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An Economic Perspective on Target Setting

by
Ron Akehurst, Christine Godfrey
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DISCUSSION PAPER 92

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RON AKEHURST

CHRISTINE GODFREY

JOHN HUTTON

EILEEN ROBERTSON

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AUTHORS

Ron Akehurst is Director and Eileen Robertson is Senior Research Fellow in York Health Economics Consortium. Christine Godfrey and John Hutton are Senior Research Fellows in the Centre for Health Economics, University of York.

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EXECUTIVE SUMMARY

1. The development of a strategy based on all aspects of health, not just health care provision, is to be welcomed as is the emphasis on the outcomes, rather than the process, of implementing health policy. Health strategies can be designed to set policy agendas, to foster inter-departmental co-operation or to provide detailed targets for implementation. In addressing all of these potentially conflicting purposes, there is a danger that, through over-ambition the strategy will ultimately fail to achieve any of them satisfactorily.

2. It is proposed in the *Health of the Nation* that the strategy should concentrate initially on a limited range of target areas. A comprehensive analysis of all possible target areas is required for the selection process making use of criteria that are explicit and widely accepted.

3. In the identification of target areas for health gain the model of prevention of ill-health which is implicit in the strategy places great emphasis on individual behaviour and pays too little attention to the role of social processes.

4. Two important criteria are absent from those used to select target areas in the strategy: equity and cost-effectiveness. There may also be over emphasis on measurability of targets in the criteria included. Using the criteria stated in the Green Paper many more plausible areas for targeting could be included and it is unclear how those chosen were selected. Addition of the equity and cost effectiveness criteria would add further possible target areas.

5. The detailed targets suggested in the strategy are not convincing because of the limited evidence to support them. This is not helped by the lack of transparency in the process by which the targets are derived. The target measures used show a mixture of outcomes, intermediate outputs and inputs. Some of these are inappropriate and may produce perverse behaviour if implemented. The selection of very few target areas is sensible and lessons can be learnt about detailed target setting in these areas before the scope of the strategy is extended.

6. Achieving major changes in policy direction is very difficult if new resources are not made available. The strategy is based on an assumption that no existing NHS activities

will be stopped, and research indicates that health promotion work is unlikely to result in short term financial savings. It is difficult to see how change can be achieved without a specific injection of new resources.

7. The extent of new resource requirements is difficult to estimate because of a lack of cost data. A programme aimed at achieving the smoking target would cost about £20–£30 million per year. Achieving the CABG target in one region alone would cost £1.6–£2.4 million per year plus up to £6 million capital spending. Broad estimates of this kind are, however, not available for other potential target areas.

8. The strategy recognises the important influences on health of factors beyond the control of the Department of Health and the NHS, and emphasises the need for co-ordinated policies on health across a broad range of government departments.

9. Effective co-ordination of policy will require collaboration between agencies implementing policy as well as the central government departments formulating policy. No mechanisms for such local co-ordination are described in the Green paper.

10. Past experience has shown that successful co-ordination of policy with non-health departments and agencies is more likely to be achieved if health objectives are complementary to other departments' main objectives; if health policies do not threaten the economic interests of organisations sponsored by other departments; and if health policies are supported by external bodies such as the European Community.

11. More research is needed to establish the health benefits achievable through control of risk factors if other departments and agencies are to be persuaded to give control of such risk factors a high priority in their programmes.

12. One way forward is for district health authorities to be required to set local targets and to identify the contribution of non NHS agencies to achieving these. Regional health authorities will have a pivotal role in monitoring the performance of districts, evaluating the relevance of national priorities to local situations, improving the co-ordination between health and non health agencies and influencing the development of the strategy at a national level.

CONTENTS

1. THE VALUE OF A STRATEGY

For a system where both the funding and provision of services have been overwhelmingly in the public sector, the previous lack of overall strategic aims for English health is surprising. Overall aims and targets to increase life expectancy were considered to be part of post war government strategy (Mackintosh, 1945), but systematic targets have never previously been implemented. Many commentators have criticised the lack of focus of the NHS on health outcomes and there has been a widespread concern that preventive health care services have not been so well developed as acute care.

A major influence on the development of health strategies worldwide has been the World Health Organisation (WHO). WHO has been at the forefront of developing the argument that a broad range of policies, not just health care provision, is necessary to achieve maximum health status among populations. The process started in 1977 with the adoption of "Health for All" as the main social objectives of governments. Within the European Region the adoption of the Health For All (HFA) objective was followed by the adoption of 38 targets to be achieved by the year 2000. All member states signed the agreement to adopt these targets and the monitoring of a set of indicators was agreed. The influence of the HFA principles and some of the specific European targets can be seen in most of the documents outlining national health strategies that have been produced in the last ten years.

1.1 OBJECTIVES OF HEALTH STRATEGIES

The debt to the HFA initiative is acknowledged in the Health of the Nation document and some of the stated objectives of the English health strategy follow the same principles.

The principles of HFA have been summarised as:

equity;
health promotion;
community participation;

multisectoral cooperation;
primary health care; and
international co-operation
(Faculty of Public Health Medicine, 1991).

The Health of the Nation embraces some but not all of these principles. Prominence is given to the promotion of good health as well as the prevention of ill-health. The second main objective is "to focus as much on the promotion of good health and the prevention of disease as on the treatment, care and rehabilitation of those who fall ill . . ." (p.vii).

Other countries have pursued various objectives and these are reflected in the national strategic documents (notably Australia, New Zealand, Canada, USA, Holland and Wales). These strategies can be characterised into three broad groups according to their main purpose: agenda setting; inter-agency cooperation; or detailed target setting.

i) Strategies Aimed at Agenda Setting

Agenda setting strategies aim at altering the culture of thinking about services (in this case refocussing services on health gain) and altering and orchestrating public opinion, possibly with a view to bringing about political changes which would otherwise be impossible (like large rises in tobacco tax) rather than pursuing particular targets in detail. The major aim of such a strategies is to self motivate the wide range of professional and managerial staff who can make the strategy work. The measurement of health status, provision of baseline data, dissemination of good practice and monitoring of targets are the major elements in implementation. For the strategy to work it needs widespread approval. Hence it may be necessary to ensure that targets are based on a consensus of expert opinion rather than being imposed by an opaque mechanism. This approach has been adopted by the USA, for example.

ii) Strategies Aimed at Inter-Agency Cooperation

One of the main principles of the World Health Organisation (WHO) document on Health For All (HFA) was to recognise that there was a range of influences on health and that the responsibilities for the influences on final health outcomes are spread over a large number of different sectors of the economy. Any action to improve health therefore requires cooperation over a wide range of statutory and non-statutory agencies whether at local, national or international level. One purpose of health strategies may be to further this cooperation. The requirement is recognised in the *Health of the Nation*, which lists health related responsibilities currently held by government departments other than the Department of Health, but the means of providing some overall control or coordination to maximise health is not given. The support of non-health departments and agencies may be easier to obtain if they are more integrated into the process of framing a strategy rather than receiving the conclusions of the Department of Health. It is not clear that key figures from other ministries are to be involved in the process of preparing the White Paper. At more local levels, previous experience suggests that setting up coordinating structures and identifying individual responsibilities may be necessary.

The *Health of the Nation* poses a dilemma for the NHS. Without recognition and detailing of the roles of other agencies in health, the NHS could be in the position of being criticised for outcomes beyond its control. However, any attempt by the NHS to impose its priorities on other agencies is unlikely to succeed unless considerable effort is put into educating policy makers at all levels, as well as the public, on the importance of health.

Attempts have been made previously to move the NHS in a desired strategic direction, notably in the mid-1970s, although later examples, such as shifts to community care for the elderly and mentally ill are also noteworthy. A key question is why such shifts should be successfully achieved now when they have only had limited (or no) success in the past. One answer may be that the new management and purchasing arrangements in the NHS make it more possible. Whatever the view on this, the obstacles to interdepartmental collaboration at both

central and local level remain formidable. The government may be well advised to tackle very few areas and concentrate on overcoming the obstacles in those contexts. One or two early targets would not require so much resource and management effort as many targets would require. The best ways to achieve change could then be learnt at relatively low risk.

iii) Strategies Aimed at Setting and Achieving Detailed Targets

A third overall aim of strategies may be to set detailed targets at each level of the system, which will have to be achieved as part of the managerial process. In this model of strategy the intention is that the presence of mandatory targets at all levels will change behaviour, either inducing more efficient service provision or shifting resources into areas which offer relatively greater health gain. This appears to be the dominant model behind the *Health of the Nation*, but there are inconsistencies. Most importantly, the document fudges its position on resource use. While indicating that the focus should be shifted as much to the promotion of good health and prevention of disease as on treatment, care and rehabilitation, this should not be at the expense of current services. Unless any increase in preventive and promotional work actually saved money (by, for example, reducing the need for hospital treatment) or miraculously cost nothing (by being, for example, a free by-product of existing activity) then this position is an impossible one to sustain. The second of these circumstances can be immediately dismissed and the first is difficult to sustain for two reasons. Most promotional and preventive medicine does not affect outcomes for many years, so its first effect is an increase in costs. Secondly, people have to die of something, even if it is a little later, so costs of acute and terminal care will still be incurred. Such evidence as there is (eg. Russell, 1986) suggests that increasing preventive services is unlikely to reduce total care costs. Later in this paper we return to the issue of the costs of the strategy.

A second weakness of the Green Paper, if it is seen as setting out a directive strategy, is that the knowledge base for setting detailed targets from the centre is very weak. Relatively little is known about effectiveness of interventions and less about cost-effectiveness. Setting particular targets with poor information carries

with it the real danger that resources will be switched from areas which offer higher health gain to those which offer lower gain. Even if reasonably good global information is available then it may cease to be relevant the more locally it has to be applied.

Overall, the strategy document suffers from lack of clarity in its aims. It has elements of all three of the purposes identified above, and because of that carries within it a risk of failing to achieve any of them. In particular, pursuit of a directive strategy, if the targets are not widely agreed, may militate against either the agenda setting or the coordination roles.

In addition, it fails to be explicit about the likely resource consequences of its implementation.

1.2 PROCESS OF DETERMINING A STRATEGY

Consultation

Two of the major differences observed between countries in the process of determining a strategy is the amount of consultation that takes place and the use of scientific evidence. The importance of wide consultation both in setting targets and in their implementation was stressed in the European HFA literature (WHO, 1985). In the United States the process of determining targets has been based on the widest consultation and the use of the best scientific evidence. This example was recommended for use in the United Kingdom by the Faculty of Public Health (Faculty of Public Health, 1991). The production of *Healthy People 2000* involved over 300 groups and more than 10,000 individuals. Another non-government initiative in the US, "Closing the Gap" sponsored by the Carter Group to investigate priorities for health promotion also convened large panels of experts (Amler and Dull, 1987). An alternative UK initiative, *the Nations Health* sponsored by the Kings Fund, the Health Education Authority and the London School of Hygiene and Tropical Medicine, consulted widely, but less formally, and used well documented research both to investigate health problems and frame targets (Smith and Jacobson, 1988). It is interesting to note that the more widespread the consultation process the more

comprehensive are the resulting targets. Some of the "expert" responses to the Green Paper also suggest that consultation would bring a broader range of targets (Thornicroft and Strathdee, 1991).

Political and Administrative Structures

The consultation process may be of particular importance if the strategy is set by those without the power to enforce major changes in resource use or to change the behaviour of health or other professional groups. Many aspects of a health strategy will vary with the political and administrative structure in which they are set. The role of legislation to enforce policies also varies between countries and in the UK tends to be used less than many European countries. The responsibilities of health ministers – the expected guardians of a health strategy – are also variable. In the UK and New Zealand the government has more control over both finance and provision than most other countries producing a strategy and this would be expected to influence the framing of objectives. In fact both the New Zealand and English strategies have less detail on policy changes than elsewhere and promote the use of contracts with health services and other parts of the public sector to enforce the strategies.

Health strategies rarely emerge without other policy initiatives and both the Welsh (Health Promotion Authority for Wales, 1990) and the English proposals are linked to the recent reforms of the NHS. Certain aspects of the reforms are helpful to the implementation of a strategy, particularly the direct responsibility for the health of their populations given to the purchasing agencies (DHAs and FHSAs). Also some of the reforms to the GP contract may be seen as being supportive of the re-orientation towards health promotion. In other aspects health promotion services are more difficult to fit into the new framework and the design and coordination of community programmes may be seen as more difficult to achieve with internal markets and competition between providers. The use of contracts to include health promotion in providers' activities has been recommended and the health strategy may help to establish this pattern.

Monitoring

In most health strategies the need to monitor and evaluate health targets is given considerable emphasis, and this is also recognised in the Green Paper. The health service reforms already demand considerable amounts of new information, to develop the needs baseline and monitor the outcomes of service provision using morbidity and quality of life measures. The health strategy will require baseline information on a large range of risk factors to assist the target setting process, and similar outcome measures to monitor the effect of policies adopted. Obtaining the information will not be costless and requires the commitment of adequate new resources.

2. IMPLEMENTING THE STRATEGY: SELECTION OF TARGET AREAS AND SPECIFIC TARGETS

2.1 SELECTIVE VERSUS COMPREHENSIVE STRATEGIES

Various methods for determining targets have been used by other countries. General objectives or goals tend to be non specific and therefore generally acceptable in most strategies. The process of drawing up a more detailed strategy requires the translation of objectives into specific targets. While general objectives and goals are similar between countries there are considerable differences in the models used to select and present specific targets and their coverage. The process of translating objectives to specific targets is rarely outlined in great detail but some clues can be drawn from the way the results of this process are presented. Some are presented in a clear framework where for others the choices seem more arbitrary.

The Welsh strategy is one of the best examples of setting targets within a well-defined and behavioural-based model (Health Promotion Authority for Wales, 1990). Targets are divided into four linked areas: disease prevention, health lifestyles, health skills and health environments. In other documents the underlying models linking diseases, risk factors and population groups are less clear cut. For example, in the United States the objectives are divided into five groups: health promotion (this includes risk factors such as smoking); mental health and community based programmes; health protection (which includes unintentional injuries, occupational safety and health and oral health); preventive services (which are made up mainly of disease groups but general clinical preventive services are also included); data and surveillance systems, signalling the importance of monitoring targets in their approach; and finally a group of age related objectives. There is a large number of overlaps of targets within this model but these have been reconciled between areas and are repeated if necessary. The division in each area between separate but related health status, risk reduction and service and policy targets brings more rationality into the objective setting.

This rationale is not always apparent in other documents. The links between risk factors and diseases chosen are not always drawn. So, for example, the question of how far the reduction in smoking proposed in the *Health of the Nation* would

automatically fulfil part of the CHD target is not detailed. What reductions in other risk factors are needed? What is the prediction about autonomous trends in disease levels? What are the effects on other diseases and will there be increases in some causes of mortality? It is interesting to note that the Faculty of Public Health (1991) took an unusual but interesting line in framing areas for targets. Health outcomes were considered a consequence of risk factor or service changes and therefore not suitable for targets in themselves but providing the outcome measure for the evaluation of the strategy.

Identifying targets for each policy area is a necessary stage in the determination of a strategy, but unless resources are unlimited a further stage of selecting the priority areas for immediate action must be carried out. The US approach adopted a comprehensive set of targets, but other countries such as Australia and New Zealand chose the selective approach. The latter approach is adopted for the English strategy. If resources are to be allocated wisely the criteria for selecting target areas must be explicit and widely accepted.

2.2 CHOICE OF CRITERIA

The *Health of the Nation* puts forward three criteria for selecting key areas for action:

i) the area should be a major area of concern for health;

ii) effective interventions should be possible; and

iii) it should be possible to measure achievement through quantified indicators and targets.

Two criteria are notably absent from among those used to select target areas in the strategy. The first is equity and the second is cost-effectiveness.

Equity

This is seen as a major principle in WHO Health for All and has been reflected in many of the European health strategy documents (Barnes, 1990) and elsewhere. In some cases the principle has been interpreted as the need to set targets for particular groups of the population. In New Zealand, for example, attention was given to setting targets both for the Maori and those socio-economically disadvantaged. By contrast, in the United States, two of the three broad aims set out in Healthy People 2000 are broadly equity based, namely to reduce health disparities among Americans and to achieve access to prevention services for all Americans (US Department of Health and Human Services, 1990).

In an English context the key question is probably whether it would be acceptable to improve health gain for the healthier members of the population only, thereby increasing the health gap between the most and least advantaged. This is by no means a mere theoretical possibility. It may be much easier to change the behaviour of the well educated better off than their poorer fellow citizens and therefore more effective in terms of health gain to concentrate on them. Other possible equity dimensions that could be relevant are age, sex and race.

Cost-Effectiveness

The requirement to include this follows logically from the stated objective of the strategy to secure the best possible use of available resources (p.4). Money should not be spent in one area to improve health status when larger gains are to be had for the same money in other areas. Therefore comparative assessments of cost-effectiveness are essential.

The introduction of a cost-effectiveness criterion has the effect of making the link between national and local targets less clear-cut than it otherwise would be. What matters locally is the extra gain from extra spending in a particular area (the marginal cost-effectiveness). Thus a perfectly sensible national target may have no validity within a particular region or district either because local circumstances mean that the marginal benefit to be had is lower than average (eg. because of lower local prevalence of a disease) or the cost of intervention is higher (eg. because social

factors make it particularly hard to change population behaviour).

Of the criteria which are included in *The Health of the Nation*, the first contains three elements. A major cause of premature death; a major cause of avoidable ill-health; or a major cause of NHS resource use. This provides a useful starting point, however, current and future levels of disease incidence, prevalence and deaths relate to past as well as current levels of risk factors. A concentration on total deaths can also be misleading if no allowance is made for ages. With an aging population deaths from some causes will inevitably rise. There is also a danger to restricting analysis to those under 65 and concentrating on total figures. Deaths under 65 are concentrated among middle aged men. Does this mean a strategy should only be concentrated on this group? What about established patterns of behaviour among the young? There would also be a tendency to neglect the elderly although research has indicated that health promotion may be effective in decreasing morbidity among the elderly (Fries, 1980).

The second criterion of achievable change is sensible, but neither of these criteria guarantees cost-effectiveness because the cost of intervention itself is not considered. The third criterion for choosing target areas, that targets should be monitorable through indicators is much more questionable and may have received too much weight. It produces a tendency to concentrate on areas which are readily measurable to the detriment of those which are not. Inevitably this induces a bias towards areas affecting mortality. Bodies persist as the most easily counted of all end-points. If areas are identified which, in the view of the relevant professionals, offer good prospects of health gain for a large number of people then they should be targetted, even if no global indicators of success exist. If an area were targetted, the chances are that measures would emerge fairly quickly.

2.3 USE OF THE CRITERIA STATED IN THE GREEN PAPER

Having identified a list of criteria, the Green Paper sets about examining a set of areas against the criteria. One omission in this process is an explanation of how the shortlist of areas was drawn up. It would appear that a number of contenders in a "long list" have been whittled down by examining the areas in relation to the criteria. A general observation would be that there should be more transparency in the process of

selecting target areas by applying the chosen criteria.

The areas selected in the *Health of the Nation* are a mixture of disease groups, population sub-groups at risk, and social and environmental risk factors. There is much scope for confusion and duplication in such a listing particularly when the first selection criterion contains a mixture of health related and resource related elements. By applying this criterion in the same way as in the *Health of the Nation* the following disease groups, population sub-groups and risk factors appear to be major areas of concern, but do not appear explicitly in Figure 27 on page 36 in the consultative document.

Disease Groups:	Suicide
	Respiratory disease
	Diseases of the Musculoskeletal System, eg. Arthritis, Rheumatism
Population Sub-Groups:	Elderly
	People with disabilities, eg. loss of hearing, sight
	Low income groups
Risk Factors:	Occupation
	Sexual activity

Table 2.1 assesses how well these new areas perform against the second and third criteria, and most appear to be suitable candidates for targetting.

On the face of it, there is no obvious reason why the areas in the Green Paper should be included and those listed above should not be. The important point here is that the selection of areas is substantially arbitrary. Given the dangers inherent in selecting areas and the lack of scientific data to substantiate the selection, it must be clearly seen that the process is arbitrary. A more comprehensive set of criteria used more explicitly would greatly improve the chances of gaining widespread support for the strategy. The addition of equity and cost-effectiveness criteria would assist this process.

TABLE 2.1: ASSESSING A LONGER LIST AGAINST CRITERIA 2 AND 3

AREA	SCOPE FOR IMPROVEMENTS	ABILITY TO SET TARGETS
Suicide	Preventive measures Targetting those at risk Reduce stress?	Yes
Respiratory disease	Housing, air quality, occupational health	Yes
Arthritis	No or poor treatment Not avoidable	Yes
Rheumatism	No or poor treatment Not avoidable	Yes
Hearing	Not avoidable Improved management	Yes
Sight	Prevention – eye tests especially diabetic retinopathy	?
Elderly	Improve quality of life (especially continence, mobility)	Yes
People on low incomes, homeless, poor housing	Improve income and housing	Yes
Occupational health	Preventive measures Greater policing	Yes, some
Sexual activity	Reduce casual sex, genito-urinary diseases, AIDS/HIV	Yes

2.4 USE OF THE EQUITY AND COST EFFECTIVENESS CRITERIA

At the moment it is not clear what practical effects would result from the addition of an equity criterion. They would depend on the particular dimensions of equity which were taken into account. It has already been suggested above, that a concern for equity between age groups might change the target lists so that, for example, rehabilitation for the elderly or prevention of accidents in the home would gain prominence.

Addition of the cost-effectiveness criterion is likely to have a number of effects. Areas of low total burden, but where there were effective means of intervention at low cost might come to the fore. Second, targets might be tempered if, as is often the case, gains from intervention can be made cheaply starting from a low base, but become progressively harder to achieve as more of the at risk population is covered. Third, as already suggested, it may bring into question the validity of national targets when they are applied locally.

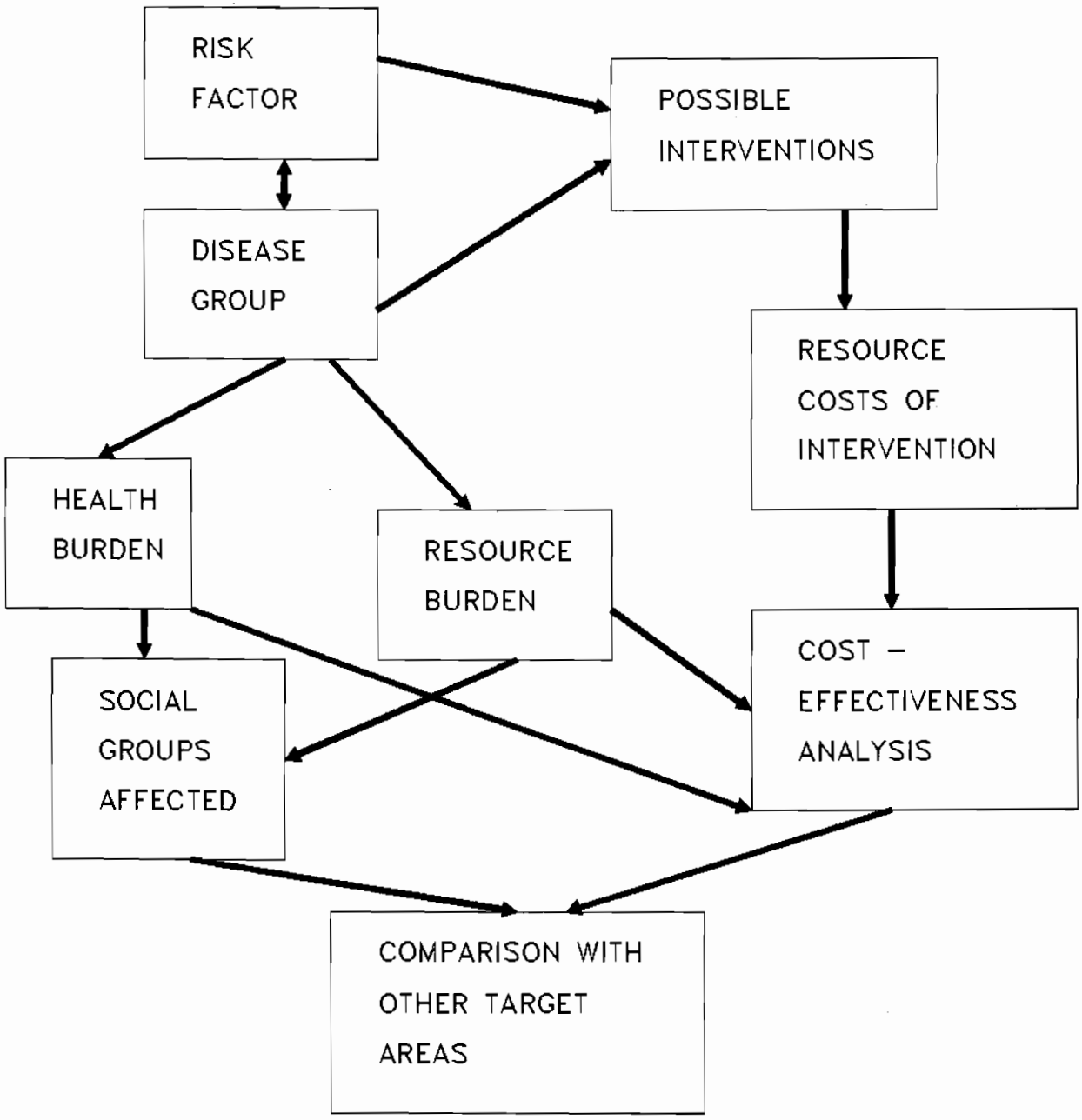
Target areas for action can be classified by:

(i) disease group;
(ii) social group (defined in terms of age, sex, social class); or
(iii) risk factor.

Because of the larger stock of data in this form to draw upon it is easier to define priorities, in the first instance, by disease groups. The *Health of the Nation* mixes its target areas defined in this way, with others defined by risk factors or social group affected. A comprehensive approach to each target area would use all three dimensions. In fact to examine the equity implications of a policy it is necessary to identify the social groups bearing the costs and gaining the benefits, and to appraise policy options for reducing morbidity and mortality in disease groups it is necessary to identify the causative factors.

Figure 2.1 shows the framework within which the equity and cost-effectiveness criteria can be used in selecting high priority target areas.

Fig 2.1 Framework for Equity and Cost–Effectiveness Criteria



Before any disease group is selected the following set of questions must be addressed for all the disease groups under consideration:

1) Does the disease area cause a significant health burden in terms of mortality, morbidity and resource use?

2) Which groups (age, sex, social class, geographical area, etc) are affected?

3) Is the disease preventable?

a) do we know enough about the links between risk factors and the disease?

b) can change be effected in those risk factors and by what means?

c) what is the likely magnitude of the change resulting from (b) above, for which groups and over what timescale?

4) What are the costs of the interventions identified in 3(b)?

5) Is treatment more or less cost effective than prevention (is a marginal shift within the area justified)?

6) Are further interventions in this area more or less cost effective than in other areas (is a marginal shift between areas justified)?

7) Are the equity implications of the changes in resource use in accord with the government's declared priorities for benefitting particular groups?

The first step, as suggested in the *Health of the Nation* is to identify the nature, size and incidence of the disease burden by answering questions 1 and 2. The relationships between the disease group and any risk factor must be modelled to answer question 3. After identifying possible interventions to reduce the risk factors, and costing these interventions, question 5 can be answered by comparing the cost-effectiveness of treatment and preventive measures. If the cost-effectiveness is

carried out using generalised indicators of health status improvement then question 6 can be answered by comparing the results with those of analyses of other disease groups. Finally, the information on the incidence of benefits can be used to test the interventions against equity objectives.

At present the available information on the cost-effectiveness of interventions is limited. A summary of comparisons from a range of studies is shown in Table 2.2.

TABLE 2.2 COST PER QUALITY ADJUSTED LIFE YEAR (QALY) OF COMPETING THERAPIES : SOME TENTATIVE ESTIMATES

	COST/QALY £ AUG 1990
Cholesterol testing and diet therapy only (all adults, aged 40 – 69) (A)	200
Neurosurgical intervention for head injury (B)	240
GP advice to stop smoking (C)	270
Neurosurgical intervention for subarachnoid haemorrhage (D)	490
Anti-hyperintensive therapy to prevent stroke (ages 45–64) (C)	940
Pacemaker implantation (D)	1100
Hip replacement (D)	1180
Valve replacement for aortic stenosis (D)	1410
Cholesterol testing and treatment (A)	1480
CABG (LMVD, severe angina) (D)	2090
Kidney transplant (D)	4710
Breast cancer screening (E)	5780
Heart transplantation (D)	7840
Cholesterol testing and treatment (incrementally) of all adults 25–39 years (A)	14150
Home haemodialysis (D)	17260
CABG (1 vessel disease, moderate angina) (D)	18830
CAPD (D)	19870
Hospital haemodialysis (D)	21970
Erythropoietic Treatment for Anaemia in Dialysis patients (assuming a 10% reduction in mortality) (F)	54380
Neurosurgical intervention for malignant intracranial tumours (B)	107780
Erythropoietic treatment for anaemia in dialysis patients (assuming no increase in survival) (F)	126290

TABLE 2.2 Continued

Derived from:

A DoH, Standing Medical Advisory Committee (1990) "Blood Cholesterol Testing: the Cost-effectiveness of opportunistic cholesterol testing".

B Pickard, J D et al (1990) "Step towards cost-benefit analysis of regional neurosurgical care". BMJ, 301, 629-635.

C Teeling Smith, G (1990) "The economics of hypertension and stroke". American Heart Journal, 119, 3, Part 2 (Supplement), 725-728.

D Williams, A (1985) "Economics of Coronary Artery Bypass Grafting". BMJ, 249, 326-329.

E DHSS, Forrest Report (1986) "Breast Cancer Screening".

F Hutton, J et al (1990) "The cost-effectiveness of the use of erythropoietic in the treatment of anaemia arising from chronic renal failure".

Source: Maynard (1991)

2.5 NATURE OF THE TARGETS

The previous sections have proposed developments in the process by which target areas are identified. There are also several substantive points to be made about the approach to target setting advocated in the *Health of the Nation*.

(i) Determinants of Health

The model of prevention of ill health which is implicit in the strategy could be regarded as paying too little attention to social pressures and too much to directly changing the behaviour of the individual. During the 1970s and after there was a move towards the view expounded by Lalonde (1974) which groups the determinants of health into four: environment; human biology; lifestyle; and health care. In this context environment is considered to be social as well as physical. Attempts to build complete models of the determinants of health reveal complex interactions between such factors as social and physical environment, well-being and prosperity, individual behaviour, disease, health care and quality of life (McKeown, 1976; Evans and Stoddart, 1990). What is clear is that knowledge is only one factor influencing choice. Taking all factors into account an individual may be quite rational in undertaking risk-taking behaviour (Birch and Stoddard, 1990; Graham, 1987). If this is not understood there could be considerable disappointment surrounding the achievements of a health strategy, and resources could be inefficiently employed.

Most research on wider determinants of health has concentrated on the links between material deprivation, income and health. The influence of these factors has been subject to much debate, but there is a general lack of well validated studies of causal relationships (Mackintyre, 1988). Shiell (1991) in reviewing the role of poverty in health inequalities, concludes that there are considerable difficulties in translating observed links between poverty or housing and health into policy recommendations.

Two major problems arise: first, establishing the effectiveness of policies to improve material deprivation or poverty, for example, the anti-poverty measures

suggested in the Black Report; second, establishing the link between the change in income or circumstances and the health outcomes (although health may not be the only objective of such policies). Only in a few cases have both elements been demonstrated. For example, Kehrer and Wolin (1979) reported a prospective study where expectant mothers who were at risk of giving birth to low birth weight babies were randomly allocated to different welfare schemes. The results showed that those families with a 50 per cent higher welfare income than the control group had substantially fewer low birth weight babies.

The lack of information on causal links of the wider determinants of health has two important implications. First, it is unclear which strategies will be the most effective in achieving health targets. Second, changes in the factors which influence health will affect the ability to reach targets. Only in a relatively stable period (assuming we understand the major influences even if we cannot quantify them) could any reasonable view be drawn as to the efficacy of the health strategy. This may be politically convenient but the ability to give responsibility and incentives to health or other authority staff based on general targets may be curtailed. In the absence of this incentive structure the ability of a health strategy to deliver the desired outcomes relies much more on co-operation which in turn may shape the objectives and final drafting of the strategy.

(ii) Prevention or Treatment

There is some lack of clarity about the intention of the strategy document. It is not clear whether it is setting out to advocate prevention and the positive promotion of health or whether it is attempting to consider all types of intervention. Much of the language of the Green Paper supports the former view, but the inclusion of treatment targets supports the latter.

(iii) Past Mortality

The second point concerns the historical nature of the targets. The targets set mainly reflect past mortality experience and there is no description of any attempt to predict what the future pattern of mortality and morbidity might look

like. Computer software is available to allow prediction of future burdens, given risk factors and demographic trends for use both nationally and locally. It would be particularly effective to link the use of such predictive tools to systematic monitoring in trends of diseases, such as that which identified the spread of AIDS in the USA.

(iv) Targets as Final Outcomes

The targets reflect a mixture of detail and utilise final outcomes, intermediate outcomes and process indicators. The general lack of understanding of causal relationships makes the specification of detailed intermediate or process targets questionable. In general, targets specified in other than final outcome terms will tend to be pursued for their own right rather than for the health gain. Many of the targets specified in the Green Paper are not of final outcome as Appendix A shows. Achieving the stated target of closure of the remaining 90 long-stay psychiatric hospitals of itself offers no health gain and unless, as the Green Paper suggests, new measures are developed, it will be difficult to know what the effect of the closures has been. A safer alternative to handing down intermediate targets from above may be to let them be developed locally and incorporated into monitoring mechanisms.

(v) Relative or Absolute Targets

The fifth point is that some targets are specified in relative and some in absolute terms. These specifications will mask variations in terms of geography and age, sex and social class. Important issues arise here, and if the equity issue is to be grasped at all, it may be desirable to specify a target which is more modest but which includes a specific target for reducing differences or inequalities. Similarly, the targets could be expressed in terms of minima and maxima across the country. Many districts or regions with particularly low rates of, for example, coronary heart disease or lung cancer may not need to take any action at all and it may be more appropriate to re-direct resources towards districts with

particularly high rates. Again, the target could be to reduce geographical inequality rather than attempt a uniform shift or an inequitable improvement of the best performers.

It may be more appropriate for government to set broad targets for reducing inequalities for the various target areas. However local discretion must be allowed and there seems little scope for this in the way that the proposals are framed at present. Although risk factors tend to overlap in terms of their contribution to disease, there will undoubtedly be districts which have particular problems with, say drug abuse and HIV. Districts may want to target particular risk factors or diseases which present significant problems locally, or where a district feels its efforts can be most effectively concentrated. No indication is given in the Green Paper of the discretion that will be available to districts. If the final list of targetted areas is much shorter there seems even less reason for the targets to be compulsorily applied to all districts.

(vi) Complacency

A final difficulty with specifying targets at a national level is that achievement of a target can lead to complacency. It is widely acknowledged that the introduction of performance indicators did not encourage those districts or hospitals which performed well to improve. If too much emphasis is placed on target achievement there is a danger that agencies will engage in activities in which targets can to be met easily, rather those where most gains are to be made.

Overview on Targets

There are good reasons why national targets should not simply be applied locally. Population characteristics and disease patterns vary and what is, on average throughout the country, an effective intervention may have much greater and lesser effects when applied locally. Similarly, certain interventions may be particularly cheap or expensive in a given locality, reflecting the circumstances of local providers and the existing scale of provision. In consequence, interventions which are highly cost-

effective in one place may be dominated by alternative uses of resources elsewhere. A further consideration is that targets may already have been achieved in some districts, but further effort may still be appropriate.

There is a danger that if national targets are simply imposed on lower levels, and these targets are seen locally as inappropriate, then much of the benefit of a strategy in terms of refocussing energies on achieving health gains may be lost.

It would seem preferable to require of Districts that they initiate a process of selecting targets for themselves, starting with a few and then expanding on them. The process would both draw on and inform research on effectiveness, cost-effectiveness and outcome measurement. Targets could then be picked up by higher tiers of the NHS and built into monitorable national ones. In that way an initially very small set of targets at all levels would gradually be expanded. In the early stages the DoH and regions would mainly be concerned with monitoring lower levels to see that due process was taking place.

3. RESOURCE CONSEQUENCES OF THE STRATEGY

One consequence of reductions in risk factors, such as smoking, is that health care expenditures on related diseases may be expected to fall. A number of factors will influence any changes in these specific health care expenditures. First is the speed at which a reduction in a risk factor leads to a reduction in disease incidence. For example lung cancer rates in women have continued to rise long after rates of smoking have fallen. This is because of a cohort effect of past smoking habits. There was a considerable increase in the number of women smoking after the war, so there was a considerable amount of latent disease. Also there can be a lag between the change in risk factor and the change in the risk of disease. For some diseases, the relative risk of the ex-exposed will return to that of the non exposed but often a residual risk will remain. Hence the complicated time pattern of individual risks have to be considered along with demographic changes. Age and sex adjusted target rates could be achieved for some diseases but the absolute numbers with the disease could be higher and consequently there would be no resource saving even for disease specific costs.

Another factor which may influence resource use is changes in treatment. For example, currently there is little effective treatment available for lung cancer. A new and effective treatment would change the pattern of resource use as could changes in procedures to reduce inefficiency. The difficulty is the time factor. Given that most smoking related diseases affect older age groups, a reduction in children's smoking would involve very long time periods over which the pattern of actual resource use would be difficult to predict.

A final potential problem in forecasting reduction in specific conditions is the assumption that other risk factors of the disease will remain constant. Atmospheric pollution may, for example, increase in the future and affect lung related conditions while smoking continues to decline.

The difficulties in predicting declines in the resources which are devoted to a specific condition do not mean the reduction of a risk factor is not cost-effective. The costs of health care are only one factor and do not include the health benefit to be gained

from a lower prevalence of disease. Also interventions are evaluated as the differences between alternative actions, including the possibility of 'doing-nothing'. The doing-nothing option involves a base line prediction of what will happen and the intervention may include an absolute rise in disease prevalence because of demographic factors.

Another factor mitigating against resource saving is the fact that for many prevention activities those who would eventually need treatment are a much smaller number than those who may need to consume the health prevention activities. The larger the association between risk factor and disease incidence and the easier and cheaper it is to identify those at high risk the more likely is prevention to be cost effective and potentially resource saving. One of the difficulties of evaluating prevention activities is the difficulty of identifying those who are most likely given the level of risk factors to develop a disease. Similarly there can be difficulty in easily identifying those engaging in the most risky behaviours.

The pattern of changes in resource use over time for particular diseases will therefore depend on a number of different factors. Resource savings would only be predicted to occur where reductions in disease factors lead to a rapid change in disease and the risk factor/disease link is immediate. An example of this is in drink related accidents.

However even if primary or secondary prevention lead to reductions in specific diseases and consequent resource use it does not necessarily mean that total health care resources will be saved. In their study of life time health care costs associated with smoking Leu and Schaub (1983) highlighted two factors. First, that a drop in smoking would increase the total population and secondly that death of an individual can only be postponed. Hence the individual life time health care costs depend on contrasting the cost over prematurely shortened life to that of a longer life.

On average the elderly consume more health care resources than the rest of the population. Also the lack of effective treatments for many disease means that those who prematurely die do not necessarily consume large resources. It should be noted that Fries (1980) has suggested that health promotion for the elderly may compress morbidity and increase their quality of life.

An increase in prevention and health promotion activities may be beneficial but is unlikely to produce substantial immediate resource savings. Also a lack of attention to past prevention may imply there is still a backlog of disease. Changing priorities therefore requires difficult decisions.

The point has already been made that the issue of the resource allocative consequences of the introduction of the strategy has not been addressed squarely in the Green Paper. The changes proposed, or indeed any general shift to preventive policies, are unlikely to reduce the costs of acute care sufficiently to pay for themselves in money terms, particularly in the short and medium terms. This means that any of the developments proposed, whether they be preventive targets or treatment targets (such as for CABG), will have to do one or more of these things: i) draw resources from elsewhere; ii) utilise new resources; or iii) use resources freed by efficiency improvements in the acute sector. If the only source of development is the efficiency gains in the acute sector then pace of change is likely to be slow, and the possible loss of the efficiency gains to promotion and preventive medicine may act as a powerful disincentive for clinicians to co-operate. If the option of drawing on efficiency gains is not available, then either new money has to be found or it has to be explicitly agreed that some things which are currently done, or some services which are currently provided will have to be stopped or reduced in order to free the required resources.

In the absence of information on cost-effectiveness it is necessary to be very cautious on the shifts made. The changes in habits of thinking which should follow the strategy will, with time, lead to further information being collected and an increase in areas to be covered. Until then, the risk of the strategy worsening health gain and thus being discredited, is very real.

It has not proved possible to estimate the costs of achieving all of the targets currently suggested in *Health of the Nation*, and thus to gauge the size of new money or resource shifts required to bring the targets about. Two particular areas are taken as examples. One is a promotion target, reducing smoking, one is a treatment target, CABG rates. In addition some illustrative figures are taken from a prevention (screening) area.

3.1 A CAMPAIGN TO REDUCE SMOKING

Increases in Health Promotion Activities

Identifying both current health promotion expenditure and its effectiveness is fraught with difficulties. In this example some 'ball park' figures are presented to indicate the resources which may be required for the adoption of increased health promotion activities directed at smoking in order to achieve the Green Paper targets.

Smoking has declined, and analysis of consumption figures suggest health education activities in general played a part in the overall reduction in consumption. The effects have worked in two ways. Firstly, the evidence that smoking was linked to diseases such as lung cancer, the publication of prestigious reports from the Royal College of Physicians and the accompanying press coverage had a 'shock' effect. Secondly, there has been a cumulative trend affect which has resulted in a trend downwards in cigarette consumption, other things (like prices), being equal (Godfrey and Maynard, 1988).

TABLE 3.1: VARIATIONS IN PROPORTION OF POPULATION WHO SMOKE BY REGION

	1974	1988	% CHANGE
North	46	36	21.7
Yorkshire and Humberside	43	32	25.6
North West	48	33	31.3
East Midlands	44	32	27.3
East Anglia	45	29	35.6
Greater London }	39	29	25.6
Outer Metropolitan}		34}	
Other South East }	46	29}	32.6
South West		28}	
	41	28	31.7
Wales	46	31	32.6
Scotland	48	37	22.9
Great Britain	45	32	28.9

Source: GHS, 1988

It may be expected that current activities undertaken by the HEA, Regions, Districts, FHSA and GPs contribute to this affect along with the adoption of workplace policies. Assuming these trends continue further activities are necessary to reach the targets set in the *Health of the Nation*. Also if the targets for men and women smokers are applied universally to all regions, then some will need to do more than others (see Table 3.1).

The activities which could be expanded are considered in turn:

Health Education Authority

The HEA may be expected to have a central role in a smoking programme. The activities of the HEA include coordination of local and national initiatives, financing mass media campaigns, providing support materials and in some cases part funding for local campaigns. Also they act in an advocacy role encouraging the adoption of smoking policies over a broad range of agencies. Currently the smoking programme in HEA has a budget of £3.7 million which includes £2 million for the current campaign directed at teenage smokers (HEA, 1991).

Mass media campaigns are expensive. About £100 million is spent by the tobacco industry on advertising its products. Recent high profile campaigns for AIDS and drug misuse have been expensive. For example, the AIDS campaign to leaflet every home cost approximately £20 million (OHE, 1988). It has been estimated that at least £8 million would be needed to mount a successful smoking mass media campaign (Reid and Smith, 1990).

The effectiveness of mass media campaigns have been questioned but they can play a part in a comprehensive smoking strategy. Another way of mobilising media responses has been by events like National No Smoking Days. The cost of such events have been estimated at £300,000 per year and evaluation has suggested that up to 0.5 per cent of adult smokers may quit for good following this event (Townsend, 1984). If mass media campaigns are included, the estimate of additional resources to expand the HEA smoking programme in order to achieve the targets would be a minimum of £10 million.

Regions/DHAs

An intensive regional smoking programme supported by districts, similar, say to the smoking programme part of Heartbeat Wales may be expected to cost about £200,000 for each Region, excluding existing staff and other costs allocated to smoking. This programme would include support for workplace smoking programmes and other community projects. The total resource cost would, therefore, be about £3 million.

FHSAs/GPs

The new GP contract has meant that GPs can receive remuneration for health promotion clinics, including those aimed at encouraging people to stop smoking. The fee is currently £45 a session which must include at least 10 patients. Assuming a population of 16 million smokers in England and that a third of smokers would attend a smoking clinic in any year, some idea of the extra FHSA expenditure can be calculated. If it is assumed, because of the national campaign, that half of those invited attended a stop smoking course and the GP arranged for 6 sessions each with 10 patients, then the total session fees for the 2.5 million attenders would be in the region of £11 million. To reach all smokers, assuming a maximum of 50 per cent take-up would, over time, involve session fees of around £34 million.

The evidence that such clinics achieve higher success rates than opportunistic advice from GPs is not yet available. Indeed available research suggests that no method gave better results than "firm, consistent and repeated help and advice to stop smoking" (Kottke et al, 1988). The resource implications of GPs giving such advice to smokers in an opportunistic way would be much lower than special clinics. No additional fees are involved, but there are the opportunity costs of the doctor's time. Over five years most smokers should be seen and if the advice, in terms of additional GP time, amounted to £1 per patient, this would only total £15 million. If doctors consistently used extra time to give advice in this time, of course, more GPs (or practice nurses, etc) may be required to maintain existing services.

Conclusion

The resources to mount even a modest comprehensive smoking strategy can be estimated to be in the region of £20 to £30 million. This would include an expansion of HEA funds by £10 million, FHSA expenditure by about £10 million and Regional and Districts by at least £3 million.

Taxation as an Alternative

An alternative to spending a large sum on promotional activity would be to cut cigarette consumption by increasing duty on tobacco. Predicting how much of an increase in taxation would be required to meet the Green Paper targets is subject to uncertainty, particularly about growth in real incomes and about the trend effect of past promotional campaigns. Nevertheless, earlier studies (Godfrey and Maynard, 1988) can be used to roughly gauge what would be involved. Assuming 3 per cent real income growth per annum and a continual health education effect of 3 per cent fall in consumption (by weight) each year, tax increases increasing cigarette prices (real) by 5 per cent per year would be required from 1992–2000 to achieve the target. This would only be the case on favourable assumptions about the falling trend in consumption during the period 1988–92. In order to be more certain of achieving the targets, real increases of 10 per cent per year would have to be initiated.

Politically this may be hard to achieve, particularly when the level of contribution of excise taxes on tobacco to the exchequer is taken into account. If smoking were to cease, even allowing for the fact that the money no longer spent on cigarettes would be spent on some other articles subject to VAT, the government would have to find some £82 in alternative revenue sources for every member of the population. Therefore, those commentators who see smoking as the "Litmus Test" of government commitment to health may be too demanding.

3.2 ACHIEVING CORONARY ARTERY BYPASS GRAFT (CABG) TARGETS

One of the treatment targets mentioned in the *Health of the Nation* is that set in 1986 of achieving a rate of CABG operations of 300 per million population per year. As the

Green Paper indicates, this target should have been reached by 1990. Although recent figures are not available nationally the target has not been reached in some (probably most) regions. An important factor in this is likely to have been cost. For example, in Northern Region the rate of by-pass grafting was 214 per million population. This implies that a further 267 grafts are required annually. A graft costs between £6,000 and £9,000 per patient, so the annual resource implications of achieving this target in this one region are of the order of £1.6-£2.4 million. In addition, capital expenditure of up to £6 million may be necessary to create the new capacity. All of this assumes, of course, that if the money is available the real resources (primarily of people, suitably trained) can be found.

3.3 SCREENING - AN EXAMPLE TAKEN FROM CHILDHOOD DEAFNESS

This example is chosen to illustrate the resource implications of changing screening targets so that a more sensitive testing procedure (using Audiometry and Tympanometry) is substituted for a less sensitive one (using Audiometry alone). Using the results of work undertaken at York (Akehurst, Stillfried and Watt, 1991), two profiles of costs may be set out in Table 3.2.

The important point to note is that the increase in client cost of the screening element in the programme is only one quarter of the total cost increase. The remaining costs reflect further diagnostic work and treatment. This pattern is likely to repeat itself for many screening programmes and there is a real danger that total resource implications will be underestimated because of the neglect of the treatment cost elements.

3.4 CONCLUSION

The general conclusions that follow from this Section are: first, the issue of resource consequences has been avoided in the Green Paper and no indication given of where resources might be found; second, that the resource implications of implementation are likely to be significant; and third, there is a risk that the scale of costs of some parts of the strategy may be underestimated. Past experience would suggest that if money has to be found to fund the implementation of the strategy exclusively by the release of resources from efficiency gains, the pace of change may be slow.

TABLE 3.2: COSTS OF SCREENING AND TREATMENT FOR OTITIS MEDIA

	AUDIOMETRY	AUDIOMETRY AND TYMPANOMETRY
Numbers Screened	600,000	600,000
% Fail First Test	14%	42%
Numbers Fail First Test	84,000	252,000
% Fail Second Test	5.5%	18%
Numbers Fail Second Test	33,000	108,000
Total Number of Screens	684,000	852,000
Cost of Screen per Child	£2.33	£3.12
Cost of Screen Programme	£1.59m	£2.66m
Numbers Referred for Diagnosis	33,000	108,000
Numbers Found by Screening to Need Treatment	5,568	17,226
Cost per Operation	£264	£264
Total Cost of Treatment	£1.47m	£4.55m
Total Cost of Treatment and Screening	**£3.06m**	**£7.21m**
Total additional cost due to change in screening programme from Audiometry to Audiometry and Tympanometry	**£4.14m**	
of which amount due to screening alone	**£1.08m**	

4. THE ROLE OF NON-HEALTH AGENCIES

The recognition of the important influence on health outcomes exerted by factors outside the control of the Department of Health and the NHS is one of the most striking and welcome aspects of the *Health of the Nation*. Several of the possible key areas for improvement identified in the document, eg prevention of accidents, food safety and environmental quality, lie almost totally outside the influence of health policy-makers. Many other areas, such as smoking, eating and drinking habits, and physical activity, which involve individual behaviour decisions, are subject to strong influence from private sector interest groups and their related government departments, as well as the health education agencies of the NHS.

Although recognising the problem the *Health of the Nation* does not contain a discussion of the mechanisms by which health considerations can be introduced into the decision-making processes of other government departments, their agencies and the industries which they regulate. A co-ordinated approach at central government level is clearly essential, but how this can be translated into effective policy implementation at the operational level is more difficult to determine. While not expecting the Green Paper to set out detailed plans, more discussion of these issues would have made the overall approach more convincing. The ability to gain the cooperation of other institutions outside the health sector is a key element in the feasibility of achieving improvements in health outcomes in many areas.

This section examines the issues in more detail, beginning with an overview of the main non-health agencies and departments whose policies have an impact on health. The ability of health policy-makers to influence these non-health agencies is then assessed through an analysis of the incentive structure within which they operate. Finally, some suggestions are made as to how the non-health agencies might be incorporated in the system of target-setting and monitoring which is proposed for the key areas for improvement in the *Health of the Nation*. Where possible reference is made to past experience, notably in relation to policies in the area of reducing the consumption of tobacco and alcohol.

TABLE 4.1 INVOLVEMENT OF NON-HEALTH AGENCIES

	RISK FACTORS	GOVERNMENTAL UNITS INFLUENCING POLICY	IMPLEMENTING ORGANISATIONS
1.	**ACCIDENTS**		
	a) Transport	Dept of Transport	Local Authorities Transport Industry
	b) Work	Dept of Employment	Health and Safety Executive Employers
2.	**ENVIRONMENT**		
	a) Atmospheric Pollution	Dept of Environment Dept of Trade and Industry	Local Authorities Polluting Industries
	b) Drinking Water	Dept of Environment OFWAT European Commission	Water Plc and companies
	c) Bathing Water and beaches	Dept of Environment National Rivers Authority European Commission	Water Plc's Local Authorities
	d) Poor Housing	Dept of Environment	Local Authorities Housing Associations
3.	**FOOD SAFETY**		
	a) Food Borne diseases	Ministry of Agriculture Fisheries and Food Dept of Environment	Local Authorities Food Producers Food Industry Retail Industry
	b) Chemical Safety of Food	MAFF Dept of Trade and Industry	Food Industry Food Producers
4.	**LIFE STYLE**		
	a) Smoking	Dept of Trade and Industry Treasury European Commission	Tobacco
	b) Eating and drinking habits	Dept of Trade and Industry Treasury MAFF European Commission Home Office	Food and Drink Industry Local Authorities
	c) Drug Abuse	Home Office	Police Customs & Excise

4.1 IMPACT OF NON-HEALTH AGENCIES AND POLICIES ON HEALTH

The wide variety of governmental institutions which influence policy regarding risk factors is illustrated in Table 4.1. In many areas the European Commission is involved in standard setting and policy co-ordination at community level, for example, with regard to beach and water quality standards and advertising and product labelling. At least seven central government departments, apart from the Department of Health, have major policy-making roles which influence health factors. Implementation of policy rests in many cases with local government through environmental health departments, but often responsibility rests on private industry to ensure that appropriate standards are maintained. A variety of mechanisms exist to monitor adherence to standards. For example, specific regulatory agencies have been established as in the water industry, where OFWAT and the National Rivers Authority are concerned with the performance of the industry in water and sewerage treatment. In preventing accidents at work the Health and Safety Executive operates at a national level across all industries.

The complexity of the interactions between institutions reflects the cornplex origin of many of the risk factors. High levels of nitrogen in drinking water have been identified as a potential health risk. Treatment processes to remove nitrogen from drinking water must be used by the water industry to meet required standards. The sources of nitrogen in drinking water are not all natural and may result from industrial discharges into catchment areas or from the run-off of fertilisers from intensely cultivated land. The immediate responsibility of removing the nitrogen rests with the water industry, but policies in the agricultural sector encouraging the greater use of artificial fertilisers could be regarded as a more basic cause of the problem than failure to treat water adequately. The agricultural sector might also argue that they are constrained by the pricing and regulatory regimes operated by the EC Common Agricultural Policy, which may have given incentive to farmers to cultivate more intensively in the first place.

Similarly complicated patterns lie behind many of the other health risk factors. An understanding of the political interactions must be combined with knowledge of the technical and industrial origin of the problem. The opportunity to achieve a co-ordinated policy is likely to be greater when the risk factor is clearly associated with

health problems (eg smoking) and regarded as a issue in which health policy-makers should take the lead.

4.2 CO-ORDINATING POLICY ON HEALTH

The main thrust of the *Health of the Nation* is the achievement of improved health by influencing the behaviour of individuals, and the behaviour of organisations responsible for health risk factors. Behaviour is more likely to be influenced in the desired way if policy co-ordination can ensure that counter-incentives are not given by government departments and agencies adopting conflicting positions.

National Coordination

Co-ordination of policy may be easier if the health benefits from policies in other areas are complementary to the main purpose of government agencies in the areas. For example, there is little likelihood of conflict between environmental and health objectives in reducing atmospheric pollution, improving water quality, cleaning beaches and improving housing. Disagreement may arise over the level of intervention in these areas, as the health benefits may justify more investment to remove specific problems than the environmental benefits may indicate. In the case of road accidents many transport investments simultaneously improve safety and provide time saving benefits to road users. Conflict is more likely to arise over traffic management proposals which may improve pedestrian safety at the expense of road users. Food safety raises a further issue of policy co-ordination within departments as well as between them. The Ministry of Agriculture Fisheries and Food (MAFF) has responsibilities to consumers and the public at large to ensure that legal standards are met, but at the same time MAFF has a sponsorship role in relation to the UK agricultural and food industries. Extra requirements to benefit consumers are likely to impose extra costs on the industry so the ministry may frequently have difficulty balancing the interests of the groups for which it is working. The dangers of a health minister intervening in this area were well illustrated by the recent issue of salmonella in poultry.

Even where policy implementation seems clearly to be in the control of the government, and specific interventions, such as investment programmes and legislation

changes, can be identified to tackle individual problems, co-ordination is not easy. When policy implementation requires measures to change peoples' lifestyles through health promotion and education programmes even more conflicts of interest arise.

The difficulties of national co-ordination were illustrated in a study of the prevention of alcohol and tobacco problems (Maynard & Tether, 1990; Godfrey & Robinson, 1990). Consumption of these substances, which cause health and other problems, is influenced both by demand factors, such as price, and health information and supply factors such as the behaviour of the industry. The alcohol and tobacco industries are characterised by large multinational organisations with common interests in opposing any measure which may effect their profitability. In contrast prevention lobbies are more diverse and less well co-ordinated, and the responsibilities for alcohol and tobacco policies are spread between many different government departments. Although some groups are common, there are many different policy networks (Tether and Harrison, 1988), and the Department of Health is not at the centre of all of them. The Home Office, for example, plays the lead role in any areas that involve legislation and considers that its officers have all the necessary expertise to evaluate proposed changes in legislation. This has led to an emphasis on law and public order problems when changes in licensing laws are being debated, rather than on possible health consequences. Some evaluation of the health consequences of policy changes however has been attempted retrospectively.

Prevention Policies

Prevention policies which affect consumption can be grouped into fiscal measures, legislation, voluntary controls and information provision.

Fiscal Measures

Price and income are important determinants of alcohol, tobacco and food choice, and controlling prices of alcohol and tobacco through taxation is one of the most effective means of changing consumption (Godfrey, 1989). An examination of past fiscal decisions reveals that, apart from the 1991 Budget, health considerations have not played an important part in settling tax rates (Leedham & Godfrey, 1990). Despite the

acknowledgement of smoking-related problems, the real price of cigarettes was allowed to fall in the later part of the 1980's. The Audit Commission Report on Coronary Artery Disease strongly criticised this failure to link economic incentives with the aims of health promotion policy (National Audit Office, 1989).

Legislation

Legislation is often advocated as a relatively costless approach to changing behaviour, but regulation and enforcement is often a very costly activity. If responsibility for enforcement rests with a non-health department of government, which does not see health improvements as a high priority amongst its objectives, then the value of legislation can be undermined. For example, selling cigarettes to children has been illegal for many years, but the law has not been strictly enforced. Legislation backed by information campaigns and visible enforcement can achieve behavioural change, as in the case of compulsory car seat-belt use. It can also have an important symbolic value indicating the seriousness with which particular health problems are viewed. A significant proportion of the British public believed that cigarette smoking could not be harmful because the government did not ban cigarette advertising (Marsh and Matheson, 1983).

Voluntary Controls

The government has adopted the voluntary agreement approach on the issue, through negotiations with the tobacco industry on advertising and sponsorship. Such agreements depend on co-operation and consensus but their implementation is generally a quicker and more flexible process than drawing up new legislation. They also allow governments to shift some of the costs of regulation on to industry. A general policy of deregulation of industry has been pursued in recent years to allow freedom of management action, and voluntary agreements, in areas like health, fit in with this approach (Harrison, Tether & Baggott, 1990). The EC policy is based on a legislative approach and there have been a number of disputes within Europe because the British Government has tried to preserve its policies on voluntary agreements.

Information

Information campaigns to increase knowledge of the health risks of activities and to influence individual behaviour are not solely the responsibility of health authorities and the Health Education Authority (HEA). One study identified eleven government departments as having some responsibility for information provision on alcohol and tobacco (Harrison and Tether, 1990). For example, campaigns against drinking and driving are administered by the Department of Transport. The dangers of confused messages were illustrated one year when the DoT campaign slogan "Drinking Sensibly" was heavily critised by health promotion agencies.

What emerges from the above discussion are three basic indicators of the likely success of attempts to co-ordinate health promotion policy at the central government and national agency level:-

(i) Success is more likely if achievement of health objectives is complementary to the achievement of a non-health department's main objectives;

(ii) Success is more likely if the pursuit of health objectives does not threaten the economic interests of organisations sponsored by non-health departments; and

(iii) If the above conditions do not hold success may be achieved with the support of external bodies, such as the European Community, which have superior jurisdiction.

A final cautionary note has been raised by some authors who note that while co-ordination is desirable in some areas, independent (and possibly competitive) policy-making may produce innovative ideas in others (Robinson and Maynard, 1990).

4.3 LOCAL CO-ORDINATION

Co-ordination of policy at central government level would only be a first step towards the implementation of a successful health promotion strategy. Co-ordination of the agencies for implementation at a local level would be essential. While the possibilities

are obvious and networks of interested groups may be easier to arrange locally than on a national basis, barriers remain. The history of community care illustrates that welfare service providers whose budgets are cash limited, have incentives to shift costs to other services where budgets are not. This led to a considerable increase in social security payments for the care of the elderly in the 1980s (Wright, 1990). Attempts were made to overcome cost shifting between health and local authorities through joint finance of experimental schemes, but this met with only modest success (Gerard and Wright, 1990). The implementation of new proposals where the needs assessment of those in the community and budgeting are separated from the provision of services has some parallels with NHS reforms.

It may be expected, if the trend for separating purchasing from provision continues, that local co-operation between agencies may develop in different ways. Providers may be providing services across a range of purchasers. Different purchasers may see benefits in co-operation, including sharing information costs and ensuring that plans are complementary (or at least do not conflict). One barrier to co-operation with the old system was the differences in boundaries between different agencies. At regional level there are differences between local authority and health boundaries and divisions exist within the health service between DHAs and FHSAs which in turn differ from local district council area. It remains to be seen whether the clarification of roles and responsibilities through contracting will overcome these problems.

Experience in related areas has also highlighted the difficulties of inter-agency co-operation in the implementation of policy. The inquiry into the handling of suspected cases of child abuse in Cleveland identified these major weaknesses in relationships between the NHS, the Local Authority and the Police. The main agencies did not have a proper understanding of each others functions in relation to child sexual abuse; there was a lack of communication between the agencies; and, finally, the differences of view between middle management officers of the different agencies were not recognised and resolved by senior staff of those agencies (Butler-Sloss, 1988). Several recommendations emerged from the report of the enquiry, which are relevant to the implementation of health promotion policies.

While inter-agency committees are essential, they can only be effective if they are

backed publicly by the Chief Officers of the participating agencies, and have a remit agreed by these officers. Representatives on such committees should have sufficient seniority and delegated authority to make commitments on behalf of their organisations to implement policies agreed by the committee. For many problems no single agency will have sole responsibility for policy implementation. Each agency should be given prime responsibility for a particular aspect of the problem, but must act within an agreed framework with full exchange of information (Butler-Sloss, 1988).

Even if interests are shared there may need to be some catalyst to ensure contacts are made, networks are built and information shared. The Regional Alcohol Misuse Co-ordination scheme is one model that could be studied by those responsible for other health problem areas. The evaluation of this scheme is not yet available, but some difficulties have been encountered because the co-ordinators have no direct control over resources.

The fact that co-ordination of health promotion activities within the NHS has not proved easy, indicates the degree of difficulty likely to be encountered when other departments and agencies are involved. Griffiths et al (1991a & 1991b) describe some of the difficulties of the Oxford RHA's attempt to create a coherent health promotion strategy across DHAs and other agencies. This region is relatively compact and the initiative was well financed, but there was tension between the RHA and DHAs in the allocation of resources. Districts did not necessarily want to be constrained within the region's priority areas but wished to use money for other health promotion initiatives.

Some of the problems may be overcome by the clearer definition of roles which is required to implement a system of contracting for services. The use of contracting for the achievement of health promotion targets is seen as a key element in the implementation of the strategy in the NHS (Nichol, 1991). To extend the contracting framework beyond the NHS to include other agencies would require a co-ordinating, budget-holding purchasing organisation. The regional health authorities might be well-placed to assume this role.

4.4 INTER-AGENCY TARGET SETTING AND MONITORING

The *Health of the Nation* sets out a series of possible targets to be achieved in the reduction of risk factors and the improvement in population health. One of the main difficulties in judging the appropriateness of each target is the lack of good research data to establish the potential health benefits from different measures. Information is limited on the impact of purely health service policies, it is even more difficult to assess the impact on health of policy outside the health sector such as environmental improvement.

For these elements of the strategy the *Health of the Nation* does not produce health improvement targets, but reproduces the environmental improvement targets set out in previous government documents (Dept of Environment, 1991). As emphasised in Section 2 cost-effectiveness should be a key determinant of policies undertaken and targets set, and to measure this comprehensively for environmental improvement policies would require assessment of health benefits alongside all the other social gains. One contribution the research community could make to this process would be in the standardisation of approaches to economic evaluation of projects in different sectors. The Department of Transport currently uses cost-benefit analysis to appraise road investment projects, applying monetary valuations to lives saved and injuries prevented through accident reduction. In the health sector more emphasis has been placed on cost-effectiveness analysis and cost-utility analysis, using benefit indicators such as the quality adjusted life year (QALY). A conference to discuss the issues was organised by the Department of Transport in 1989 and the possible integration of the two approaches was reviewed (Williams, 1989).

Targets couched in non-health terms by non-health departments will continue to be monitored by those departments. The health benefits will be seen as a side-effect and it is difficulty to see how their achievement can be made a target for health agencies not controlling the relevant policies and activities.

More direct links between environmental factors and health risks are likely to be identifiable at the local level, where local knowledge of sources of pollution and local health problems can be exploited. The feasibility of controlling the risk factors can be

more readily assessed on a local basis, and if effects can be measured, appropriate health targets can be set. It might then be realistic to monitor the effectiveness of local health promotion measures against such targets. However, it would be sensible to use the "prime responsibility" model, discussed above, to ensure that the achievement of targets was a collective responsibility.

4.5 MECHANISMS FOR INTER-AGENCY POLICY IMPLEMENTATION

Although the *Health of the Nation* lays emphasis on the need to involve a range of non-health departments and agencies in a health promotion strategy, it does not set out the mechanisms by which such involvement could most productively be achieved. The "English Health Strategy Steering Group", and its supporting expert working parties, is proposed to act as a co-ordinating body at central government level. Previously, there have been attempts to co-ordinate policies across government departments for AIDS, alcohol and drug misuse. These co-ordinating frameworks were set up in response to perceived new or growing problems. The Ministerial Group on Alcohol Misuse published an Annual Report which detailed responsibilities and actions required from the different ministries. However the status of the committee was changed and no further published reports are available to assist in the evaluation of this initiative. Given the emphasis on target setting and monitoring as an aid to strategy implementation, open reporting of the activities of the Steering Group will be essential.

The document has less to say on mechanisms for local co-ordination, although the duties of DHAs are to include collaboration with local authorities on public health issues. Effective policy implementation will require collaboration at all levels across a large number of sectors of government. The local agents of the Department of Health, ie the RHAs and DHAs, will have to take a lead role in collaborating with the local agencies of many other departments. In many cases the bodies responsible for carrying out policy may be in the private sector, for example, Water plc and the electricity generating industry, as shown in Table 4.1. The achievement of co-ordination at the local level is one of the main challenges of implementing the strategy, requiring detailed consideration of an early stage.

5. TAKING THE STRATEGY FORWARD

The strategy document tries to achieve several aims at once and, in consequence, is in danger of not achieving any of them very well. The absence of convincing evidence on effectiveness and cost-effectiveness makes it unlikely that a directive strategy with a large number of targets would be credible and could be implemented without a real risk of producing perverse changes. This is particularly likely to be the case if, for example, intermediate or process targets rather than final outcome targets are used at local level together with incentives for implementation. It may be better to concentrate on the agenda setting and co-ordinating areas of the strategy and allow the particular targets to come up from below over time.

For maximum effectiveness of the strategy, very few national targets should be set (no more than four). These should be seen to be areas where there is a widespread judgement that there is scope for significant health gains at reasonable cost. Areas where there is a substantial body of opinion that intervention is not cost-effective should be avoided pending better information.

Districts should be required to set their own targets. The process should be monitored by regions and, as understanding on the nature of targets grows, more could be adopted. The process of setting local strategies should be vigorously pursued and districts and regions held to account for meeting their own targets.

Strategies should identify what non-NHS agencies have to do to deliver the strategy, should state the local means of achieving this and the steps to be taken by higher tiers of the NHS and other bodies as part of the policy. Keeping to the principles of Health for All 2000, as set out in the Appendix to the Green Paper, it should be a health not a health service strategy.

Regional health authorities will have an important co-ordinating role in ensuring this central feature of the strategy is followed. The resource implications of changes should be faced. Either new money must be made available or the fact admitted of the requirement to stop doing some things currently done in order to fund the changes. Otherwise, managers charged to do more in some areas while told to do no less in others will find themselves in an impossible position.

Implementing an effective strategy will require new knowledge to support it. Setting targets locally and monitoring them will require the collection of relevant new data. A substantial research programme will be required, coordinated both at the Department of Health and through the emerging R & D role of the regions. The latter should be coordinated with local target settings.

There is no doubt that a willingness exists within the NHS to pursue a health related strategy. The recent reforms in the NHS, creating the split between purchaser and provider, have produced a fertile climate. The danger is that the form of strategy adopted will not capitalise on that fertility and the opportunity will be lost.

APPENDIX A

TARGETS

Table 1 Targeted Areas

AREA	SUGGESTED TARGET	TREATMENT, PREVENTION/ PROMOTION OR REHAB	TYPE OF TARGET*	RELATIVE OR ABSOLUTE	COMMENT
CHD	30% reduction in deaths of those aged <65 by the year 2000	P	FO	R	
	"door to needle" time (for ITT) following arrival at hospital of 30 mins	T	P	Other	
	300 CABGs per million population	T	IO	A	Already exists as a target
STROKE	30% reduction in deaths of those aged <65 by the year 2000	P	FO	R	
	25% reduction in deaths of those aged 65-74 by the year 2000	P	FO	R	
CANCER	Doesn't treat them as a single subject and so concentrates on two types : first, those cancers where tobacco is the major cause, this is dealt with under 'smoking' (see below); second, the two cancers, breast and cervix, where cost effective screening may be possible and has been implemented already.				

* FO = Final Outcome
IO = Intermediate Outcome
P = Process Indicator

AREA	SUGGESTED TARGET	TREATMENT, PREVENTION/ PROMOTION OR REHAB	TYPE OF TARGET	RELATIVE OR ABSOLUTE	COMMENT
(i) **Breast Cancer**	25% reduction in deaths in the population invited for screening by the year 2000	P	FO	R	Already the aim of the NHS Breast Screening Programme introduced in 1987
(ii) **Cervical Cancer**	All women aged 20–64 to have been invited for screening by the end of 1993	P	P	A	Already a target
SMOKING	Reduction in the prevalence of cigarette smoking to 22% in men and 21% women, respectively	P	IO	A	
	33% reduction in the prevalence of smoking in children aged 11–15	P	IO	R	Already the aim of Health Education Authority's Teenage Smoking Programme
EATING AND DRINKING HABITS	≥60% of the population should derive less than 15% of their food energy from saturated fatty acids	P	IO	A	
	≥50% of the population should derive less than 35% of their food energy intake from total fat	P	IO	A	
	≤7% of the adult population to be obese	P	IO	A	
	< 1 in 6 men and < 1 in 18 women to be drinking more than the sensible limit of alcohol	P	IO	A	

AREA	SUGGESTED TARGET	TREATMENT, PREVENTION/ PROMOTION OR REHAB	TYPE OF TARGET	RELATIVE OR ABSOLUTE	COMMENT
PHYSICAL ACTIVITY	Awaiting suitable data which shed light on possible targets	n/a	n/a	n/a	
PREVENTION OF ACCIDENTS	The Government welcomes views on possible targets				
	25% reduction in accidental deaths from 1980 levels through an intensified effort to reduce traffic, home and occupational accidents	P	FO	R	A target already set by the WHO
	33% reduction in road casualties from the average 1981–5 levels	P	FO	R	Already a Government target
HEALTH OF PREGNANT WOMEN AND INFANTS					
(i) Stillbirths and deaths in infancy	All RHAs to set their own targets by 1993				Direct attention to maternal smoking, together with interventions of known effectiveness which diminish the consequences of preterm labour or birth
(ii) Low birthweight	No target set				
(iii) Maternal deaths	All RHAs to have reviewed arrangements in consultant maternity units by 1993 in the light of the recommended level of cover	P	IO	A	
(iv) Breast feeding	Increase the proportion nationally of infants who are breastfed at birth from 64% in 1985 by 75% by 2000	P	IO	A	
	Increase the proportion of infants nationally aged six weeks being wholly or partly breastfed from 39% in 1985 to 50% by 200				

AREA	SUGGESTED TARGET	TREATMENT, PREVENTION/ PROMOTION OR REHAB	TYPE OF TARGET	RELATIVE OR ABSOLUTE	COMMENT
CHILD HEALTH					Future targets to include:
(i) General	No target set	n/a	n/a	n/a	* prevention and reduction of ill-health caused by respitory diseases; * the early diagnosis of impairments of hearing vision, growth and development; * improved sexual health, eg reduction in pregnancies below the age of 16; * the prevention of behavioural disorders in children.
(ii) Dental caries	Nationally, 12 year olds should on average have no more than 1.5 decayed, missing or filled permanent teeth by 2003	P	FO	A	
DIABETES	The Government would welcome views on the feasibility of the 'St Vincent targets' and the level of any proxies for health outcomes. (CMU Report - 1990 HMSO, 1991)				
MENTAL HEALTH	Realign the resources currently spent on specialist psychiatric services into district based services over the next 10 years (close remaining psychiatric hospitals)	T/R	P	n/a	
	Reach agreement on measures of structure and process which, taken as a whole, would act as reliable, unambiguous monitors of progress	T/R	P	n/a	
HIV/AIDS	A fuller understanding of the prevalence of HIV is needed before targets can be set.				

AREA	SUGGESTED TARGET	TREATMENT, PREVENTION/ PROMOTION OR REHAB	TYPE OF TARGET	RELATIVE OR ABSOLUTE	COMMENT
OTHER COMMUNICABLE DISEASES					
(i) Immunization - preventable communicable diseases	National targets of 95% immunization coverage by 1995	P	IO	R	
	A reduction of 90% of measles notifications by 1995 on 1989 levels	P	FO	R	
(ii) Hospital acquired infection	"With the advent of clinical and medical audit, the continuing development of targets in individual units will be possible"	n/a	n/a	n/a	
FOOD SAFETY					
(i) Foodborne diseases	"Targets may be possible to set once the results of enforcement action have been collected"	n/a	n/a	n/a	
	"It would also be valuable to look again at hygiene standards at food premises to identify how much progress had been made in improving the situation found by the Audit Commission"	n/a	n/a	n/a	
(ii) Chemical food safety	"The Government believes that all the necessary measures are being taken, but would be glad to receive views.	n/a	n/a	n/a	
REHABILITATION SERVICES FOR PEOPLE WITH A PHYSICAL DISABILITY	An annual reduction of at least 5-10% in the incidence of pressure sores	P	IO	R	
ASTHMA	Consultation between Government, the NHS and other interested parties will be necessary to develop suitable targets.				

AREA	SUGGESTED TARGET	TREATMENT, PREVENTION/ PROMOTION OR REHAB	TYPE OF TARGET	RELATIVE OR ABSOLUTE	COMMENT
ENVIRONMENT AND HEALTH					
(i) Drinking water	By the end of 1995 the current programme of improvements should be completed, thereby remedying most of the breaches of the EC standards for drinking water.	P	IO	A	Should already be met
(ii) Bathing water	By 1995 all but a few of identified bathing waters should comply with the EC Bathing Water Directive: the remainder should comply by 1988.	P	IO	A	Should already be met
(iii) Air Quality	On a 1980 baseline, reduce emissions of NOx from existing large combustion plants by 30% by 1998.	P	IO	R	Should already be met
	Reduce NOx levels in urban air on a 1990 baseline by at least 50% by 2000.	P	IO	A	Should already be met
	By 2000 effective national and supra-national controls should be in place to ensure that air quality meets the WHO Guideline for peak ozone concentration.	P	IO	n/a	Should already be met
(iv) Housing conditions and homelessness	Over the next two years 16,000 additional family lettings and over 3000 extra places in permanent housing and hostels	P	IO	A	

APPENDIX B

RESEARCH AGENDA

RESEARCH IMPLICATIONS

A recurrent theme throughout this document is the sparsity of well founded knowledge on which to base a national health gain strategy. At each turn we find that the plausible assertions and implicit assumptions are lacking the security of objective evidence. Causal connections and improvements in outcomes are projected to result from particular interventions but without the support of verifiable trials and systematic analysis. In truth, the history of health service research shows a concentration on clinical studies and operational management issues, and a general neglect of research directed at the development of long-term policy and strategy of promoting improved health.

There is therefore an extensive research agenda which logically precedes the delineation of a national strategy, but must now be pursued more vigorously in parallel with it. An examination of the issues raised in the proceeding sections is salutary, in that it reveals that it is not merely issues of detail and application that must be addressed, but some areas of foundational theory which have yet to yield a secure basis for policy choices.

A particular feature of this widespread ignorance is the lack of evidence concerning all aspects of health promotion and disease prevention programmes. Throughout the history of the NHS, this aspect of health provision has been overshadowed by the treatment orientated services. The new emphasis on preventative medicine and the wider perspectives of population health status initiated in the recent reforms, have highlighted the anecdotal and subjective basis for most policy formulation in this field.

The Department of Health has already started to address these issues through the creation of a Research and Development Directorate in the NHS Management Executive, through the setting up of research on effectiveness of interventions and through the bringing together of research on outcomes. These initiatives are to be welcomed.

Nevertheless, much remains to be done and in this section this research agenda is outlined to emphasise the range of problems that need to be tackled, and the magnitude of the effort required by the health care research community to establish the framework for future coherent health gain strategic planning.

EQUITY

Issues of equity cannot be side-stepped in the formulation of health policy, but acceptable definitions of equity and their exposition for health care provision need to be pursued urgently. Once delineated, appropriate means must be devised to measure these elements of equity, and mechanisms established to permit monitoring of equity-based targets.

HEALTH GAIN METRICS

Pioneering work to formulate measures of health gain has met with some success, but needs to be developed extensively to allow comparison of disparate health programmes on meaningful dimensions of benefit. This work is key to the process of prioritising competing service development options.

DETERMINANTS OF HEALTH

Much epidemiological and medical research has concentrated on identifying associated risk factors for morbidity or mortality, but little effort has been directed to confirming clear causal links which can form the basis of strategies for change. Only when such relationships are established can alternative strategies be evaluated in terms of their likely consequences, and meaningful objectives and targets set in the light of related temporal trends in risk factors and environmental cofactors.

COST-EFFECTIVENESS

Recent proposals to gather and disseminate the result of cost-effectiveness work throughout the country serve to demonstrate the extremely limited and patchy nature of current activity. In general, there is a concentration of studies in a few specialised exotic fields and widespread ignorance of the great bulk of routine treatment options. There is particular ignorance of the cost-effectiveness of health promotion and disease prevention strategies, ensuring that crucial choices between preventative measures and treatment options are instinctively rather than rationally based.

COSTING METHODOLOGY

Moves to refine health service accounting practice, and to obtain more detailed unit level and patient-specific treatment costs are still heavily weighted towards variants of traditional average unit costs. These are frequently inappropriate and misleading to decision makers attempting to prioritise competing development initiatives; many choices depend on marginal growth in resources matched against marginal improvements in health gain. Extensive research is required to develop costing methodologies which can illuminate cost/volume relationships, and subsequently indicate how accounting systems should be redesigned to offer such vital information routinely to assist local and national prioritisation.

TECHNICAL EFFICIENCY

For several years funds for growth and development in the NHS have been assumed to be obtainable in part from progressive improvements in operational efficiency – both from the 'elimination of waste' and 'management initiatives'. It is generally recognised that sooner or later a natural law of diminishing returns must begin to apply. In addition, there is conflicting evidence as to the overall impact of technical innovations on overall health service expenditure. If the service is to aim for significant health gains without substantial additional injection of funds it is vital that the scope for releasing resources is properly evaluated.

STRATEGIC MODELLING

The inclusion of preventative services and health promotion initiatives alongside the mainstream health care services in an integrated strategy raises serious questions about the global cross programme interactions which can be anticipated. Individual risk factors can be implicated in several causes of morbidity, and any individual may have a number of contributory causes. In addition, the timescale of disease processes are often very different, and thus the expectations from any individual initiative can rarely be considered in isolation. The acid test of a particular strategy is not merely 'what are the health benefits?' but must take account of the net cost to the health service and when those benefits can be expected to appear. There is a serious and urgent need for research and development work to enable health strategy scenario modelling to evaluate alternative strategy formulations.

TARGET SETTING

Any strategy formulated around objectives and targets which can be monitored using only existing data sources will necessarily be compromised by the dearth of suitable information available from a health service traditionally geared to providing process measures rather than outcomes and benefits. Recent moves to collect timely and relevant health status information for the general population, and to further research and development into outcomes and potential outcome indicators is to be welcomed, but there remains an enormous range of research work to be done. Mortality measures must be replaced by a broad range of morbidity indicators against which improvements in health can be assessed. In addition, means need to be derived by which such information can be supplied by routine data systems cheaply and reliably to permit the monitoring of appropriate targets to inform the effective implementation of strategy.

The great range and complexity of the research agenda relevant to the development, implementation and monitoring of an effective health strategy for the nation suggests that research funding must be both increased significantly and directed intelligently to best effect. At present too much effort is pointlessly wasted in multiple duplication through parallel unco-ordinated local projects, often of inferior quality, albeit pursued with creditable enthusiasm.

Health care research priorities need to be determined by a central co-ordinating and commissioning body, acting in accordance with an explicit research strategy agreed with Regions. Such a body would be able to allocate funds directly in support of foundational studies of national significance, and to designate centres of responsibility within the service for the management of delegated programme areas, both for research and for implementation piloting schemes. Professor Peckham's initiatives in this direction are greatly to be welcomed.

APPENDIX C

DATA SOURCES ON THE OUTCOME OF HEALTH PROMOTION AND RELATED HEALTH POLICIES

DATA SOURCES ON THE OUTCOME OF HEALTH PROMOTION AND RELATED HEALTH POLICIES

Problems of Measuring Health

There are few sources of information which can be used to estimate the deficiencies of health within the population and consequently how levels of health are changing. The problems of interpreting existing data on self-reported morbidity illustrate the danger of believing that there is scope for improvement over a wide population on the basis of inadequate proxies. The rise in self-reported long-standing illness indicated from GHS data is seen as difficult to interpret in the Green Paper (p.6). Outcome measurements are discussed in Chapter 7 of the Green Paper but no new measures are included and most relate to health care interventions. It would seem necessary to have more discussion on data essential for the determination of target areas and priorities within the strategy, which could also be used in target setting and monitoring.

Utility from Health and Health Promotion

Wider perspectives of the nature of health have also influenced thinking on health promotion and disease prevention. The importance of the potential for improving existing well-being (once the costs of change have been overcome) by lifestyle changes, could be thought to be undervalued if there is a focus on long term prevention of disease. This is particularly important as the net benefits of lifestyle change are likely to be enjoyed by a far greater number than those who would, in the absence of change, eventually develop a disease.

There is also some difficulty if a focus on health gains neglects the preferences of individuals. The health strategy highlights the importance of education but economic and other studies indicate that knowledge is only one factor influencing choice.

Taking all factors into account an individual may be quite rational in undertaking risk-taking behaviour (Birch & Stoddart, 1990; Graham, 1987) If these factors are not understood there could be considerable disappointment surrounding the achievements of a health strategy and of course resources could be inefficiently employed.

Data Sources

Generating new data will take time and as with the NHS reforms there will be a reliance on existing data sources. The difficulty of implementing local strategy based on HFA targets without health outcome or risk factors data has already been outlined (Jacobson, 1990)

Current health care data is mainly process rather than outcome based and limited to hospital activity. In terms of outcome the only available data is on whether a patient is dead or alive when leaving hospital (Kind, 1988). To date these data have not been used although research has indicated there are considerable variations in death rates after surgical procedures (Kind, 1990). These analyses also suggests that there is a significant negative correlation between surgical mortality rates and surgical workload.

Crude mortality rates are simple to calculate but variations may be due to a number of factors such as resources, case mix or degrees of medical specialisation and/or experience (Mortensen, 1989). Considerable care therefore has to be taken in the local application of targets, and there is a danger that the focus will remain on process measures such as performance indicators and waiting lists.

Medical Audit was seen as a central plank in the NHS reforms and was defined in *"Working for Patients"* as the systematic, critical analysis of the quality of medical care, including the procedures used for diagnosis and treatment, the use of resources, and the resulting outcome for the patient. It may be expected therefore that this process would both yield useful data and contribute to refining health targets for hospitals and GP services. The implementation of medical audit has centred on confidentiality and its role as an educational rather than management tool. If access to the information generated by audit is limited the opportunity to refine targets for local implementation will be limited, Kind (1991) suggests "without data on outcome, the medical audit process is reduced to an expensive educational exercise".

Given that all these problems exist in measuring the impact of health care interventions, the immense difficulty of measuring the impact of health promotion policies are clear. Nevertheless, these data deficiencies must be faced if a credible strategy is to be determined which can attract the support of the professional staff responsible for its ultimate implementation.

Evidence on the Cost-Effectiveness of Health Promotion

As argued in Section 2, the selection of target areas for high priority, and the choice of specific policies within those areas, must be based to some extent on measures of cost-effectiveness. It must be shown that to intervene in the priority disease groups is more cost-effective than in other areas, and that health promotion measures are more cost-effective than alternatives such as conventional treatment in producing health benefits.

(i) Screening

The fact that a screening test exists and may benefit some, does not guarantee cost effectiveness and the difficulty of targeting the screening programme means that for many areas secondary prevention has not always proved more cost effective than cure (Russell, 1986). Doubts have been expressed on the effectiveness of breast cancer screening because of doubts about the benefits of early treatment (Roberts et al, 1990) and cervical cancer screening because of the difficulties of getting some of the population at highest risk to attend for tests (Holland & Stewart, 1990).

Cost escalation in Canada led to a thorough review of the annual periodic health checks for the population which began in 1979. All of the main primary and secondary screening programmes have been reviewed by a committee of experts which compiled a set of recommendations for preventive services. Following this lead, substantial work has also been undertaken in the United States and the recommendations have been widely published (US Preventive Services Task Force Report, 1989). Although no such intensive compilation of existing opinion has been made in the UK, Holland and Stewart (1990) have published an extensive review of screening and its implication in the UK. However cost information is limited and therefore cost effectiveness, although discussed in all these reviews, is rarely used in framing recommendations. Russell (1990) suggests that US recommendations would have been modified if cost effectiveness criteria had been used.

The selectivity of these approaches may seem to contrast with the approach recently adopted in the GP contract where a number of standard elements to a health check have been specified as part of a move to encourage more health promotion activities. Scott and Maynard (1991) reviewed the evidence on the cost effectiveness of the health promotion elements of the GP contract and the results of their review are set out in Table C.1.

Table C.1 **Relative Cost Effectiveness**

	REDUCTION IN MORTALITY MORBIDITY	PROCESS OUTCOME LINKED?	NHS/PATIENT COSTS	ANNUAL FEE PER GP
HEALTH CHECKS				£696
General	- -	-	1,2	capitation for
Urine	- -	-	1,2	new
Blood Pressure	+ +	+	1,2	patients.
Height/weight	* *	*	1,2	See HPC for 3yr checks.
RISK FACTOR IDENTIFICATION AND TREATMENT (HPC's)				
General/CHD	? +	+	1,2,4,6,7)	
Cholesterol/diet	+ +	+	1,2,4,5,6,7)	
Smoking	+ +	+	1,2,4)	
Hypertension	+ +	+	1,2,4,6,7)	
Alcohol	? +	+	1,2,4)	£1629
Diabetes	* +	?	1,2,4,6)	
Exercise	* *	+	1,2,4)	
Other	* *	*	1,2,4,6)	
GERIATRIC SCREENING	? +	?	1,2,3,6 (capitation)	£3796
CERVICAL CYTOLOGY	+ +	+	1,2,4,5,7	£2448
CHILDHOOD IMMUNISATION	+ +	+	1,2,4,6	£3165
PAEDIATRIC SURVEILLANCE	* ?	?	1,2,4 (capitation)	£ 533
MINOR SURGERY	N/A +	+	1,2,4,5	£ 698

LEGEND

"+" More evidence for, than against.
"?" Inconclusive evidence.
"-" More evidence against than for.
"*" No evidence.

1 - Administration, computers, equipment, patient travel costs.
2 - Practice nurse/health visitor for less than 1 hour.
3 - Practice nurse/health visitor for more than 1 hour.
4 - GP.
5 - Hospital pathology services.
6 - Drugs.
7 - Psychological patient costs.

Source: Scott and Maynard (1991)

The conclusions of this study cast doubt on the way health promotion activities have been introduced by GPs. Most studies suggest opportunistic screening is more cost effective than holding separate health promotion sessions. This is due to lower cost and differences in those captured by the two methods. On average those attending health promotion clinics are less likely to be in high risk groups. Payments are at present given for holding clinics but mechanisms for judging their quality and effectiveness are rare. Only a few studies have addressed the question of the relative effectiveness of different members of the health professional team to give advice or how effectiveness of advice could be improved.

(ii) Changing Lifestyles and Behaviour

Measuring risk factors and giving information about them is only a part of the health promotion process. The link between information, attitudes and behaviour is complex. Changing lifestyles is unlikely to occur from a single visit to a GP or health promotion clinic and is likely to be a cumulative process. It is difficult therefore to link single health promotion actions, like GP advice, to behavioural change. The health benefits from such changes in lifestyle may not be achieved for a long period. It is usual in economic evaluations to discount benefits as well as costs although this practice is being questioned (Parsonage and Neuberger, 1992). However different rates of time discounting between individuals may help explain differences in lifestyle (Farrell & Fuchs, 1982). Those who value the future are more likely to undertake lifestyle changes to improve health than those who value the present, and hence the loss of benefits at a high rate. These types of valuations will vary with individual characteristics but also with economic and social variables (Birch & Stoddart, 1990) An emphasis on health promotion without addressing the other influences on health behaviour may lead to further inequalities in health. This potential problem will be exacerbated if incentives systems, as in potential target related pay or existing parts of the GP contract, do not take into account specific equity considerations.

Cost effectiveness and equity considerations may not reflect public opinion. The role of public preferences for health policies is not addressed in the *Health of the Nation* but public priorities may differ from those of policy makers.

Over the last 20 years there has been considerable behavioural changes. The most dramatic has been the fall in smoking. Research suggests that health education in general has played a part in this decline, (Godfrey and Maynard, 1988). There is also evidence of a change in diet during the last few years with increases in consumption of low fat milk, lower fat meats, low fat spreads etc (Ritson and Hutchins 1991). Anti-drinking and driving campaigns may be one factor in the growth of sales of low alcohol beers and wines (Brewers Society, 1991). It is difficult to link these changes to specific actions by medical practitioners or general health educational campaigns. In fact the educational process may be cumulative and depend on clear messages from a variety of sources.

Conclusion

The need for better evidence of the impact of health promotion policies in formulating a strategy is another argument for restricting the number of centrally-determined target areas in the early stages of implementation. As information collection and evaluation is stimulated at the local level the overall picture will gradually become clearer. Evaluation of health promotion measures using generic indicators of health outcome should be the ultimate aim, to enable proper comparisons to be made with treatment options.

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