If this is true of diet and smoking it is even more true of the social environment: housing, the nature or work, education, social relationships. The research agenda for public health now should not only ask how best to achieve change in unhealthy behaviours but how to identify the social and economic causes of ill health, whether they act by affecting behaviours or by other means related to the environment; whether they act in adulthood or whether they act early in life.[16–18]

Rose's insight on blood pressure and cholesterol applies also to social differences in ill health. People at the lower end of the social distribution, the poor, the homeless and the unemployed, have worse health than those better off. But although these individuals are at high risk and require attention, they are a minority within the population, and hence account for a minority of the burden of ill health attributable to social causes. The principal lesson from the study of social variations in ill health is that there is a gradient than runs right across society.[15] A strategy for public health must deal with this important fact.

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Chronic respiratory diseases

It was appropriate that Geoffrey Rose's book, *The strategy of preventive medicine*,[1] was published in the same month as the white paper on the health of the nation, because Rose has been one of the most prominent individuals concerned with the development of strategies for the prevention of disease, playing an important and influential role in changing the views of many people. *The health of the nation*[2] is an important document because it demonstrates the concern of the Government to distinguish between the provision of health services and the provision of services and policies for the promotion of health, rather than the promotion of health services. But in considering strategies of prevention it is important to look at the issues involved in greater depth than either of these two documents have done.

The first issue of importance is that of the underlying philosophy of prevention. The one given fact of life is that of dying. However, the policies of prevention in many cases have failed to recognise this fact, with the result that in some instances there has been a failure to assess properly whether preventing a particular disease could result in an individual having a life of such a low quality that it would have been preferable for him to die. There are many anecdotal stories of eminent individuals, particularly cardiologists, who have argued that they would rather die of a heart attack than be resuscitated. It is therefore both significant and admirable that *The health of the nation* aims to not only extend people's lives but also to improve their quality of life as well.

Rose's monograph illustrates the importance of applying preventive policies to the population as a whole rather than simply concentrating on high risk groups. To an epidemiologist this concept is fine, but it is far harder to convince the general public and, while the strategy of prevention demonstrates the need for policy makers to be concerned with absolute rather than relative risk, the examples provided by Rose are not the most convincing. The example given of exposure to radiation shows that although there may have been an increased relative risk, the numbers involved were still relatively small. Although Rose refers to the difficulty which the media and public have in understanding the importance of absolute risk, neither publication succeeds in developing a coherent argument about how to assess risk and develop an appropriate preventive strategy. This would detail not only the magnitude of the absolute risk but also the problems of effective preventive and/or curative intervention. It is this aspect of preventive medicine which needs to be debated, which neither publication has succeeded in doing.

Both *The health of the nation* and *The strategy of preventive medicine* have to some extent tackled the easy problems first. Neither have revealed that in areas such as psychiatry, rheumatic disorders, or neurological illnesses other than poliomyelitis there is still no known prevention. Although both publications state that research is required, neither has developed a strategy for research along with their strategies of prevention.

Rose discusses the factors which need to be considered when establishing a preventive policy, such as effectiveness, safety, acceptability, and costs, but in trying to develop such a scheme he gives too few details of what a preventive strategy would entail. Nor does he adequately explain how to prevent a condition which is complicated by the involvement of a number of factors. For example, even though there is little doubt that coronary heart disease is the main cause of death in our society a great deal of emphasis is placed on cholesterol as one of the main causes of heart disease when in fact it would be more appropriate to deter individuals from smoking. This is because where both of these risk factors are present the effect of cholesterol, independent of smoking, is relatively minor.

A perfect example of a preventive strategy is provided by the problem of chronic respiratory diseases, which illustrates the gaps in both practice and knowledge. The problem can be considered under various headings.

Tuberculosis—Apart from its association with AIDS infection tuberculosis should no longer be an important cause of mortality in the United Kingdom, and yet there were still 106 deaths in individuals aged 5–64 years in England in 1990 and between regional health authorities there was a fourfold difference in age standardised rates. To reduce this incidence requires an improvement in the identification of and access to high risk groups and the ability to persuade these to adhere to prevention and treatment programmes—we have the methods but are poor at implementation.

Asthma—Asthma is a condition which is increasing in prevalence and incidence, while the costs and the possibilities of treatment have increased considerably. Apart from some inadequacies in providing appropriate treatment and the lack

of access to services in some cases we do not have a sufficient knowledge to apply appropriate preventive strategies.

Chronic obstructive lung disease—The major factors involved are smoking and air pollution. There have been dramatic changes in the mortality rate from this condition over the past 20 years.[3] This has been associated with a diminution in smoking and a very marked improvement in air quality. This is an excellent example of the need to have policies which span the whole of government and society. The Clean Air Act (1956) has undoubtedly played a major role in this. For smoking we still need to develop and implement both population and individual policies to reduce the uptake of smoking in children through the development of educational programmes for children before they enter secondary school.[4] We must also be concerned with those who smoke and apply more rigorously those programmes which are effective in helping people to stop smoking. Finally, and most importantly, we must persuade our government to introduce more rigorous methods of dissuading people from smoking, by such methods as banning cigarette advertising and increasing the price of cigarettes over the rate of inflation.

Within this group of conditions the role of occupational hazards, such as byssinosis and pneumoconiosis, is also well known and needs to be reduced more rigorously, and new hazards, such as isocyanates and platinum salts which may induce occupational asthma, need to be identified and prevented.

Finally, there is increasing evidence that respiratory infections in the young are associated with disease later in life.[5] This implies that proper trials should be conducted both on the effectiveness of identifying and treating young children in order to prevent disease in later life and on the development of easily administered vaccines which could reduce the incidence of such illnesses.

The contrast between *The health of the nation* and *The strategies of preventive medicine* in identifying the need for multifactorial intervention is illustrated by the government's document detailing the various local authority departments which are involved in accident prevention. These range from the planning and siting of housing, play, and recreational facilities, the construction and maintenance of roads and safety design, support services including domiciliary and residential services, education in terms of building, transport use, and fire and police services, and environmental health and consumer protection staff. This shows the importance of developing an interdisciplinary approach to prevention and it is therefore unfortunate that Rose's book approaches the problem primarily from the viewpoint of an epidemiologist, failing to describe how the strategy could be implemented and made to operate effectively. In the field of prevention and the promotion of health the problem is that in many of the conditions causing death we already know the most important factors involved and the means for counteracting them but we do not know how these measures can be implemented. In such cases implementation would involve a number of groups, for example in smoking control we would need to coordinate the activities of doctors, nurses, psychologists and educationists, in addition to advertisers, journalists, and civil servants.

A problem with all the publications which have appeared over the past few years on this subject has been the lack of attention devoted to specifics rather than to generalisations. High risk groups are clearly a convenient target and population approaches are obviously the most appropriate method of implementing major changes. All workers in the field accept that these two approaches need to be combined but the difficulty is in knowing how to achieve it. How does one approach high risk groups as well as the general population without stigmatising one at the expense of the other? For example, the poor smoke more heavily than the affluent, and they are therefore more likely to suffer from cancer of the lung and cardiovascular disease; thus they constitute a high risk group. As a result policies need to be developed specifically aimed at the poor.

Although many people have expressed the view that they do not wish to have a "nanny" state, it is nevertheless important to recognise that many of the changes which we wish to introduce to improve health can only be undertaken successfully through the cooperation of the medical profession and industrial and other appropriate groups. For example, it may be easier to reduce the intake of fat through modifying our diet and the foodstuffs we eat rather than by exhorting people to eat low fat products. For example, it is possible to change the fat content of pastry so that it has a lower content of fats which are considered particularly harmful, to reduce the amount of salt included in the preservation of meat, and for cigarette manufacturers to reduce the tar content of their cigarettes. Most of us in public health believe that this is an awkward approach which may not prove to be productive, even though many manufacturers are already heeding the public health message. It is important for us as public health practitioners to develop a dialogue with manufacturers and to persuade them to expand this work further. It is also important to recognise that the changes which we wish to implement are dependent upon a number of different groups and factors and that only if we can develop a truly interdisciplinary approach to these problems will we have any hope of actually improving the health of the general population.

Rose has undoubtedly been a leader in the development of preventive strategies and he has been a major force in demonstrating and identifying which activities are the most useful in prevention. Those of us who follow him must begin to develop these strategies and methods further, allowing us to put into practice the measures which have already been shown to be beneficial through research into preventive medicine. We must also recognise that in morbidity we still have a lot to learn and require the sort of research that Rose has conducted into cardiovascular disease.

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