, comfortable and safe housing, to encompass much wider cultural, social and economic dimensions affecting the individual (Draffer 1981). The individual is, of course, responsible for looking after himself, but government has to be active in effectively regulating harmful environmental hazards and is accountable for the results to the community or society as a whole.

The notion of quality of life - defined by a WHO group of experts as a "way of living resulting from the combined effects of factors influencing health, happiness, including the individual's wellbeing in the physical environment, a satisfactory job, education, social success, as well as freedom, liberty for action, justice and the absence of any oppression" (Recht 1981) - has recently begun to find a voice in political action. In several central European countries "ecologist" or "green" movements have appeared on the political stage as alternatives to established parties. Simultaneously consumer groups are attaining popularity. In conservative forms their political discourse is limited to calls for the maintenance of Nature as pure as it was in the original state, but often they seek a much more radical presence. An interesting characteristic of these movements is that they gather support from various points on the

political spectrum, thus providing a link to the traditional political establishment. It will have to be seen whether that same establishment can accommodate or incorporate the new set of ideas and whether the movements are able to maintain their present independence.

4. Pressure on public expenditure

The European experience over the last decade shows that, when confronted with recession and the need for restricted public expenditures or a direct political preference for a "smaller" public sector, most countries aim their cutbacks at social benefits, assuming that social welfare costs are dispensable expenditures in a market economy.

A particular criticism of welfare state policies has been their failure to meet redistributive objectives. The British NHS, thirty years after its inception, seems to have favoured the middle class (Abel-Smith 1978); the gap between high and low income groups in terms of mortality and morbidity is reported to be worsening (Black 1980; Le Grand 1982). In other highly industrialized European countries, social inequalities are persistent with repercussions on the health of some segments of the population (Mizrahi et al. 1983; Bouvier-Colle et al. 1983). Such results provide new fodder for traditional critiques of the universal system: free care for poor and rich alike is nothing but a source of inefficiency and loss of control over the growth of the public sector. Therefore, so it is argued, welfare policies should be more selective, targeting their efforts towards those identified as being in need (OECD 1981).

The answer of the universalists is based upon the undesirable effects of a dualistic system. Selectivity would lead the health

systems to a double scheme: one, universal, for the entire population, the other for those willing to pay individual insurance premiums or direct payments to providers, usually the better educated, better informed, and belonging to higher-income groups. Duality means stigmatization of the poor, the end of social solidarity, probably reduced political support for social programmes and low rates of take-up. There is, moreover, no guarantee that the administrative costs of a selective system are any less than those of a universal one (OECD 1981). The criticism of NHS type systems not having been able to overcome the gap between high and low income groups is usually answered in terms of an argument familiar to economists: that of opportunity cost. Is there a suitable effective, efficient and equitable alternative use of the resources spent on the NHS?

A proposal for a Council of Europe Permanent Commission Resolution on the future of health structures - at present under discussion - coincides in great part with WHO's Health for All principles emphasizing the need for primary health care development. General practitioners working in community health centres serving the whole population are the mainstay of this proposal (Council of Europe 1984). The Southern European countries, Italy in 1978, Portugal in 1979, Greece in 1983 and Spain more recently have officially legislated to transform their health insurance systems into universal ones of the NHS type.

Of course, the degree to which each of these countries is committed to such a policy and has succeeded in attaining its objectives differs. The stability of the Northern European systems, with a history of 20 or 30 years of universality, means that it has been particularly difficult to reintroduce the philosophy of the market in

health care in recent years. The opposite seems to be true for Southern European countries. What characterizes them is their instability and search for coherence. The transition from health insurance has been quite recent, and has been carried out in a period of economic crisis. This helps to explain the contradictions and hesitations we find in different countries' experience and experiments in the areas of the public/private mix, the status of providers and co-ordination within the health sector. The politics of health services are at an acute stage in these countries, and the debate lacks much necessary economic information. This only goes to show the important role which economists could play in encouraging these youthful health systems.

The confrontation with a period of restricted resources from the seventies onwards has led European governments, with the most diverse health systems' structures, to resort to common measures to combat similar problems:

- The evaluation of medical technology, discussed earlier, is a common concern. The methods may differ: medical, epidemiological or economic analyses. But the aim is to provide information for cash-limits or use-limits of technology. Price control on medicines and increased regulation of the introduction of new drugs has also been adopted in different contexts;

- In the sixties and seventies, the State exerted almost no control on medical schools, allowing the development of a critical situation of excess supply in some countries. Unemployment (or disguised medical underemployment) has been implicitly accepted through mandatory peripheral practice or extended training periods. There are, now, growing signs of resistance to this situation; "numerus

clausus" has become common both in medical schools and in official or private practice, due to a fear of inducing increased health expenditures by each new generation of doctors;

- There are also signs that the hegemony of the medical profession may be on the decline. This is all too obvious from the recent health administration and health politics literature (Abel-Smith 1984; Reinhardt and Sandier 1983; Rodwin 1979). Private practice has recently been viewed as a major obstacle to Health For all 2000 objectives (Roemer 1984). International comparisons seem to point to the behaviour of providers as possible generators of decreasing marginal benefits in health and as a serious barrier to cost control measures, particularly in health insurance type systems (OECD 1984; Abel-Smith 1984).

- Co-payment mechanisms have been widely introduced both in NHS and health-insurance type systems (Abel-Smith 1984). They are easy to set up and provide some short-term benefits, both of which are attractive to politicians. Up to now the aim of deterring consumption has prevailed over that of financing the health bill, keeping the universal characteristic of the systems. More radical alternatives, such as voucher systems, have not yet been applied in Europe but their supporters argue that they could potentially increase competition and efficiency with no harm to equity (Staht 1982);

- Cash-limits are probably the most common and most effective measure chosen by European politicians to control costs. They are easily set up both in NHS-type systems and in the hospital sector of the health-insurance systems. The French, for example, use the "budget global" effectively (Charbonneau 1984). On the other hand the partial introduction of cash limits leaves no cost-control for the

private reimbursed sector, leading to an imbalance of the private/public expenditure mix (Campos 1984);

- Finally, there is growing interest in the study of incentive/penalty mechanisms, especially in fee-for-service schemes. The consumer choice health plan in the US has attracted increasing attention in Europe, although it has not passed to the operational stage in any country (Enthoven 1982).

5. Concluding comments: the role of economists

Cost control has attained increasing importance in recent health policies. Sometimes policies are ill-defined, being nothing more than narrow cost-containment with little concern for efficiency. It would appear that there is room for a contribution from economists in educating politicians, with a view to increasing the analytical component of decision-making. Some questions that require elaboration could fruitfully benefit from the economists' way of thinking. For instance, which method of financing for providers should prevail in the future? Is it possible to redesign financing systems with the aim of encouraging competitiveness without harming equity objectives? Would adverse effects follow the introduction of incentive-penalty systems? How will professionals react to these new measures? Will it be possible to introduce budget limits in the open-ended health insurance systems? What will be the reaction of consumers?

These are the type of questions that assume an evaluation of outcome as well as of the system's structure or process. But even when evaluation focuses on results, professional opinion tends to prevail over that of the consumer. Can this reality ever be counterbalanced? Is there a way by which the health economist can aid the political analyst in better interpreting public opinion signals,

and in developing an evaluative method which is responsive to them (Williams 1982)?

The role of the economist is essential for the discussion of all the issues raised in this chapter. It is at least as important in aiding the development of new efficiency schemes as it has been for the identification of present problems. The analysis of the problems which face us is not equivalent to creating problems for governments, but simply a contribution to a deeper, more accurate knowledge which could - and should - provide incentives for more rational decisions. In essence, the economist's role revolves around the question of exposing the value system upon which the community, or their legitimate representatives, appear to base their most important decisions.

3. THE PLANNING AND MANAGEMENT PERSPECTIVE

Anne Mills

1. Approaches to planning

Health planning has a crucial role in the future in enabling health systems to adapt to changing circumstances. This role is likely to continue to be controversial for issues of planning method are bound up with issues of pattern of organization. Planning in its original, economic sense consists of organising the use of resources by central direction rather than by the profit motive in a market approach. Planning in a model command economy where the government takes decisions on the quantity and type of health services to provide thus contrasts with 'non-planning' in a model market economy where the role of government is confined to maintaining an environment where market signals provide the information that private enterprise needs to plan production. Thus planning approaches are tied up with public/private issues: on the one hand health care is publicly organized and planned; on the other it is privately organized and merely 'regulated' by governments.

While these organizational issues are at the root of much of the controversy over planning, they have become blurred in practice as government health planning has gained in popularity in European countries over the past several decades regardless of the organizational pattern of their health systems. It is now generally recognized that government regulation is unavoidable even in largely private health systems because of inherent features of the health care market. In Maynard's words, 'monopolies fix the prices, quantities and qualities of the goods and services they sell in a manner

advantageous to them (the providers) rather than the clients (patients); social institutions (e.g. tax-financed health service and insurance arrangements, both private and social) reduce the price barriers to consumption and provide incentives to over-consume because a third party (tax payers and insurance contributors) pays; and there are few incentives for decision-makers (doctors and managers of various sorts) to behave efficiently (i.e. to ensure costs are minimized and benefits maximized)' (Maynard 1983). Rules and regulations are extensively used by governments to influence their health systems, and increasingly governments have been interested in a more positive and comprehensive approach in the form of health planning.

Considerable differences in public planning approach do however exist within Europe. Three basic models can be distinguished:

(1) a market approach, where public health planners merely oversee the operation of health services by monitoring access and quality and ensuring competition and an informed consumer choice;

(2) co-operative planning, where public health planners have a co-ordinating function; and

(3) centrally induced or directed planning, where health services are organized and financed publicly and public planners possess considerable responsibilities and power.

Planning agencies in different countries can be broadly categorized according to these models. However, it is also useful to recognize that a given planning agency may need to adopt different approaches depending on its focus of concern. Taking a more comprehensive definition of the health system than that encompassing health services

alone, it is clear that even in a state system such as the UK National Health Service, parts of the health system (e.g. general practitioners, private nursing homes, pharmacies) are not directly controlled by the state health services, and both a market approach and co-operative planning are relevant strategies. Moreover, even within state-directed health-care organizations where planning agencies have considerable authority and legal powers, their use of direct command is limited by the need to obtain the agreement of those who implement decisions. Since those responsible for implementation are rarely as much involved in policy-making as the 'formal' policy-makers, the latter cannot assume that implementators are either sympathetically inclined to follow their wishes or responsive to whatever positive or negative incentives may exist to induce them to comply. Thus despite the differences in the structure of their health systems, countries in Europe face many similar health planning issues.

Increasing interest in planning approaches has led to a great proliferation of the health planning literature. A notable feature has been the involvement of disciplines other than economics, and particularly of sociology and psychology, in developing planning theories and approaches. While the concerns of economists have focused on optimal resource allocation patterns, other disciplines have seen planning more as a way of enabling health providers and consumers to agree on future strategies and obtain commitment to implementation. To take a typical definition of this latter type of planning: 'planning is the use of systematic approaches to enable diverse individuals to agree on mutually satisfactory ways of carrying out complicated activities' (Taylor 1972).

This development of the planning literature has provided a useful

reminder that however 'rational' a suggested course of action may seem in terms of achieving efficient resource allocation, it is not necessarily 'rational' to those who must implement it. Tension often arises between the values inherent in the technical component of planning and the values expressed during consumer and provider participation in planning. As the gap between what services can potentially be provided and what can be afforded becomes greater in the future with technological and demographic change, tension is likely to increase.

In this chapter, planning is taken to be an organized, intelligent attempt to select the best available alternatives to achieve specific goals. The chapter concentrates on those aspects of planning that are common to all European countries whatever the precise structure of the health system. Planning experiences to date have had mixed success: the next section therefore draws some lessons which should influence future planning approaches. Following sections consider the basic principles of planning for these guide planning activities, the organisational structures required for planning, planning processes especially technology assessment, mechanisms for implementing plans, and, finally, information requirements. Throughout, attention is paid to how incentives might be introduced to ensure that strategies that will achieve health goals are implemented.

2. The lessons of past health planning

Health planning as a formalized process in non-socialist countries developed out of corporate planning and became popular in the 1960s and 1970s (Blanpain 1978; Lee and Mills 1982). By the 1980s some disillusionment has set in. One review of the literature concluded that 'there is a notable lack of evidence that planning is effective

in accomplishing specified outcomes and it is also clear that intended processes have been subverted in some instances' (Anderson and Robins 1976). Some writers have argued that planning - whether social, economic or strategic - is losing its credibility, and in many circles planning has been severely attacked and denounced as an expensive and even pernicious approach to tackling the complex problems of present-day societies (Manor and Sheffer 1977). In terms of the future of planning, some feel that planning has yet to be given a fair trial; others that existing infrastructures and institutions need to be improved for planning to succeed; others that planning models need to be re-fashioned; yet others that environmental and behavioural constraints make the aims of planning unrealisable.

A number of specific problems have arisen over health planning in both state systems and liberal health systems of the Western European type. Firstly, planning systems were formulated in the context of economic growth. Although comprehensive health planning was meant to entail a radical scrutiny of existing as well as new activities, in practice the resource allocation process has been incremental (Maynard 1981) and agencies have planned at the margin. Recent reductions in health budgets have meant that not all groups participating in health planning will necessarily gain, heightening the conflict over resource allocation inherent in planning and making it more difficult for planners to placate threatened interests.

Secondly, particularly in an unstable environment, 'muddling through' (Lindblom 1959) may be a preferred strategy to planning. The rational planning model implies that planners put their cards on the table and conduct planning in the open. If there is considerable disagreement over the ends and means of planning this may be a non-

rational strategy, revealing information to opponents and enabling them to mount counter-attacks.

Thirdly, planning has for a number of reasons been largely hospital-based and oriented towards physical rather than service planning. Where health services are not state-owned, capital investment is one of the main areas where governments have assumed regulatory authority. For instance in France, a 'health map' is prepared and approved for each region, containing information on projected population numbers and available facilities and equipment. This then provides a guide for approval of new physical infrastructure (ISSA 1979). In addition, investment programmes for public hospitals must be included in an overall plan for each establishment and submitted for prefectoral or ministerial approval.

However, even in national health services, physical developments tended to be the main focus of planning again because they are seen to be easier to control than recurrent expenditure (or perhaps also because the consequences of poor decisions and suboptimal investment may be felt only after the political wheel has moved a full cycle). In the UK, national policies and guidelines provide the planning framework for district health authorities. Since the service objectives of the various levels do not necessarily coincide, a crucial issue for the national level is the nature of the sanctions it can bring to bear to support its own policies and attempt to ensure they are implemented. Unlike recurrent funds which are allocated as a block grant, major capital, and to a lesser extent manpower, are allocated in response to local bids for projects and thus become the prime tool that higher levels can use to shape local developments. Planning attention thus tends to concentrate on capital projects

rather than service planning, on buildings rather than how buildings are used.

Fourthly, despite lip-service to 'health planning' as opposed to 'health service planning', little planning has succeeded in crossing organizational or sectoral boundaries. The comprehensive health care plans formulated in England and Wales, Sweden, and the Netherlands concentrate on the strengthening of health services and on the delivery of personal health care, although they express an interest in co-ordinated health and social services (Blanpain 1978). There has been some progress in formulating policies for client groups such as the elderly but inadequate recognition of the extent to which organizational structures and financing patterns inhibit their implementation (Maynard and Smith 1983). Most planning has been conducted in terms of inputs (increase in buildings, staff) rather than outputs (increased health), usually on the assumption of an association between inputs and outputs that is rarely questioned (but that sits very oddly with the increasing political concerns about the productivity of public expenditure on health care).

Finally, the issue of how to take account of the multiplicity of values which affect health planning is unresolved. Planning has developed its own approach and techniques and can be misleadingly portrayed as an objective science, uninfluenced by interest group or ideological biases. Health planning methods are not necessarily neutral, and in the past they have provided mechanisms for particular interest groups to influence the delivery of health services in their favour (Glennerster 1981).

The acid test of planning is the extent to which planning objectives are achieved. An increasingly important theme in Europe

over the last ten years has been the need to switch the emphasis of health systems away from hospitals and towards primary and community care. However, in most European countries, expenditure on primary care in recent years has fallen relative to hospital care and other health care sub-sectors (Regional Office for Europe 1981). The example of Sweden illustrates how difficult shifts in the emphasis of expenditure can be (Regional Office for Europe 1982). Capital funds were tightly rationed in order to limit growth of the acute sector and improve primary and community care. This rationing could not, however, be maintained and the shift of emphasis has been much slower than planned, for a number of reasons. The power structure and decision-making processes favoured well-established activities. The acute sector spent the bulk of health care resources and had easy access to decision-making bodies such as county councils. Improved conditions of employment increased employment costs and thus the costs of the acute sector.

The challenge to future planning is thus that

- it should be capable of influencing the health system in the absence of significant resource increments
- it should be concerned with the outputs of the health system, and with physical inputs only as a means to that end
- it should not be constrained by artificial organizational or sectoral boundaries
- it should openly confront the inevitable conflicts of interest within health systems
- it should concern itself with issues of plan implementation.

3. The basic principles of health planning

Efficiency

In order to guide planning activity and the allocation of resources, planners must establish the basic principles to guide the formulation of plans. The objectives of the health system need to be set for health planners by policy-makers; for example, the relative weight to be given to saving lives versus improving the quality of life versus providing adequate care for the chronically ill. Given these objectives, a basic principle of health planning should be the pursuit of efficiency: achieving a given objective at minimum resource cost or (what is the same thing) maximising the achievement of an objective with a given quantity of resources. Adopting an inefficient strategy, one that uses more resources than another strategy would use to achieve a given objective, results in a waste of resources that might otherwise be used to satisfy other much desired objectives.

In many countries, health is established as a basic right, the state's role being to ensure the highest possible level of health of its citizens. An alternative formulation of a general health objective is that of the UK, where the government stated its objectives to be: 'to secure that in the future every man, woman and child can rely on getting ... the best medical facilities available; that their getting them shall not depend on whether they can pay for them or on any other factor irrelevant to real need' (Ministry of Health 1944).

A crucial issue for health planners is whether plans should seek to ensure 'health for all' or 'access to health care for all'. Past

planning activities, with their emphasis on planning resource inputs to the health care sector, imply that the latter objective guides planning. However, it is reasonable to assume that health care is hardly desired for itself but rather as a means to an end, that is health itself. If so, then planners should concern themselves also with other means to that end, which may be more efficient.

A useful concept here is that of the health production function. A production function specifies a technical relationship between inputs and outputs. Thus a health production function specifies the relationship between health and a number of variables that affect health, of which medical care is only one. Two different formulations of the health production function are relevant to planners, one concentrating on the macro level and the other on the micro (household) level.

At the macro level, health can be considered as a function of variables such as income, education, nutrition, housing, employment, medical care, and environmental conditions (water and sanitation, pollution, working conditions, etc.). The difficulties of specifying and testing the relationships involved mean that it is difficult to derive practical guidance for action, and this area is too often one where slogans (for instance, 'prevention is better than cure') rule over reasoned argument. However, sufficient evidence is gradually accumulating that certain interventions outside health services, particularly those affecting individual behaviour and the physical environment, are worthy of careful consideration by health planners in that they offer potentially more cost-effective means for reducing the prevalence of certain diseases than curative interventions.

At the micro level, a useful conceptual approach is that which

focuses on the role of the household in influencing the health of its members: 'health is produced by households, not by doctors and hospitals' (Dowie 1975). The household can be viewed as engaging in production and consumption activities in order to produce commodities such as health, leisure, children, etc. (Grossman 1972; Schultz 1974). The demand for medical care is thus a demand derived from a desire for health itself. Moreover, the household provides other inputs into the production of health, including time (e.g. time spent obtaining medical care, indulging in health-producing activities such as physical exercise), human capital (knowledge) and physical capital (e.g. housing).

This conceptual approach is particularly useful in considering the determinants of health at the household level, the choice of which variable to try and influence to improve health, and the likely reaction of the household. For instance, if promoting healthy diets is considered important, planners have the choice of interventions such as improving the knowledge of households or influencing the price of various products. Whether household behaviour changes will depend, for instance, on whether or not the household faces constraints in applying the knowledge (e.g. availability of suitable foodstuffs at a price it can afford, availability of time for cooking) or on its reaction to altered relative prices.

The classification of medical care as only one of the inputs to improved health thus has important planning implications. This is strengthened by a consideration of the future role of medical care in improved health. It is now conventional wisdom that, historically speaking, decreased mortality rates for infectious diseases in industrialized countries had much more to do with improvements in

nutrition, housing, hygiene, sanitation and the general standard of living than with advances in medical knowledge and the application of specific preventive and therapeutic measures to the individual (McKeown 1976). Modern therapies are now available to prevent and treat infectious diseases and such interventions as immunization and simple medical care practices can have significant effects on morbidity and mortality from specific diseases in less-developed populations (Taylor and Faruquee 1983).

However, disease patterns have now changed in industrialized countries and are rapidly changing in the less-developed countries of the European region. Infectious diseases have been replaced by cancers, stroke, and chest and heart diseases as major causes of mortality. While their precise risk factors are often uncertain, it is clear that life-style and the general environment are important influences and thus that direct interventions to alter them may potentially be more efficient than treating their consequences. For instance accidents are an important cause of death amongst the young, the main category being traffic accidents, and non-medical interventions can be an efficient means of reducing accident-related morbidity and mortality (Graham and Vaupel 1981).

Morbidity and mortality from coronary heart disease, chronic bronchitis and lung cancer are generally agreed to be strongly influenced by lifestyle, especially smoking (for all three) and diet (for coronary heart disease). Smoking levels are now decreasing in many countries but levels are still high enough to have a significant effect on disease patterns. Although there is a considerable controversy on which dietary factors are important influences on coronary heart disease (OHE 1982), there is broad agreement that a

reduction in total calorie intake especially animal fat and an increase in fibre consumption would bring health benefits.

At the very least, this suggests that health planners should be concerned not only with the role of medical care in coping with health problems once they arise but also with interventions that prevent the health problems occurring in the first place. Given the criterion of efficiency, a given quantity of resources invested, for example, in coronary heart disease prevention, may have a greater return than the same quantity of resources devoted to treatment. Prevention is likely to require the health planner to consider interventions in a variety of sectors: transport, education, and industrial development for example. The fact that past lack of emphasis on non-medical care interventions has resulted in poor knowledge on how to intervene or change behaviour does not alter this principle.

The argument is further strengthened in considering the care required for those suffering from chronic diseases. Medical care often cannot cure but merely alleviates symptoms or prolongs life at the expense of some disability. Caring for those with chronic diseases is the task not only of health but also of social welfare services. Morever, the conditions in which care is provided are determined to a considerable extent by government policies in other sectors: for instance, employment, housing and social security (Glennerster 1983). Again, therefore, the efficient response to a need for care may lie in a sector other than medical care.

Equity

The second major principle to guide health planning is equity. Each country is likely to arrive at its own definition of equity incorporating ethical judgements about the fairness of income and

wealth distributions, cost and benefit distributions (for instance, of health service costs and benefits), access to health services, exposure to health-threatening hazards etc. Two concepts of equity are particularly useful: horizontal equity refers to fairness in the treatment of apparent equals (e.g. people with the same income or same health condition); vertical equity to fairness in the treatment of apparent unequals (e.g. people with different incomes or different health conditions).

As with the principle of efficiency, a distinction can be made between equity in relation to health status, and equity in relation to health services. There is now considerable evidence that despite the expansion of medical care over the last twenty years, substantial inequalities in health status between different socio-economic groups still remain. This is not surprising given the discussion above on the determinants of health, for while the availability of health services may have increased, the origins of much ill-health stem from pervasive characteristics of social and economic structures. The evidence is strongest for Britain (though much more research is needed) given the investigation of the Black Committee (Townsend and Davidson 1982), but there is no reason to suppose that similar inequalities do not exist in other European countries and some evidence that they do (Maynard 1981).

Another dimension in vertical equity is that between groups with different health conditions, for example different client and target groups. Here there is evidence that those groups with conditions that do not fall within the sphere of concern of acute medicine, for instance the elderly with chronic ill-health or the mentally ill and mentally handicapped, are relatively disadvantaged compared with

groups with conditions that come under acute specialities. Moreover, within acute medicine, sufferers from the less glamorous conditions may receive less attention.

In order to take account of these dimensions of inequality, planning should be conducted in terms of the purposes of health expenditure, namely to meet the needs of different sub-groups of the population. The most useful classification appears to be that which distinguishes between client groups characterized either by their medical condition (mental illness or handicap, maternity etc.) or by some broader social characteristic (the elderly, children, ethnic groups etc.) (Pole 1974).

While efficiency in the production of health and equity in health status should be the basic principles for health planning, the concepts of efficiency and equity also apply within the health system to the sub-system concerned with health services. The efficient production of health services means that inputs (health workers, drugs, equipment etc.) should be used in such a way as to maximize the effect on health. Technologies should be used only if they are cost-effective. The application of the concept of equity to health services has a number of dimensions: equity in the geographical allocation of resources, in access to health facilities, in use by different socio-economic groups and client groups (Harrison and Gretton 1984). These should also be the concern of health planners and managers.

Planners should, however, recognize that while efficiency and equity are important concerns in formulating strategies to achieve health objectives, in practice means and ends can often not be clearly distinguished. For instance encouraging family care, community

participation and the ability of individuals to control their health may be considered ends in themselves as well as efficient means to health improvement. Thus evaluating the desirability of changes in the health system will inevitably be complex, requiring the application of judgement and trade-off of various objectives.

Planning criteria

This discussion on planning principles establishes three important criteria to guide planning activities. Firstly, planners should look across various sectors, to select the most efficient interventions to improve health. Their ability to do this will be affected by their location: national planners will be able to look much more broadly than local planners. However, even at local level there is scope for intersectoral planning to improve health even if certain elements of the environment - for example national economic policies - have to be taken as constraints. Secondly, planners should frame their plans according to the needs of population groups rather than health inputs such as hospitals. Thirdly, allocating resources according to evidence of effect on health should be an aim despite the practical difficulties of obtaining evidence. These difficulties imply that there is currently much scope for the exercise of subjective judgement but recognizing that for what it is would constitute a major step forward.

These criteria should thus guide the approach of planners. However, the evidence of past planning is that there are enormous difficulties in ensuring that actual planning and plan implementation follow these principles. The following sections therefore investigate how planning structures and processes might be established

to put these principles into practice.

4. Planning structures

The value of re-structuring public sector organizations has often been over-emphasized in the past: changes in structure do not necessarily change the way in which individuals operate within an organization (Towell 1977). Nonetheless, organizational structures can facilitate new ways of working. Of particular concern are structures at both national and local level that might help to overcome organizational barriers to planning an efficient and equitable health system. Two particular issues are examined here: the co-ordination of government activities that affect health; and client group budgets to promote local efficiency in health provision.

Co-ordination of government health activities

In all countries, responsibility for the health system is divided amongst a number of ministries and public agencies, the exact division depending on the country. The need for some form of co-ordinating structure is well-illustrated by a review of the systems of financial support for the elderly infirm in the UK which investigated whether they permit a system of care that is cost-effective and appropriate to the needs of the elderly (Maynard and Smith 1983). Care can be provided at home, in sheltered housing, in local authority residential homes, in long stay hospitals, and in private nursing homes. Each involves a different combination of financing mechanisms including both transfer payments and direct service provision from three different sources: the National Health Service, local authorities and the Department of Health and Social Security. Each source is subject to different lines of accountability and is governed by rules and

regulations mostly of statutory origin which make it extremely difficult to transfer patients to different forms of provision as their dependency changes. For example, the attendance allowance provided to support the elderly infirm at home in the community is apparently rarely available to those whose dependency increases when in sheltered accommodation; local authorities can, at least in part, recover the costs of residential homes from charges; the NHS has to cover all costs from a fixed budget. As the number of the elderly increases (in the UK, the rise in the next decade is expected to be 20 per cent for the over 75s and 50 per cent for the over 85s) it is urgent that there should be some government mechanism below cabinet level to look across narrow departmental interests, and with the power to challenge them.

Client group budgets

There is increasing interest in decentralization of planning and decision-making as a way of making services more flexible and responsive to their clients. Planning systems, especially at times of financial restraint, are notorious for encouraging the centralization of decisions. Thus structural changes that might not only promote decentralization but also encourage financial accountability and efficiency at a local level are of great interest. One proposal is client group budgeting, where there would be a budget holder for a particular client group who would 'buy in' the services required from the various agencies (Williams 1978).

It was argued earlier that planning should be client-group based and that organizational constraints should not impede the choice of the most cost-effective service. In general, professionals decide on the appropriate care for their clients within the constraints imposed

by the boundaries and financing of the organization they work within, and usually in ignorance of the costs of the various options. Client group budgeting, still in the experimental stage, offers the possibility of choosing options that cross organizational boundaries. Existing schemes and future potential have been reviewed in relation to community care by Wright (1984). He quotes the existing Kent Community Care project, where social workers were charged with the responsibility of maintaining elderly people in the community for as long as possible given their dependency and a nominal budget arbitrarily set at two-thirds of the cost of residential care to cover the cost of all departmental services (Challis and Davies 1980). The experiment was successful in reducing costs and raising outcomes for the majority of clients (Challis and Davies 1986).

Wright argues the concept could be applied to a wider set of clients, and a budget provided that could be used to secure both local authority and health services. For example, the Audit Commission (1986) has recently proposed that a single unified budget be established for the care of the elderly in the community, with contributions from the NHS and local authorities. The budget would be under the control of a single manager, who would purchase from any agency, public or private, the necessary services. The principle could also be applied by making clients budget-holders, giving them cash allowances in order that they might buy in the services that they need. For instance Bosanquet has suggested that mentally handicapped people be discharged from hospital to a guardian who receives a weekly allowance equal to average hospital cost per patient per week, to be used for care and training (Wright 1984).

The value of these proposals is that they support planning

objectives. Client-group based planning and collaboration between the health service and local authorities were principles embodied in the UK health planning system introduced in 1976. However, neither client-group planning nor collaboration has made significant progress except perhaps in a very few authorities. A study of health planning in the UK concluded that while much local planning was couched in care group terms, in practice the balance between care groups was considered only in very general terms; capital-focused planning persisted; and important local planning groups still existed which promoted specifically medical, hospital-oriented views (Lee and Mills 1982). With respect to collaboration between health and social services, the study concluded that very little joint planning took place, and that the different financing positions of the two organizations and fears of the demands that might be made on their already over-stretched resources were important barriers to co-operation. Client group budgeting suggests one way of overcoming some of these problems though many details need to be resolved, for instance problems of cost-apportionment and appropriate reimbursement mechanisms, and any scheme needs to be carefully evaluated. However, the mechanism would provide a useful basis for planning service provision since information should be generated on consumer preferences and on service costs, and service agencies would be given clear signals on which services they should expand and which contract.

5. Planning processes

Planning systems incorporate procedures for determining needs, setting priorities, and devising strategies for achieving the priorities. In order that maximum benefit be obtained in the future

from the limited resources available for health, planning systems should incorporate procedures which aim to ensure firstly that various options for meeting an objective are developed, and secondly that they are evaluated or appraised in terms of their cost-effectiveness. The issue of the implementation of the most cost-effective option is considered in the next section.

It is common for planners to feel themselves circumscribed and unable to consider more than the most obvious solution. Procedures which require planners to go through an appraisal are thus valuable. The incorporation of the development and appraisal of options in a planning system is particularly important in relation to the introduction of new technology, given its role in creating new demands and increasing costs. The assessment of the desirability of a new technology is considered here in the context of the planning decision of whether it should be introduced at all, rather than in the context of a management decision of how it should be used once bought (though clearly the first assessment will have to incorporate assumptions on use).

An immediate problem in incorporating technology assessment into a planning system is that it can only feasibly be done for technologies involving significant 'lumps' of capital or recurrent funds. For instance the diffusion of drugs is harder to control than the diffusion of equipment since governments (especially where there is a national health service) often give themselves the power to rule that certain locations only should have the equipment, whereas once a new medicine is approved by the regulatory authority it can be freely prescribed by all physicians (Drummond 1983).

The planning questions that need to be tackled in assessing the

introduction of a resource-intensive procedure depend on the level of decision. Two levels of planning decision are involved. The first is concerned with whether the technology should be recommended or approved for purchase and/or reimbursement and if so, the approximate numbers of units required. The second level is concerned with whether the particular technology should be purchased in a given location. These levels of decision are considered in turn below, concentrating on the procedures required rather than methodological details since the latter are discussed elsewhere (Culyer and Horisberger 1983).

Technology appraisal

Any planning procedure for technology appraisal should require the planner to consider both the costs and the benefits of the proposed technology. This can be simply stated but is not easily done. The major questions to be asked are (Reinhardt 1983):

1. Does the technology achieve the intended outcome?
2. If yes, can the benefits associated with the intended outcome justify the costs incurred in the application of the technology?
3. If yes, does the application of the technology result in the minimum resource required to achieve the intended outcome, or alternatively, does it result in the maximum benefit attainable with a given resource expenditure?

Question 1 establishes whether the technology is effective and question 3 whether it is efficient. The answer 'yes' to question 2 indicates the technology is not inefficient but it may still be the least efficient of a number of alternative technologies. Each stage of the analysis encounters innumerable problems of concept and measurement. It is much better to face up to these frankly and

explicitly, obtaining the best information available about each question than to skate over them, let alone pretend they do not exist.

A major issue for planners is when such an appraisal should be done, particularly since good information on likely effects and costs is rarely available in the early stage of development of a new technology (Lacronique 1983). Culyer and Horisberger propose carefully done 'quick and dirty' studies, coupled with careful monitoring, so that the diffusion of a technology generates information that can guide future decisions (Culyer and Horisberger 1983). A possible approach for very costly technologies is to permit a limited programme to be established, which will be evaluated in depth in order to guide decisions on the diffusion of the technology (as, for example, with the heart transplant programme in the UK) (Buxton 1983).

Appraisal of local purchases

The second level of decision mentioned above is whether a particular technology should be purchased in a particular location. For head CT scanners, it has been suggested that two approaches might be adopted to assess the 'need': firstly to define the group of patients that need head CT scanning in a certain area in a given period of time on the basis of generally agreed indications and limitations; and secondly to study the workload and waiting time of existing CT scanners in a defined area (Racoveanu 1983). The option appraisal procedures required when submitting a bid for capital funds in the British NHS provide evidence on the way in which planning procedures can be used to try and ensure that relevant information is taken into account in local planning (DHSS 1982). They relate only to

major building projects, though the principles would apply generally to proposed changes, whether or not involving construction.

Incidence of costs and benefits

A major issue in any appraisal and relevant to both levels of decision-maker is the 'costs and benefits to whom?' question. Government agencies tend to be preoccupied with those benefits and costs that will fall on their own budget and to choose options that may minimize costs to them but impose costs on others. Many health service decisions have such distributional effects. For instance Culyer and Maynard found that although Cimetidine is cost-effective taking into account costs and benefits to everyone, surgery can appear a cheaper alternative to the health service because the patient not the hospital incurs the cost of the higher mortality risk and the cost of the additional lost earnings attributable to surgery relative to Cimetidine treatment (Culyer and Maynard 1981). The appropriate perspective is thus costs and benefits to the whole of society. It is difficult to devise arrangements for ensuring that agencies do take a social perspective, but at the least they can be required by planning procedures, as in the NHS, to list all costs and benefits so that decision-makers are aware of the distributional implications.

6. Plan implementation

A crucial issue for planners and managers is how to ensure implementation of plans. There is often a considerable gap between broad policies and plans and how the health system actually behaves. For instance Rutten points out that technology choice is at present haphazard in most countries (Rutten 1983). There are few instances in which society chooses whether or not to use a particular technology

and to what extent diffusion should take place. Choices are made implicitly in planning and reimbursing medical services and facilities and explicitly in the actions of individual patients and physicians.

Mechanisms to ensure plan implementation will vary according to the ownership pattern of health facilities. However, the distinction between countries on the basis of health facility ownership can be over-emphasized for even in a state system, such as in Finland and the UK, local decision-makers are often given considerable latitude to determine expenditure patterns and the extent to which the state (or even local managers) can control the day to day behaviour of the health care system is limited. Four mechanisms for plan implementation are considered here: earmarked funds, physical controls, guidelines and financial incentives.

Earmarked funds

Earmarked government funds can be used to influence the development of health systems. For instance preferential support may be given to primary care (Blanpain 1978), the aim being to orient the balance of services towards that preferred by central planners and to catalyze resource development. The history of the use of earmarked government funds is not particularly encouraging. They were extensively used on the Continent of Europe to develop the public hospital system, resulting in a disproportionate emphasis on hospitals. The experience of the UK has shown some other problems of this approach: if the policy does not accord with local priorities the funds may not be taken up; and the service provision stimulated by funds which in effect have zero opportunity cost (there being no alternative use of the funds allowed) may not be that which is locally most cost-effective. Nonetheless, they can be used to strengthen areas - such

as primary care and prevention - which locally tend to have weak bargaining power for local resources.

Physical controls

Many countries in the past have also relied on physical controls or licenses to influence service provision. European countries often have standard bed norms for hospitals and set standards for new technologies such as one CT scanner per 500,000 people (Institute of Medicine 1980). These norms have a number of failings. Firstly they focus attention on physical inputs rather than on the health objectives they may serve; secondly they easily become ends in themselves although the norms often lack any scientific basis; thirdly even if they are scientifically sound they tend to be inflexible over time as conditions and technology change; fourthly they do not necessarily suit local circumstances.

A useful case study from the US demonstrates the difficulty of controlling the introduction of new technology with reference to CT scanners (Altman, Greene, Sapolsky 1981). The authors describe how in the absence of clear information on the balance of costs and benefits, planners have adopted an incremental strategy, relying on numerical standards (for instance a minimum number of medically necessary procedures) to guide them and gradually adjusting these over time. The authors describe the strategies adopted by hospitals to circumvent planning rules - for instance purchasing scanners at prices below the trigger level for certificate of need review; private physician not hospital purchase since no certificate of need was required; 'borrowing' a scanner from the manufacturer for 'demonstration' purposes. The case study concludes that 'in the absence of conclusive

research and hard data on the diagnostic value, clinical efficacy and cost-effectiveness of CAT scanning, policy will be made on the more prosaic grounds of political bargaining and compromise between interest groups. A more important lesson, however, is even if much better data become available, the difficulties of choosing between benefits and of trading off various costs and benefits will consistently elevate value judgement and political bargaining to the level of first importance' (pp. 112-3). An important comment they make, however, is that private physician ownership of scanners has been controlled by refusal of reimbursement by third party payers. This emphasizes that for planning controls to have any effect, they may often need to be backed by financial penalties.

In general, state health systems with fixed budgets are in a stronger position to control new technology, since major capital items are regionally or centrally financed. Even here, however, controls may be circumvented, for instance through voluntary fund-raising. Thus considerably more attention has to be paid in the future to devising mechanisms for translating planning decisions on technology diffusion into practice.

Guidelines

Physical controls have the disadvantage that they concentrate on inputs. It has been argued that planning guidelines - a third mechanism for plan implementation - could be oriented towards outputs and take the form of

(a) goals stated in health terms

(b) measurement criteria to assess performance

(c) guidance on ways of achieving goals (Institute of Medicine 1980).

Countries are only just beginning to develop this approach, though there are several examples of interest. In the UK, for instance, care-group policies and strategies have formed a central feature of national planning guidelines. A major problem, however, has been monitoring progress towards them (Lee and Mills 1982). Performance indicators have been developed, but these as yet concentrate on measures of input and activity (Harrison and Gretton 1984). Considerable effort is required to develop indicators of health status that are subject to influence by health services (for example perinatal mortality rates) and that can therefore be used to evaluate performance.

A more micro approach is to develop guidelines recommending cost-effective medical practices for implementing particular health programmes (Regional Office for Europe 1981). For instance Sweden and Finland are developing model medical care programmes which aim to increase the quality of care within existing resources. An important feature is the involvement of local representatives of health professionals in developing the programmes, in order to develop commitment to their implementation. This mechanism for implementation can thus be compatible with decentralization of planning decisions, unlike the first two mechanisms which imply central constraints on local discretion.

Financial incentives

The fourth mechanism, financial incentives, is also valuable in that it can be used to create an environment which encourages decentralized cost-effective decisions. For example, reimbursement rates could be so set as to encourage cost-effective choices of care.

Treatment for end stage renal failure is an area both where reimbursement policies have in the past favoured hospital care and where considerable potential exists to stimulate home care, for example by reimbursing family expenses of home dialysis (Rutten 1983).

Financial influences may be brought to bear more directly on clinicians by involving them more in explicit resource management decisions. In the UK NHS, for example, there is increasing recognition of the central role of clinicians in resource allocation and of the need for them to be brought into the management process by developing information on outcomes and involving clinicians in budgeting. In particular, there have been a number of experiments involving clinicians in the management of resources. These have included planning agreements with clinical teams which incorporate clinical budgets, and resource management initiatives which aim to involve clinicians and nursing staff in a system which provides information on resources, patient case-mix, quality of care and outcome (Culyer et al. 1988). Unfortunately, little evidence is yet available that such initiatives have improved resource use.

Incentives can also be targeted at consumers. Cost-sharing mechanisms for health care are an example, though their desirability and effect is much debated (Van de Ven 1983). The economist's concept of elasticity is relevant here. Price elasticity of demand refers to the responsiveness of demand to changes in price of the good in question, other influences on demand remaining unchanged. The price elasticity of demand thus provides information on the likely change in demand if the price is increased. For instance, recent estimates for the US suggest that price elasticities for all health care are in the -0.1 to -0.2 range: i.e. a 10 per cent increase in user price will

cause demand to fall by 1-2 per cent (Manning et al. 1987). These values are consistent with those elsewhere in the US literature (Culyer et al. 1988) and suggest there is likely to be some scope for using financial incentives and disincentives on the consumer as one mechanism for implementing plans.

7. Conclusion: information requirements

The suggestions in this chapter present a formidable requirement for information. Planning and management is vitally dependent on timely flows of appropriate information, yet the routine information produced by health systems is rarely suitable for planning and management purposes (Williams 1978). The most vital areas where better information should be developed are client-group oriented expenditure patterns and health status measures.

Client group expenditure patterns are required in order to evaluate the extent to which current resource use reflects planning objectives, and to monitor whether progress is being made in the required direction. No one particular programme structure is desirable; instead information should be broken down according to a variety of categories that interest decision-makers: for instance client group, age/sex of user, socio-economic group, ethnic group, diagnostic group, geographical area, level of care (Lee and Mills 1982).

Improved health status measures are indispensable if progress is to be made in evaluating new technology. Analysts are rarely able to justify comparing alternative interventions according to only one dimension of health: for instance a measure of morbidity or mortality. Health programmes usually affect a number of dimensions - both morbidity and mortality for example - and permit the extension of life of varying quality. Unless progress can be made in the complex

task of developing suitable health indices, decisions on new technologies will remain as susceptible as they are now to dispute over the value of their effects.

These comments apply to information required not only by planners and managers but also by other groups such as politicians, physicians and nurses. If they subscribe to the aims of efficiency, effectiveness and equity, they also need good information. Moreover, it is not only information that matters but also a critical way of thinking about decisions, plus sensitivity analysis, formal or informal, on the issues about which ignorance is greatest.

One aim of this chapter has been to argue that planners and managers cannot ignore the organizational realities of how health service bureaucracies operate. Planning information which helps good planning and indicates where resources can be invested to greatest effect must be matched by mechanisms that will encourage plan implementation. These mechanisms should not assume that participants are necessarily motivated to change their behaviour without changes in the parameters that influence them.

4. THE PATIENTS' PERSPECTIVE

J. McEwen

1. Introduction

Developments in medical technology, variation in financial resources for health care, alteration in the structure and delivery of health services, and changing attitudes amongst health professionals, all have implications for patients. Equally, the general political climate, the provision of community resources, the structure of the population, the general level of knowledge about health and disease and the prevalent attitudes towards health and health care interact with the other changes to produce a dynamic situation in which patients face uncertainties as to how they can cope most easily with their own health problems and how they might be involved in the wider aspects of health policies and planning at a local level. Although this chapter uses the word 'patients' this term will be taken to include all who are potential consumers of health care.

Perhaps 'involvement' is the best word to describe the direction of change that seems to be taking place. Mahler (1982) has described it as "a mental process in which individuals and communities identify with a movement and take responsibility, jointly with health professionals and others concerned, for decisions and activities".

Although this chapter is concerned primarily with implications for patients, these must be related to all involved in health care: a changed role or altered responsibility for the patient can be a reality only if there are concomitant changes in professional roles or societal support. Accordingly the challenge must be to devise an environment in which the changes taking place can be evaluated

continually by all involved so that maximum benefit may be obtained from the advances, the constraint of limited resources is reduced to a minimum and the health and health care of individuals and communities is improved.

The first part of the chapter looks at the implications of recent trends while the second part attempts to bring together the responses that are taking place.

2. The implications of recent trends

The mass media publicise and extol the rapid advances in medicine and emphasise how science is pushing back the frontiers of knowledge. Advances include new investigative techniques to enable earlier and better intervention in the disease process, miracle drugs which can cure serious and life threatening disease and complicated surgical procedures which can provide dramatic improvement in those disabled by chronic disability or disease or cope with sudden and life threatening emergencies. Virtually all these advances can be achieved only with considerable expenditure on equipment, drugs, highly trained staff and supporting services. While the dilemmas for those responsible for providing these services are examined elsewhere in this publication, patients feel that such advances should be available to them when they need them, as indeed should all the existing but equally important routine forms of care. The problem of rationing care, or the unequal distribution of care, is one that is difficult to understand for the individual patient with a particular need, and as long as patients have little or no part to play in the decisions made about service priorities and planning, then demand is likely to continue and lead to disappointment and frustration.

Virtually all technological advances produce a paradox as far as

responsibility is concerned. On the one hand, the increasing complexity and bureaucracy of the health services and the sophistication of the medical technology mean that more decisions are taken centrally by a small number of highly skilled people and there is greater responsibility given to planners, administrators and professionals. On the other hand, the emphasis on consumerism, self care and increased patient knowledge signifies a greater responsibility for the patient. As will be seen in this chapter, the two can go together.

The most rewarding examples of medical advances are those which allow for a normal or near normal life - this can occur in investigative or monitoring procedures, medical treatment or surgery. Antenatal care and obstetrical monitoring is an obvious example. Moving from relatively simple to more sophisticated techniques, there is the opportunity to detect problems at an early stage and to ensure that intervention results in a healthy mother and a normal child. While the benefits to all are obvious, the same and related techniques mean that it is possible to maintain pregnancies that would otherwise have terminated spontaneously and produce babies which, although they may survive, may have serious and multiple handicaps. Thus these new techniques can present a dilemma to the parents.

Antibiotics provide one of the best examples of a group of drugs that provide complete cure in many serious infections, where, after treatment, the patient returns to a completely normal life - a life which without the drug might not have existed or where the effects of the infection might, untreated, have resulted in some permanent handicap. Side effects are relatively rare for most antibiotics. Perhaps the greatest dilemma is not for the patients but for relatives

of very elderly patients who may be faced with the question of how rigorous should be the treatment with antibiotics and other drugs in a frail, confused, bed-ridden relative.

In both these examples, the effective consumer (parent, adult relative) is not always the person whose welfare (or even existence) is at stake (the unborn, the elderly). This adds a further twist to the complex ramifications of consumerism.

The advances in medicine which have so altered professional practice and patient expectations have also drawn attention to some of the limitations of modern medicine. It is often able to intervene successfully in the disease process, but not always to effect a complete cure. Thus an individual may have to cope with a permanent handicap or may require continuing medication to ensure survival. With such conditions a major responsibility for the day to day management of the condition lies with the patient. For many years diabetes has been an example of this partnership in care with the patient assuming responsibility for daily control through monitoring and management of diet, way of life and therapy. Severe renal disease involving dialysis, particularly home haemodialysis or continuous ambulatory peritoneal dialysis, is a more recent example of the vital role of an informed patient taking sufficient care to ensure effective complex management; professionals, patients and in some cases family or friends all contributing their separate but equally necessary expertise.

An inevitable result of powerful and effective medication is the occurrence of significant side effects, estimated to occur in perhaps 10 per cent of cases, as well as the occasional therapeutic disaster. These often receive a great deal of publicity and the fear of side

effects has had a marked influence in reducing the rate of immunisation for certain childhood infectious diseases in Western countries. However, the fear of iatrogenesis seems to have had little impact on the many people who believe that there is "a pill for every ill" and still want a prescription for the most minor complaint and indeed, this is often encouraged by doctors as an easy alternative to spending time, providing information, discussing problems or encouraging the use of simple and safe remedies.

Associated with the complexity of health services, the proliferation of different categories of staff and referral from one agency to another have been complaints about bureaucracy, lack of information and guidance, patients being shunted round large and complex institutions and the impersonal nature of the services. Technological medicine may be seen as cold, inhuman and uncaring but this need not be so and there are many examples where staff have ensured that it is not.

The most notable result of demographic changes in Europe is the increasing number of elderly people, and while most would wish for the ideal - "to die young at an old age" - this is not always achieved. The very frail, both physically and mentally, present an increasing problem for relatives and for the entire spectrum of the caring services. As a result of smaller families, smaller houses, geographical mobility, working wives or daughters and a changed attitude towards the elderly, there is less family and informal community support available. The elderly themselves and their families are faced with dilemmas as to who should assume responsibility for their care, when independence is no longer possible. Sometimes hospital care is necessary, sometimes only help

with domestic duties, but usually there is need for a partnership of care.

In virtually all countries, although there may have been an overall improvement in health as measured by the traditional indicators of mortality and morbidity, there is an increasing demand for resources for health care. This is taking place irrespective of a country's funding system or state of development. At the same time governments have limited funds available (and in some cases decreasing funds for health) and alternative cheaper ways of providing health care are being sought. One possibility is to shift responsibility for care from the state funded services to either private or voluntary care - indeed reversing some of the trends of the past forty to fifty years.

The immediate implication for the patient is that such care may be less easy to obtain, unavailable due to lack of personal wealth, lower quality or dependent on the good will of others. Uncertainty and difficult decisions need to be made by patients in such situations and the patient may be bewildered by the choice of alternatives and lack of information on the quality, cost and humanity of the choices.

Some of the social changes relevant to health that have occurred may be regarded as the opposite of those just described; they put an emphasis on the importance of the individual, self help and participation as in the consumerism movement, an emphasis on the quality and not just the quantity of life and related to this, a belief that prevention is more important than cure. Some of these movements are associated with the wider aspect of changing social values and attitudes and some are specific reactions to perceived problems and concerns in existing health care.

Consumerism

The consumerism movement has been seen in most countries although its exact nature has varied. Generally, there have been two components: the first (usually occurring first) consisting of mass movements mobilising around a variety of national issues, such as civil rights, anti-war movements or ecology, which sought to challenge basic assumptions about the way a country was governed and demanded changes in national policies. The second was 'grass roots' associations springing up from disillusionment with the ability of governments to improve the lot of ordinary people which led to people feeling the need to act for themselves rather than lobbying the state to act on their behalf.

This has been slower to become organised in the health field than in other aspects of social life. At the individual level, there is often fear of being a belligerent consumer - this may be a fear that in a future emergency, patients will be unable to get the help needed or they will be dismissed as troublesome or neurotic and thus this individual dissatisfaction is often suppressed. It is easier at the group level, when individuals with like problems can come together, and there is now a wide range of organisations dealing with issues ranging from patients' rights in hospital, the improvement of finance and facilities for the disabled, better public attitudes to the mentally handicapped and practical support for a whole range of conditions.

Consumerism may be related to the question of rights: demands for care to be freely available and equally distributed; the need for information about oneself or the risks of treatment; objections to unfair and unhealthy advertising such as tobacco and alcohol and the

right to live in an unpolluted atmosphere whether industrial or personal (e.g. passive smoking). Even, as was seen above, the right to live.

The consumer movement has drawn attention to the strength of community action and to the limitations or failings of professional and statutory organisations. This has encouraged people to see health and health services in their community context and has reminded people of the political aspects of health. At the same time these aspects have been recognised by some within the health services and the World Health Organisation has made a notable contribution to the demystification of medical technology and emphasised the importance of community participation in health.

There have been many attempts in different countries to formalise participation in health service planning and administration. In few cases are these lay people truly representative of the community they serve. Many community groups formed to deal with a particular issue are relatively short lived and disintegrate, either when they have achieved their immediate objective or when they realise that it is unachievable in the immediate future.

Quality of life

The question of the quality of life either before or after treatment has been one of great concern to patients and relatives. It is epitomised in the statements that some states "would be worse than death" or "I would rather be dead". This can be expressed at two levels: first, that of the individual patient who decides that the mutilation that goes with the radical surgery to attempt cancer cure is an unacceptable price to pay or that the side effects of massive drug therapy produces an existence that is intolerable; and secondly,

at the professional level, where various scales of measurement have been developed to quantify health or the departure from health in terms of symptoms and functions. While the traditional indicators of mortality and morbidity are still valuable to examine the changes within a community or between communities, more sensitive and wider indexes are now being tested with the emphasis moving towards evaluation not only of the individual components of care but the overall impact of different programmes (Abelin in press).

The biggest problem with most so called 'quality of life' measures is that it is very difficult to know what they are measuring. Since there is no agreed criteria for what constitutes quality of life, such instruments necessarily lack components of validity. A review of studies using quality of life measures to evaluate health care and medical procedures, including drug therapy, will show that, by and large, very different criteria may be chosen arbitrarily according to the values and biases of the investigating team. Thus criteria range from symptoms and side-effects through pain and anxiety to work status and family relationships. Most so called 'objective' criteria involve clinical judgements about normal functioning being essential to a high quality of life, but we now have accumulated sufficient evidence to know that people judge their experiences in relation to their expectations. Certain kinds of limitations and disabilities come to seem normal after time has nurtured adaptation and individuals such as the elderly, who clinically may be judged to have several pathological conditions, will often report themselves to be very well.

Comparisons of value in health-related activities must allow the perceptions of the patient an equal, if not greater, place than clinical values. The patient's subjective assessment may allow more

successful interpretations of the meaning of the impact that disease and treatment have on her/his quality of life, whereas 'objective' indicators may merely be projections of professional mores.

On the other hand, such measures will lack power if they are not convincing in the eyes of clinicians, technicians, manufacturers of drugs and equipment, whose orientation is towards "hard data". Instruments must be acceptable to those on both sides of the intervention at issue for their capacity to enlighten the investigators and their appeal and appropriateness for patients. In general, the greater attention paid to the evaluation of health care implies a greater sense of patient participation in and sensitivity to the dilemmas of treatment and is likely to lead to more open and informed decisions.

Prevention of disease and promotion of health

McKeown (1980) and other writers have drawn attention to the fact that much of our advance in health has been more related to socio-economic, environmental and educational change rather than direct medical intervention. The Public Health Movement and the work of the social reformers in the last century in Britain showed clearly that the individual could make only a small contribution to health and that social action was required to improve dangerous and toxic working environments, open sewers and lack of pure drinking water to name only a few of the problems that were tackled to improve the health of the community.

During this century, with increasing knowledge of the aetiology of many diseases, there has been an emphasis on social and behavioural factors in disease causation and this has resulted in a health

education approach which points to individual behaviour and prescribes a list of do's and don'ts designed to prevent disease. The value of general health promoting measures such as increased exercise, planned relaxation and a balanced diet have also been promoted for less clearly defined departures from health. More recently, sociologists have criticised this 'victim blaming' approach which fails to recognise the close relationship between individual behaviour and the social environment.

3. Consumer and patient responses

Involvement

The general impression resulting from the discussion of the technological, demographic, economic and social changes is that there is a requirement for the individual to become more involved, but this can occur in a number of ways and there are risks as well as advantages in these.

In the past, individuals had a responsibility for their own health care usually as a result of necessity (only the wealthy or educated made use of professional services). Within a community, people helped each other and some individuals became accepted as having special skills, but there was little participation by the majority of people in the development of policy. Today, individuals (sometimes grouping together), professionals and government are all required to be exponents of the principle of participation.

In Britain the government has sought to encourage individual responsibility for personal health, particularly in the area of prevention. In documents such as "Prevention and Health: Everybody's Business" the well known practical steps that an individual can take

to reduce the risks of illness - smoking, diet, exercise, alcohol etc. - are emphasised but there has been little encouragement for active participation in policy and indeed the administrative structure of the health service is such that only limited participation is possible.

Although there is government support for health education directed at the individual, campaigning organisations which seek to tackle alcohol abuse, advertising, cigarette sponsorship of sports or powerful industrial groups get little support from government agencies.

Doctors are divided on participation. Some consider that active participation will lead to an unacceptable doctor-patient relationship, destroying the authority of the doctor and leading to a profusion of alternative therapies and dangerous self-care. Other doctors feel that they should assume an active role in helping the public to accept more responsibility and seek to work with them in providing information, advice and support. Such doctors welcome the new role that this involves and argue that such a partnership will improve health and health care, resulting in greater satisfaction for both professionals and the public.

In relatively minor and self limiting conditions, self care may occur in isolation and may be completely adequate - making use of traditional remedies, over the counter preparations from the pharmacist or planned neglect. At least in such an approach there is usually little risk of side effects. In more serious conditions such as diabetes and renal disease, as already mentioned, self care occurs in association with professional care. Many patients are having to live and work with conditions which require long term care and frequently uncertainty exists as to the balance of responsibility.

Some patients wish minimal help and demand maximum independence, others would like a great deal of support and help. Some either organise for themselves or are given a wide range of support from many organisations while others seem to be left woefully on their own. To achieve maximum self care without undue anxiety in a patient, there is a need for detailed information on relevant signs and symptoms, on treatment, dosages, side effects and monitoring and a point of contact for advice and the assurance that in a crisis, professional help will be easily, quickly and willingly provided. This is well illustrated in renal units, many of which encourage a family or club atmosphere.

With the recognition that so many of the major chronic diseases in Europe are more amenable to prevention than cure, an increased responsibility will rest upon patients - and in many cases parents of young children - for the prevention of disease and the promotion of health. While not denying the link between individual behaviour and the social and physical environment, patients must involve themselves in decisions which affect their future health. In the past it was all too easy for them to point to the uncertainty and confusion in epidemiological knowledge with the resulting contradictory health education messages. Gradually there is clearer, more certain and better presented evidence indicating risks and suggesting alteration in life style, diet, alcohol, smoking, exercise etc. that may help to reduce the risk of illness and which may improve present health.

A similar choice exists with regard to screening or other prevention services. Again there is still epidemiological uncertainty about some procedures but if offered, and shown to be of value, patients will have to decide about acceptance.

Self help and voluntary groups

One of the characteristics of the latter half of the twentieth century is the widespread existence of self help groups, mainly associated with chronic conditions. In some western countries every disease has a group often with local branches and a national organisation. Fellow sufferers come together to provide detailed, relevant and practical support to each other, sharing an expertise that is different from that of the professional in that it comes from personal experience. The group ensures a sense of belonging in an atmosphere where the individual will not feel different. Some individuals gain from such groups, others do not and much depends on the particular organisations which are enormously diverse in aims, objectives, rules, activities, etc. However, they can help to overcome the bureaucracy found in health services, the lack of family contact and the limited help that can be given by professionals who do not suffer from a condition and who find difficulty in understanding what it really means.

Two of the main features of self-help groups are firstly, that the problems or illness concerned are of some gravity and secondly that the group has the potential to help overcome some of the isolation, the anxiety, uncertainty or frustration caused by that problem. A further characteristic closely linked to these is that those who have passed through the crisis period and are back on an even keel, or have learned to cope with the chronic problems of a condition, still feel sufficiently strongly about their period of suffering that they are motivated to help others in the same situation. This may be either a feeling of bonding together against a common enemy or a sort of parental protective attitude. Those who have suffered in the past

often have a desire to turn a potentially negative experience into something positive by building on their experience and doing something constructive for others in the same position. They feel that their contribution is unique, that it constitutes an expertise, one which is outside the scope of professionals. This means that although all members have the same problem, they are at different stages and this lends optimism, some expectation of progress to those in deepest difficulty.

It is difficult to categorise groups since many have overlapping functions but a group will tend to emphasise one or more of the following:

- provision of support, comfort and "therapy" for members
- practical provision of care, courses, educational materials, etc. not elsewhere available
- pressure group activities which seek change in national or local policy.

Although directories of these organisations are usually available, nationally and locally, they are often not well known to either health professionals or members of the public. Many produce excellent educational publications and some of the material has been used to influence professionals in training as well as altering professional attitudes to participation. Self help and voluntary groups thus represent an important aspect of and potential for patient involvement in health issues.

Primary care

Throughout the world, the emphasis is being placed increasingly on the centrality of primary care and experience has shown the value of a comprehensive and continuing primary care system involving a team of

professionals with different skills, with the individual patient being accorded a role as a member of the team. Levin (1976) believes that the lay person should be regarded as the primary health care practitioner and that an enhanced role for the patient can lead to improved efficiency of the health care system and reduce much of the widespread public displeasure and criticism that occurs in most countries.

In Britain, attempts have been made to encourage the patient to become a member of the team by having patient-held records, shared care and practice associations which encourage active participation, plan health education and support of various kinds. Starting with a few enthusiastic general practitioners in the mid 1970s, the concept of patient participation in primary care has been translated into practice in a number of health centres throughout Britain, with a national organisation which provides for exchange of ideas and support to individual groups. The overall aim is simple - "to open a channel of communication between patients and doctors". Patient groups have received the support of the Royal College of General Practitioners, and indeed the Royal College of General Practitioners has been the first college to establish a formal patient liaison group. Such innovations may well act as a stimulus to other doctors and patients to establish groups and these in turn may enable better communication and participation at the level of individual care in general practice.

Social policy issues

The main discussion so far has been on individual responsibility but with increasing recognition of the societal and environmental influences on health, there is a responsibility for collective action

to bring about change. This is likely to involve all levels - local, national and international - and involve patient and non-patient groups. It may involve collective action to press a local authority to improve the physical environment - water, sanitation or poor quality housing; to encourage an office canteen to serve a wider and healthier choice of food; to form a pressure group to lobby for fluoride to be added to water supplies to prevent tooth decay; and to work with fellow trade union members to reduce toxic substances in the working environment.

4. Conclusion and the way ahead

Although the exact details are uncertain and indeed patterns will develop and change, if maximum benefit is to be obtained from technological developments and if priorities are to be determined according to the needs and numbers of patients (and surely that must be the purpose of a health care system) then a more responsible, informed patient, both for individual care and working together with other patients for policy decisions, will be required. A patient who can assess information, make appropriate decisions and is allowed to participate as a partner. Increased patient responsibility, self care or self help must not be used as an excuse to cut the provision of necessary health services, although it may be necessary to have an agreed alteration in balance between the different forms of care - to ensure better not cheaper care.

Changes will be required in both professionals and patients. Professionals will require new skills to enable them to be better educators and to be prepared to cope with the discussions and questions that will ensue. They will have a new position - more advisory, rather less authoritarian, more educational, less

instructional and on an equal basis reaching agreed decisions with the patient. The patient in turn will have to assume greater responsibility for decision making - less of a patient, more of a provider of care, less layman, more of an expert.

Better preparation for these new roles will be required. For the professionals (all categories) this will begin in the training establishments and might be encouraged if there was more multi-disciplinary education. For the patients it will begin in the home and continuing education for health will become a life-long process, with an important and formalised health education contribution in the school curriculum. Organisations such as the College of Health in Britain are setting out to provide a focus where patients and professionals can help each other to a better understanding of health and health care and in particular, making it easier for patients to make choices, based on easily available information.

Health by the people is still a long way off. WHO has done much to change the thinking of professionals throughout the world but there are still too few programmes where it has become a reality. Many professionals and members of the public seem unable to do more than pay lip service to it. Articulate, well educated people and those who belong to self help groups achieve much, but more community experiments are needed to see what are the most effective forms of involvement in different countries and for different aspects of health and health care. This is in accordance with the philosophy embodied in Health for All by the Year 2000 and the key aspects in all countries of relevant primary health care, when consumers "participate individually and collectively, in the planning and implementation of health care" (WHO 1978).

5. THE DOCTORS' PERSPECTIVE

J. F. Lacronique

The middle of the twentieth century will, in retrospect, be seen as an era of exceptional growth of the economy, that had a strong influence on the behaviour of many professionals. In the field of health the consequences of sudden wealth, in a sector where there was immense demand and the possibility of dealing with a consumer who would no longer be the payer, drastically changed the image of health and of health professionals in the public's mind. From a leading position, ranking first in the polls of all social expectations in the 1960s, health is no longer a major preoccupation. In France, a nation-wide poll organised regularly shows that health now ranks 4th in priority, after the protection of the environment, a better and safer daily quality of life and an improved economic situation for households.

Various studies suggest that health care was until the end of World War II unformalised (like religion), and that technology has been the key to an evolution which transformed it into a highly formal field of activity. Because technology has high costs and requires specialised (and organised) training, the cost of health services can no longer be supported by individuals. The relationship between doctors and patients is no longer that of transactions between a consumer and a producer, but a more subtle bond in which money has been largely taken away. Paradoxically, at the same time that health care has become very costly, the consciousness of its price has faded for both the provider and the consumer, leaving it to a third party payer. Because of unlimited demand, some sort of planning had to be applied to

distribute resources devoted to health.

This evolution has had major consequences for professionals that are not well documented, and most of what is happening in the field of health is a process in which the professionals have not played an active and cooperative role. This chapter attempts to analyse the participation and the adaptation of the doctors to this changing scene.

1. Health: from a protected area to an open field

For almost 30 years, the image of a sector that enjoyed special privileges prevailed in health, as illustrated by an unprecedented financial collective effort: new machines, new facilities, new positions for highly trained professionals spread around most of the countries of Europe, at a time when there was money available to meet the expectations. At the same time, technical advances such as the CT-scanner, nuclear magnetic resonance, molecular hybridation, opened up the field of health to all scientists: the "biological revolution" started in this period and is still in full swing. Health became a fast growing industry, and there was an almost general consensus until the early 1970s that the rate of growth in that sector had to be higher than that of the general economy.

The first alert came from sociologists: Ivan Illich questioned the legitimacy of this fast growth in expenditure (Illich 1976), pointing out that it was not followed by a corresponding progress in quality and quantity of life. Economists had already become interested in health care costs: Martin Feldstein's book on the cost of hospital care opened a series of severe criticisms over the use of hospital services, pointing out that there was in health an unlimited demand for services that could be artificially stimulated by the availability

of resources (Feldstein 1967). A few years later, Victor Fuchs widened the debate in terms of equity and quality of life, showing that the amount of resources devoted to health care would in a short time confront doctors with ethical dilemmas (Fuchs 1974).

From the United States, health economics spread around Europe: the first oil crisis and its consequences on the economies of all industrialised countries gave to the politicians the opportunity to take measures for containment of health care costs. By 1980, almost everywhere, various types of regulatory mechanism were in place to curb the fast growth of health expenditures.

In the summer of 1982, the general consensus among economists and politicians from all over the world convening in Versailles for the summit of industrialised countries was that inflation was the first parameter to control. Even in socialist France, priority returned to reducing public expenditure as in almost all countries of Europe.

2. The changing pattern of diseases

Doctors are experts: the legitimacy of their role derives from the knowledge they have acquired through a long education process and through professional experience. The years 1960-1980 have been marked by an unprecedented evolution in the sciences that support medicine. The revolution in the imaging of the body, the new molecular approach to disease and pharmaceutical advances have fragmented a hierarchical organisation that was derived from the anatomy of the human body (specialties by organs like cardiology, nephrology, neurology ..) and the extreme ages (paediatrics, geriatrics ...). Another scientific tool, epidemiology, has invaded all the specialities, rocking the boat of acquired experience and forcing doctors to accept the idea of

uncertainty and probability.

The consequence is a gap that separates practitioners and researchers. The current trend is towards a widening of this gap, exaggerated by the consciousness that medical education does not prepare a general practitioner to play his professional role well. Not only does the doctor not see in his professional life the kind of disease he has to learn to analyse and treat with sophisticated methods but he is often not prepared to deal with an organised health system, to help patients seeking medical advice to maintain health, or to solve psycho-social problems.

One problem in many countries of Europe is the relationship between the hospital and the general practitioner. In many countries, the separation between specialised care and ordinary care is not well accepted by doctors. A new aristocracy has been born, partly protected by the walls of its castles and manors (the hospitals) but the rest of medical practice has not taken part in the "scientific revolution of medicine" and reacts to that isolation.

3. Consumerism, malpractice, and "soft medicine"

In marked contrast with the steadily rising curve of malpractice in the United States, patients in Europe show less dissatisfaction: the physician's services are still well appreciated, despite the voices of the sceptics.

In some countries, the consumer movement has tried to have an impact on physicians, with minor success. In France, for example, a series of books published around 1975 criticised openly the perverse influence of the pharmaceutical industry on doctors. In 1978, a consumer's association even organised a "blind test" of a sample of 12 physicians with a journalist who had a sore throat: the inquiry was

published in the general press, with the names of the physicians, illustrating large variations in medication and sick-leave prescribed. This affair stirred a fierce controversy among the medical community, and seemed to announce what was called "the end of immunity" for doctors. But there was no further development, and the consumer associations took instead an interest in the "holistic approach" to the individual.

An unexpected reaction to the emergence of epidemiology that bases its reasoning on groups as opposed to "individual cases" has also had consequences. A new trend is appearing among family practitioners, which claims that doctors have to take care of individuals, and not of statistical events. They openly question the "technocratic approach" used by the planners.

As part of this trend, a number of professionals have become interested in a variety of approaches that emphasise the care of the individual, arguing that the majority of current medical problems are combinations of sociological, psychological, and somatic problems that are uniquely specific to each case. As a consequence, the demand for acupuncture, homeopathy, sophrology and other "soft medicine" is growing very fast, and a large number of young doctors now try to offer services of this kind.

However, the causes of this trend are not merely philosophical but also economic: in a market that is saturated, a natural adaptation for survival is diversification, and it should be emphasised that apart from the exploitation of all the "traditional medicines", an amazing number of new "theories" are currently proposed: auriculotherapy, aromatherapy, group-therapy, musico-therapy, etc.

4. Primary health care in Europe

The fostering of primary health care, stimulated by WHO, has been one of the most controversial issues in the past five years. In France, the idea was applied in two cities (Grenoble and La Rochelle) where several salaried physicians offered free health services and educational programmes in health and prevention. Financially, it was never obvious that the experience was beneficial to anyone, and the majority of the physicians in France criticised its ideology on the grounds that it created biased competition with private practice and had no concern for the quality of care.

The French socialist party, through its health branch "Association Socialisme et Sante" (socialism and health) built a holistic concept of community health services, greatly inspired by the Quebec experience of "centre locaux de services communautaires" (CLSC). The idea was to create community centres where all kinds of community services could be grouped, including social workers, dentists, nurses, and psychologists, under a financial scheme of contracts for "programmes" that were supposed to be financed by the socialist government.

In theory, this project was felt to be most attractive and could even have been the core of a complete change in the ideology of the French health care system, based up to now on pure liberalism. France was even the site of a European Conference held by WHO in June 1983 in Bordeaux, where plans for a large expansion in this field were discussed. However, the different projects were postponed year after year, on the excuse that "it was too important to be implemented at once".

The failure of primary care in France can be analysed in the

European context: in most of the EEC countries, the number of physicians and health professionals has grown to a point where supply far exceeds demand. In France, in Italy, and in Germany, for example, a young doctor has to wait several years before making a living from his profession.

The creation of new health institutions is therefore not welcomed, since the system suffers much more from over- than from under-development: the real issue is to reallocate resources, rather than to create new facilities, and the concept of primary health care is one that is regarded by some to show the way to health 'for the people', on the model of primary teachers in education. Moreover, the image of public institutions has declined in the mind of the general public in many western states, and no government would dare to introduce unpopular reforms that would yield very minor benefits. Primary health care in Europe remains to be invented.

5. Doctors and the bureaucracy

At the end of World War II, several European countries built social security systems that were inspired partly by the German Sickness Funds and partly by the Beveridge concept that led to the National Health Service in Great Britain. The variety of systems derived from the initial concept of health insurance is amazing: at a time when almost all the concepts of management in all sectors of the economy tend to be similar across cultures, political and ideological systems, health insurance is still completely different from one country to another. The British and the Italian systems are nationalised, but there is still a large and active private sector in Italy in contrast to the United Kingdom where the large majority of physicians belong to the National Health Service. The French and the Belgian systems

combine freedom of private practice for doctors and good coverage for patients through a national health insurance system that reimburses the patient's expenses. The German system is complex and highly decentralised, and gives doctors much more power to bargain with numerous "Sickfunds" than in any other country. German physicians still enjoy the privilege of high incomes, which is tending to disappear in the rest of Europe.

These differences make international comparisons very difficult and risky, and comparisons tend to illustrate much more the historical trends and cultural values in each country rather than a continent-wide pattern.

At the onset of the creation of social security systems, doctors were suddenly confronted with the bureaucracy: they had to register with a new administration, work to a fee schedule, and put up with a tangle of red tape. Doctors sometimes resented this tutelage very bitterly and the negotiations over fees were very often the cause of strikes and demonstrations, in Great Britain, in France, in Belgium, in Germany, in Italy. In most of the cases, with the main exception of Great Britain, it was the social security administration that was under fire and the Government could maintain its role as an intermediary between the professionals and the bureaucracy.

However, this is now changing to some extent. For example, the first years of socialism in France have been marked by several strong demonstrations that were directed against the government, and this occasion showed a complete change in the image of the social security administration. It was no longer seen as an enemy but as an ally, a guarantor of stability of the system. The government was forced to call on "mediators", a group of individuals who would propose

acceptable changes in the health sector.

The primitive intention of the socialists was to simplify the system of social security, making it one unified scheme, thus dissolving or amalgamating the numerous small programmes. After the 1983 strikes and demonstrations there was no further attempt to achieve that goal. In November 1985, at the 50th anniversary of social security, the President of France declared that there would be no change in the structure of social security. This declaration put an end also to several propositions made by different groups, largely inspired by the US experience of HMOs, that would stimulate competition between different health insurance plans.

6. Doctors and health economics

Economics has never been a subject enlisting the enthusiasm of the medical profession. There is even a large portion of it that thinks that doctors should be protected from all economic influences on their decision-making process and that price consciousness would have severe adverse effects.

In most countries of Europe, attempts to make doctors more interested and aware of health economics have been made. They have had minor effects so far, since the social security system allows both the provider of services and the consumer to neglect price. This absence of sensitivity to price could change in the future: in Germany, for example, the introduction of generic drugs, which serve to set the prices for reimbursement by the sickfunds, shows that there can be indirect influence on doctors to make them price sensitive.

Systems based on the US "Diagnosis Related Groups" (DRGs) have recently been proposed in most European countries for hospital care.

Such systems are supposed to help to link more closely the real nature of the disease and the type of services delivered through a prospective payment that is specific to the diagnosis, in contrast with the classic fee for service cum per diem reimbursement. Although widely piloted, these systems are still experimental in Europe and are not yet utilised as payment mechanisms by ministries, being used only as information systems.

7. The public/private mix

Many European health care systems respect pluralism of practice, thus allowing the private sector to participate on a for-profit basis in the provision of care. This is the case in Germany, France, Spain, Greece, and to a minor extent, the United Kingdom and Nordic countries. In most of these countries, a set of regulations has been enacted to avoid wasteful competition and to achieve a balance between the public and the private sectors.

This issue has always been a controversial one, each sector having its own critical views of the other. Periodically, attacks from each camp are displayed in the press when a government tries to express a preference for one or the other (the private insurance sector in the UK, the public hospitals in France, for instance). However, very little adaptation is possible through public policies, since proposals for change open immediately a very complex public debate that blocks any decision. Much more subtle is the takeover of private clinics and institutions by private international groups. Such investment in European countries shows that large financial companies are prepared to take the risk of large scale development of the private sector for the future.

8. Doctors and the education system

Medicine is reserved for a selected number of students and the medical education system is by tradition elitist. The story of the recent change in the French education system is an interesting case study illustrating the current issues that exist in most countries in Europe, namely medical manpower planning and coherence between systems.

During the past ten years, the French government has been committed to reform medical education to make it compatible with the other educational systems in the EEC countries. The treaty of Rome stipulates freedom of movement in all the EEC member states and this freedom applies to medical doctors, as long as they have similar educational backgrounds.

But the French system of education had a special feature that made it incompatible with the other systems: there were in France two different ways of becoming a specialist. One was to compete for public hospital positions in local competitions organised in about 20 large cities of France. The leaders of clinical medicine have been selected almost without exception through this process. The second was the University. The quality of the diploma is not as respected as the first one and is available primarily for private practice. Traditionally, in clinical specialties, an intern was automatically granted his qualification after having completed only his internship, without a University examination.

This dual system was unique in the European Community, and it was therefore impossible to make it equivalent to any European diploma. Reforms were necessary that would match the French education system to the others. Hospital training and university courses had to be

combined in a single system, with a selection process that would be national, in order to facilitate exchanges between cities and countries.

This modernisation of the French medical education system was deemed necessary in the early 1970s. As in most countries, however, two ministries are in competition for the management of medical education: the Ministry of Education and the Ministry of Health. Good manners in administration do not last very long, and the two ministries showed no agreement about the overall philosophy of the reform and the issue has for 15 years been a matter of public dispute, leading occasionally to the ousting of Ministers of Health. In October 1983, a strike started that lasted about two months, culminating in the resignation of the communist Minister Ralite. The reform that was then adopted was even more conservative than that inherited from the previous conservative Government. After this bitter episode, there was no more trouble and the new education reform in France is now functioning without any marked difficulty.

The size of the medical profession is also a matter of controversy within it: the large expansion of the health field between 1950 and 1975 suggested that there was an almost unlimited demand for doctors' services. The number of medical students in France, Italy, Spain and Belgium grew steadily until the first signs of over-production appeared. But the doctors' associations were the last to admit that measures should be taken to control numbers. In France, the government was much criticised for organising a drastic drop in the number of students from about 10,000 new doctors per year in 1978 to less than 5000 in 1984. However, this adaptation to the needs of the population will be effective only in 1995. Until this date, the

number of doctors in France will grow to 3 per 1000 inhabitants (190,000 for a population of 55m). It should be added that the European dimension and the possibility of setting up practice anywhere in Europe with an EEC diploma has not had much influence so far. The exchanges between countries have been very limited and no great upsurge is foreseen.

9. Doctors in the hospitals

Over the past 10 years, there has been a general debate over the possibility of better productivity in hospitals through organisational changes. In some countries like France, the debate on productivity has centred on organisational issues. Following the Anglo-Saxon example, a law was enacted in 1984 to allow a switch from "service organisation" to "departmental organisation". This would mean more flexibility in the management of hospital beds. By "department", the French refer to a system where the senior manager would no longer be the unique owner of his facilities, but would share with others the responsibility of common resources. The socialist government tried to adapt the US model and proposed a system that would separate functions and grades of physicians in hospitals. According to the law, a manager would no longer keep his mandate for a lifetime, but would be elected by all his staff on a temporary basis. A boycott of this law was organised by the majority of hospital doctors and the Government did not try to make it stick.

The introduction of computers marks both technological and managerial progress and has been important not only within hospitals but also in physicians' offices. Computerisation in hospitals has extended diagnostic tools - e.g. electronic imaging - but also may influence treatment - e.g. expert systems for drug prescription. The

case-based processing of patient data in new hospital information systems may not only serve administrative purposes such as reimbursement or planning but also improve the availability and quality of clinical data and information important for allocating patients to treatment strategies. As with all innovations, the desirable scope of computerisation should be explored by economic evaluation of costs and benefits.

10. Conclusion

In most European countries, doctors have been forced to live with the consequences of policies that have never been correctly explained to them. France, Greece and Spain, three countries that have recently experienced socialism, have shown that a new government ideologically favouring public intervention in health has not been inhibited from introducing drastic regulatory mechanisms. But these experiences show also that no attempts have been made to make major changes in the health system or to nationalise private medicine.

The priority given to the general economy is prevalent everywhere, thus restraining further social advances. From the 23 per cent annual rate of growth in health expenditure in 1980, the French health care system saw its rate of growth reduced to less than 8 per cent per year by 1985. The wages of private physicians, the prices of drugs, hospital budgets were all severely controlled, and their rate of growth has not kept up with the inflation rate. This policy is, of course, not popular but is accepted as inevitable by public opinion. In this evolution of the image of health care, doctors feel they are left on the side-lines and react as victims of Realpolitik, passively accepting the commitment to cost-containment.

No real commitment to health policies has been shown by the doctors and this distance between a profession and the system in which it is included is intriguing and deserves attention. A field of activity where the professionals do not play an active part in the evolution of their discipline is at risk of internal and external conflicts, and ultimately of decline. A mutation is necessary and the "mutants" would have to be doctors that adapt to the forces at work in society. Since doctors are scientists trained in different disciplines pertaining to their practice, it is time that the social sciences as applied to health, including epidemiology, economics and sociology, were included in medical curricula on an equal and fair basis.

6. THE HEALTH SERVICE SUPPLY INDUSTRIES' PERSPECTIVE

D. Nord and D. Sierp

This chapter examines the problems and opportunities that technological progress is causing in health service supply industries as exemplified by the pharmaceutical industry. It concentrates on a set of issues encompassing such areas as drugs research, marketing and the implications of regulatory procedures. In order to explore these issues in depth, the chapter illustrates its arguments primarily by reference to the pharmaceutical industry in the Federal Republic of Germany.

In the last ten years the general climate in the pharmaceutical industry, a major representative of the health service supply industries, has undergone drastic change and has been subjecting manufacturers to increasing pressure. Rising development costs and typical development periods of 8-12 years demand from industry increasingly higher research and development investments, which are associated with ever higher risks because only an extremely small proportion of new developments have a real chance of penetrating the market.

The development of drugs so far has been characterised by a predominance of empirical experience and serendipidy. In most cases the search for a new active ingredient begins with the variation in the chemical structure of a so-called "leading substance" about whose properties there is sufficient information and from whose further development is expected improvements such as an increase in the main action or a reduction in the side effects. However, in the case of most of the active ingredients found by this method, development is halted after testing the chemical on animals and in toxicological

studies. In an investigation (Thesing 1983) carried out by the researching drug companies in the Federal Republic of Germany it was shown, for example, that in the period from 1977-1981, only 305 development projects were pursued out of a total of 121,769 research substances. Of these 305, a further 267 substances and development projects were omitted from further investigation for various reasons. If, after all this elimination, there remains an active ingredient which can be introduced into therapy, a total of around 6,000 to 10,000 substances will have been resynthesised.

At present the average period of development of a drug with a new active ingredient is 12 years, but in the 1950s it was a maximum of 3 years (Nord 1984). This increase may be explained by the fact that at that time the number of substances which had to be synthesised for a successful clinical new development averaged 1,200, thus the "success rate" was much higher than it is today, when it is incomparably more expensive to find new active ingredients because of the large number of substances already found.

In general, the development of a new drug results from the accumulation of information and experience rather than from the application-related derivation from theoretical knowledge. Indeed, the pathogenesis of a disease against which the drug found can be used cannot always be correlated with the action mechanism of a substance. Perhaps the best known example of this is acetyl salicylic acid, whose action mechanism was not recognised until decades after its introduction in therapy, and where significant effects are still discovered occasionally in fields which have nothing to do with their original indication range, e.g. thrombocyte aggregation inhibition.

If it is assumed that in any discipline the source of innovations

is mainly theoretical knowledge, and that this knowledge indicates the degree of advance of a discipline, then drug research, laden with empirical experience, may be considered a young, "immature" discipline, despite its successes (Bell 1976). This identification of drug research as an empirical discipline is important for evaluating its results and assessing measures for promoting or controlling research. Probably this situation will change very little as long as biomedical research fails to develop new models and concepts for the etiology of diseases. Until then the probability of research success will remain dependent on the quantity of the newly synthesised chemical substances. Thus the greater the number of substances passing through the screening, and the more expensive and more frequent the clinical trials, the sooner the discovery of an important innovation can be expected.

1. Parallel developments of drugs

Criticism is being levelled at so-called parallel research. By this is meant that several researching drug companies invest, independently of each other, in a particular indication area, sums which in the final analysis have to be raised from the consumer through the prices charged for the product. Table 1 (Landesarztekammer Rheinland-Pfalz 1984) gives an indication of the high percentage of parallel developments ("me-too" drugs) in the German Federal Republic.

Parallel research must be reflected in higher prices, regardless of whether one company is successful and the other is not. For it is necessary, for reasons of business economy and as a result of the miscalculation characteristic of this industry, to absorb the costs of the research failure, i.e. to charge extra for the products included

TABLE 1

Licensing of drugs in the German Federal Republic 1978-1981

	1978	1979	1980	1981	Total
Total number	105	362	460	233	1,160
Monopreparations (%)	77.1	77.6	73.5	70.8	74.6
Combination preparations (%)	22.9	22.4	26.5	29.2	25.4
With new substances (%)	40.0	37.8	37.8	28.3	38.1
With known substances (%)	60.0	62.2	62.2	71.7	63.9

Source: Landesarztekammer Rheinland-Pfalz (1984).

in the range. If both companies were to be successful and each could offer a comparable product at the end of their research work, this success is also more expensive than if only one company had achieved it but the other had not been active in this field of research.

Parallel research is often equated in political debate with the wasting of scarce resources belonging to the national economy. In order to end this squandering in favour of the consumers, government economic policy in this area should have a direct bearing on the decisions made by companies (Rosenbrock 1979). Unfortunately there have been no indications so far that such control will have an advantageous influence on the research results. Indeed, there are influences operating in the reverse direction. In France, for example, drugs with a new active ingredient are automatically considered to be better by the health insurance companies when determining reimbursement. This gives encouragement to bring on to the market new active ingredients which have no advantages or only marginal advantages over the previous standard therapy.

In countries with central planning, research is concentrated in particular companies and is aimed at specific indications. There is no parallel research, nor any identical drugs from different manufacturers in the industry. Against the background of the lack of success of this approach in identifying new drugs, the success of this research control must be questioned. If it is assumed that substantial useful effects may be derived from the use of new effective drugs, it must also be assumed that considerable benefits will be lost because of the low success rate of drug research organised on the basis of a planned economy.

It is not the expensive variety of innovation-oriented research but

the fact that the pharmaceutical industry has made a rational decision to be content with very little that has proved to be innovation-inhibiting when comparing drug research internationally.

2. The costs of drug research

Next to the aviation industry, the pharmaceutical industry is the most research-intensive sector. With almost 100 per cent self-financing, the researching companies in the pharmaceutical industry in the Federal Republic - and this also applies in the USA (PMA 1980) - spend up to 17 per cent of their turnover on research and development. There are critical turnover and company size limits below which there can no longer be any question of drug research in terms of the discovery of new active ingredients. In the future, it will be even more the case that successful research in the drug sector will require considerable risk capital, and in the long term will probably only be carried out by large companies. Thus in Germany, for example, in the period from 1961 to 1981, only 26 of over 500 member companies in the Federal Association of the Pharmaceutical Industry developed at least one new active ingredient to marketable quality. The critical company size for active ingredient orientated research is currently estimated at at least DM100m turnover per annum, which around 30 companies are now achieving in the Federal Republic (Nord 1982).

Seven large chemico-pharmaceutical companies in the Federal Republic spent around 60 per cent of all German research expenditure, the sums amounting to DM1,048m. However, these companies represent only a domestic market share of below 30 per cent (Thesing 1983). Because of the high research expenditure, drug research in this country must to a large extent be financed through sales abroad. The domestic market

alone is insufficient to achieve the further successes expected from industrial drug research.

Today financial expenditure in the Federal Republic on the discovery of an active ingredient suitable for therapy is around DM150m. In the USA, but also in Great Britain, this cost is estimated to be even higher. Research costs are probably one of the most important reasons why pharmaceutical innovations, ready for introduction, are deriving increasingly from the laboratories of the pharmaceutical industry and less and less from the universities. However, university research can act as a pioneer of developments which are taken up by the pharmaceutical industry and processed into marketable products. The preparation for therapy of penicillin, discovered by Fleming in 1928, is just as worthy of mention here as current efforts to discover technologies for the low cost manufacture of interferon, to which scientists at the National Institute for Medical Research in London drew attention in 1957.

3. Official control and length of development

In the Federal Republic - as also in other countries - the requirements for evidence of safety increased dramatically at the beginning of the 1970s as a result of the thalidomide catastrophe. Various national and international guidelines on the testing of drugs led to a situation where the period of development for a drug with a new active ingredient was noticeably lengthened. In 1964 the period of preclinical trials, particularly toxicology, was a minimum of one and a maximum of two years, but in 1981 the time for this phase was a minimum of two, but a maximum of ten years (Nord 1984). The same applied to clinical testing. Whereas a minimum period of 1.2 and a maximum of three years was required for this in 1964, the time

required in 1981 was a minimum of two and a maximum of nine years.

There has been worldwide criticism from manufacturers and scientists working independently of industry that numerous requirements and regulations of the licensing and monitoring authorities are no longer oriented towards the requirements for the safety of patients but rather towards bureaucratic administrative and control requirements. For instance, the American monitoring and licensing authority, the Food and Drug Administration (FDA) is being subjected to a great deal of criticism mainly to the effect that the FDA is retarding progress through the bureaucratic processing of licence applications and is making drugs more expensive by artificially extending the development period (Grabowski 1976). It has now been shown that the additional requirements laid down by the FDA regarding evidence of safety increased the costs of only nine researching companies in 1978 by $117m (PMA 1981).

An impressive example of the increase in the number of documents required by the FDA for the licensing of a new drug is given by the following figures (Sadusk 1973):

- In 1938 the FDA was still content with a 27-page accompanying letter from the manufacturer Parke-Davis to the FDA for the licensing of an adrenalin preparation.
- In 1958 two 439-page volumes were required for the licensing of "Pavon suspension".
- In 1962 the licensing application for "Norlestrin" covered 12,370 pages in 31 volumes.
- In 1969 72,300 pages in 31 volumes were required for "Ketalar", and
- finally, in 1973, the Norwich Pharmacal Company delivered 456 volumes of documents to the FDA, weighing 1.5 tonnes altogether,

for the licensing of "Dantrium".

The cost of preparing and issuing such documents is increasing too rapidly for the companies to adapt their research budgets to this growth. This is forcing down the proportion of funds which can be used for discovering active ingredients. Meanwhile it is becoming clear, even in Europe, that this process is having an inhibiting effect on innovation in drug research.

4. Drug marketing

The pharmaceutical industry in the USA, as also in the Federal Republic, spends more than any other industry, related to turnover, on information and advertising for its products. In 1982 just under 20 per cent of the total costs of the German pharmaceutical companies was spent on drug information and advertising (BPI 1985). 15 to 20 per cent of the turnover spent on advertising is considered high. An examination of the so-called media mix, i.e. the combination of information media, clearly shows the problem in comparing the drug industry with consumer goods such as coffee or cigarettes. It is not newspaper advertising, so prominent in consumer goods advertising, which dominates the marketing mix of the pharmaceutical industry but the use of drug experts. Among the 40 most advertising-intensive pharmaceutical manufacturers in the Federal Republic in 1981, the drug experts took a 70 per cent share of the total advertising costs, newspaper and magazine advertising 23 per cent and direct mailing 7 per cent. The strong emphasis on the use of drug experts and consultants takes into account that because of the special requirement for information on drug products, written communication alone with the doctor is not sufficient to make him aware of the peculiarities of a

specific therapy. Moreover, drug consultants are not confined to western industrial countries; their use is also considered important and necessary in socialist countries (Richter 1983).

At present there are probably around 12,000 drug consultants, a personnel cost block which is forcing up the costs of information and advertising enormously and which is therefore contributing decisively to the very high proportion of total turnover represented by information and advertising. The much-used term "scientific information" for which the drug consultant stands must of course be seen in relative terms. For scientific information would mean that the drug consultant would also mention and discuss with the doctor the progress being made in a certain field or range of indications, progress not derived from his company if, for example, a competing company brought on to the market a significant, superior innovation. Understandably the drug consultant will in these cases try to convince the doctor of the advantages of the product range he represents, to help avert the loss of market share.

What is currently the most important question, namely the extent to which the consumption of drugs and hence the drug expenditure of statutory medical insurance are influenced by information and advertising, has not so far been satisfactorily answered. The question of whether intensive information and advertising can accelerate the speed at which new drugs are put on the market must also remain open for the time being. It is interesting that the stock of drugs of the average British doctor is much more recent than that of his German colleague (Rahner 1973), i.e. new products are accepted more slowly by German doctors. Of the 25 leading preparations being marketed in the Federal Republic in 1981, for example, only three were

more recent than 10 years; none of the intensively promoted new rheumatic and cardiac drugs was able to shift the market leaders, some of which were over 10 years old, from their position.

The prescription behaviour of doctors is being subject increasingly to social and environmental influences and general regulations. Efforts to reduce costs in the health service may be considered as such just as much as certain adjustments being made in the drug market, e.g. the existence or non-existence of positive lists (a list of drugs subject to refund). As far as the former is concerned, it is becoming clear that the need for savings in the drug sector is also being expressed increasingly by doctors, and is therefore running counter to the intentions of drug information and advertising. As far as the example of the positive list is concerned, Austria has had some interesting experience of this (Nord 1982).

Although the pharmaceutical industry in Austria spends far less money on information and advertising per doctor than in the Federal Republic, new preparations which have been included in the positive list are prescribed more quickly by doctors than in the Federal Republic. The preparations appearing in the positive list obviously appear to the Austrian doctor to be products which almost have the recommendation of the medical insurance companies in Austria for use in therapy, which obviously accelerates the speed at which they are accepted.

These examples show how fraught with problems overall assertions can be that drug information and advertising promote drug consumption or accelerate the speed at which new products are accepted. Since the action or behaviour of doctors is oriented not only on the basis of their own motivations and preferences, but also on the stipulations of external bodies, an analysis of the influence of the latter is at

least as important as an analysis of the influence exerted by information and advertising. A materially shrinking drug market, with continued rises in the costs of information and advertising in the Federal Republic, appear to lead to the conclusion that the potential of these external bodies for exerting influence is increasing compared with that of drug information and advertising. The drug information and advertising, direct mailings, visits by drug consultants, etc., regarded by doctors as increasingly annoying and disturbing, must be explained by extremely intense competition among manufacturers for market shares, at least in the Federal Republic, in the light of shrinking markets.

The conclusion, however, namely that there is competition, is disputed by numerous authors because not only are drug prices in the Federal Republic high compared with the rest of Europe but the growth rates or rates of price increases abroad are in some cases far lower than in the Federal Republic. Except in Great Britain and Switzerland, drug prices are lower in all other European countries than in the Federal Republic. However, lower drug prices abroad do not necessarily indicate keener competition among the manufacturers in those particular countries. A look at the external influences, e.g. official and quasi-official regulation and currency differences, might provide a plausible explanation. Firstly, the Federal Republic is the only country in Europe with a free drug pricing policy not subject to the control of competent authorities. Secondly, the decline of almost all foreign currencies except the British pound and the Swiss franc relative to the Deutschmark has in recent years led to a situation where the differences in prices have increased continuously to the detriment of the Federal Republic.

The extent to which currency fluctuations affect the differing price level is shown in a comparison of Great Britain and the Federal Republic. In 1965 drugs in Great Britain were on average over 30 per cent cheaper than in the Federal Republic (Bingemer and Dinkel 1976). In the period from 1970 to 1975 the British pound lost about 60 per cent in value relative to the Deutschmark. The strengthening of the British currency towards the end of the 1970s then created a situation where drugs in Great Britain are now more expensive than in the Federal Republic (BPI 1985).

5. The economically useful life of drug patents

In most western European countries, patent protection for drugs now lasts 20 years. Until 1978 it was limited to 18 years. In addition to method/process protection, there is now also material/substance protection, the protection of even genetically varied micro-organisms, and the protection of the substances which can be obtained by means of these micro-organisms. In extending the patent protection to 20 years legislators have recognised that the economically useful life of patents has been reduced by the longer development period required for new active ingredients. Meanwhile, however, drug research has in reality again anticipated the legislative measure by a wide margin.

The economically useful life of a patent was 13 years in 1964, with an average drug development time of five years (and a patent validity period of 18 years). In 1981 the average economic useful life, with a maximum development period of 13 years, had shrunk to seven years (with a patent validity period of 20 years). At present this may well be two years less, since the drugs now on the market were the subject of patent applications lodged before 1978, and for them the old patent validity period of 18 years therefore applies (Nord 1984).

At present the patent situation in the Federal Republic is as follows. Of the 200 most turnover-intensive drugs, which have a total market share of 45 per cent, 70 per cent of turnovers was represented by patent-free medicines in 1978. In 1985, this proportion is estimated at 80 per cent (Brandt 1982). For commercial and economic reasons the companies have therefore been forced to introduce new products, still patent protected, as successfully as possible on to the market within the exclusive economically useful life, which is becoming increasingly shorter. However, appeals are being made to doctors, as part of the cost reduction measures for statutory medical insurance, to consider advertising measures in the industry more critically and weigh the therapeutic benefit of new drugs against the long proven therapy.

6. The benefit of drugs to the national economy

An essential precondition for ensuring that the pharmaceutical industry will remain an industry of the future or will be able to introduce further innovations is its profit situation and profit expectation. These may still be regarded as satisfactory. According to the results of the inquiry among members of the Federal Association for the Pharmaceutical Industry in 1982 (BPI 1985), the average turnover yield of the companies before tax deductions amounted in 1981 to 8.7 per cent (1980: 8.8 per cent, 1979: 8.3 per cent). After deducting taxes on capital, income and assets, the net profit was 3.5 per cent. The result for the pharmaceutical industry in the USA or Great Britain was more favourable, the average profit being around 10 per cent before tax.

Statutory medical insurance exerts considerable influence on the

economic situation of the pharmaceutical industry, not only in the Federal Republic but also in other important exporting countries. With a proportion of 14.8 per cent of the total expenditure of the statutory medical insurance companies in the Federal Republic in 1982 devoted to drugs, a proportion which has remained constant since 1977, the drug sector is the third largest cost factor for the insurance companies next to hospital services and ambulatory services. In the light of growing difficulties in balancing the expenditure of the insurance companies with receipts, and in view of the fact that the hospital sector has remained largely unconcerned with reducing costs because of the responsibility of the provinces for medical insurance matters, the discussion on savings is being concentrated increasingly on the drug sector.

The justified concern of the medical insurance companies about their continued financing capacity has brought to light one aspect of the drug supply industry which is extremely significant, even from financing points of view extending beyond the situation of the medical insurance companies: the benefit of drug therapy to the national economy. Attempts have been made in numerous surveys to represent the benefit of drug therapy in terms of the national economy, i.e. the offset capitalised expenditure against economic benefit. Tuberculosis drugs, the psychiatric drugs and the ulcer therapies will be discussed here as examples.

As early as the end of the 1960s, savings to the national economy of DM5,600 were achieved per case of treatment for tuberculosis in the Federal Republic, these savings being attributable mainly to the shortening of the period of care and the more rapid return of patients to work (Battelle 1973). In the USA, from 1954 to 1969, just under $4

billion were saved in the hospital care sector alone (BPI 1985).

Hospitalisation periods have also been shortened by the ambulatory treatment of psychiatric patients with psychiatric drugs, and in 1972 alone, a saving of DM1.8 billion was made in the Federal Republic (Stolz 1974).

In Sweden, annual savings to the national economy of around Swedish kroner 140m have been made using the ulcer preparation Cimetidine (Herzman 1980), which has been on the market since 1977. 87 per cent of these savings were achieved by avoiding productivity losses, and 13 per cent by reducing treatment costs. A corresponding survey has now been conducted for the Federal Republic, which indicates that in 1980 alone, duodenal ulcer was responsible for 7.7 million lost working days, a figure which was reduced drastically by the use of Cimetidine either through avoiding or shortening hospitalisation. This alone produced a saving in total costs of around DM170m per annum in the Federal Republic (Horisberger 1983). If only the savings in the in-patient and ambulatory treatment sectors are taken into account, there would still be a saving in costs of approximately DM65m per annum as a result of using this H2 antagonist.

If Cimetidine were to be used only for patients for whom it is most appropriate, the benefit would increase considerably because the preparation is comparatively expensive. This new drug is an example of how the success of a significant innovation may cause a number of doctors to use the drug even for complaints which could perhaps have been treated with cheaper drugs. This may again initiate an opposing trend if such a preparation - as happened in Austria - is only available on a limited scale for prescription by doctors treating patients who are members of sickness insurance schemes, because of the

prescription frequency, which is regarded by the medical insurance companies as too high, and because of the costs resulting from this.

It should not be forgotten, however, that the benefit of drugs to the national economy, particularly chemotherapeutics and antibiotics, is not clear-cut (Illich 1975). For example, the drastic reduction in fatalities from tuberculosis and other infectious diseases was observed long before the appearance of the first effective anti-infectives (McKeown 1981). This reduction is ascribed particularly to improved social living conditions of the population at the beginning of this century, more specifically better nutrition, better living conditions and greater hygiene.

Epidemiological data from England and Wales on tuberculosis show, however, that this downward trend was clearly intensified with the availability of the first antibiotics at the beginning of the 1950s (Teeling Smith 1982). Nevertheless there are important reasons for viewing with scepticism general assertions that the use of drugs is beneficial to the national economy, even if the positive effects of drugs on individuals are undisputed. The main objection stems from the traditional methodology of valuing the benefits of drug therapy to the national economy in cost-benefit analyses.

Generally speaking, the benefit of drug therapy to the national economy has been calculated in terms of the prevention of loss of production which results from the avoidance or shortening of disease. Even if it is possible to evaluate this for the working population, the approach is less applicable to other population groups such as the unemployed, children and pensioners. Particularly in the case of pensioners, no direct benefit to the national economy is achieved with many drugs from the point of view of productivity. This consideration

is important particularly because half of all the drug costs of statutory medical insurance companies in the Federal Republic are spent on pensioners.

The methodological weaknesses of the "classic" cost-benefit analyses, which can only be hinted at here, are avoided if the benefit of drug therapy is represented not in monetary terms but in "physical" terms, e.g. in terms of the number of deaths prevented, or in terms of additional years of life gained.

A very impressive example of such a cost effectiveness analysis has been presented for the study of acute leukaemia in children (Dinkel and Schulze-Robbeke 1982). This disease, particularly acute lymphoblastic leukaemia, was fatal even around 20 years ago. Today about 70 per cent of children affected are cured by the use of drugs. The number of life years saved per patient is on average 43. These saved years of life are offset by a treatment cost per annum of DM1,515 per case, the cytostatic drugs, as the cornerstone of the treatment, being responsible for 10 per cent of the costs.

It is clear from this example that it would be extremely short-sighted, and intolerably so, to limit the benefit consideration merely to national economic calculation values. It appears to be beyond dispute that the quality of life of sick people has been undergoing a constant transformation as a result of the use of effective drugs. The innovation processes described in the introduction to this chapter are being complemented by biotechnologically-based research which tackles a range of problems through means based on a better understanding of disease processes. The challenge for regulatory authorities is how to encourage innovation while ensuring that only those drugs which are cost effective are prescribed. At some point - as the

1988 regulations for the use of the AIDS drug Azidothymidine (AZT) in almost all states of the US show - the regulation of the reimbursement of high cost drugs potentially needed by large numbers of patients may itself become a demanding challenge.

7. THE FINANCE AND INSURANCE PERSPECTIVE

Anne Mills

1. The financial crisis

The tensions in European health care show up perhaps most starkly in their implications for insurance funds and other financing agencies. It is they who must either find the finance required to meet consumer demands for health care and provider demands for resources, or seek ways of rationing demand and influencing the quantity, quality and type of health care supplied.

A notable feature of European health care trends over the last 25 years has been a marked tendency in all countries to move towards total coverage of the population by organised health care schemes financed by taxation and/or insurance. In countries with fully developed social insurance schemes, groups on low incomes such as students, the unemployed and pensioners have been incorporated with the aid of state subsidies, resulting in an increased state involvement in health financing even where insurance remains the main financing principle. In addition, the health benefits covered by insurance have been extended, for instance to include such areas as dental care and psychotherapy, and an increasing proportion of health care costs have been financed by insurance funds rather than out-of-pocket payments by consumers.

While it is still customary to distinguish between those health systems financed largely by social insurance from payroll taxes on employers and employees, and those financed by central and local government authorities from general tax revenues, the overall effect of the trends mentioned above has been to make both systems similar in

a number of important respects. Firstly, coverage is virtually universal, in terms of both population eligible for care and health benefits available. Secondly, consumers face either no direct payment for health care or a relatively small one: their demand is not constrained to any significant extent by ability to pay. Thirdly, the providers of health care have also been released from the requirement to take account of their clients' ability to afford care and do not face a direct cost constraint on the services they are able to provide to individual patients. Fourthly, the cost of health care is met largely by 'third party payers' - the financing agencies considered in this chapter - who do not have direct control over the decisions made by consumers and providers but who finance their cost. Finally, whether or not it has been directly planned, public agencies have become the predominant source of health finance, and the share of private expenditure has dwindled in most of Europe.

More general social and economic trends, which are a main theme in these papers, have also affected the finances of health care in the last 25 years. The nature of the demand for health services has been changing as the demographic structure and disease pattern of populations have changed, and will change in the future at an increasing rate. Technological developments have extended the range of health services available and thus have tended to increase rather than decrease the costs of provision. The scope of health services has been widened to include therapy for social ills such as alcoholism and drug addiction. Yet concern persists that despite the virtual universal access provided to health services at public expense, certain social and ethnic groups are still disadvantaged and receive both less and poorer quality care than other groups, better able to

make use of the services available.

It is difficult to disentangle these various influences on the increasing volume and cost of health services in Europe. It is clear that total health expenditure is in general highly correlated with the level of national income, and that as national income rises, health expenditure rises at a faster rate (that is it is income elastic) (Culyer 1982, 1988). The concern of this chapter is not to explore why this should be so, but rather to focus on the problems this causes for financing agencies. Where finance is provided exclusively or partially by central or local governments, increased expenditure has to be found from tax revenues. Yet there is a common concern in European countries about existing levels of taxes, awareness of the many competing claims on tax revenues, and desire to reduce the burden on public expenditure. There is also increased enthusiasm about the virtues of a competitive market as an efficient means of supplying health care and satisfying consumer preferences. Where financing sources are primarily insurance funds, contributed by employers and employees, there is concern about the effect that rising insurance premiums have on the cost of labour, on overall employment (given present unemployment levels) and in general on industrial costs. In either financing system the burden on the ultimate source - the tax or premium payer - becomes the greater the smaller the proportion of workers in the total population as the demographic structure changes.

Over the last few years, these financial pressures have led to the emergence of three main themes in the attempts to cope with the demands for public finance for health care. These themes are firstly an emphasis on 'cost containment', by which is meant constraining both total and unit costs. The majority of the measures taken, for

instance restraining increases in provider fees or budgets and controlling physical capacity, influence input quantities or price rather than the way in which those inputs are used in patient care.

More recently, however, a second theme has developed, on the performance of health systems, which does focus more directly on requiring health systems to justify the resources they absorb in terms of value for money and performance measures. Issues here are procedures such as medical audit, and devising ways of creating incentives for efficiency, for instance through budgeting systems and internal markets.

The third theme is a search for alternative or complementary sources of finance. This theme is perhaps most apparent in the United Kingdom, where in its endeavour to reduce the growth of public expenditure, the government has been searching for ways to shift some responsibility for health care from public expenditure to the individual, for instance through private insurance. Some other European governments have also looked to individual resources to assist, for instance through increased cost-sharing. However, this theme of supplementary financing sources is of more general relevance when taking a rather broader definition of the health system than that encompassing medical services alone. Particularly with the growth in numbers of dependent elderly, governments are seeking sources of finance and patterns of care that promote the creation of a mix of services appropriate to clients' social and medical needs and that can respond flexibly to their changing circumstances. There is also a need to identify sources of finance that will stimulate health improvement measures that fall outside medical services, such as preventive programmes that encourage healthier life-styles.

2. Issues facing financing agencies

The various concerns of the insurance funds and financing sources, briefly summarised above, can be categorised into three main areas. The first is that of the type and amount of health services produced and to whom they should be provided. For instance, what should be the balance between primary, secondary and tertiary care, or between prevention, cure and care? What volume of each should be provided and how should each be rationed? What should be the balance between health care for various target or client groups such as children, the elderly, the mentally handicapped? To a great extent the answers to these questions will be determined by the objectives of the health system, and are the proper concern of politicians and policy-makers rather than financers. However, they cannot be neglected by financers, for the pattern of finance, the payment systems, and the eligibility rules influence the provision of care. For instance, insurance regulations can influence whether a particular service is provided at all, whether it is provided inside or outside hospital, and what use is made of it by patients. The price consumers face will affect the existence and extent of moral hazard - that is, the effect of insurance cover in reducing the price of health care to consumers and influencing the level of demand. The potential exists for financing agencies to stimulate new patterns of services, for instance for the elderly, by the types of reimbursement and payment mechanisms they establish. Health systems where there is a separation between the financing and provider functions may have an advantage here over systems where the functions are integrated and flexibility to shift to alternative patterns of provision is more limited.

The second main area is that of how the desired services are

produced - in technical terms, the production function or the combination of inputs required to produce a given output. Efficient production requires that the mix of inputs used be both technically efficient and least cost. Professional interests, traditional working practices, insurance regulations and lack of co-ordination between financing agencies make efficient production difficult to achieve. Financing agencies need to consider, for instance, how to ensure that new technologies are appraised before they are introduced; that new equipment is located where it will be used to capacity and for those patients whose health outcome is likely to be improved; and that budgeting and payment systems are established that make providers more cost-conscious and encourage the substitution of low-cost for high-cost inputs, such as auxiliaries for professionals, or generic for brand name drugs, whenever this is technically possible.

The third main area is the distribution of the cost burden between individuals and groups, and also the distribution of the economic benefits, in terms of the income of providers. Here again, financing agencies, through their methods of finance, influence not merely the incidence of the financing burden between the healthy and the sick, between different income groups and between generations, but also the incomes of health professionals and the economy at large.

In all these areas, it is important to pay particular attention to the incentives and disincentives for producers and consumers that are inherent in various financing systems, and the extent to which insurance funds and financing agencies can, by altering budgeting and payment systems for instance, alter the incentives in order to promote a desired mix of health services, an equitable distribution of services between client groups and socio-economic groups, efficient

minimum cost production, and an acceptable distribution of the financing burden and economic benefit.

This chapter therefore continues by assessing the choices that face financing policy-makers and agencies in terms of the nature of the financing agency, the means by which finance is raised from the public, the price paid by the consumer at the point of use of services, and the means by which providers of primary and hospital services are paid.

3. The nature of the financing agency

The organisation of financial intermediaries may be on a monopolistic, oligopolistic or competitive basis (Culyer et al. 1988a). In a monopolistic system, the financial intermediary is usually a public agency such as a government or a health corporation. In an oligopolistic system (one in which there is a small number of large intermediaries) finance may be controlled by public agencies or private agencies such as insurance companies or a combination of these. In a competitive system a large number of small private intermediaries would exist, for example Health Maintenance Organisations (HMOs).

These alternative organisational patterns can be evaluated on the basis of the extent to which they are likely to serve the goals of efficiency and equity. Monopolistic and oligopolistic organisational patterns may be able to reap the benefits of economies of scale, operating with relatively low administrative costs. In contrast, a competitive insurance system with a number of relatively small insurance agencies may result in premiums that are above the actuarially fair level by additional mark-ups to cover the high costs and normal return on capital of the insurance agencies. If this is

the case, bankruptcies and mergers are likely to lead to a more oligopolistic market structure, with falling unit costs but possibly rising monopoly profits.

Monopolistic or oligopolistic financing agencies are in a position to take advantage of economies of scale, but may suffer from other sources of inefficiency stemming from the lack of competitive pressures ("X" inefficiency). Moreover, if the monopolist financing agency is a public body which also provides health services (as in the case of the UK NHS), further inefficiencies may stem from the absence of a systematic financial signalling system of the sort a well ordered market can provide. There is no pricing mechanism in the NHS to guide routine management decisions, nor obvious financial penalties or rewards for inefficient or efficient behaviour.

The equity implications of alternative organisational patterns of financing agencies essentially relate to the extent to which they produce 'adverse selection' - i.e. discrimination against different risk classes in the population. Adverse selection occurs in health care systems where financial agencies have to compete for custom. If all members of a community are faced with the same voluntary premium covering all risks based on community-wide experience (i.e. "community rating"), for some low risk groups this premium will be too high and in a competitive insurance market these low risk groups will be offered lower premiums. As the low risks opt out, premiums to the rest of the insured population will rise. Eventually, competition between insurers will lead to experience rating, where an individual's premium is proportional to his/her risk and past history of illness. This is likely to make health care insurance unaffordable for large groups in a society without either subsidy or administrative

regulation.

Culyer et al. (1988b) review the evidence on the existence of adverse selection and on the success of methods for controlling or ameliorating the effects of discrimination in insurance systems. American experience indicates the inevitability of experience-rated premiums in a voluntary insurance market and the likelihood of under-insurance for particular groups. For example, a person with a proven record of chronic illness may be uninsurable. They also conclude that the HMO solution, where a comprehensive package of care is offered in return for a pre-paid premium, is falling victim to the competitive market and community rating is becoming harder to maintain.

Adverse selection is not a problem where health insurance is compulsory. For example, a publicly financed insurance monopoly could provide or purchase health insurance for the whole community on a community-rated basis. Such a system in Canada appears to have succeeded in removing ability to pay as an influence on health care utilisation (Broyles et al. 1983, Manga et al. 1987). Similarly a tax-based financing monopoly avoids the problem of adverse selection, and has the additional advantage that community rating could be adjusted to exploit progressive tax structures. The experience of the UK, however, indicates that tax-financed and publicly-provided health care free at the point of use is not on its own sufficient to ensure equal access and utilisation regardless of income and socio-economic group (Health Education Council 1987).

Neither monopolist nor competitive patterns of organisation of health financing agencies therefore inevitably achieve efficiency or equity goals. It is clear that attempting to add some competitive pressures to monopolistic (public insurance or tax-based) financing

agencies by encouraging private voluntary insurance runs the danger of creaming off the low risks, leaving the public system to treat the more expensive population groups, with a reduced financing base if individuals are permitted to opt out of financing the national scheme. In particular, hopes (for instance in the UK) that the overwhelming public presence in financing could be significantly reduced by the encouragement of a private competitive insurance market which would be more efficient but would not substantially affect equity appear to be ill-founded (House of Commons Social Services Committee 1988).

4. Means of raising finance from the public

The consumer's contribution to the health care system can be paid either directly from taxation, or voluntarily or compulsorily by the consumer with or without a subsidy from his/her employer or social security. The choice is thus essentially between public or private systems of raising finance, and tax-based or insurance-based methods. The general pattern in all OECD countries is for the share of the public sector in financing to increase. Surprisingly, the issue of the ideal mix of sources of finance has been little discussed, though options for financing health care in Britain have recently been reviewed by the Social Services Committee of the House of Commons (House of Commons Social Services Committee 1988).

Arguments in favour of a public, tax-based method of financing health care are that it is cheap to collect, effectively controls total expenditure and is equitable. In particular, the Social Services Committee argued that its greatest strength is in providing equity over a person's lifetime, pointing out that people in the income earning age groups account for only 36 per cent of revenue

expenditure on health and social services. Any shift away from tax funding might encourage higher expenditure on middle age groups at the expense of the young and elderly, or require an additional form of cross subsidisation from wage-earners to the retired population. Moreover, within the prime age group, around 60 per cent of expenditure is on women, whose ability to pay is generally less than men.

On the other hand, it can be argued that tax finance is vulnerable to macro-economic policies constraining public expenditure and thus that consumer willingness-to-pay for improved quantity and quality of health services is poorly reflected in government decisions. It can also be argued that government rules on the use of tax finance inevitably restrict how it can be used, thus introducing artificial rigidities and causing inefficiencies. This tends to be particularly evident in influencing capital investment decisions and preventing health authorities from achieving an optimum balance between capital and recurrent expenditure.

The main arguments in favour of a public, compulsory insurance system is that payments can be identified with health care received thus, it is argued, making people more willing to contribute than if the payment is absorbed in general taxation. However, payroll taxes represent an increasing burden on employers and employees as demographic trends increase the dependency ratio. Moreover, unless they are related proportionately to pay, they may raise the cost to employers of low paid relative to high paid workers, thus discouraging employment of the low paid and further lowering their wages and/or increasing unemployment. Further equity issues relate to the incidence of the payroll tax: a lump-sum payroll tax whose final

incidence is on employers is effectively a further tax on capital and corporate income and would tend to be progressive; if it falls on either employees or consumers it would tend to be regressive.

Private health care insurance, while ostensibly offering the attraction of consumer choice and ability to tailor a health care package to individual needs, in practice suffers from the problems (from a social perspective) discussed earlier of adverse selection and experience rating, and an oligopolistic market structure which encourages companies to act together and keep premiums high. Moreover, administrative and enforcement costs (e.g. checking for fraud) are likely to be higher than with publicly-controlled finance. For all these reasons, government intervention is inevitable to ensure the needs of high-risk groups are met.

Recent alternatives to the classic private insurance model that have developed in the US include HMOs and Preferred Provider Organisations (PPOs). HMOs provide (or arrange and pay for) comprehensive health care for a fixed periodic per capita payment (premium) which is paid by the consumer usually with a subsidy from employers or social security. Since the HMO's annual budget is fixed in advance, and the HMO's profit is the difference between its income and expenditure, physicians have an incentive to be cost conscious. Consumers select their health care plan annually, so HMOs have to compete for custom and have a further incentive to be cost conscious.

PPOs have been developed by the insurers in order to compete with HMOs. Premiums are paid by employers or employers plus employees, and insurers contract selectively with providers and negotiate fees in advance. PPOs provide less incentive than do HMOs to control volume of services, though a physician whose cost per case rises excessively

risks not being selected again as a preferred provider. Hospitals also have an incentive to keep costs down, unlike under traditional insurance arrangements, since a set of prices is agreed in advance.

While both HMOs and PPOs incorporate incentives to avoid some of the extreme inflationary tendencies of traditional private insurance arrangements, adverse selection and experience rating are both inevitable with the existence of competition (Culyer et al. 1988a). This will leave the more costly population groups without health care cover unless they are subsidised. There is also evidence that those who are sick and in a low income group fare worse in HMOs than in fee-for-service plans (Ware et al. 1986).

There has been widespread interest in HMOs in Europe as a more economical means of financing and providing health care than traditional social insurance and fee-for-service systems. As yet, however, schemes have only been experimental, and some observers argue that the HMO is a response to the particular circumstances of the US and thus will transplant poorly to the European setting. This point has been put strongly, for example, in relation to the UK (Rayner 1988).

Other sources of raising finance from the public include lotteries, income generation schemes (e.g. shops on hospital premises) and charitable donations. While these may be useful for specific purposes (e.g. purchasing equipment, improving a hospital's environment) they can only be supplementary sources of funds and may distort health care priorities (for example, in the case of donated equipment which has recurrent cost consequences for the recipient).

5. Consumer prices

The price paid by the consumer at the point of use of health

services can range from zero to 100 per cent of cost in both publicly and privately financed systems. In general, both tax-based and insurance-based systems aim to provide most health care free at the point of use, but have introduced largely nominal prices as a means of cost containment. This policy is the result of concern that free care stimulates excess demand, that is demand that exceeds what it is felt the system should provide. Causes include both the absence or lowering of a price on the demand side, and financial arrangements that enable or encourage providers to supply wasteful amounts. The former cause is considered here, and the latter in the next section.

The problem of potential excess demand is known as moral hazard. It has two causes: on the one hand, the fact of being insured reduces the financial costs of sickness and thus may make consumers less anxious to avoid ill health. On the other hand, once ill, a zero or reduced price encourages a higher rate of use than would otherwise be the case. Mechanisms introduced to control consumer moral hazard consist of various ways of bringing cost to bear on the consumer, including a flat rate charge for each unit of service; co-insurance (payment of a certain proportion of each unit of health care consumed); and deductibles (payment of the total cost of bills in a given period up to a maximum limit). Such approaches to co-payment have been widely used in, for instance, France as part of attempts at cost-containment.

The desirability of co-payment needs to be assessed both in terms of its effect on reducing demand and in terms of which population groups respond most. Most evidence on the effect of co-payment on demand comes from the Health Insurance Experiment conducted by the Rand Corporation (Newhouse 1974) and is reviewed in Culyer et al.

(1988b). The results clearly show that utilisation responds to amounts paid out-of-pocket. For example, out-patient expenses in the free plan were 37 per cent higher than in the co-insurance plan which required a payment of 25 per cent (Manning et al. 1987).

A further analysis (Lohr et al. 1986) had found that the effect of cost sharing was often greater among low-income than higher-income groups. Differences were even greater amongst children. For example, for the eight acute conditions examined, the probabilities of use of services by poor children on cost-sharing plans were between 33 per cent and 68 per cent of those for poor children on the free plan, but for non-poor children they were 65-219 per cent of those on the free plan. The same study investigated whether reductions in utilisation were for inappropriate or unnecessary medical use. It found, for example, that the probability of at least one episode of highly effective ambulatory care for poor children in cost-sharing plans was 56 per cent of the level for those with free care compared to a figure of 85 per cent for non-poor children.

This evidence suggests that co-payment may reduce utilisation but at the expense of equity objectives. It can therefore be argued that controls on utilisation should rather be applied on the supply side, to influence provider behaviour and ensure that cost-effective care is delivered. Even in the absence of co-payment, access costs (travel costs and time spent travelling and waiting at a surgery) act as some deterrent on use even with zero service prices.

6. Rewarding physicians

Payments to physicians can take the form of capitation (usually only for primary care providers), salaries, and fees-for-services which can

be paid prospectively or retrospectively. These payments can be supplemented by bonuses for "good practice" and other aspects of performance.

Fee-for-service rewards physicians according to the volume of services they provide, producing what can be called provider moral hazard, where doctors have a financial incentive to provide care in excess of what would be judged necessary from a purely professional standpoint. This phenomenon is often called "supply-induced demand". Many attempts have been made to confirm its existence using both routinely collected and experimental data. Despite doubts about adequacy of data, most evidence tends to support the view that fee-for-service leads to "induced" demands by patients for fee-yielding services on the recommendation of their doctors (Culyer et al. 1988b). For example, a US study of the effect in Colorado's Medicare system of increases in reimbursement rates for some services and decreases for others on the intensity and quantity of services provided and the number of ancillary services ordered found that a one per cent decrease in the reimbursement rate for medical services resulted in a 0.61 per cent increase in medical service intensity, and a one per cent decrease in the surgical reimbursement rate a 0.15 per cent increase in intensity of surgical services provided (Rice 1983). These results are consistent with arguments that physicians aim to maintain a 'target' income (Evans 1976).

Salaries possess the advantage of facilitating planning and a performance-related promotions system. Disadvantages are argued to stem from the separation of financial reward from the quantity and quality of work done: for example, unlike fee-for-service, salary offers no incentive to maximise work done. However, it can be argued

that non-financial incentives and disincentives (e.g. ethical standards, respect from colleagues, personal standing in the profession) help to ensure good practices and that given the failings of the fee-for-service payment system, there are distinct advantages in breaking the direct link between workload and pay.

Capitation links payment with the number of people for whom the doctor has responsibility. Unlike salary, it does not require employee status, but still retains the advantage of the separation of items of service and reward. However, it does incorporate some incentive to hard work (i.e. to maximise the number of people cared for if not the items of service for each patient) and encourages continuity of care. Where only primary care practitioners are rewarded by capitation (as in the UK) there is an inbuilt incentive to refer. However, this is overcome in systems which integrate payment for primary and hospital care. For example, in HMOs, comprehensive health care is provided in return for an annual per capita advance payment. This method of payment appears to result in a less hospital-intensive style of care (Manning et al. 1984, Manning et al. 1987).

In theory, salaries and capitation methods of payment could be supplemented by extra payments to reward good practice. However, there is as yet no evidence of their effect (Culyer et al. 1988b).

In terms of rewarding physicians, the best evidence so far comes from the effect of fee-for-service on stimulating the number of services provided. Many countries are therefore attempting to reduce the role of fee-for-service payments (as in HMOs) or to introduce controls that limit their effects. Such controls can take the form of peer review of case management, providing information to physicians on the cost implications of their decisions and government regulation of,

for instance, the equipment available to physicians and prescribing habits (e.g. limited lists). West Germany, for example, has recently passed a law to limit reimbursement rates for drugs and hospital care and increase the monitoring of physician and dentist efficiency.

7. Paying hospitals

There are three main methods of channelling funds to hospitals: retrospective reimbursement at full cost, prospective reimbursement per type of case or level of workload, and internal market systems. Under the first system, a hospital is paid in full by the financial intermediaries for all expenditure incurred during the previous year, thus encouraging the hospital staff to maximise services provided and removing any incentive to be cost-conscious. Under prospective reimbursement, hospitals contract with financial intermediaries to work within a pre-defined budget. In the UK, this takes the form of a global budget based, along with other service budgets, on population criteria. In prospective reimbursement systems in the US, for example, hospital workload is usually estimated by funding agencies from historical hospital activity data and given a fixed price either per type of case or level of workload.

The most widely discussed method of prospective reimbursement in the US is the prospective payment system which uses diagnosis-related group (DRG) information to categorise hospital inpatient activity and set prices. Inpatients are grouped according to diagnosis and resource use, and reimbursement set for each DRG category according to the average cost for that DRG. In principle, this payment method should encourage cost minimisation, especially of costs per admission and per case. However, this may be at the expense of lower quality care within hospital, or shifting some part of the care onto other

providers (e.g. outpatient departments, long term care facilities). Moreover, while costs per case may be minimised, throughout may be maximised resulting in an increase in overall costs.

The evidence on the effect of prospective payment systems using DRGs as compared to retrospective payment is mixed (Culyer et al. 1988b). Prospective payment systems appear to reduce the length of hospital inpatient stays, reduce costs per case and reduce cost per admission, but may cause compensating increases in throughput. For example, Rosko and Broyles (1987) report that a DRG-based system reduced average hospital length of stay by 6.5 per cent, costs per day by 9.8 per cent and costs per admission by 14.1 per cent, but increased admissions by 11.7 per cent.

Considerable interest has been shown in DRGs in Europe, as a means of controlling expenditure where there is a separation between the financing agency and the hospital. The US experience suggests how difficult it can be to devise changes to payment mechanisms that cannot be subverted in one way or other, especially where the existence of various payment mechanisms or different provider agencies provides scope for cost- and patient-shifting.

The term 'internal market' was originally introduced by Enthoven (1985) who suggested that in the UK, the link between a district's responsibility for its residents' health care and actual provision should be separated. Districts would receive funds for the health care of their communities and then purchase the necessary care either from their own hospitals, or from those of other districts or the private sector, who would thus compete for contracts. Since competition would not take place purely within the NHS, some writers prefer the term 'provider market' to 'internal market'.

An internal market is perhaps most appropriately seen as a way of organising the provision of hospital care rather than of financing or paying for it. Indeed, of schemes proposed for the UK, few explore in detail systems of payment, mostly presuming a system of prospective funding though few are explicit about the basis for reimbursing hospitals (Culyer and Brazier 1988). However, the concept of internal markets does highlight the potential for encouraging competition in the supply of health care while maintaining a substantial role in public financing to ensure equity. In the past, the assumption has been made either that public financing must be accompanied by public provision (as in the NHS) or that financing intermediaries simply reimburse the providers chosen by consumers. In an internal market, the 'consumer' is a contracting agency which can monitor quality and thus protect the consumer, while exposing the provider to the efficiency-stimulating effects of competition.

It is beyond the scope of this chapter to analyse in detail the likely advantages and disadvantages of internal markets, which are reviewed at length in Culyer et al. (1988c). In terms of their practical application rather than theoretical attractions, it is clear they may involve substantial short-term costs in terms of transitional arrangements and changes. Even when the new system has stabilised, regulation will be required to, for instance, ensure consumers do not have to travel excessively long distances, and that certain geographical areas are not placed at a disadvantage in competing for resources in short supply (especially manpower but also capital).

8. The future for financing agencies

The preceding sections have summarised recent thinking on a variety

of financing issues. Many countries display an interest in introducing into health systems the pressures of competition, but also are concerned that competitive markets for finance or provision may not work well for health care and that their inequitable effects may be hard to remedy through government regulation or intervention.

Few health systems are likely to be able to contemplate major changes in the financing of their health systems. Indeed it is of interest that the UK is now proposing much less radical change in financing sources than was previously anticipated. Health system finance cannot be re-structured overnight, given the vested interests in existing structures.

Countries need therefore to explore the scope for marginal change to their health systems, to make them gradually more responsive to consumer preferences, more efficient and more equitable. The following issues are likely to loom large in the concerns of any financing agency:

- can additional sources of funds be identified for health systems? Are there ways of overcoming the flaws of private insurance markets? Are there parts of the health care system that can be efficiently and equitably funded by private insurance?
- what role can financial intermediaries play in promoting efficiency in the provision of health care? Can fee-for-service systems for paying physicians be replaced by capitation or performance-linked salaries? Can fee-for-service systems of paying hospitals be replaced by prospective payment systems with appropriate incentives for cost-consciousness and quality of care? Can sufficiently

sensitive measures of physician and hospital performance be developed? Are internal (provider) markets a practicable proposition? Can the various levels and types of care be integrated in financing arrangements to provide incentives to favour out-of-hospital care? Does the provision of information and budgets to physicians make them more cost conscious?

- what role can financial intermediaries play in influencing the adoption and use of technologies by providers?
- are there influences that can be brought to bear on consumers without harming equity, such as incentives which encourage healthy behaviour rather than discourage use of services when sick, and support to self-help groups?

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