



THE NATION'S HEALTH

A STRATEGY
FOR THE 1990s

A REPORT FROM
AN INDEPENDENT
MULTIDISCIPLINARY
COMMITTEE

EDITED BY
BOBBIE JACOBSON,
ALWYN SMITH AND
MARGARET WHITEHEAD

KING EDWARD'S HOSPITAL FUND FOR LONDON

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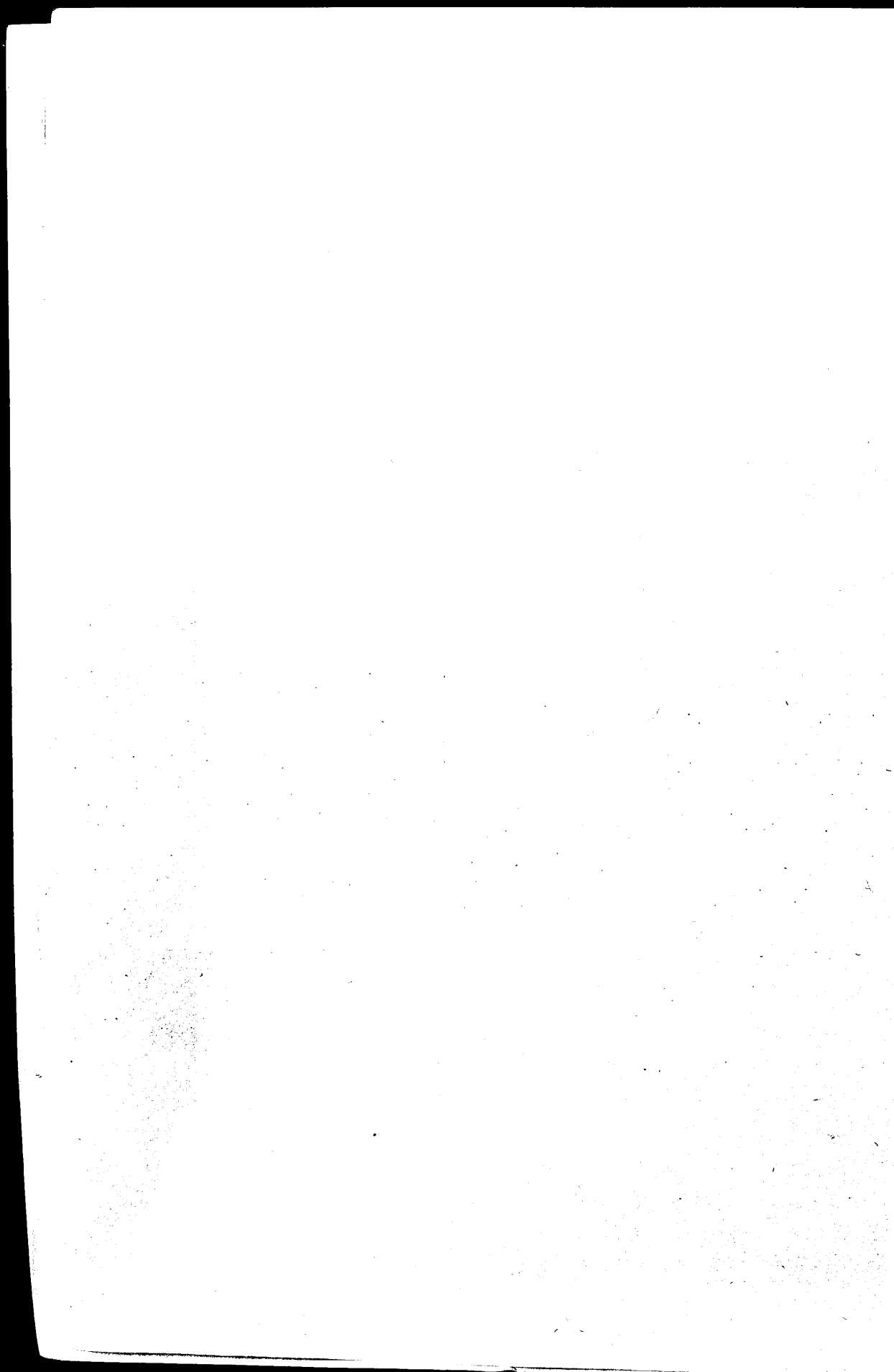
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A strategy for the 1990s



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A report from an Independent Multidisciplinary Committee

Edited by Bobbie Jacobson, Alwyn Smith and Margaret Whitehead

New edition, completely revised 1991

King Edward's Hospital Fund for London

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Special thanks to Victor Morrison and Barbara Regis for help with the preparation of the final manuscript.

Abbreviations

AAA	Action on Alcohol Abuse
ACMD	Advisory Council on Misuse of Drugs
AFP	Alphafetoprotein
AIDS	Acquired Immunodeficiency Syndrome
ASH	Action on Smoking and Health
BMA	British Medical Association
BPA	British Paediatric Association
CDSC	Centre for Disease Surveillance and Control
COMA	Committee on Medical Aspects of Diet
CPG	Coronary Prevention Group
CRS	Congenital rubella syndrome
CVS	Chorionic villus sampling
DES	Department of Education and Science
DHSS	Department of Health and Social Security
DHA	District health authority
DMF	Decayed, missing or filled teeth
DoH	Department of Health
EMAS	Employment Medical Advisory Service
FHSA	Family Health Services Authority
FPIS	Family Planning Information Service
HEC	Health Education Council (now HEA)
HEA	Health Education Authority
HEACW	Health Education Advisory Committee for Wales
HEBS	Health Education Board for Scotland
HIV	Human Immunovirus
HSE	Health and Safety Executive
HVA	Health Visitors Association
MAFF	Ministry of Agriculture, Fisheries and Foods
MMR	Measles, mumps and rubella
MRC	Medical Research Council
MIND	National Association of Mental Health
NACNE	National Advisory Committee on Nutrition Education
NCVO	National Council of Voluntary Organisations
NSPCC	National Society for Prevention of Cruelty to Children
NTD	Neural tube defect

OPCS	Office of Population Censuses and Surveys
RHA	Regional health authority
RCP	Royal College of Physicians
RCGP	Royal College of General Practitioners
SHEG	Scottish Health Education Group (now HEBS)
SHHD	Scottish Home and Health Department
TACADE	Teachers' Advisory Committee on Alcohol and Drug Education

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Preface

Imagine yourself in a country that you do not know, one that is moderately prosperous, so that its people do not have to be preoccupied with mere survival, nor with economic growth at all costs: they can therefore take a broader view of what constitutes individual and collective progress. Offer such a people an objective view of their health, and what they can do to improve it, keeping a reasonable balance between scholarship and ease of comprehension, between feasibility and idealism. Would you not expect your contribution to be welcomed, by government particularly?

Fortunately, when we published *The Nation's Health* in 1988, we were not that naive. The book resulted from two years' research by Bobbie Jacobson, working with an independent expert committee chaired by Professor Alwyn Smith. The committee had been nominated by the London School of Hygiene and Tropical Medicine, the Health Education Authority and the King's Fund. Stresses and strains during the committee's life had emphasised the difficulty of maintaining a number of essential balances – among differing political views, for example, and between scholarship and journalism. What had seemed initially a sensible and relatively straightforward notion (to chart progress since the publication by the government of *Prevention and Health: Everybody's Business* ten years earlier) turned out to be much more complicated and considerably more sensitive. I admired the perseverance of those involved, especially Alwyn Smith and Bobbie Jacobson, in achieving a clear, well-argued final report.

The reception was interesting. The media in general treated the report with respect; and waited for government's reaction, recognising that a Conservative government might react angrily to an analysis of this kind, particularly while Mrs Thatcher's review of the NHS was in progress. After all, the reaction to the Black report* had been savage. The three health ministers (Edwina Currie, David Mellor and Kenneth Clarke) took individual lines in response. Mrs Currie was the most hostile, calling the report (according to an editorial in *The Independent*) 'Nanny's menu for a healthy nation'. David Mellor was more careful, but unenthusiastic. By contrast, Kenneth Clarke was much more positive: '(the report) should be seen as a challenge to us all'.

The Lancet and *The British Medical Journal* made some justifiable

* Department of Health and Social Security. Inequalities in health: report of a research working group. (Chairman: Sir Douglas Black.) London, DHSS, 1980.

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and some misinformed criticisms of detail. On the other hand, the book quickly became, and has remained, a standard text for public health practitioners and students, both here and overseas. It is among the most successful titles that the King's Fund has published in recent years.

I am delighted to welcome this new edition, which is extensively revised and updated by Bobbie Jacobson, Alwyn Smith and Margaret Whitehead. I am grateful to them. Of course, times have changed. We now have a Secretary of State who claims to be committed to health goals and targets, along WHO lines. In Wales, the NHS has launched a strategy for health that aims for major health gains across ten categories of disease from cancer and heart disease to mental illness. The Labour health spokesman, Robin Cook, also endorses the notion of specific priorities and targets, while criticising some of those developed by government as being vague or insufficiently stretching.

But this consensus about a 'bottom line' in terms of benefit to the nation's health may not hold for long. Nor can one always rely on government and its servants to tell unpalatable truths and to act appropriately. In short, there continues to be a case for an impartial, authoritative assessment of how well we are doing in health, where we are failing, and what more can be done. It is the business of this book to make precisely such an assessment. A few points are worth underlining namely:

- We have no grounds for complacency. Although some of our health statistics compare very well with other countries, our rates of improvement have tended in the last decade to be slower than the leading countries. In a range of conditions, including coronary heart disease and several of the cancers, we ought to be able to do substantially better. Some of the causative mechanisms for these diseases, including smoking, diet, weight and exercise, are sufficiently well understood that we know what we need to do.
- Arguments about individual versus state responsibility for preventing ill health are sterile, because both can make important contributions towards improvement. There is much that should be left (as many Conservative thinkers will maintain) to individual choice. Equally, however, state action has its place on issues like alcohol and tobacco taxes, drink-driving and targeted screening.
- Differences of health status between rich and poor in Britain are great and are increasing. These differences offer a major opportunity to do better, whatever the ideology of the government in power. There is no inherent reason why the poor should be so much less healthy – for example, the five fold difference in childhood accidents pointed up by the Black report is intolerable, and offers scope for dramatic improvement.

PREFACE

- The actions that will have an impact are (as the World Health Organization never ceases to remind us) multi-sectoral. The NHS on its own can do relatively little to improve the health of the nation above the current high levels. Housing, employment, education, transport, tax policy, all have their parts to play in improving the 'bottom line' for the people of this country – which is not simply a matter of more wealth, but also involves raising the quality of life in Britain, particularly for our poorest citizens.

Robert J Maxwell
Secretary and Chief Executive Officer
King Edward's Hospital Fund for London

our health, education, public order, and
other priorities and urgent, while maintaining
the government as being a part of the

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Introduction to the new edition

The first edition of this report attracted not only very considerable interest from the media and the public but also a surprising degree of hostility from the government at the time, who chose to see it as an attack on their record. This was disappointing to the report's authors who had no intention of making party political points and had, indeed, based much of their analysis on a longer historical period involving governments of both main political persuasions. It is perhaps a general tradition of this nation that governments have accepted only a limited responsibility for the health and welfare of individuals. It is with that tradition that the modern international movement in public health is increasingly taking issue.

This new edition springs mainly from the wish to bring the statistical material up to date. In the three years since the first edition went to press most of the trends have continued and only a few major changes have occurred, but inevitably the statistics of three years ago require updating. We have also taken the opportunity to amplify and clarify where these seemed necessary and to respond to some just criticisms of the earlier edition. We also felt it desirable to re-affirm and strengthen some of our recommendations in the light of changes arising from both the NHS review and the new GP contract and in the light of the growing movement for a renaissance of the public health tradition.

Although the profound changes proposed for the National Health Service and the new contract for general practice have not earned the unqualified acceptance of the health professions, they may provide new opportunities for the development of public health practice. The new arrangements whereby districts are funded in accordance with the size and characteristics of their populations rather than with the services they operate offers at least some incentive to devote resources to the maintenance and protection of health rather than simply to the treatment of illness. The new contract for general practice with its emphasis on health promotion offers the possibility that general practice might develop into primary care in the sense in which that term is internationally understood. Whether these challenges are taken up will depend on how policies are actually implemented and on whether adequate resources are made available. More importantly, however, improvements in the public health will continue to depend on the importance attached to the public health by policy-makers in the UK and Europe in fields outside the health services as traditionally understood, and on the degree to which the present and future interests of the populace are permitted to prevail

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when they are in conflict with the immediate interests of powerful individuals and minorities.

The health of the nation is not simply an esoteric preoccupation of the health professions nor even an exclusive responsibility of the departments of health; there is now general agreement that it is 'everybody's business' and in 1976 the health departments of the United Kingdom published *Prevention and health: everybody's business** to emphasise the view. Although the aims of the publication seemed clearly defined, there was some ambiguity in the use of the word 'everybody's' and it was possible to conclude that the responsibility for health rested with individuals. We intended to be more explicit about where responsibilities rest as well as about what those responsibilities are.

In early 1985 it had been felt that it would be useful both to examine progress since the issue of the 1976 document and to reconsider its general tenor and relevance to the public health problems of the present time. The then Health Education Council (subsequently the Health Education Authority), the Scottish Health Education Group, the King's Fund and the London School of Hygiene and Tropical Medicine joined in establishing a research fellowship in health promotion, and Dr Bobbie Jacobson was appointed and charged with the task of reviewing the present health issues in the light of progress since 1976. To guide the project an independent multidisciplinary committee was established which aimed to assemble a membership reflecting a wide range of skills and experience in the sciences and professional practices with an interest in public policy relating to health. Observers from the sponsoring bodies and from the DHSS were also invited to attend.

The aims of the project were to re-examine the central problems relating to the public health, to assess the effectiveness of existing public health policies and to stimulate the development of new national strategies for the public health. The report was the product of more than two years' deliberation by the committee. It is designed to achieve these aims by analysing the issues in as accessible a language as their complexity permits, by defining some targets or priorities for public policy and, most importantly, by establishing the agenda for public and political debate about how the nation might best re-establish its pre-eminence in the pursuit of the public health.

Why re-examine the issues?

The 1976 publication reflected the fashionable thinking of its time. The notion that the public health was 'everybody's business' led to a heavy emphasis being placed on the responsibility of individuals for

*Department of Health and Social Security. *Prevention and health: everybody's business*. London, HMSO, 1976.

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their own health. The recognition that health depends increasingly on human behaviour resulted in the view being taken that the behaviour of individuals had replaced the quality of the environment as the key issue in the promotion of the public health. There are now good grounds for a change in that emphasis.

The earlier optimism that harmful environmental influences were relatively simple to control has given way to an increasing recognition that the environment is continuously changing – often as a result of human activities – and that many of the changes pose new threats to our health. For example, new methods of food production, aimed at increasing efficiency and profitability, have not only increased the risks of contamination with such well recognised micro-organisms as salmonellae but may also have exposed us to new hazards such as the agent of bovine spongiform encephalopathy. Rehousing directed to the clearance of nineteenth century slums is now recognised to pose new environmental threats to health as well as not always eliminating the older threats arising from cold and damp. It is also increasingly being recognised that human behaviour does not reflect individual choices alone so much as the powerful influence of the social, economic and political environments that lie substantially beyond the control of the individuals who are affected by them.

The health of the people of the United Kingdom is now almost certainly better than it has ever been and it is undoubtedly better than that of the majority of the nations of the world. Almost every index of the public health confirms the progress that has been made during the present century, and especially during the last few decades, and the people of this country enjoy a standard of health as well as a quality of health care that might well make us the envy of much of the world. However, complacency cannot be justified. Progress in the UK compares much less well with those of other countries of north western Europe, and the inequalities in health that are evident within our country make it clear that there is much more that we might have done and many challenges to which we have not so far successfully responded. Public health is a term that has traditionally embraced not simply the health of the public, but also the aims and methods of those whose concern it is to protect and promote the health of all citizens in the interests both of those individuals and of the community they comprise. It involves the promotion of health, the prevention of disease, the treatment of illness, the care of those who are disabled and the continuous development of the technical and social means for the pursuit of these objectives.

Health is very variously defined and any definition of the public health depends on current definitions of health in individuals as well as on the significance of the health of its members to the community as a whole. Health means different things at different ages and to

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people in different circumstances. If health is defined in terms of the state of fitness of our leading athletes then most of the rest of us would have to be considered seriously disabled. Clearly we need a definition that relates capacity to what may be legitimately expected and that applies both to young and old and to people of different physical and mental endowment. Individuals may be considered healthy to the extent that they are capable of meeting the obligations and enjoying the rewards of living in their community. A strategy for ensuring that as many people are as healthy as possible will therefore require not only measures for the promotion of health, the prevention of disease and the treatment of illness and incapacity but also the development of a society which offers a useful and rewarding role for all its members whatever the impairments from which they may suffer. We are still a long way from developing such a society and we have chosen to address a range of simpler issues. We have confined ourselves mainly to the promotion of health and the prevention of disease in the simpler senses in which these terms are generally understood.

Prevention and health promotion

Although much lip service is paid to the proposition that prevention is better than cure, we believe that for many people it is far from self-evident. Since diseases that are prevented are necessarily unreported, the success of a preventive procedure is more difficult to demonstrate than that of a therapy. To assess treatment, we compare illness and its cure in the same individuals whereas the only comparison available for the demonstration of prevention is between those who have incurred a disease and those others who have not. Since few diseases are universal it can never be certain that those not incurring the disease owe their escape to the preventive procedure under examination. Prevention therefore requires a statistical demonstration at a population level, and the frequent cynical manipulation of statistical evidence in modern society has left many people with a considerable scepticism in the face of statistics.

But there is also a sense in which prevention seems less efficient than treatment. Whereas treatment can be concentrated on those who are sick, prevention has usually to be distributed among a larger number of well persons – many of whom would probably have avoided the disease even in the absence of the preventive procedure. If we did not immunise some half a million infants against diphtheria each year it is unlikely that more than a few thousand would contract the disease. In this sense many hundreds of thousands of people receive preventive procedures unnecessarily so far as their individual health is concerned. Unfortunately, it is usually impossible to identify those who would succumb if a procedure were abandoned. Prevention is often seen as unglamorous – at least by comparison with

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the technologically demanding procedures now prevailing in clinical medicine and surgery. The fundamental requirements for a healthy life have been known in general terms for centuries. All creatures need an appropriate diet, shelter from the elements, regular exercise, rewarding but not onerous work, the satisfaction of sexual drive and protection from environmental injury whether physical, chemical, biological or psychological. The human individual is also driven to extend continually the envelope of safe experience and human societies are often manipulated by some individuals to the risk of others. It is one of the functions of government to regulate such manipulation in both the best interests of collectivity and of its individual members.

A public health philosophy

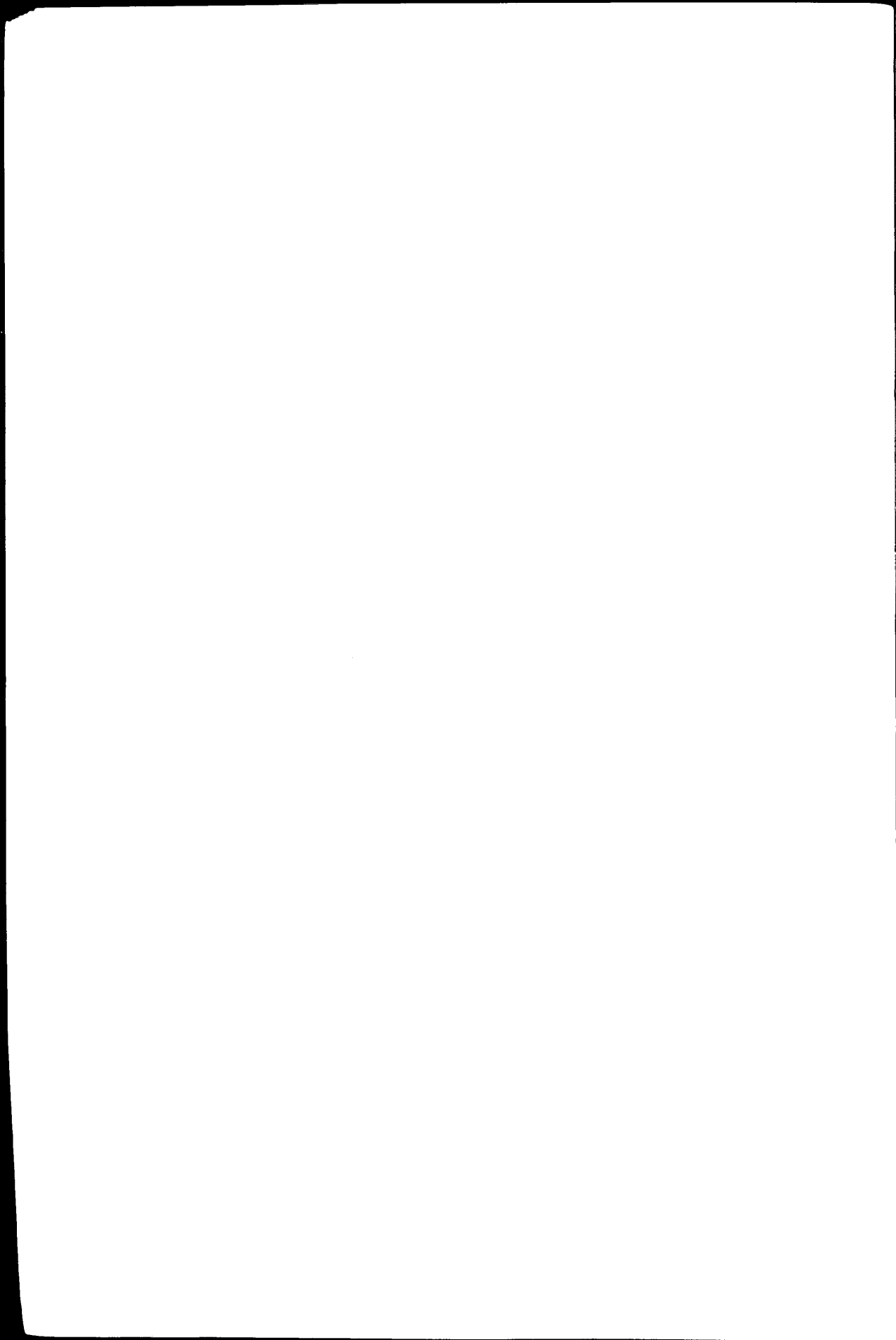
No discussion of the public health or of public policy can be value-free. As health professionals and students of social policy, the committee's members inescapably function within the framework of their particular ideology. We believe it right that we should declare the principal tenets of that ideology. We start from the position that health is important among the objectives and values of most individual human beings and that they expect their government and administrations to pursue policies that will afford them the opportunity to attain lives of optimum duration and quality. We further believe that the health of its citizens is one of the most important resources needed by a nation for the pursuit of most other legitimate national objectives. We are fully aware that health is not the only, or always the most important, objective of either individuals or communities and that the cost of its pursuit is both substantial and likely to increase. Economists maintain that rational human behaviour requires some commensuration of the benefits and costs of all the options among which we seek to choose. They also recognise that such commensuration is often formidably difficult and that we are likely to do it only imperfectly for the foreseeable future.

Most of the nations of the world have experienced a faster growth in demand for health and medical care than in the resources they can easily make available for meeting that demand. Demographic change, the development of new medical technologies and procedures, the emergence of new threats to the public health and the rising aspirations for a better life that are part of the evolving political development of our species, all sharpen the need to make choices and decisions about how the responsibilities and rewards of human activity are to be distributed. The prospect of detente in some traditional military rivalries and war in others has prompted a reconsideration of international economic and political strategies and the World Health Organization's 'Health for all by the year 2000' strategy is beginning to be taken seriously by at least some of the world's

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politicians. But there is intense competition for any new resources that might become available and a danger that the fashionable preoccupation with market forces will become a substitute for policy. The public health is important enough to warrant planning for it.

PART I: LIVING LONGER



1 Summary: lessons from a decade of public health

What experience and history teach is this – that people and governments never have learned anything from history, or acted on principles deduced from it.

GEORG WILHELM HEGEL

Introduction This chapter summarises the discussion and recommendations whose detailed exposition occupies the rest of the volume. In presenting this overview we have adopted a different structure from that used in developing the greater detail of the remainder of the book. We first highlight the progress (and lack of it) that has characterised the period of ten to fifteen years since the publication of *Prevention and Health*; then, we develop the lessons to be derived from the last decade or so; finally, we summarise our recommendations for action. In this preliminary summary we have avoided detailed reference to the literature; this is dealt with in the main body of the work.

Areas where public health has improved

Improvements in health and reductions in death rates have occurred at most stages in life from birth through to old age. We live, on average, nearly as long as our counterparts in most other affluent countries.

General mortality (Chapter 2) Perinatal and infant mortality rates in each of the countries in the UK fell by at least 50 per cent, although we still lag behind many countries in north western Europe.

Mortality rates among young people – especially men aged 25 to 34 – are lower in the UK than almost anywhere else in the affluent world. By the age of 45, however, the expectation of further life is shorter in the UK than in many other countries.

The reduction of avoidable deaths has been impressive in the following specific areas.

Stroke (Chapter 3) Mortality rates from stroke have decreased by at least one-third in all the UK countries, and we compare relatively well with other European countries, although there has been more progress in the USA and Japan. We do not fully understand the reasons for these trends.

Road safety (Chapter 6) The number of people killed on the roads in 1988 was the lowest for three decades. Despite a 37 per cent increase in the volume of traffic between 1978 and 1988, there was a further

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26 per cent fall in the number of fatal and serious casualties in Great Britain. The UK has the lowest death rates from road accidents in the EC, and one of the lowest rates in the industrialised world.

There have been important health gains in the prevention of disease and disability and in the promotion of health in the following areas.

Immunisation (Chapter 12) Since the first edition of *The Nation's Health* was published in 1988, there has been a major improvement in immunisation uptake rates across the nation. This has been particularly marked since the introduction of the new triple vaccine against measles, mumps and rubella (MMR), and is a tribute to the concerted effort made by the DoH, HEA, CDSC and health professionals in DHAs and primary care working in partnership to achieve a clearly defined set of targets. This approach has already resulted in the impressive downturn in reported measles cases, and a dampening (but not elimination) of the predicted upward swing in reported whooping cough cases. Immunisation is one of the few areas of public health where social disparities have been demonstrably reducible.

Mental ill health (Chapter 10) Parasuicide has become steadily less common among women in all age groups since the mid-1970s. The reasons for this decline are unknown. Although there is no reliable information on trends in the prevalence of depression, there has been a welcome decrease in the prescription of benzodiazepine sedatives in the last decade.

Pregnancy and childbirth (Chapter 11) More effective antenatal screening, together with other unknown changes (possibly in diet), have led to a major reduction in the percentage of babies born with congenital malformations of the central nervous system between 1978 and 1988. The reported percentage of babies born with spina bifida has decreased by 81 per cent and of the related, but more severe, anencephaly by 95 per cent. Genetic counselling, antenatal screening and selective termination of pregnancy have led to a major reduction in thalassemia major within the Cypriot community. The proportion of women breast feeding at birth and at six weeks has increased, although disparity between Scotland and England, and between manual and non-manual social groups, remains.

Dental health (Chapter 12) Dental health has improved in children over the whole range, but the improvement is most marked in five year olds where the proportion with decayed teeth fell by one third between 1973 and 1983. Evidence of improvements in the prevalence of periodontal (chronic gum) disease in adults is harder to find, and the social disparity in dental health remains.

Areas where progress has been mixed

The last decade has seen mixed progress in the following aspects of public health.

Infant deaths (Chapters 8 and 11) While there have been impressive

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reductions in overall perinatal and infant mortality, with reductions in each of the social groups, the disparity in perinatal and infant mortality rates between non-manual and manual classes remains.

Coronary heart disease (Chapters 3 and 7) There has been a small, long awaited, reduction in mortality from coronary heart disease since 1978. This has been most marked among younger and middle-aged men and women. However, the UK still has one of the highest death rates from coronary heart disease in the world with Northern Ireland and Scotland having higher death rates than England and Wales. Death rates from coronary heart disease among men and women from the manual classes have increased. The risk factors for coronary heart disease that have shown the biggest changes are cigarette smoking and diet. Total sales consumption of cigarettes has fallen by nearly 30 per cent in the last decade. The consumption of saturated fats has decreased over the decade, and the ratio of polyunsaturated fats to saturated fats has increased. Consumption of wholemeal bread has increased in all social groups, but the socioeconomic disparity in smoking rates and in many aspects of diet and exercise remains.

HIV/AIDS (Chapter 5) By March 1990 there were 3100 reported cases of AIDS: 56 per cent of whom had died. The number of reported cases increased exponentially between 1982 and 1988/9, and is now showing encouraging signs of levelling off. This is largely due to a marked fall in the transmission of the HIV virus among homosexual and bisexual men, among whom rates of other sexually transmitted disease have also fallen.

Since *The Nation's Health* was first published predictions of the future growth of AIDS cases have halved. Despite this welcome trend, an exponential increase in AIDS cases is predicted among injecting drug users and heterosexuals – two sections of the population where there is little evidence of protective changes in sexual or injecting behaviour.

Lung cancer (Chapter 4) Lung cancer death rates are falling among men in all age groups and increasing among women over 55. Lung cancer death rates have fallen by 50 per cent among middle-aged men. These trends can largely be explained by a major decrease in tar yields. Reductions in smoking rates among women have, so far, been less impressive than among men. Smoking among children, especially among girls, is showing little sign of decline.

Suicide (Chapter 10) While suicide rates among men have increased significantly – especially among men aged 15–24 – there has been a decline in suicide rates among women of all ages – especially those aged 35–44. The reasons for these sex differences are unclear, but the increasing rate among men in some age groups is closely associated with rising levels of unemployment.

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Contraception and unwanted pregnancy (Chapter 13) Contraceptive use among women of child-bearing age has increased steadily since 1970 with over 70 per cent now using some form of contraception. Only about half of single women and teenagers, however, used contraception. While abortion rates were steady in the early 1980s, there has been a marked rise since 1983 – most of which is attributable to young women aged 20–24, followed by teenage girls aged 15–19. Overall conception rates (births plus abortions) among the under 20s have also risen by 19 per cent since 1983. The factors underlying these trends are not clear, but may be related to changes in the type of contraception used and family planning clinic closures.

Physical activity (Chapter 9) Although only a minority of the population could be described as physically active, there have been small, significant improvements in participation rates for walking, swimming and athletics (including jogging). The wide sex, age and social class disparities in physical activity remain unchanged.

Areas where
there has been
little change
over the last
decade

There has been little or no progress in reducing ill health and premature death in the following areas.

Low birthweight (Chapter 11) The proportion of low birthweight births has remained at approximately seven per cent. Two-thirds of these are to women married to men in manual classes.

Congenital abnormality (Chapter 11) About one in five deaths in the perinatal period are due to congenital malformations. This proportion has remained almost unchanged over the last decade.

Postneonatal mortality (Chapters 8 and 11) has remained largely static since the mid 1970s, though there was a fall in 1989. Sudden infant death syndrome (SIDS) (Chapter 11) has increasingly been recognised as a major, potentially avoidable cause of death during the early months of life. Although mortality from SIDS appears to have risen, this may be largely due to increased recognition and reporting of the problem.

Large bowel cancer (Chapter 4) Trends in the incidence and in the death rates from cancer of the large bowel have remained largely unchanged over the last decade. The causes of bowel cancer are not fully understood, although diet – especially one with a high fruit and vegetable fibre content – may play a protective role. Treatment has not had a major impact. There is insufficient evidence as yet to warrant a screening programme for the early detection of bowel cancer.

Breast cancer (Chapters 4 and 7) Fifteen thousand British women die of breast cancer each year. It is still the leading cause of cancer mortality among women. Although death rates have slowly risen this century, there has been no major increase in its incidence or mortality in the last decade. We do not know the cause of breast cancer, but the risk factors most closely linked with it are early age of menarche (first

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period) and a postponement of first pregnancy beyond the age of 35. Breast screening offers the best opportunity of reducing death rates. **Cervical cancer** (Chapters 4 and 7) Approximately 2,000 British women die of cervical cancer each year. This figure has remained largely unchanged over the last decade. Both the incidence and the mortality from cervical cancer among women aged 25–44 have increased slightly over the last decade although they remain low at these ages. Cervical cancer is most probably a sexually transmitted disease and thus amenable to primary prevention. The sharp decline in the use of barrier contraception over the last two decades and earlier onset of sexual activity, together with poorly implemented cervical screening services, have almost certainly contributed to these trends. A fully implemented cervical screening programme could prevent up to 80 per cent of deaths from cervical cancer.

Areas where health is getting worse

Social disparities (Chapter 8) Despite improvements in death rates in most age groups, there is still a gap between death rates among the non-manual and manual classes for most causes of death in almost every age group. For some causes the gap has widened. We estimate that annual excess avoidable deaths in the manual worker classes in men and women aged 16–74 in 1979–83 was 42,000.

Alcohol-consumption (Chapter 5) Following an 11 per cent fall in per capita alcohol consumption in the UK between 1979 and 1982, there has been a new rise of over 9 per cent between 1982 and 1988.

Senile dementia (Chapter 10) Although most elderly people are not mentally ill and the age-adjusted prevalence of dementia is not increasing, the rapidly expanding *numbers* of elderly people over 75 and 85 have led to a marked rise in the total prevalence of dementia. We can expect this upward trend to continue until beyond the end of this century.

Illicit drugs (Chapter 13) The number of people taking illicit opiates (mainly heroin) has been estimated at 50,000. Although most illicit drug users experience no untoward effects, the misuse of opiates has increased substantially since the late 1970s. Other increases in illicit drug use such as amphetamines and, more recently, cocaine have also occurred. The concomitant risk of HIV infection among injecting drug users will continue to be a major focus of concern.

Public health issues which require more research

The causes and prevention of mental illness (Chapter 10) Although some progress has been made in determining the causes of mental handicap (or learning difficulties) and certain aspects of mental illness, much more research is needed into the causes and prevention of schizophrenia and dementia. More research is needed to separate out those components of 'stress' which are environmentally and constitutionally determined. Although progress has been made in

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identifying 'life events' which can contribute to depression, and to a range of other health problems, research should be directed at defining other aspects of stress that may contribute to both physical and mental ill health, and may prove to be more amenable to primary prevention.

The causes of physical ill health (Chapters 3, 4 and 14) We do not yet know enough about the causes of breast or bowel cancer which account for a major proportion of cancer mortality. We need to find better ways of measuring work-related hazards and the relationship between environmental radiation and cancers. Although we know enough about heart disease to implement an effective strategy for prevention, we still need to know more about the way in which work stress and social class influence heart disease rates.

Promoting a healthy lifestyle (Chapter 7) Although much progress has been made in assessing the different policy options in the tobacco and alcohol fields, equivalent research on nutritional policy is seriously lacking. We need carefully controlled intervention studies on the impact of social support on the elderly and their carers to guide us towards more humane policy options. Above all, we suffer from a continuing lack of reliable data on trends in risk factors affecting health, and in health-related knowledge, attitudes and practices of the nation – especially among different ethnic groups.

Evaluation of programmes The translation of epidemiological findings into effective practice is still very incomplete. We know most about programmes aimed at reducing risk factors for heart disease. Research into factors underlying social and regional disparities in immunisation rates and cervical screening suggests relatively simple methods for more effective implementation. We need to know more about how to establish an effective organisational structure for intervention programmes, in primary care, hospital preventive services, the workplace and the wider community.

Finally, we need to develop a better understanding of the role of the communications media in the process of health promotion. We have documented some of the positive and negative influences of these media but research has focussed on evaluating the effect of short-lived, advertising campaigns. The longer term effects of editorial coverage of health deserve more attention.

The characteristics of effective public health action

Our analysis shows that there are two general approaches to public health action which are complementary.

- The 'population approach' which focuses on measures to improve health *throughout* the community.
- The 'high risk' approach which concentrates action on those who are at highest risk of ill health.

For public health problems such as coronary heart disease, alcohol-

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related harm and high blood pressure, there is good evidence that an exclusive focus on the 'high risk' approach is unlikely to reduce the scale of the problem.

There are eight important general principles which emerge from our analysis and are common to those public health strategies which have been most effectively implemented over the last decade.

1. Partnership between the public, professionals and policy makers

The interdependence of political, professional and public strategies is best illustrated by road safety in which long-term public debate, together with increasing professional support and ultimately legislation, ensured that compliance with the seat belt legislation has remained at 95 per cent. Moreover, numerous states in the USA were forced to repeal their seat belt legislation which had not been preceded by adequate public debate. British drinking and driving legislation has not yet received sufficient political support, and is being inadequately implemented.

The family planning strategy over the last 20 years illustrates how an increasingly active and well-informed public, together with adequate professional support and legislation to increase free access to family planning, has resulted in impressive increases in contraceptive use. By contrast, the relatively low professional and political commitment given to cervical screening services until the 1980s, and the continuing absence of any obvious national attempt to inform women of the existence and value of such a service, has contributed to the poor outcomes over the last decade.

The importance of national and local agencies such as the Royal College of Physicians, ASH, the BMA and the health education agencies together with health and local authorities and FHSAs, in taking a lead in the promotion of health has been clearly illustrated in the case of cigarette smoking, and in more recent initiatives to prevent the spread of HIV/AIDS.

The need to promote a willing partnership between users and professionals in the promotion of health is enshrined in the NHS and Community Care Act and is beginning to be recognised within primary care, and in maternity services. The increasing sensitivity to user satisfaction has prompted the establishment of patient participation groups and the use of patient-held information and user surveys. A perspective on cultural and ethical health promotion and the use of procedures such as amniocentesis need to be better understood to maximise the efficiency of such services.

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2. A good national and local organisational structure

Our analysis illustrates the importance of liaison between government departments to coordinate government policy on public health. This has so far been deliberately sought in the fields of illicit drug misuse and, until recently, of HIV/AIDS for which ministerial inter-departmental committees have existed. There is an equally pressing need for such liaison in other fields such as tobacco, nutrition and road safety policy. Such arrangements are already being implemented across the whole public health field in Sweden and Finland.

Unlike countries such as Canada and the USA which have discrete public health services and which have reorganised them to meet public health challenges,¹ the development of national and local health promotion agencies has been haphazard and uncoordinated for most of the decade. The loss of the post of medical officer of health, responsible to local government until 1974, has led to a relative neglect of the public health. This has been the subject of an inquiry under the chairmanship of Sir Donald Acheson.² The NHS and Community Care Act 1990 offers scope for positive developments in public health, but its focus has been almost exclusively on hospital services so far. The frequent reallocation and fragmentation of ministerial and departmental responsibilities for public health in the DoH hampers communication between the DoH and local agencies. The historical separation of the HEC, which was a quango, from health education officers, who are part of the NHS, and from local authority education departments and environmental health units has compounded these difficulties. These issues have not yet been resolved by the Health Education Authority which replaced the HEC in April 1987, and is part of the NHS.³

3. Adequate funding

It is difficult to estimate how much is spent in the UK on the promotion of health and the prevention of disease. This is partly because of genuine difficulty in deciding what constitutes 'prevention and promotion', and partly because some health authorities and the DHSS have been reluctant to provide estimates.^{4,5} In the face of the need to justify all public expenditure – especially within the NHS – this is unsatisfactory, and a concerted attempt is needed to provide national and local guidelines for such allocations. The NHS and Community Care Act should be used to highlight precisely how much is spent on preventive versus other services within the NHS at least. The total expenditure on what was defined as prevention by one researcher in 1980/81 was estimated at £967 million.⁶ This included £550 million within the NHS which represented less than five per cent of total NHS expenditure. It also included £395 million non-NHS public expenditure by all government departments and local authorities, and a further £15.5 million by private and voluntary bodies.

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The continuing imbalance between the allocation of large sums of money to the prevention of drug misuse and the AIDS prevention campaign, compared with much smaller sums allocated for *all* other aspects of health promotion, urgently needs review.

Our specially commissioned survey of RHAs showed that some had developed a clear basis for estimating funds allocated to health promotion and disease prevention, and this formed a rational basis for future resource allocation and planning.⁷ The findings of a DHSS task force in 1986 show that DHA expenditure on health education units varies from as little as £1,000 to £35,000 a year.⁸ RHAs should, in future, use their strengthened role in needs assessment under the NHS reforms, to promote a more cost-effective allocation of resources to prevention and health promotion.

4. The importance of long-term strategic planning

WHO has taken a lead in emphasising the need for the formulation of a clearly defined, quantified strategy for the promotion of health. As part of its campaign for Health for All by the Year 2000 it has produced a European strategy (soon to be updated) which identifies 38 targets to be achieved by the year 2000.⁹

All 32 member states – including the UK – are signatories to this strategy which had already been translated into national plans in the US,¹⁰ Canada¹¹ New Zealand¹² and many western European countries by 1990. The need for such a lead was endorsed at the first international conference on health promotion organised by WHO which issued the Ottawa Charter for Health Promotion.¹³

The UK has been one of the slowest of the developed countries to develop a national strategic plan for health. We recommended that this should be a priority when *The Nation's Health* was first published in 1988 and suggested a set of achievable goals and targets that were linked to the WHO's strategy for Health for All.

The decision by the Secretary of State for Health in 1990 to establish a set of national health targets for the UK is therefore welcome – if long overdue. As well as prompting government action at last, it should strengthen the commitment already given by every RHA. Our own survey showed that every RHA (and some DHAs) had a strategic plan for health promotion, and about half had adopted quantified targets – many along WHO lines. The Faculty of Public Health Medicine has translated the WHO targets into a British context¹⁴ and a number of local authorities have incorporated the WHO principles into a wide initiative to promote Healthy Cities across the UK.¹⁵ Successive governments have supported the idea of the promotion of health and the prevention of disease, but the emphasis has so far been on the more individualistic 'high risk' approach rather than the 'population approach'. This was the focus in *Prevention and Health: everybody's business*¹⁶ which was reinforced in the govern-

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ment's health care strategy document *Care in Action* in 1981¹⁷ and subsequently in the 1990 GP contract and NHS reforms. Recognition of the need for wider action across many government departments has been lacking in most areas. In evidence to the Public Accounts Committee report on preventive medicine in 1986,¹⁸ however, the DHSS identified interdepartmental action on 19 health promotion and disease prevention policy areas which are broadly similar to those we identify in Chapter 15. Yet much of this interdepartmental work remains to be tackled.

The recent commitment to serious planning for the prevention of the spread of HIV/AIDS, the misuse of illicit drugs and, more recently, breast cancer screening is welcome and we hope not short-lived. But there is an overriding need for the development of a coherent, long-term plan for the public health. A history of unwillingness to plan within the HEC has not yet been succeeded by a clearly achievable long-term strategy in the HEA. The Health Promotion Authority established by the Welsh Office has taken a lead in this respect.¹⁹⁻²¹ The Health Education Board for Scotland was only established in April 1991 and we await developments in this agency.

5. The importance of recognising barriers to the promotion of health

The barriers to the promotion of health can be formidable. The tobacco, alcohol and confectionery manufacturers together spend an estimated £700 million annually on promoting products which are hazards to health. This is 20 times the total annual budget for the HEA and HEBS, which in 1991/92 amounted to £35 million.

The government earned over £12 billion in 1989 from tobacco and alcohol taxation alone. There are other, more subtle, barriers to health promotion, such as the attempts to limit the open discussion of sexuality and its health implications within the communications media and in schools. And finally, there is still a prevailing attitude within the media, and in many medical schools, and some sectors of the medical profession, that there will soon be a cure for our major health problems. While treatment has a major contribution to make, prevention has been historically more important. This is often under-emphasised in glamorised misleading reports of high technology medicine.

6. Effective mechanisms for reducing inequalities in health

While we have shown that income, housing and employment policy provide the foundation for a strategy to reduce inequalities in health, little effort has so far been directed towards finding effective mechanisms for reducing *specific* aspects of health inequality such as the social class gradient in coronary heart disease and in lung cancer. Our analysis does show, however, that the 'population approach' is likely to be more effective than efforts to reach individuals at high

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risk of ill health. There is evidence that measures such as fluoridation of the water supply, the wartime national nutrition policy, the mandatory use of seat belts, and legislation to provide access to free contraception and better provision of sports facilities can reduce social disparities in health and health-related practices. Preliminary research which suggests that the social disparity in smoking rates may be reduced by bigger rather than smaller increases in cigarette taxation, deserves further attention. More research into the use of food pricing mechanisms, especially within the EC, to encourage healthier eating patterns and to reduce socioeconomic differences in diet is needed.

7. Adequately funded and disseminated health education and information programmes

Our review has demonstrated the importance of educational initiatives in the promotion of health. Long-term school education programmes have been most widely adopted in the smoking and health field. Our survey of educational achievements in the health field over the last decade showed that most progress has been made in schools. By 1986, 92 per cent of English and Welsh secondary schools covered health education. Two-thirds claimed to have a planned programme, and nearly half had a designated person responsible for health education.²² Nearly nine out of ten primary schools covered health education, although in a much less planned way. The picture for Scotland is equally encouraging. In the National Curriculum, however, health education is only designated as a cross-curricular theme, with relatively low status.

The survey showed that developments in medical education were less encouraging than in nurse and teacher training. Nearly half the colleges of education in England and Wales had a compulsory 'core' of health education, and there is evidence of increasing commitment to health education within undergraduate and postgraduate nurse training.²³ Progress in undergraduate medical education has been more limited, but vocational training for GPs has taken a lead in the medical field.

8. Adequate mechanisms for research, evaluation and monitoring

Our report frequently identifies deficiencies in basic information essential to the evaluation and monitoring of public health action. This has led to a number of RHAs and DHAs conducting their own expensive and widely differing kinds of local community health survey. While this is welcome, there is a need to develop a uniform, essential database for health along the lines developed in Canada, New Zealand and the USA where there are regular, national health surveys which include detailed information on the health of different income and ethnic groups. The development of the DoH's new Public Health Monitoring Unit is also welcome, but its plans and resources fall far short of the scope of national health surveys conducted in north America.

SUMMARY

Evaluation of public health action nationally and locally is often absent or patchy, and the tools for measuring success are inadequate. Measures designed to reduce coronary heart disease are now beginning to be systematically evaluated through reductions in risk factors, measures of the implementation process and ultimately by reductions in the incidence and mortality from the disease.²⁴ RHAs, DHAs, FHSAs, should demonstrate their strengthened commitment to needs assessment in relation to the NHS reforms, and commit protected resources to evaluation of outcomes of health promotion initiatives. It is not easy, however, to devise appropriate methods for measuring the effectiveness of a health visitor working with a local community or with pensioners' groups, whose aim is to increase autonomy and community participation. These are two examples of research challenges that the community development approach presents. These challenges need to be met with new, constructive forms of evaluation, rather than blanket criticism.

**Developing a
strategy for the
1990s
(Chapters
15-17)**

We believe that a public health strategy should be directed towards the attainment of three overall health goals:

- 1 longevity;
- 2 a good quality life;
- 3 equal opportunities for health.

From our analysis we have been able to identify 11 priority areas where public health action will result in major improvements in the nation's health. We have set out a plan of action for each with general objectives and quantified targets – where possible – to be achieved by the end of the century. We identify the expected health outcomes of each element of the strategy and make detailed recommendations to the following agencies.

- government;
- health promotion agencies;
- the communications media;
- training institutions;
- local authorities;
- health authorities;
- primary health care;
- employers, industry and trades unions.

The strategy has three interconnecting parts:

1 Resources for health (Chapter 15) The first part of our strategy identifies the following elements which are essential for an effective overall strategy to promote public health:

- effective coordination and organisation at national and local levels;

LESSONS FROM A DECADE OF PUBLIC HEALTH

- adequate funding;
- long-term commitment and programme planning;
- well-defined research and evaluation.

2 Lifestyles for health (Chapter 16) In the second part of our strategy we make detailed recommendations on the following aspects of lifestyle:

- reducing cigarette consumption;
- promoting a healthy diet;
- promoting regular physical activity;
- reducing alcohol consumption;
- promoting sexual health;
- promoting road safety.

3 Preventive services for health (Chapter 17) In the third, and final part of the strategy, we make detailed recommendations on the following preventive services:

- maternity services;
- dental health;
- immunisation;
- early cancer detection;
- blood pressure reduction.

2 Statistics of mortality: the last decade

The health of the people is really the foundation upon which all their happiness and all their powers as a state depend.

BENJAMIN DISRAELI

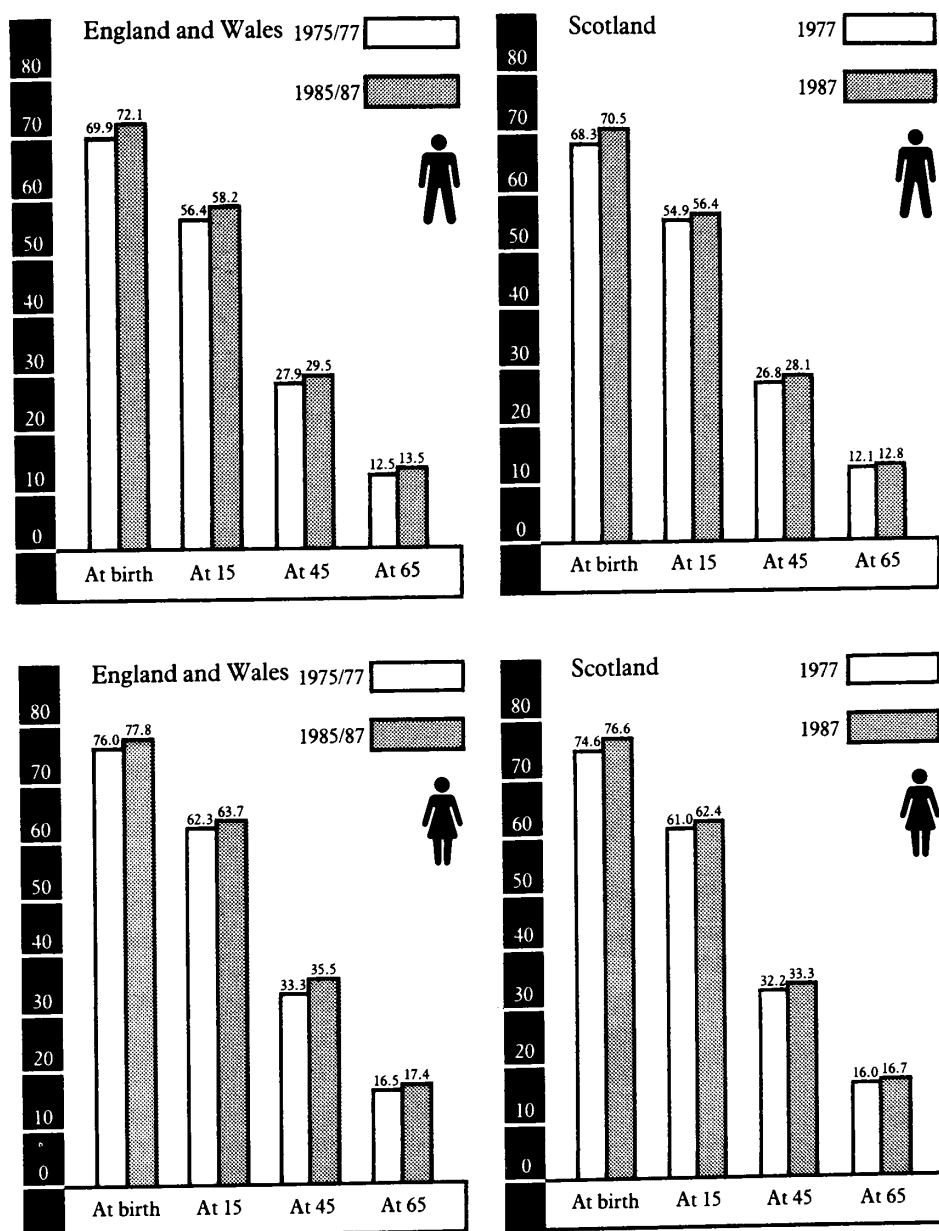
Introduction A country's health is not easily described in quantitative terms. No country could maintain a continuous record of the state of health of all its citizens and few countries attempt the systematic analysis of all records of contact between sick people and the health care services. Limited statistical analysis is usually routinely carried out on records of hospital inpatient stays and occasional surveys are conducted of outpatient contacts. Perhaps surprisingly, some of the most useful statistics of the public health are derived from medical certification of cause of death.

Most developed countries keep fairly complete and reliable records of deaths, and death is a unique, unambiguous event relating to the life and health of an individual. The certified causes of death are based on medical opinions and within broad categories can be relied on. Data on gender, age at death, place of death and the usual occupation followed by the deceased are generally considered to be sufficiently reliably recorded to permit useful statistical analysis which gives a broad picture of a country's health and enables comparison with other countries and with other periods. It is useful to compare present performance in the UK with that of other countries and past performance with the UK. In this chapter, we present briefly some of the salient features of recent trends in mortality because they identify some important problems that we consider in later chapters.

Mortality and longevity Statistics of deaths are usually presented as mortality rates (numbers of deaths in a period divided by the numbers in the related population or population sub-group). Since the risk of dying is very different at different ages, and since different populations have different age structures, it is a common practice to calculate a summary index which is so constructed that mortality at different times and places may be compared, in spite of differences in population age structures. Life-tables provide a suitable summary index called the 'expectation of life'. The expectation of life at birth is essentially a current average age at death, and we can also calculate expectations of further life at various ages beyond birth.

STATISTICS OF MORTALITY: THE LAST DECADE

Figure 1 Improvements in expectation of life in Great Britain (1975-1987)



Sources: OPCS Series DH1, No 20, Mortality statistics general 1987. London, HMSO, 1989.
Registrar General for Scotland. Annual Report 1988. Edinburgh, HMSO, 1989.

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These 'expectations of life' are usually calculated from the death rates in a particular calendar year. They therefore summarise the risk of death of people born in many different years, and are thus neither a summary nor a prediction of *life expectancy* for any particular year's newborn individuals. Nevertheless, they are widely used and are useful summary statistics.

Expectation of life Expectation of life has improved in most countries over the period for which statistics have been available. The expectations of life at birth for all countries in the UK (for 1987 deaths) are now higher than ever previously recorded. For men in England and Wales the figure was just over 72 years, and for women nearly 78 years – reflecting the generally lower mortality at each age for women than for men. During the decade ending in 1987 the expectation of life at birth increased by 2.2 years for men and 1.8 years for women. Similar improvements have been recorded for Scotland (see Figure 1).

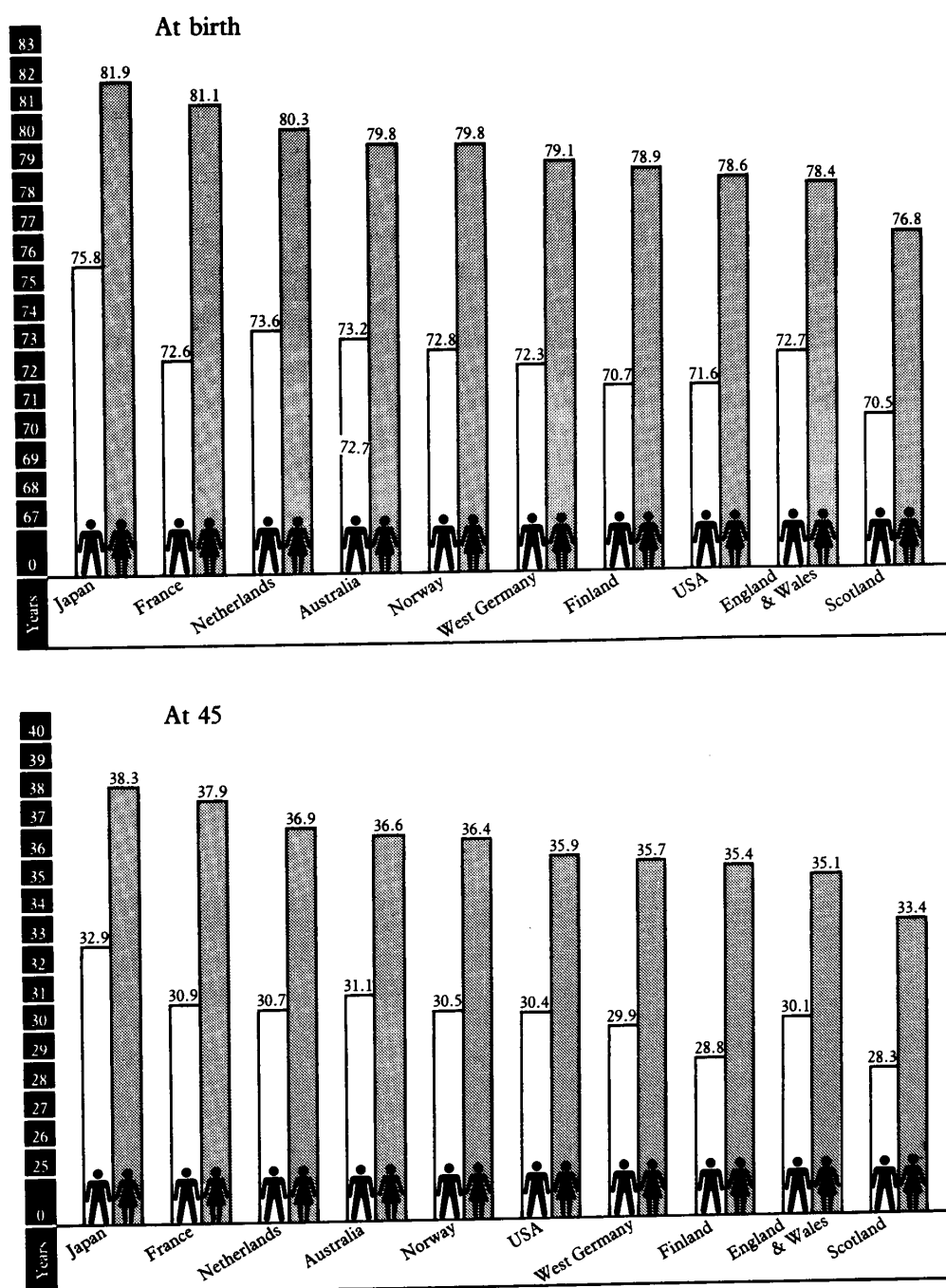
As the expectation of life at birth is essentially the average age at death, it is affected by changes in mortality rates at all ages. The great improvement that has taken place during the present century is mainly due to the considerable reductions that have occurred in mortality during infancy and childhood, but there have been improvements at all ages and mortality among older people has also improved in the last two decades. For England and Wales, the expectation of further life at age 65 increased by eight per cent for men and by five per cent for women between 1977 and 1987 (see Figure 1).

International comparisons The duration of life in this country is on a level with that in other comparably developed countries in Europe or elsewhere, although Japan, the Netherlands, Norway and Australia do better than the UK (see Figure 2). This is mainly because we have a relatively low infant mortality (the number of deaths in the first year of life per 1,000 live births), and a very low mortality among young adults. Our expectation of further life beyond the age of 45 is much less satisfactory, and is among the worst in north western Europe, particularly in relation to women (see Figure 2).

Mortality in infancy Mortality in infancy has traditionally been recognised as a good guide to the general quality of both health care and the standard of living in a country. In common with those of most other European countries, infant mortality rates have fallen substantially in the UK to a level of 8.4 deaths/1,000 live births in England and Wales in 1989 (see Figure 3). However they have fallen less rapidly than in some other countries. In 1966, England and Wales had the eighth lowest infant mortality rate out of 14 countries in north western

STATISTICS OF MORTALITY: THE LAST DECADE

Figure 2 Expectation of life at birth and middle age – an international comparison (1987–1988)



Source: World Health Organization. World Health Statistics Annual 1989. Geneva, WHO, 1989.

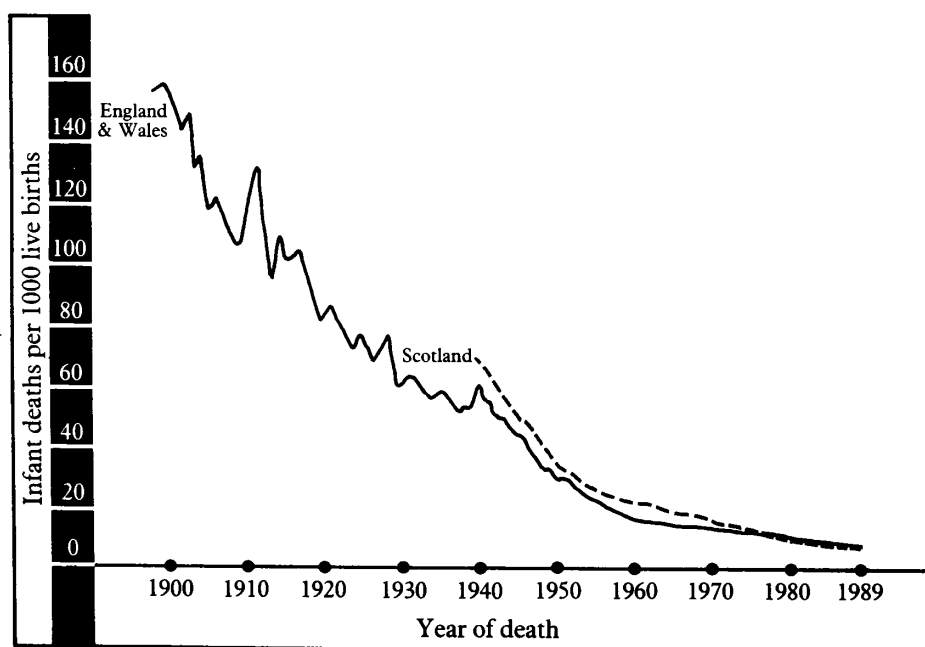
LIVING LONGER

Europe, but by 1986 its position had dropped to eleventh. Northern Ireland remained thirteenth and Scotland tenth (see Table 1).

However, about half of deaths in the first year occur in the first week of life, and many of those early deaths occur on the first day. It is therefore useful to look at what is known as the perinatal mortality rate (the number of stillbirths and deaths in the first week of life expressed usually as a rate per 1,000 total births). In 1989, the rate for England and Wales stood at 8.3/1,000 total births, the lowest it has ever been. Although perinatal mortality rates have fallen substantially in each of the UK countries (see Figure 4), the slowing down in the rate of improvement in both perinatal and neonatal mortality rates leaves no room for complacency. Also, compared with the Scandinavian countries perinatal mortality in the UK is relatively high and indicates that we could do better. The principal reasons for this are that the UK has a relatively high prevalence of congenital malformations at birth, as well as a higher than average proportion of babies born at low weight (less than 2500 gm – see Chapter 11). Furthermore, there seems to be great variation in perinatal mortality among the different regions of the UK and among the social classes.

Postneonatal mortality rates (deaths between age one month and

Figure 3 Trends in infant mortality, England and Wales (1900–1989) and Scotland (1941–1988)



Sources: OPCS. Population Trends 1990, No 59, 42–43.
OPCS Monitor Series WR 90/18, Registrar General for Scotland. Annual Report 1988. Edinburgh, HMSO, 1989.

STATISTICS OF MORTALITY: THE LAST DECADE

Table 1 Infant mortality rates in north western Europe (1966 and 1986)

	Infant mortality rate/1,000 live births			
	1966	Rank	1986	Rank
Sweden	12.56	1	5.90	2
Norway	14.55	2	7.92	5
Netherlands	14.70	3	7.77	4
Finland	14.98	4	5.86	1
Denmark	16.95	5	8.14	7
Switzerland	17.10	6	6.83	3
France	18.01	7	8.04	6
England and Wales	19.00	8	9.55	11
Scotland	23.19	9	8.83	10
German Fed Rep	23.61	10	8.54	8
Belgium	24.73	11	9.77*	12
Ireland	24.95	12	8.69	9
Northern Ireland	25.55	13	10.16	13
Austria	28.08	14	12.27	14

* Rate in 1984 in Belgium.

Sources: World Health Organization. World Health Statistics Annual. Geneva, World Health Organization, various years.

Macfarlane, A. Personal communication, June 1990

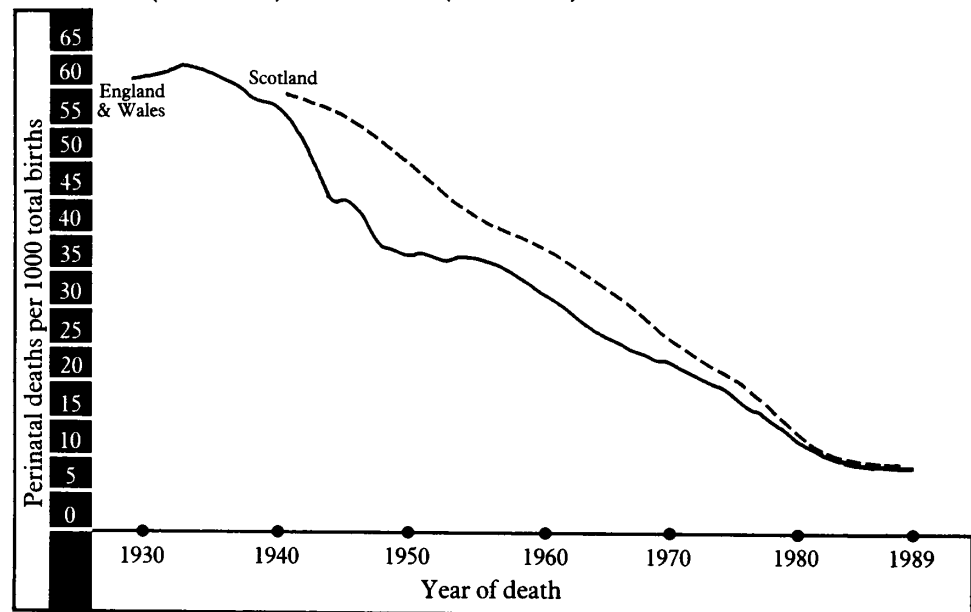
one year expressed usually as a rate per 1,000 live births) offer extra insight into potentially preventable deaths in infancy, because they are sensitive to social and environmental circumstances – especially socioeconomic factors.¹ Between 1969 and 1976 the trend in post-neonatal mortality was downward. For the next ten years up to 1988 there was very little change in rates, but in 1989 an improvement was seen again as the rate fell. Against this background there has been a dramatic rise in the mortality attributed to sudden infant death syndrome (SIDS) – sometimes called ‘cot deaths’. These trends have given rise to considerable concern as SIDS has now become one of the major causes of postneonatal mortality. However, much of the observed rise in SIDS may reflect increased recognition and reporting of this syndrome on death certificates.² Nevertheless, SIDS is clearly an important cause of loss of life in infancy. In Chapter 11, we discuss the scope for its prevention.

Mortality in adolescence and adulthood

In contrast with very early life, mortality rates in adolescence and early adult life are comparatively low in the UK. This is mainly a consequence of the favourable mortality from accidents in the UK – especially traffic accidents (see Chapter 6). The UK does particularly badly however (although it is not alone in this) in expectation of further life beyond the age of 45. In these age groups mortality rates

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Figure 4 Trends in perinatal mortality, England and Wales (1928–1989) and Scotland (1941–1988)



Sources: OPCS. Mortality statistics, various years.
Registrar General for Scotland. Annual Report. Various years.

from coronary heart disease, strokes and cancers are much higher than those for many other European countries (see Chapters 3 and 4).

Over 50 per cent of all deaths before the age of 85 are attributed to cancers and heart disease. Since there is good reason to believe that many of the deaths from these causes are potentially avoidable, we consider a detailed strategy for their prevention in later chapters.

Consequences of mortality trends

The substantial decline in mortality that has taken place over the past 150 years would have resulted in an even greater population increase than has taken place were it not that the annual number of live births has also substantially declined over much the same period. The net population effect of these remarkable changes has been a considerable relative increase in the proportion of older people.

This 'ageing' of the population is likely to continue beyond the end of the present century (see Chapter 14). Since the risk of developing serious illness increases with age, and the diseases characteristic of later life tend to be chronic and difficult to treat, the effect of the changes in mortality and fertility has been to increase the need for health care in most industrial countries. This has distracted attention from preventive opportunities and has led to a heavier concentration on the treatment of established illness and on the care

STATISTICS OF MORALITY: THE LAST DECADE

of those disabled by it. Although success in prevention tends to increase the need for caring services for an older population, there is little doubt that the average human life-span is very favourably affected by measures which not only postpone the onset of lethal and disabling conditions, but greatly enrich the quality of life overall. Despite having to abandon the older naive assumptions that success in prevention would pay for itself by reduced needs for treatment services, we can continue to argue that successful prevention enhances the quality of life over the major part of the life-span.

3 Today's epidemics: circulatory diseases

It is often necessary to make a decision on the basis of knowledge sufficient for action, but insufficient to satisfy the intellect.

IMMANUEL KANT

Introduction In Chapter 2 we identified the potential for reducing the burden of premature death in middle age by reducing the incidence of circulatory disease and cancers. In this chapter we consider the causes of coronary heart disease and stroke, and the means by which their incidence might be reduced. We compare the UK record over the last decade with that of other countries where more progress has been made. Later on, in Chapter 7, we consider in detail the evidence concerning policies needed to reduce the risk factors for heart and other diseases.

Coronary heart disease and stroke Coronary heart disease (CHD) is the leading cause of death in the UK. In 1988 it accounted for about 180,000 deaths among British men and women. Each year, 100,000 people suffer a stroke and in 1988 nearly 69,000 people in England and Wales died of stroke. Coronary heart disease and stroke have causes in common and thus common measures might be expected to reduce the incidence of both. The total cost of heart disease to the community is difficult to calculate, but estimates for 1986/87 suggest that CHD was responsible for the loss of 40.5 million working days. In 1989, the NHS spent about £10 million a year on trying to prevent CHD and over £500 million a year on treatment.¹

What causes heart disease and stroke? The evidence suggests that the disease process begins early in life. Although no sector of society is immune, those with the highest death rates are men and women in the manual classes² (see Chapter 8), and men and women of Asian origin.³ Although in middle age the death rate is up to five times as high for men as for women, the rates become similar in old age when heart disease is the leading cause of death for women as well as for men.

Risk factors for heart disease and stroke A decade and a half of intensive research has clarified many of the doubts about the importance of cigarette smoking, blood cholesterol and diet, and high blood pressure – the 'classical' risk factors – in heart disease (see Table 2). Further light has also been shed on the role of other risk factors such as physical inactivity, obesity and dia-

TODAY'S EPIDEMICS: CIRCULATORY DISEASES

betes. The causes of stroke have received less attention but high blood pressure is an identifiable cause.

These conclusions are supported in numerous WHO and international expert reports on coronary heart disease in the last decade.⁴⁻¹¹ In the UK the Royal College of Physicians/British Cardiac Society¹² in 1976, followed by the British Cardiac Society's update in 1987,¹³ the DHSS report¹⁴ *Diet and Cardiovascular Disease* from its Committee on Medical Aspects of Diet (known as the COMA report), and the National Advisory Committee on Nutrition report¹⁵ in 1983

Table 2 Known risk factors for coronary heart disease and stroke

Risk factor	Relationship to	
	<i>Coronary heart disease</i>	<i>Stroke</i>
<i>'Classical' risk factors</i>		
Cigarette smoking	Causal	Probably causal – especially in association with oral contraception Association recently shown for other kinds of stroke too
High blood cholesterol	Causal	Unclear relationship
High blood pressure	Causal	Causal
<i>Other risk factors</i>		
Obesity	Possibly causal but acts mainly through other risk factors	Causal
Diabetes	Probably causal	Causal
Physical inactivity	Probably causal	?
Social class	Independent association	Association
Psychosocial factors	Strong independent association with lack of social support, work stress	?
Heavy alcohol consumption	Strong independent association	Strong independent association
Soft tap water	Association	?
Family history	Strong association	?

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(known as the NACNE report) have come to similar conclusions.

Cigarette smoking

Smoking is estimated to be responsible for one in four of all deaths from coronary heart disease.¹⁶ The risk of developing heart disease in middle age is more than three times as great for someone who smokes more than 20 cigarettes a day as for a non-smoker. Stopping smoking is of major importance in reducing the risk of heart disease, and those who have already had a heart attack can halve their future risk of another by stopping smoking.¹⁷ We do not know which of about 3,000 identifiable components in cigarette smoke is responsible for heart disease: the case against nicotine is not entirely convincing and the case against carbon monoxide is weak.¹⁸ The shift to lower tar cigarettes (see Chapter 4) is *not* demonstrably associated with a lower risk of heart disease.¹⁹

Cholesterol and diet

The higher the cholesterol level in the blood the greater the risk of heart disease.²⁰ The 20 per cent of people with the nation's highest cholesterol levels are three times more likely to die of heart disease than the 20 per cent with the lowest levels.²¹ International trials using drugs or diet to lower blood cholesterol level have shown that there is a subsequent reduction in the risk of heart disease,²² and the risk is commensurate with the extent to which cholesterol is lowered and the length of time over which the reduction has occurred.²³ When the results of 20 such trials of diet and drugs were statistically pooled, a 10 per cent reduction in blood cholesterol was associated with a 20–30 per cent reduction in heart disease.²⁴ The WHO and NACNE reports concluded that while there is no threshold level below which there is no risk of heart disease, a cholesterol level of 5.2 mmol/litre or less is associated with a low risk of heart disease in people over 30, and 4.7 mmol/litre in people under 30.

There has been uncertainty over how to define who is at high risk of heart disease according to their cholesterol levels. The available data from three British studies suggest the cholesterol levels are so high throughout the population that the *whole community* is at risk, and recent evidence shows that there is no threshold which clearly demarcates low or high risk populations.^{25,26} In a 1985 study of cholesterol levels among younger men and women, 63 per cent had levels that were above 5.2 mmol/litre.²⁷ In the national dietary and nutritional survey of British adults in 1987, 68 per cent of men and 64 per cent of women had a serum total cholesterol above 5.2 mmol/litre and that proportion rose with age, so that 87 per cent of men aged 50 to 64 and 90 per cent of women in that age range had levels above 5.2 mmol/litre.²⁸

There is good evidence that the amount of saturated fat (derived mostly from animal fats) in the diet is an important determinant of

TODAY'S EPIDEMICS: CIRCULATORY DISEASES

cholesterol levels.²⁹⁻³¹ A reduction in cholesterol levels can be achieved through a reduction in total fats and saturated fats, an increase in polyunsaturated fats (mainly fat and oils of vegetable origin) and an increase in dietary fibre (roughage).³²

By 1985, at least 65 expert groups worldwide had examined diet and disease – mostly heart disease – in the affluent world.³³ Although there is some diversity in their recommendations for diets that are commensurate with good health and the prevention of heart disease, most have the following common features:

- there should be a reduction in total energy derived from dietary fat;
- there should be a reduction in the intake of saturated fat (with some recommending small increases in the intake of polyunsaturated fats);
- there should be an increase in the intake of complex carbohydrate, starchy foods such as bread and potatoes, and fibre.

The COMA and NACNE reports differ slightly in their terms of reference: the 1984 COMA report focussed heavily on the prevention of coronary heart disease and on the role of dietary fats, while the NACNE report concerned itself with broader aspects of diet and health of which coronary heart disease was only a part. As a result, the NACNE recommendations are more comprehensive, but broadly agree with those from COMA on fats and coronary heart disease. The 1989 COMA report focussed on the effect of dietary sugars on health.³⁴

Table 3 shows that for those reports which have produced quantified goals there is a broad consensus concerning the reduction of total dietary fats, saturated fat, sugar and salt, and an increase in dietary fibre. The difference in amounts recommended by the NACNE and COMA reports for the reduction of energy derived from fats is partly due to the NACNE committee including calories from alcohol in its estimate.

What might be the effect of implementing such changes in the UK diet? Assuming the nation were able and prepared to comply, it has been estimated that the diet recommended by WHO might result in a 16.5 per cent reduction in average cholesterol levels and the COMA diet would result in a 12 per cent reduction. This would leave 16 per cent and 38 per cent of the nation respectively with cholesterol levels that are above 5.2 mmol/litre. Although these predictions require testing, the more comprehensive recommendations of WHO (and NACNE in the UK) seem likely to achieve the most substantial health gains for the nation.

The National Food Survey is our best available guide to what the nation eats and embraces an annual estimate of all food bought for

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Table 3 A comparison of long-term, quantitative recommendations for dietary change

	Current British averages (NFS 1988)	WHO 1982	Dietary goals			COMA 1989 (Sugars)
			NACNE 1983	BMA 1986	COMA 1984	
Percentage energy derived from total fat	42.0	30	30	30	35	
Percentage energy from saturated fat	17.3	10	10	10	10	
Sugar	38kg/Year*	Low	20kg (includes hidden sugar)	20kg (includes hidden sugar)	No increase	Reduction in non-milk extrinsic sugars
Salt	7-10gm/day	3.5gm/day	Reduction of 3gm/day	Reduction of 3gm/day	No increase	
Fibre	18-24gm/day**	30gm	30gm	30gm	Increase - no amount given	Replace above sugars with fresh fruit, vegetables and starchy foods

* Derived from estimates of sugar supplies for food use.

** Derived from the dietary and nutritional survey of British adults. London, HMSO, 1990.

Source: NFS (National Food Survey).

domestic consumption. In 1988, 42 per cent of the calories from the UK diet were derived from fat and 17.3 per cent from saturated fats - clearly much higher proportions than either the NACNE or COMA recommendations (see Table 3). Sugar intake was also high at 38 kg/person in 1987, and fibre low at an estimated 18-24 gm/person/day. Although there is no regular information on children's dietary habits, a survey of 10-14 year olds in Britain in 1983 suggested that children's diets were less healthy than those of adults and that the average proportion of energy derived from fat was 37-39 per cent, with one-third of children deriving more than 40 per cent of energy as fat.^{35,36}

The high rate of heart disease among Asians living in the UK has led some to question whether dietary fat is a major contributory factor in heart disease. The assumption is that Asians eat a diet high in fibre, low in total fats and animal fats much like that of the average Indian in India.³⁷ This seemed to be the case in a survey of Asians (mostly Gujaratis) living in north west London,³⁸ but smaller studies

TODAY'S EPIDEMICS: CIRCULATORY DISEASES

in different Asian communities have shown that Bangladeshi men³⁹ and some Gujarati communities living in London have a high total fat intake and that fibre intake is not as high as is sometimes assumed.⁴⁰

High blood pressure

High blood pressure is a major contributory factor in both heart disease and stroke.^{41,42} The higher the blood pressure, the greater the risk of heart disease. In any given population, the 20 per cent of people at the top of the blood pressure range have four times the risk of dying of heart disease compared with the 20 per cent at the bottom of the range.⁴³ Blood pressure patterns in the UK are such that a reduction in blood pressure of those at the highest risk end of the spectrum would have less impact than a reduction in blood pressure throughout the whole community.⁴⁴ A 10 mm decrease in the average blood pressure of the whole population might be expected to reduce the mortality attributable to heart disease by 30 per cent.⁴⁵

Blood pressure is influenced by a combination of factors. Genetic factors, obesity, heavy drinking and a high dietary salt intake probably all play a part.⁴⁶

The WHO reports, together with the NACNE and COMA reports, have concluded that salt intake in the UK and other affluent countries is too high, and that salt is an important, potentially reducible determinant of high blood pressure. A thorough analysis of worldwide salt reduction trials shows that a moderate reduction in daily salt intake (3gm a day) would lower systolic blood pressure (the upper reading) by an average of 5mmHg, in people with 'normal' blood pressure and 7mmHg in people with high blood pressure. Such a reduction in blood pressure across the whole UK population would be expected to reduce the incidence of stroke by more than a quarter and coronary heart disease by 15 per cent.⁴⁷

Blood pressure is not monitored on a national basis and is irregularly monitored in general practice. One large, individual study suggests that over one in five men (including those treated for high blood pressure) and 12 per cent of women aged 40-49 have blood pressures above the normal range.⁴⁸ These proportions were confirmed in a community survey in Wales in 1985 which showed that one in five 55-64 year olds were on drug treatment for high blood pressure.⁴⁹ There is disputed evidence that people of Caribbean origin living in the UK have higher blood pressure than the white or Asian people.⁵⁰ Average daily dietary salt intake in the UK has been estimated to be at least twice as much as that recommended by WHO and NACNE.⁵¹

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Mildly increased blood pressure

The value of screening and treating moderate or severely increased blood pressure (diastolic over 100 mm Hg) in people aged 20–80 is not in dispute and has been shown to reduce mortality from stroke incidence and mortality from coronary heart disease in elderly people. These conclusions are supported by a review of the major intervention trials by the British Hypertension Society.⁵² It is less clear whether *mild* increases in blood pressure (diastolic 95–99 mm Hg) should also be treated. This question was addressed recently by the Medical Research Council (MRC) in a major randomised controlled trial of drug treatments (bendrofluazide and propranolol) in 30–64 year olds.⁵³ The results showed that while treatment reduced the incidence of stroke, there was no significant effect on heart disease. Despite the beneficial effect on stroke the overall consensus at present is that the benefits do not outweigh the risks⁵⁴ for the following reasons.

- It was estimated that 850 people would have to be treated for a whole year in order to prevent one stroke.
- The drugs have troublesome side effects.
- There is a tendency of up to one-third of people with mild increases in blood pressure to return to normal *without any treatment*; moreover non-pharmacological approaches such as relaxation can in some instances be just as effective as drugs.⁵⁵

Other risk factors: obesity and diabetes

Obesity (a weight that is 20 per cent or more above the upper limit of a standard range for a given age) and overweight (a weight that is 10–19 per cent above the upper standard range) pose a threat to health. In particular, obesity is associated with heart disease, and probably contributes by increasing the risk of high blood pressure and diabetes and by raising blood cholesterol levels. For each 14 lb excess in weight there is an associated 4 mm increase in blood pressure. Levels of overweight and obesity are high among both adults and children in the UK. By the age of 11, six per cent of boys and 10 per cent of girls are overweight or obese, and this figure rises to about 12 per cent at 20. The proportion continues to rise in adulthood with about half of 50–60 year olds being overweight.⁵⁶ Overall, in 1985 36 per cent of men and 31 per cent of women were classed as overweight and a further eight per cent of men and 15 per cent of women were obese.⁵⁷

Between one and two per cent of the population has diabetes⁵⁸ – about 90 per cent of which is related to overweight and obesity and is thus potentially preventable.⁵⁹ There is now renewed concern about the role diabetes might play in explaining the high death rates from heart disease among Asians. Evidence from India⁶⁰ and from Indian populations living in Trinidad⁶¹ and the UK^{62,63} has shown that the

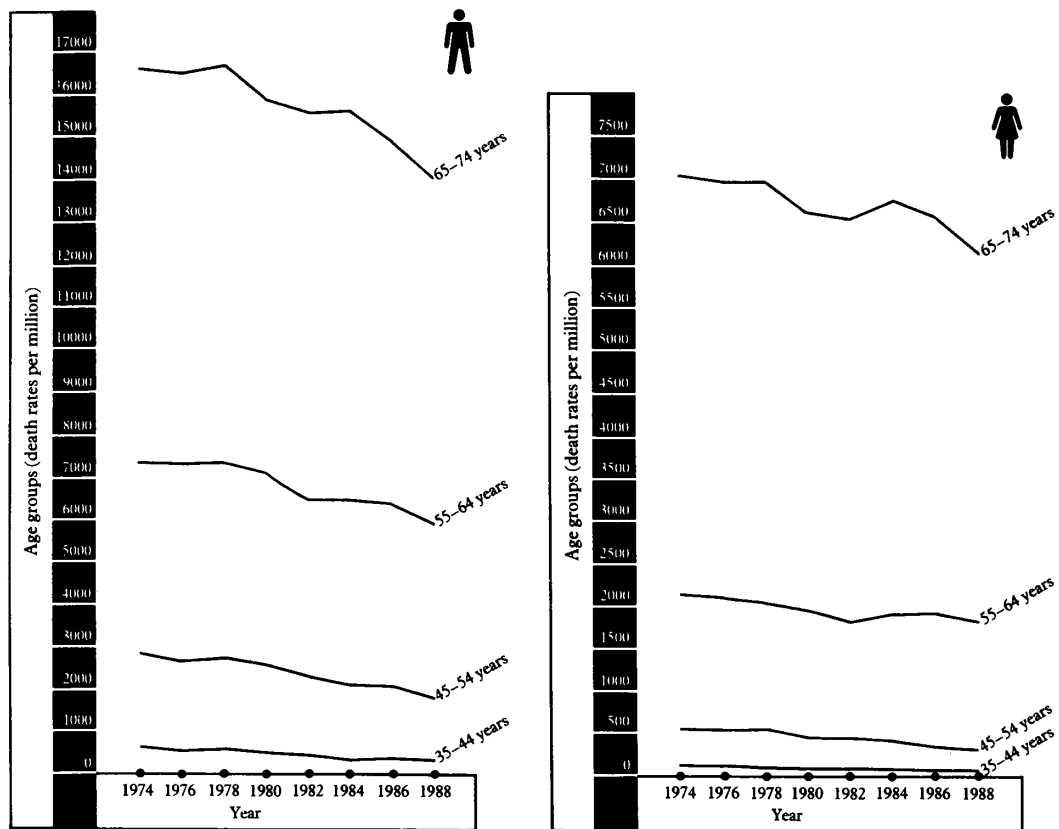
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prevalence of diabetes is much higher in these communities than among people of other ethnic origins. The potential value of screening for diabetes in primary care has yet to be proven, but dietary policies that will not only reduce blood cholesterol levels, but also obesity, and thus diabetes, offer most scope for prevention.

- Physical activity** There is now strong evidence that physical activity is important in the prevention, not only of heart disease, but a wide range of other conditions as well – including obesity and high blood pressure. The kind of exercise needed is vigorous, aerobic exercise about two to three times a week, and we review the evidence in Chapter 9.
- Socioeconomic and psychosocial factors** Working class men (there is no equivalent UK research among women) are over three and a half times more likely to die of heart disease than professional men, and this association persists after other risk factors are taken into account.⁶⁴ We do not know how the socioeconomic environment exerts its effect, but it is a relatively recent phenomenon – as the class gradient in heart disease before the 1960s was in the opposite direction. Recent research suggests that it may be in part related to the subjective levels of stress, which may in turn affect smoking rates (see Chapter 8). Past research into the nature of such stresses is difficult to interpret (see Chapter 9). In the field of heart disease, research has largely been limited to a search for the 'coronary prone' personality^{65,66} which has produced equivocal findings.⁶⁷ Some promising recent research has focussed on the specific *kinds* of stress experienced in the workplace (see Chapter 14), and suggests that it may be a *combination* of high demands at work together with a lack of control over the decision-making process at work that is associated with the high rates of heart disease among manual workers.⁶⁸
- Soft water, alcohol and coffee** Soft water⁶⁹ and coffee⁷⁰ are also associated with heart disease. In the case of coffee, there is a suggestion from prospective studies in the USA that coffee increases cholesterol levels, and that the risk of heart disease rises in proportion to the amount drunk.⁷¹ We do not know what role alcohol plays in heart disease, as research findings have been inconsistent.^{72,73}
- Intervention to reduce heart disease** Once a firm link between a potential factor and a disease is established, the most powerful way to demonstrate its causal contribution is to show that a reduction in this risk factor leads to a reduction of disease. This may be tested in a randomised controlled trial where the aim is to compare the outcome of an intervention in a test group with a comparison or control group which does not receive the intervention. In the case of coronary heart disease, trials are usually complex and involve multiple interventions including dietary advice or

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Figure 5 Trends in coronary heart disease by age group, England and Wales (1974–1988)



Source: OPCS Series DH2. Mortality statistics: cause. Various years.

treatment, advice and support to reduce smoking, treatment of high blood pressure and the promotion of exercise. For stroke, trials have focussed mainly on the treatment of high blood pressure. Despite methodological problems, most of the major randomised controlled trials to reduce heart disease demonstrate a clear relationship between risk factor reduction and reduction in the incidence or mortality from heart disease and stroke – if not in total mortality.⁷⁴

The most carefully conducted community-based trials such as the North Karelia project in Finland⁷⁵ and the WHO Collaborative Study⁷⁶ have shown reductions in heart disease risk factors in the long term, and that the size of the reduction is proportional to the size of reduction in heart disease.

Are we meeting the challenge?

There has been a long-awaited but small decrease in death rates from heart disease in men and women in England and Wales since 1978. It

TODAY'S EPIDEMICS: CIRCULATORY DISEASES

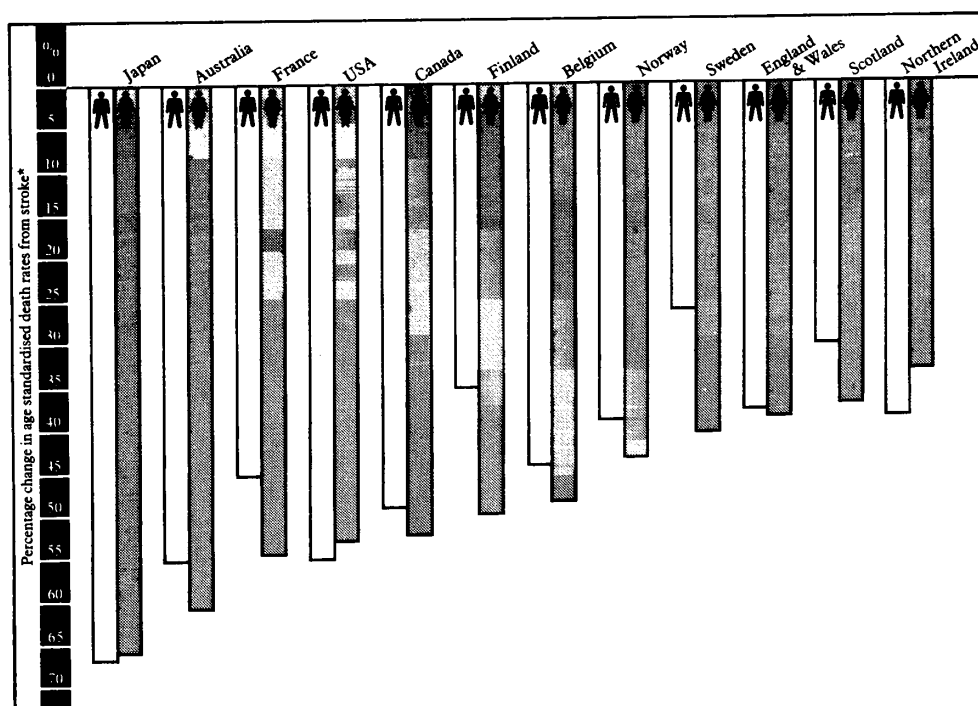
has occurred in all age groups (see Figure 5). The biggest reductions in heart disease since 1978 have occurred among middle-aged men, and to a similar degree among middle-aged women. Between 1974 and 1988 death rates among 45–54 year olds fell by 37 per cent for both men and women.

The fall in mortality from stroke has been dramatic at about 38 per cent for England and Wales, and similar figures for Scotland and Northern Ireland, between 1970 and 1985. We cannot explain this decline, but it has occurred in many other affluent countries (see Figure 6).

Deaths from CHD have reduced slightly in recent years, but over the last 20 years rates in comparable countries such as Australia and the United States have declined four to five times faster than those in Great Britain which remain among the highest in the world (see Figure 7).⁷⁷

Knowledge and attitudes Knowledge of the risks of heart disease appears to have improved, although comparative data from a decade ago are not available. A majority of Welsh men and women surveyed in 1985 (in all age

Figure 6 International trends in stroke mortality in selected countries, ages 30–69 (1970–1985)

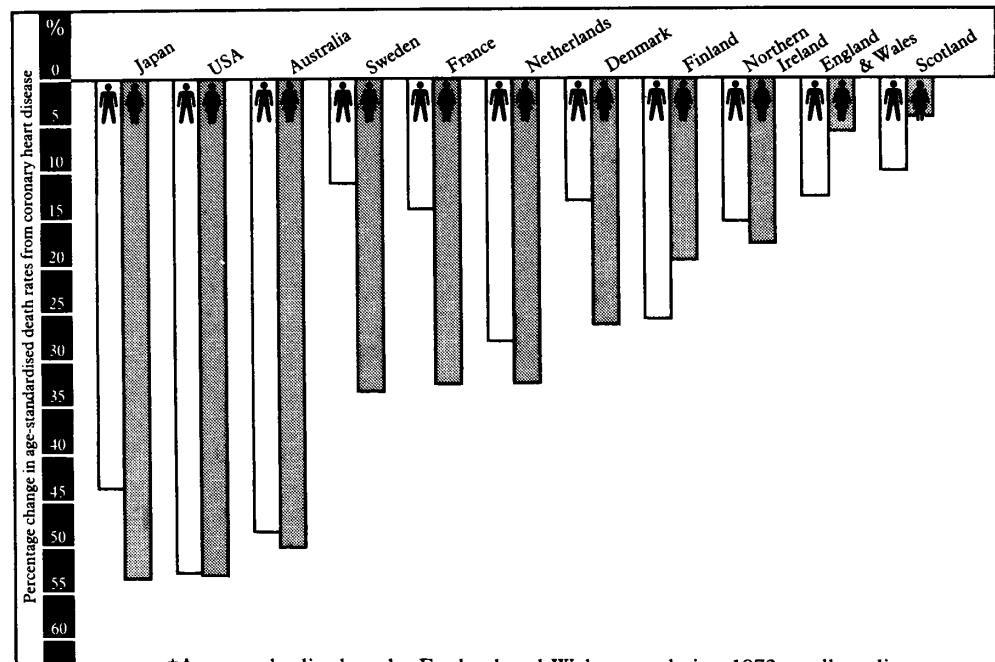


*Cerebrovascular disease

Source: Uemura K, Pisa Z. Trends in cardiovascular disease mortality in industrialized countries since 1950. *World Health Statistics Quarterly*, 1988. 41: 155–178.

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Figure 7 International trends in death rates from coronary heart disease, ages 35–74 (1970–1987)



*Age-standardised to the England and Wales population 1972 to allow direct comparisons.

Source: Coronary Prevention Group/British Heart Foundation statistics database, May 1990.

groups) identified some of the risk factors for heart disease; nearly half thought too much alcohol, too little exercise and too much stress were important. Indirect information on their doctors' activities suggested that GPs in Wales were likely to give advice on stopping smoking, but unlikely to give advice on diet, weight or alcohol consumption. In a 1989 survey of English adults, over 90 per cent identified being overweight as a risk factor; smoking, high blood pressure and stress/worry were cited by around 80 per cent of respondents, while cholesterol in diet, animal fats and lack of exercise were cited by 71 per cent.⁷⁸ A UK-wide market research survey among women in 1984 confirmed the shift in attitudes towards healthier eating, suggesting that a majority took healthy eating seriously.⁷⁹ Further indication of increased consumer interest in food issues is the setting up of 'Parents for Safe Food' in 1990 and the Consumers Association healthy eating campaign.

How can the trends be explained?

The impressive mortality decline in the USA is mostly due to the decreasing incidence of heart attacks – as is the case in Australia and Finland too – although improved treatment has made a contribu-

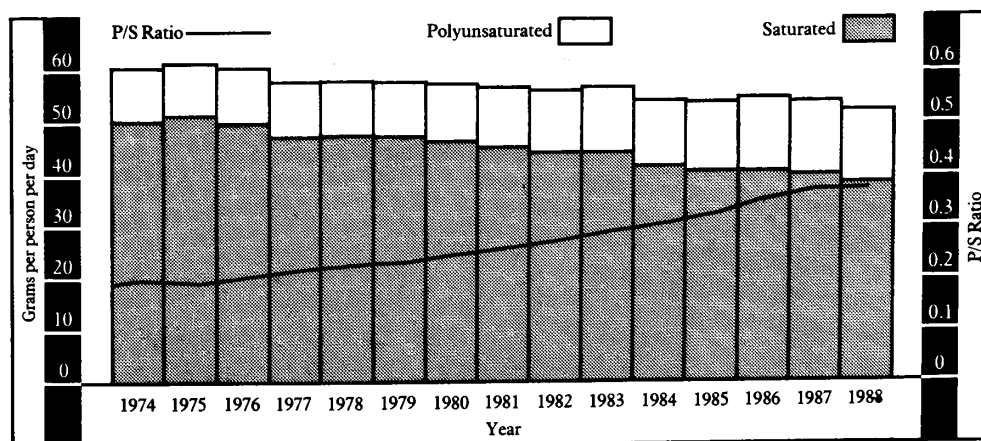
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tion.^{80,81} Despite inadequate information, some of the available evidence links the decline in the USA to a reduction in the major risk factors:^{82,83} chiefly in blood cholesterol decreases and in the consumption of foods containing high levels of saturated fat, and increases in sales of food high in polyunsaturated fats, together with decreases in cigarette smoking and small increases in exercise among adults.⁸⁴ The proportion of hypertensives being treated increased from 10–15 per cent of those needing treatment in the 1960s, to a majority in all socioeconomic and ethnic groups today.⁸⁵ It is estimated that 800,000 premature deaths have been prevented in the USA since 1968.⁸⁶

The British position

Unlike the USA and Canada, the UK has no comprehensive national risk factor monitoring system. We must, therefore, rely on more fragmented data sources which are often difficult to interpret over time. The continuing decline in cigarette consumption and in the prevalence of smoking may have contributed to some of the small decline in heart disease now beginning to be seen nearly everywhere in the UK. The National Food Survey and the recent survey on the diet and nutrition of British adults show an increase in the ratio of polyunsaturated to saturated fat – the 'P/S ratio' – although there has been a lack of improvement in many other respects. The P/S ratio increased by 85 per cent between 1974 and 1988 (see Figure 8). This has been due to a combination of a 23 per cent decrease in saturated fat and a 42 per cent increase in polyunsaturated fat intake. Total fat consumption however has risen as a proportion of the total energy derived from the diet. This is partly because total energy consump-

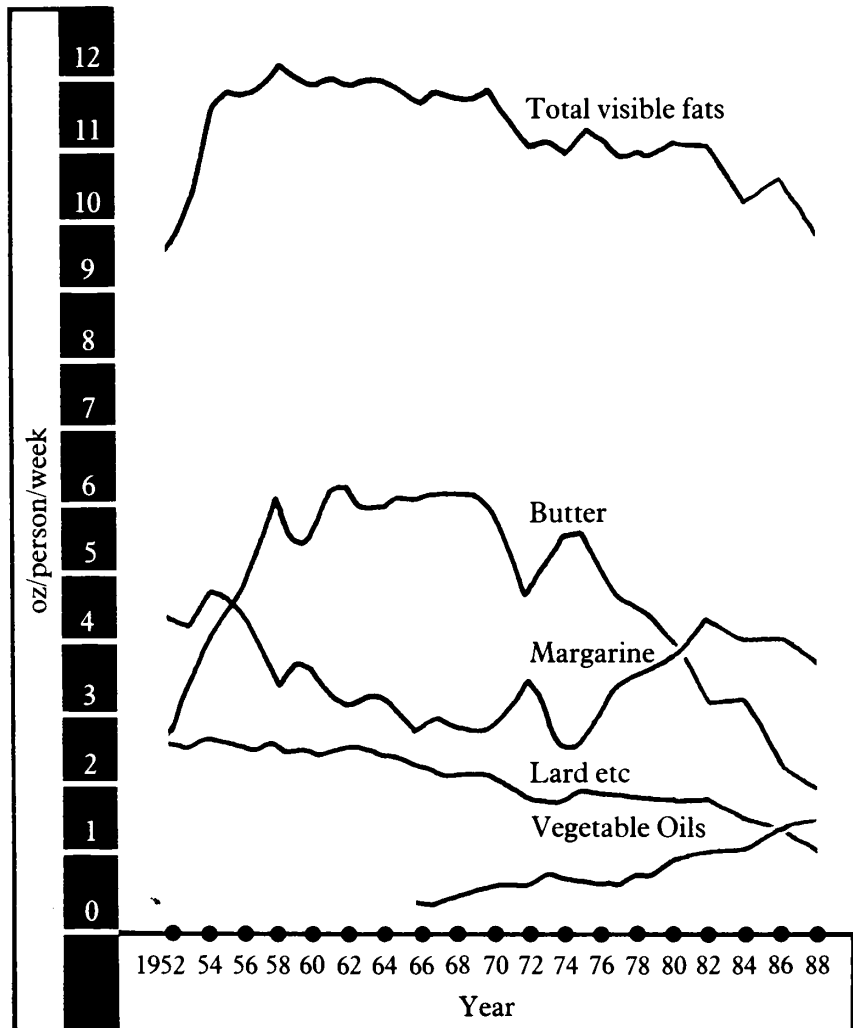
Figure 8 Trends in United Kingdom fatty acid intakes (1974–1988)



Source: Ministry of Agriculture, Fisheries and Foods. Household food consumption and expenditure. Annual Report of National Food Survey Committee. Various years.

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Figure 9 United Kingdom per capita fat consumption (1952–1988)



Source: Ministry of Agriculture, Fisheries and Foods. Household food consumption and expenditure. Annual Report of National Food Survey Committee. Various years.

tion has fallen.

Figure 9 shows that there has been a recent decrease in the consumption of both butter (and milk) which account for one-third of our total saturated fat intake. This, together with a parallel increase in the consumption of soft margarine (and of skimmed milk), partly accounts for the recent increase in the 'P/S ratio' (see Figure 8).

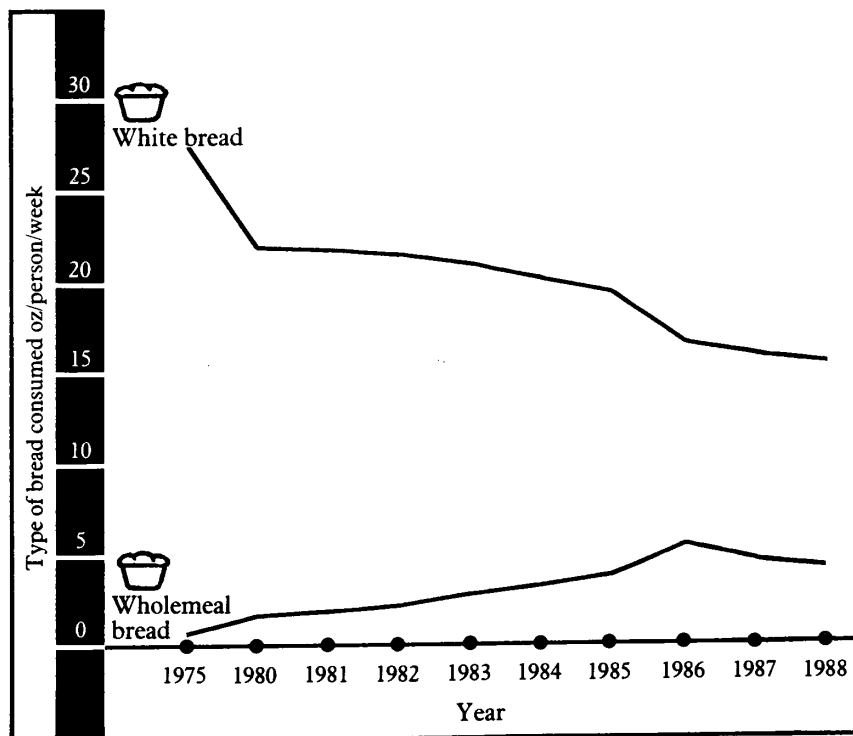
Total sugar consumption per person (see Chapter 12) is also down by 17 per cent from 46 Kg in 1970 to 38 Kg in 1987. Although the most recent estimates (to 1986) for the total fibre content of the UK

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diet suggest that fibre intake has remained low at about 20 gm/person/day, there has been a recent increase in wholemeal bread consumption (see Figure 10) which extends from the wealthy to the less well off. In 1975 white bread represented 90 per cent of total bread consumption, but had decreased to 51 per cent by 1988.

Although we have no systematic information, screening for high blood pressure seems to be more commonplace. The Welsh community survey showed that two-thirds of men and over three-quarters of women had had their blood pressure checked in the last five years. Yet our most reliable evidence suggests screening and adequate treatment are far from satisfactory within primary care. A random assessment of practice notes in north west London showed that 47 per cent of those aged 30–65 had no blood pressure reading recorded in their notes; many patients were inappropriately treated after only one reading, and even more patients had no record of a follow-up blood pressure measurement.⁸⁷ Although individual commitment has shown excellent results both in disease reduction⁸⁸ and in

Figure 10 Trends in white and wholemeal bread consumption in Great Britain (1975–1988)



Source: Ministry of Agriculture, Fisheries and Foods. Household food consumption and expenditure. Annual Report of National Food Survey Committee. Various years.

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screening levels,^{89,90} the 'rule of halves' still seems to apply in general practice overall. Only half of people with high blood pressure are detected; half are treated, and only half followed up^{91,92} – compared with about 80 per cent of Americans who claim to have their blood pressure checked twice a year.⁹³ In a Scottish study in 1986 the 'rule of halves' applied particularly well for men, with 53 per cent of the hypertensive men not having their hypertension diagnosed, 42 per cent of those with hypertension diagnosed being untreated, and about half of those being treated having their hypertension controlled. The rule applied less well, however, for women, in whom lower proportions of hypertensives went untreated and uncontrolled.⁹⁴

Long-term evidence on obesity suggests that increasing proportions of the community have become overweight in the last few decades.⁹⁵ In 1986, the prevalence of obesity in Great Britain was 12 per cent in women compared with 8 per cent in 1980, and 8 per cent in men compared with 6 per cent in 1980.⁹⁶ While the General Household Survey suggests that people in this country are becoming more physically active (see Chapter 9), the changes have been small and we must await the results of the first national fitness survey due in Autumn 1991 for more accurate information relevant for heart disease.

4 Today's epidemics: cancers

Pessimism is a luxury we can't afford.

ANON

Introduction Having examined circulatory disease, the leading cause of death in the UK, we now turn our attention to the contribution made by cancers to overall mortality, and particularly to avoidable deaths in middle age. We consider, in more detail, what is known about the causes and potential avoidability of some cancers which account for a major proportion of mortality from cancer: lung cancer, cancer of the large bowel, breast cancer and cancer of the cervix. We then assess progress that has been made over the last decade in reducing mortality from each of these cancers. In Chapter 7 we move on to a detailed consideration of what measures might be necessary and effective in reducing the risk factors for avoidable cancers.

Cancers – how much is avoidable? Cancers are the second leading cause of death in the UK, and accounted for 25 per cent of all deaths in England and Wales in 1988. About 85 per cent of cancer is thought to be potentially avoidable.¹ Although we do not yet know enough about the causes of cancer, the two most important – cigarette smoking and diet – stand out clearly against the background of risk factors (see Table 4).

Nearly one in three cancer deaths are attributable to cigarette smoking and a further 35 per cent may be due to diet.² On the basis of current evidence, air pollution, food additives and other environmental causes together are unlikely to account for more than 1–2 per cent of all cancers (see Table 4). Although many of the compounds known to be linked to cancers are released from industry into the environment, there is no firm evidence, as yet, that they constitute a material cancer-risk *outside* the workplace.

Precise estimates for the contribution made by cancer-producing substances in the workplace to the overall burden of cancer are hard to obtain. Many registered chemicals used at work have yet to be fully tested for their carcinogenicity (cancer-producing potential). So far, relatively few workplace chemicals have been clearly linked to cancers. The best researched examples include asbestos which explains up to five per cent of deaths attributable to lung cancers, and the aromatic amines used in the rubber and dye industries have accounted for about 10 per cent of bladder cancer in men and five per cent in women.³ Additionally, the risk of asbestos-related lung cancer is increased ten-fold by cigarette smoking.

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Table 4 Proportion of cancer deaths attributable to different factors

<i>Factor or class of factors</i>	Percent of all cancer deaths	
	<i>Best estimate</i>	<i>Range of acceptable estimates</i>
Tobacco	30	25-40
Alcohol	3	2-4
Diet	35	10-70
Food additives	<1	-5-2
Reproductive and sexual behaviour	7	1-13
Occupation	4	2-8
Pollution	2	<1-5
Industrial products	<1	<1-2
Medicines and medical procedures	1	0.5-3
Geophysical factors	3	2-4
Infection	10?	1-?
Unknown	?	?

Source: Doll R, Peto R. The causes of cancer. Journal of the National Cancer Institute, 1981, 66: 1191-1308.

Is mortality from cancer rising?

More than 158,000 men and women in Great Britain died of cancers in 1988. Overall cancer death rates, however, are *not* rising. Indeed, for some cancers (such as stomach cancer) they are *falling*. The overall cancer death rate offers only a limited picture of what is happening, because 'cancer' is an umbrella term for a wide range of *different* diseases - many with common causes. Total 'cancer' death rates are

Table 5 The main causes of cancer mortality (England and Wales 1988)

	<i>Rank</i>	<i>Type of cancer</i>	<i>Number of deaths</i>	<i>Proportion of cancer deaths %</i>
MEN		All cancers	75,312	
	1	Lung	24,671	33
	2	Colorectal (large) bowel	8,399	11
	3	Prostate	7,458	10
WOMEN		All cancers	68,948	
	1	Breast	13,723	20
	2	Lung	10,631	15
	3	Colorectal	8,851	13
	4	Ovary	3,783	5
	5	Cervix	1,942	3

Source: OPCS Series DH2, No 15, 1988. London, HMSO, 1990.

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heavily determined by a small number of the more common cancers.

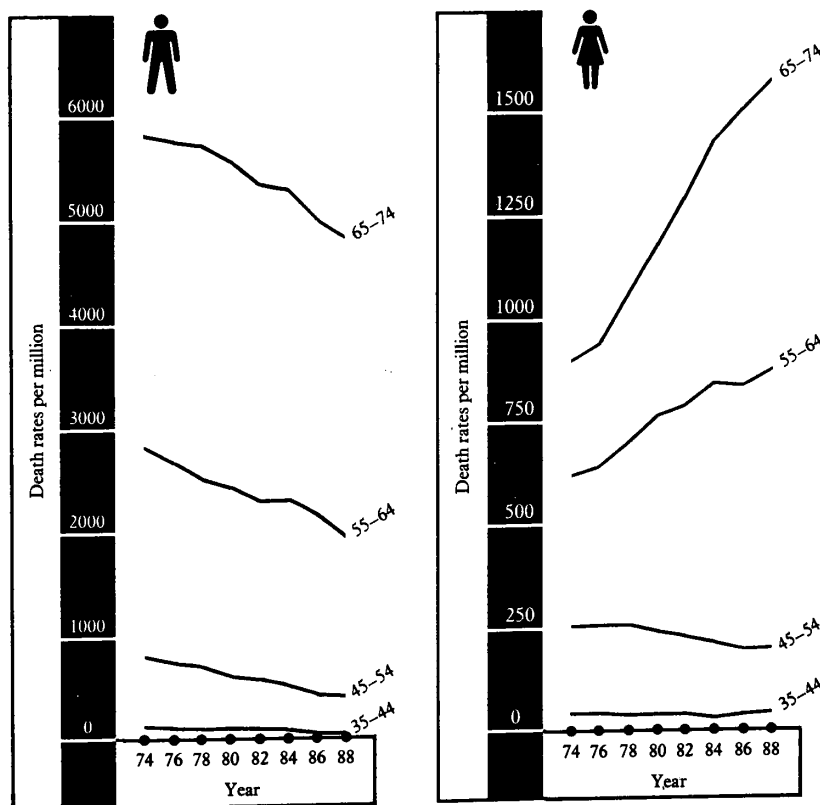
Lung cancer is much the most common form of cancer (see Table 5) and contributes heavily to the overall cancer death rate. While the total cancer death rate is not rising, lung cancer rates among women are still rising rapidly and we consider the implications of these trends below.

Lung cancer – the position today

Among men, lung cancer rates have been falling since 1963 and are now declining in all age groups. Between 1974 and 1988 mortality from lung cancer among men in England and Wales fell by 13 per cent overall. Most impressive of all, however, has been the fall in lung cancer mortality among middle-aged men which almost halved between 1974 and 1988. The picture is different for women. Overall lung cancer death rates increased by 60 per cent between 1974 and 1988 although a downward trend among women under 50 can be seen (see Figure 11).

The death rates among women have accelerated so rapidly that

Figure 11 Gender difference in age-specific trends in lung cancer mortality England and Wales (1974–1988)



Source: OPCS Series DH2. Mortality statistics: cause. Various years.

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lung cancer overtook breast cancer as the leading cause of cancer mortality among Scottish women in 1984. In England and Wales, lung cancer rates are now approaching and beginning to overtake those for breast cancer in women over 55. Despite some encouraging changes among men, British lung cancer death rates were initially so much higher than those of most other countries that the UK – and Scotland in particular – still has the world's highest lung cancer death rates.

How can these trends be explained?

Ninety per cent of all lung cancer mortality is attributable to cigarette smoking, which is also clearly linked to many other cancers, including those of the mouth, larynx, oesophagus, pancreas and bladder.⁴ Since it also contributes to the deaths from coronary heart disease and chronic obstructive lung disease, smoking is estimated to kill 110,000 people in this country prematurely every year. The overall cost of cigarette smoking to the nation was estimated at £4,000 million.⁵ Because it takes up to 30 years to develop lung cancer, and because the risk of developing it depends on the number of years smoked as well as on the amount smoked, past smoking trends are the main explanation for current patterns of lung cancer in men and women.

Men took up smoking in large numbers at the time of the first world war. The lung cancer epidemic we are now seeing in women occurred about a generation after that among men because the rapid rise in smoking among women did not occur until during and after the second world war. The big reduction in lung cancer rates among middle-aged men is more a reflection of the changing *composition* of the cigarette over the last three decades than of changes in the *proportion* of smokers. Tar levels from cigarettes began to fall with the introduction of filters in the 1950s, but fell even more steeply (by over 50 per cent) between 1965 and 1985. However, the reduction in tar levels has had *no* demonstrable effect on coronary heart disease which kills four times as many people as lung cancer.

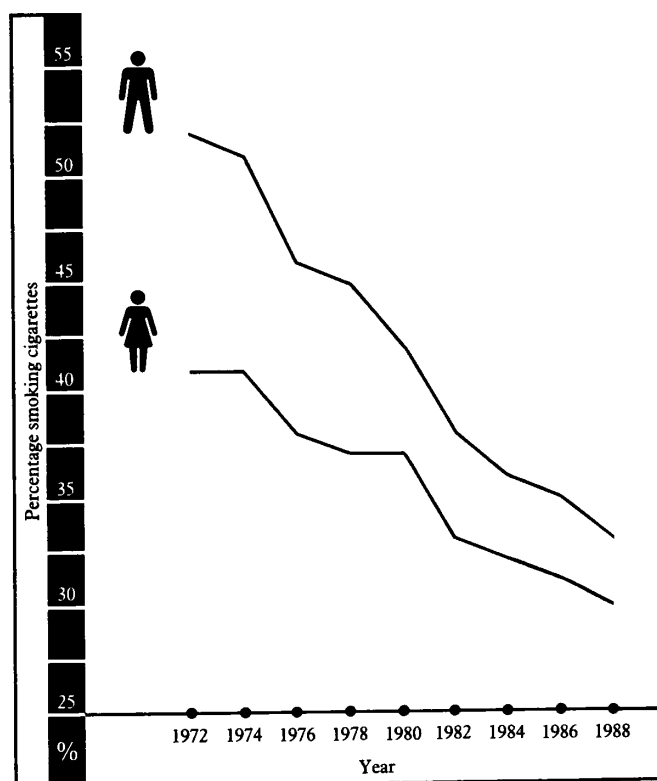
Current smoking trends

Smokers are now in a minority in every age and social group and a further decline seems probable. In the ten years to 1988 the proportion of adult smokers fell by 27 per cent among men and 19 per cent among women (see Figure 12); cigarette sales fell by 27 per cent over the decade to 1986 and per capita consumption also fell from 1976 to 1986. However, between 1986 and 1988 there was a statistically significant increase in consumption among male smokers, reversing the downward trend.⁶

Today's cigarettes yield over 50 per cent less tar than those of 20 years ago; annual (sales weighted) tar yields fell by 31 per cent between 1972 and 1985. In contrast nicotine yields changed very little

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Figure 12 Trends in cigarette smoking (prevalence) in the UK (1972–1988)



Source: OPCS. Cigarette smoking 1972–1988. OPCS Monitor SS90/2. 1990.

over the same period.⁷

We have yet to be successful in two important matters: the socio-economic disparity in smoking rates (see Chapter 8), and the lack of a convincing downward trend in smoking among young people – girls in particular. In 1961, the year before publication of the Royal College of Physicians' first major report *Smoking and Health*, there were no social class differences in smoking rates. But by the 1970s, a steep, upward gradient between non-manual and manual classes was evident. Although smoking rates fell in all social groups between 1972 and 1988, the decline has been faster in the non-manual than manual classes in the last decade. This decline in smoking rates has slowed down in recent years for all social groups and between 1986 and 1988 the only significant decrease was for men in non-manual occupations. By 1988, 24 per cent of men and 25 per cent of women in the non-manual categories smoked compared with 40 per cent of men (36 per cent of women) in the manual categories.

Surveys of secondary school children have been carried out by OPCS since 1982 (see Table 6). The 1986 survey found that smoking

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had declined among boys of all ages. Little further change was evident in 1988. Among girls, however, there was little evidence of a decline in smoking between 1984 and 1986. A more definite decline was evident at all ages in 1988, although this was smaller than among boys. From 1986 onwards girls were more likely than boys to smoke. This closing of the gender gap was also reflected among adults under 60.

New health concerns about tobacco

We have focussed, so far, on the risks that cigarette smoking poses to smokers, but there is a growing body of research which suggests that passive smoking – the involuntary inhalation of other people's smoke – can cause lung cancer among non-smokers.⁸ A review of the implications for UK suggests that about 25 per cent of the lung cancers that occur in non-smokers (about 300–400 cases per year) are attributable to such passive smoking.⁹

Although other forms of tobacco use contribute less to overall tobacco-related mortality, efforts to launch a new form of sucking tobacco have caused concern as this form of tobacco is likely to cause cancers of the mouth and throat,¹⁰ and evidence suggests that children are key promotional targets for this new product.¹¹ Recent regulations to ban such products are thus welcome.

Why has cigarette smoking declined?

The fall in cigarette smoking results from a combination of measures whose individual effects are not easy to disentangle. We analyse the determinants of consumption in more detail in Chapter 7.

Table 6 Smoking trends among secondary school children in England (1982–1988)

<i>Percentage of regular smokers by year</i>					
Boys	Age 11	Age 12	Age 13	Age 14	Age 15
1982	1	2	8	18	24
1984	0	2	10	16	28
1986	0	2	5	6	18
1988	0	2	5	8	17
Girls					
1982	0	1	6	14	25
1984	1	2	9	19	28
1986	0	2	5	16	27
1988	0	0	4	12	22

Source: Goddard E. Smoking among secondary school children in England in 1988. OPCS SS1291. London, HMSO, 1989.

Large bowel (colorectal) cancer

In 1988, cancer of the large bowel claimed nearly 19,000 lives in Great Britain. In addition there were over a quarter of a million people living with this cancer, and of those diagnosed each year less than 30 per cent are expected to survive five years.¹² Over the past 20

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years treatment has had little impact on survival chances. It ranks as the second leading cause of cancer mortality in Britain and the affluent world. The proportion of people with this cancer and associated death rates are expected to rise with the increasing numbers of elderly people in the population.

There are wide geographical variations in the incidence of bowel cancer, which suggests that environmental factors may be involved. This view is reinforced by migration studies. The incidence is eight times higher in this country than in southern Asia and north Africa, and there are wide variations within the UK itself. For example, there are higher rates in Scotland and a four-to-five-fold variation in incidence in different parts of Scotland.¹³

What causes cancer of the bowel?

Some of the evidence – although it falls short of proof – suggests that diet plays an important role, as well as in other cancers and non-cancerous conditions.^{14,15} A consensus conference in London in June 1990 assessed the evidence so far and judged that the main factors linked with increased risk of colorectal cancer have been:

- high intakes of fat and energy,
- low intakes of fruit and vegetable fibre (cereal fibre did not appear to provide any protection against the disease).

The consensus statement concluded that the evidence is not strong enough to recommend dietary changes, but a reduction in fat and energy intake and an increase in fruit and vegetable fibre would be in line with recommendations for dietary change relating to other diseases.¹⁶

Early detection of bowel cancer

The principle of screening to detect early bowel cancer is attractive. The chances of long-term survival are increased from an average of 30 per cent at five years to 90 per cent if the tumour is diagnosed in its early stages.¹⁷ There is now a test for detecting microscopic amounts of blood in the stools (faecal occult blood test) which is a sign of bowel cancer (but also of benign conditions). The test can be administered by people themselves or by primary care staff, but has problems of limited specificity and sensitivity and is only taken up by around 60 per cent of those offered it.¹⁸ Enthusiasm for the early detection of bowel cancer has grown in the USA and numerous cancer agencies now recommend the test regularly for people over 40. These recommendations are probably premature, in the light of the available evidence.

- First, there is no evidence yet that such a screening programme can reduce mortality from bowel cancer. There are major US and UK randomised controlled trials now underway,^{19,20} the results of which are expected in 1995.

LIVING LONGER

- It seems likely that only a small percentage of those with positive occult blood tests have bowel cancer – which makes the necessity to prove the efficacy of tests even more urgent.²¹
- Current evidence suggests that the predictive value of screening tests now available is limited.²² Up to 30 per cent of bowel cancers may be missed, and as many as 50–80 per cent of people with positive tests do not have cancer at all.²³
- Not enough is yet known about the natural history of progression from pre-cancer to cancer. Thus we do not yet know whether a policy of removing all pre-cancerous growths would be appropriate.
- The highest rates of bowel cancer occur in people over 70 and the ethics of imposing regular, potentially distressing procedures on people who may later die from unassociated causes are difficult to resolve.²⁴

Because of such reservations, the London consensus conference in 1990 recommended that no decision on the introduction of population screening using occult blood testing should be made before 1995 when results of European trials should be known. Furthermore, it was concluded that there was no case for colonoscopic screening for the detection of polyps on a general population basis.²⁵

Breast cancer

More British women die from breast cancer each year than from any other cancer. About 24,000 new cases are diagnosed each year and about 15,000 British women die from the disease each year. Over one-third of these deaths are among women under 65. Moreover, death rates from breast cancer are higher in the UK than elsewhere in western Europe. Although we do not yet know what causes breast cancer, there is good reason to believe that the environment plays an important role. British women are four times more likely to develop breast cancer than are Japanese women, but when Japanese women emigrate to the USA (where breast cancer rates are also high) the breast cancer death rates in their children become as high as in their counterparts in Europe.²⁶

Of the numerous risk factors that have been investigated, those most strongly linked to breast cancer are: early menarche (age at first period) and first pregnancy delayed until after the age of 35.²⁷ These two factors, together with post-menopausal obesity, account for up to two-thirds of the difference in breast cancer rates between Japan and the USA.²⁸ There is also suggestive, but inconclusive, evidence linking a diet high in total fat to breast cancer.^{29,30} This finding may be of considerable importance as the current tendency within the UK to derive an increasing proportion of energy from fat, rather than carbohydrate (see Chapter 3) contributes to obesity, which is

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itself associated with breast cancer and early menarche.

The increasingly effective use of a number of treatments for breast cancer in which hormone receptors are blocked has led to a search for a hormonal basis for the disease. Although there is evidence that young British and American women have higher available levels of the hormone oestrogen than either Japanese or Asian women who have low breast cancer rates, we do not yet know the significance of these findings, or of how hormonal and other risk factors might interact. The impact of dietary change on the incidence of breast cancer is currently the subject of a major study in Stockholm and in the USA. More recently, attention has been concentrated on the potential relationship between the combined oral contraceptive pill and breast cancer. Research so far has largely been based on retrospective analysis and has been inconclusive. A number of studies have suggested that the pill is associated with an increased risk of breast cancer among women who start taking it under the age of 25, and who continue to take it for eight or more years.³¹⁻³³ Other studies have failed to demonstrate this relationship, however,^{34,36} and this includes one major prospective study among women in New Zealand who have higher rates of pill use than elsewhere.³⁷ The results of further prospective studies may help resolve this uncertainty.^{38,39} Meanwhile, the best opportunity for reducing mortality from breast cancer lies in its earlier detection (see Chapter 7).

Breast cancer trends Mortality from breast cancer has been increasing slowly for most of this century. Overall mortality rates for breast cancer increased by 36 per cent between 1963 and 1987. But there has been little change in either incidence or mortality in any specific age group over the last decade. The reasons for the slow increase are not known, and have not yet been shown to be associated with use of the pill. Social change that has led women to postpone their first pregnancy until a later age is thought to be important.⁴⁰

Cervical cancer About 2,000 British women died of cervical cancer in 1988. Although 67 per cent of deaths were among women over 55, as many as 19 per cent were among women under 45. All the evidence so far suggests that cervical cancer is essentially a preventable disease which is caused by a sexually transmitted agent. The risk is increased by early age of first intercourse, multiple sexual partners, and in the presence of sexually transmitted disease.⁴¹

Good evidence for the sexual transmissibility of cervical cancer comes from accumulating data which strongly suggest that variants of the human papilloma virus (HPV) – some of which cause genital warts – are the sexually transmissible agents.^{42,43} Most, although not all, of the evidence supports this view.⁴⁴

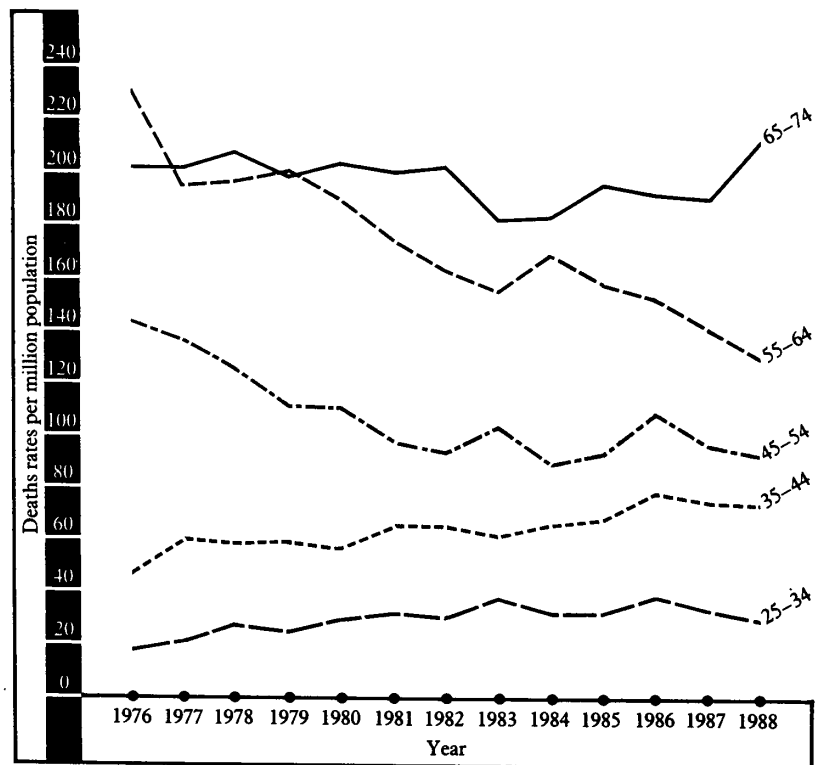
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It is difficult to disentangle the relative contributions made by the various risk factors for cervical cancer, but multiple sexual partners among men and women,^{45,46} cigarette smoking,^{47,48} and use of the oral contraceptive pill⁴⁹ are each thought to make independent contributions. The use of the pill may increase risk in two ways. First, it does not offer a barrier to transmission of the virus in the way that the diaphragm or condom would⁵⁰ (see Chapter 7), and second, it may *specifically increase* a woman's risk of cervical cancer – although this evidence is not strong. Further research is needed to clarify the role of the pill in cervical cancer.

Trends in cervical cancer

Although overall mortality from cervical cancer is not increasing; there has been a slight increase in death rates among 25–44 year olds over the decade, and a decrease in rates among women aged 45–64 (see Figure 13). This pattern of increasing cervical cancer mortality among young women is consistent throughout the UK. If current trends continue, it has been estimated that 4,000 women will die each year of cervical cancer by the turn of the century.⁵¹ Recent

Figure 13 Age – specific trends in cancer of the cervix mortality in England and Wales (1976–1988)



Source: OPCS Series DH2. Mortality: cause. London, DHSS, various years.

trends may reflect changes in both sexual behaviour and contraceptive practices in the last two decades (see Chapter 13), although these relationships are difficult to document. The fall in the use of barrier methods of contraception, and the growth in the use of the pill in the 1970s, are likely to have been important among young women (see Chapter 13). These trends offer scope for the prevention of cervical cancer, and also for the prevention of the spread of AIDS and sexually transmitted disease in general. We discuss these in Chapter 7.

Nuclear installations

A complex problem that is now causing concern is the risk of cancer – especially of leukaemia – among children living near nuclear installations. Until recently there were three broad approaches to research in this field. The first has investigated patterns of leukaemia in the vicinity of nuclear installations, and the second has analysed local radiation levels in the environment to see if they can account for the patterns observed. The third has looked at the relationship between parental exposure to radiation and leukaemia in the offspring. A DHSS enquiry⁵² into the pattern of childhood leukaemia around the Sellafield nuclear plant in 1984 found a small excess of childhood leukaemia, but concluded that the amount of ionising radiation leaked or emitted from Sellafield appeared to be insufficient to account for the excess. Since then, a number of new findings have emerged. First, there is evidence that the emissions from Windscale (Sellafield) were 40 times greater than the evidence submitted to the DHSS enquiry had suggested.⁵³ Second, subsequent studies of other nuclear installations have shown similar excesses of childhood leukaemia.⁵⁴⁻⁵⁶ The most comprehensive study so far has confirmed an increased incidence at other installations.^{57,58}

The second line of research suggests that the environmental radiation levels measured at nuclear installations are generally too low to explain the excess incidence of leukaemia in the vicinity.⁵⁹ Thirdly, a major new study of Sellafield employees has shown that the risk of developing leukaemia is six times as high in children born to fathers who were exposed to a total ionising radiation dose of 100 mSV in the six months before conception.⁶⁰ These findings offer a plausible explanation of the excess risk of leukaemia in children living around nuclear installations, but more research is needed to clarify these findings. Ultimately, the public health implications of nuclear energy need to be compared with those of other sources of energy such as coal – which has almost certainly been responsible for larger numbers of deaths and injuries than has nuclear power, both among those working in the industries and in the wider community.

5 Growing threats to public health

That action is best, which procures
the greatest happiness for the greatest
numbers.

FRANCIS HUTCHESON

Introduction This chapter examines alcohol-related harm and HIV/AIDS. Although quite different problems, they have two important features in common. Both have been growing problems, and both account for a substantial burden of premature death and suffering in early adulthood. We first analyse the size and complexity of the challenge presented by alcohol misuse, and the evidence for its involvement in many health and social problems. We follow by examining trends in alcohol consumption and in alcohol-related harm. Next we consider the recent, rapid growth of HIV/AIDS, its causes and the pattern of its distribution in the UK compared with other countries. We consider predictions that have been made about future trends and the potential impact it could have on the health of the nation. We assess the implications of these findings for policy in Chapter 7.

**Alcohol – a
recurring threat
to public health**

We have been slow, as a nation, to recognise the growing threat that alcohol poses to health. This is partly because alcohol is an integral part of British culture. Over 90 per cent of Britons drink (except in Northern Ireland where 37 per cent are teetotal), and most enjoy alcohol without apparently damaging themselves or others. In 1988 British adults over 15 drank the equivalent of 9.4 litres of pure alcohol (over 16 pints) per head. This is the equivalent of 463 pints of beer or 33 bottles of whisky per year for every man and woman in the country. In 1988 almost as much was spent on alcohol in the UK as on clothes, and alcohol accounted for the equivalent of half of consumer spending on food.

The range of medical, social and emotional damage caused by alcohol is vast, but hard to quantify accurately. This is because evidence concerning the possible contribution alcohol makes to many health problems is still inadequate, and under-reporting of alcohol on death certificates may lead to as much as a seven-fold underestimate of the number of alcohol-related premature deaths.¹ The Royal College of Physicians estimates that alcohol is responsible for 25,000 premature deaths each year,² but other estimates suggest the figure may be as high as 40,000.^{3,4} In 1983 this was equivalent to the loss of 115–185,000 life years of expectation of life, and 64–107,000 working years.⁵

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Table 7 Alcohol misuse – some major indices of harm

Consequences of misuse	Degree of association with alcohol	Size of the problem (E & W 1988)
MEDICAL		
1 Cirrhosis of the liver	Risk proportional to daily consumption	2,800 deaths
2 Cancers (Mainly digestive)	3% of all cancers alcohol-related 44-fold increased risk of oesophageal (gullet) cancer in smokers who drink heavily	4,300 deaths
3 Fatal road traffic accidents	35% alcohol-related	1,570 deaths
4 High blood pressure	Risk increases with consumption	?
PSYCHOSOCIAL		
1 Alcohol dependence	100%	11,800 admissions to psychiatric hospitals (England 1986)
2 Public drunkenness	100%	45,400 convictions
3 Drinking and driving	100%	119,000 convictions

Sources: OPCS Series DH2, Mortality: cause 1988. London, HMSO, 1990.
 Department of Transport. Road accidents in Great Britain 1988. London, HMSO, 1989.
 Home Office. Prosecutions at the Magistrates' Courts 1988. London, HMSO, 1989.

Table 7 gives an idea of the best-documented indices of alcohol-related damage. In 1988, nearly 60 per cent of deaths from cirrhosis and chronic liver disease occurred before the age of 65, and over 1,500 deaths on the roads were estimated to be alcohol-linked in 1988 (see Chapter 6). The risk of developing cirrhosis of the liver, cancer of the oesophagus (gullet) and alcohol dependence increases directly with the amount of alcohol drunk and the number of years of excessive drinking.

Although mortality from cirrhosis is neither the only nor the most important consequence of the misuse of alcohol, it is a good indicator of trends. This is because alcohol is the most important cause of liver cirrhosis in the UK – whereas many factors must be taken into account when interpreting other alcohol-related indices. Death rates from cirrhosis of the liver also offer the most reliable way of comparing the consequences of alcohol misuse between countries. The

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Table 8 Alcohol misuse – consequences or associations?

<i>Problem</i>	<i>Per cent alcohol-related</i>
1 General psychiatric admissions	20
2 Parasuicide	60
3 Divorce	30
4 Domestic violence	40
5 Child abuse	30
6 Assault	78
7 Criminal damage	88

Sources: Scottish Health Education Coordinating Committee. Health education in the prevention of alcohol-related problems. Edinburgh, SHECC, 1985.
Royal College of Psychiatrists. Alcohol. Our favourite drug. London, Tavistock, 1986.

results demonstrate that the higher the per capita alcohol consumption, the higher the death rates from cirrhosis of the liver.^{6,7} Despite the high levels of alcohol-related harm that now exist in the UK, England and Wales still enjoy relatively low rates (Scottish rates are higher) compared with many other European countries.

Table 8 shows that alcohol is related to many other important medical and psychosocial problems and is one of many possible causal factors. The possible relationship between alcohol and damage to the unborn baby is one which has received more publicity than the evidence currently warrants. While heavy drinking in pregnancy is harmful to the fetus,⁸ there is no good evidence yet to support recommendations for complete abstinence. Indeed, the fetal alcohol syndrome is rare in the UK, and surveys suggest that most women drink very little during pregnancy.⁹

While Table 8 shows that alcohol misuse is related both to divorce and to child abuse it would clearly be an oversimplification to suggest that excessive drinking is the sole factor involved. Indeed, research is a long way from establishing the extent to which excessive drinking causes the problem, or whether marital disharmony itself (or some other problem) leads to excessive drinking.

Types of problem drinking

Problem drinking used to be seen as a practice confined to an 'aberrant' sector of the community who were known as 'alcoholics'. This is now known not to be the case as there are three identifiable kinds of problem drinking, of which alcohol dependence ('alcoholism') forms only a small proportion (see Table 9). It is important to identify the different kinds of problem drinking because they are associated with three different categories of alcohol-related harm.

- Those resulting from acute intoxication which can be either medical (such as accidents) or social such as the loss of a job or arrest

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Table 9 Types of problem drinking

Type	Estimate of number at risk in England and Wales	Per cent of population
Heavy drinking (showing biochemical abnormality)	3 million	8
Problem drinking (drinking which results in harm to the drinker or others)	700,000	2
Alcohol dependence	150,000	0.4

Source: Office of Health Economics. Alcohol: reducing the harm. London, OHE, 1981.

for drunkenness.

- Those resulting from regular consumption over many years which are mainly medical, such as toxic damage to the liver, brain or pancreas.
- Those resulting from the development of dependence which can be a combination of medical and social problems arising in the other two categories.

Although estimates vary according to assumptions made, Table 9 shows that three million or more people are heavy, problem drinkers. However, research confirms that while the heaviest drinkers are individually at most risk of harm, the *biggest burden* of alcohol-related ill health is to be found among those who are *less heavy drinkers*, because they are more numerous.¹⁰ Thus, measures likely to confer maximum benefit to the community are those which reduce total alcohol consumption for the population rather than those which focus on a small, high risk minority which is often hard to reach.

The costs and benefits of alcohol

In 1987 the consequences of alcohol were estimated to have cost the nation nearly £2,000 million (see Table 10). Although this estimate is based on incomplete data, it gives us an idea of the size of the total burden imposed by alcohol misuse on society. The benefits conferred by alcohol, on the other hand, are even harder, if not impossible, to quantify in monetary terms. While it is true that alcohol generated £7.3 billion in tax revenue for the government in 1989-90 its misuse represents a loss to the individual. It also generates over one million jobs (directly or indirectly), and a trade surplus of about £500 million per year. Economists might argue that consumers must greatly value their drink if they are prepared to pay over £51 million a day for it. But in our view – which is shared by WHO,¹¹ the Royal

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Table 10 The social cost of alcohol misuse in England and Wales (1987 prices)

1 To industry (loss of productivity, unemployment, and so on)	£1,715 million
2 To the NHS (hospital and community)	£121 million
3 Society's response (health education and research)	£1 million
4 Material damage and criminal activities (police and court costs)	£152 million
5 Domestic disharmony and suffering	?
TOTAL (including unemployment and premature death)	£1,989 million

Source: Hardman G. Centre for Health Economics, York. Personal communication, June 1990.

Colleges of Psychiatrists,¹² Physicians,¹³ and General Practitioners,¹⁴ and the BMA¹⁵ – the magnitude of the harm caused by alcohol misuse requires urgent action.

Levels of excessive drinking

For cigarettes, all smoking – except for the tiny minority who smoke less than five cigarettes a day – is dangerous. But for alcohol, the evidence suggests that it is only damaging with excess or inappropriate use. In public health terms, it is difficult to define inappropriate drinking and who is most at risk of being harmed. This is because of inadequate information on hazardous drinking levels – we do not know enough about how alcohol affects different personal, social and biochemical factors. The risk of damage depends not only on the amount drunk, but on the body system considered, the weight and experience of the drinker, as well as the speed and the setting in which the drinking takes place. Research shows that women are at greater risk of physical damage from alcohol than men for equivalent amounts of alcohol, and experienced drinkers are better able to handle cars than young, inexperienced drinkers (see Chapter 6). We do not even know for sure whether those who drink moderately have a higher risk of coronary heart disease than teetotallers.^{16,17} In essence, while we can say that drinking eight units of alcohol (four pints of beer) over a single evening may not pose a serious long-term risk to physical health, the same amount consumed by a man on an empty stomach over two hours could contribute to serious marital disharmony or a fatal road injury. The inability to designate any level of drinking as safe under all circumstances has led the WHO to conclude that there is no such thing as a threshold below which all

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Table 11 Reasonable drinking guidelines

<i>Drinking category</i>	<i>Number of standard units of alcohol/week*</i>	
	MEN	WOMEN
1 'Harmful' drinking	50 or more	35 or more
2 'Increased risk' drinking	21-49	14-34
3 'Low risk' drinking	Less than 21	Less than 14

*One standard unit of alcohol = half pint of beer, or one measure of spirits, or one glass of wine.

Source: Royal College of Psychiatrists. *Alcohol. Our favourite drug*. London, Tavistock, 1986.

drinking is safe.¹⁸

Nevertheless, we recognise the importance of trying to define practical, everyday levels above which drinking becomes hazardous in particular situations – such as drinking and driving (see Chapter 6). The Royal College of Psychiatrists provided some useful guidelines¹⁹ which are becoming widely accepted. It defined three levels of drinking: 'harmful', 'increased risk' and 'low risk' (see Table 11). Although this is helpful, we are still a long way from defining not merely the amounts, but also the specific circumstances under which drinking is risky.

Consumption trends

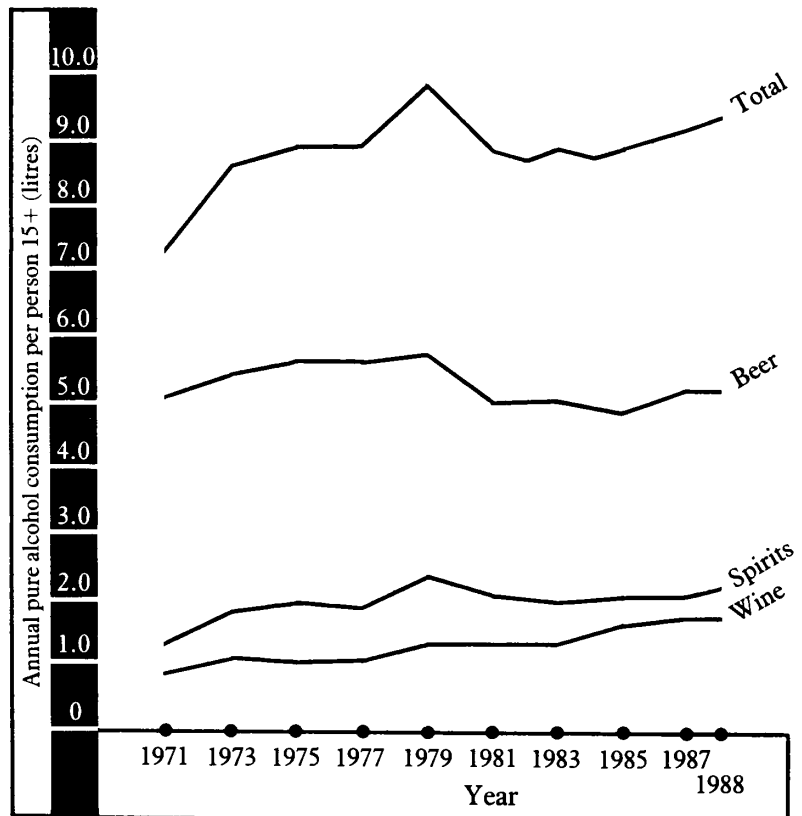
Between 1950 and 1976 alcohol consumption doubled in the UK, almost reaching the same level as that at the turn of the century. Consumption fell by 11 per cent between 1979 and 1982, and this was probably related to a combination of the economic recession and the tax increase on beer in 1981, but consumption rose again by over 9 per cent between 1982 and 1988 (see Figure 14).

In recent decades national drinking patterns have changed radically. Although beer still represents 55 per cent of the total market, its consumption declined by 15 per cent between 1979 and 1985, since when it has risen by 8 per cent. However, wine consumption more than doubled between 1970 and 1988, and consumption of spirits increased by more than 70 per cent over the same period.

While information from the General Household Survey suggests that the heaviest drinkers are concentrated among the manual workers, heavy drinking occurs in many occupational groups: publicans and journalists are among those at higher than average risk of alcohol-related harm. The heaviest drinkers are still among single men in their early to mid-twenties. But there is growing evidence that alcohol misuse, and its associated problems, may also be increasing among women. Although a 1982 DHSS survey in England and Wales suggested that women tend to be light drinkers, newer Scottish evidence suggests that alcohol consumption has risen sharply among women since 1976 but not among men.²⁰

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Figure 14 Trends in per capita alcohol consumption in the UK (1970–1988)



Sources: Kendell R E. The beneficial consequences of the UK's declining per capita consumption of alcohol in 1979–1982. *Alcohol and Alcoholism* 1984, 19: 271–276.

Kendell R E. Personal communication, June 1990.

There are no good data on national drinking trends among young people. The available evidence suggests that young people are drinking more often, and starting to drink at an earlier age, but that problem drinking among adolescents does not accurately predict later difficulties in adulthood. A longitudinal study in 1983 of Scottish 15–16 year olds confirms this, and shows that average consumption among 19–20 year old boys was 24 units per week compared with nine units among girls. This represented an increase of 33 per cent for the boys, but a decrease of two per cent among the girls since 1979.²¹ The Lothian study concluded that drinking was not an increasing problem among the majority of adolescents but, taken together, other studies suggest that drink-related harm is becoming commoner among young people. A government survey of 13–17 year olds in 1984 generally confirmed the Lothian findings, but showed that consumption is higher in England and Wales than in

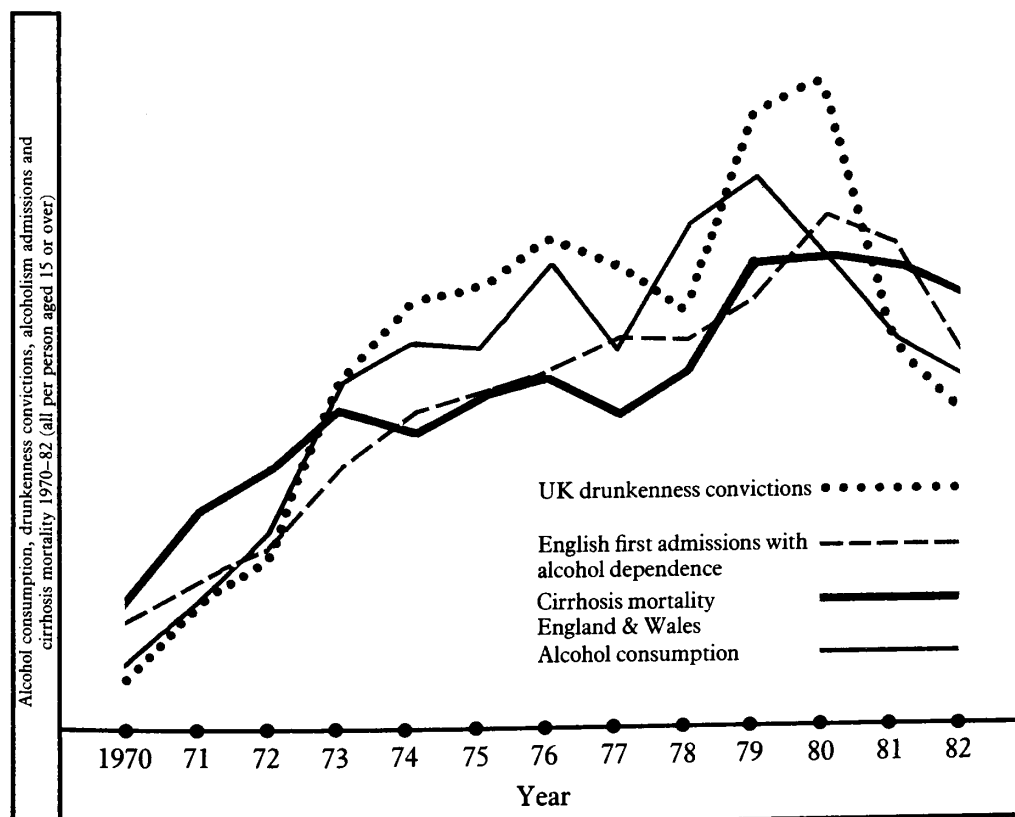
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Scotland – especially among girls. The survey also showed that the laws on under age drinking are widely flouted.²²

The relationship between consumption and damage

Per capita alcohol consumption is clearly the best predictor of a wide range of alcohol-related harm. This conclusion is supported by evidence considered by the WHO,²³ Royal College of Psychiatrists²⁴ and the Government's former Central Policy Review Staff.²⁵ Thus, increases in per capita alcohol consumption are almost always followed by corresponding increases in death rates from cirrhosis of the liver, convictions for public drunkenness and drinking and driving, as well as first admissions to psychiatric hospitals for alcohol dependence. In the UK, as in other countries, trends in per capita consumption are closely followed by similar changes in the major indicators of alcohol-associated harm²⁶ (see Figure 15).

Figure 15 Alcohol consumption and trends in alcohol-related damage in the UK (1970–1982)



Source: Kendell R E. The beneficial consequences of the UK's declining per capita consumption of alcohol in 1979–1982. *Alcohol and Alcoholism* 1984, 19, 4: 271–276.

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Alcohol consumption and associated damage

Figure 15 shows that levels of damage in England and Wales increased with increasing consumption levels but, more importantly the 11 per cent fall in per capita consumption between 1979 and 1982 was mirrored, with a lag period of one year, by a 19 per cent fall in first admissions to hospital for alcohol dependency, a 16 per cent fall in convictions for drunkenness, a seven per cent fall in drink/driving convictions, and a four per cent decline in the death rate from cirrhosis of the liver. The picture has been broadly similar for both women and men in Scotland and Northern Ireland. While trends in each indicator are influenced by a number of factors other than alcohol, when taken together it is clear that the most effective way of reducing the harm alcohol causes to society is to reduce average consumption throughout the community (see Chapter 7). As alcohol consumption is now rising again, albeit more slowly than in the 1970s, we can expect concomitant increases in harm over the next few years.

HIV and AIDS: the newest challenge to public health

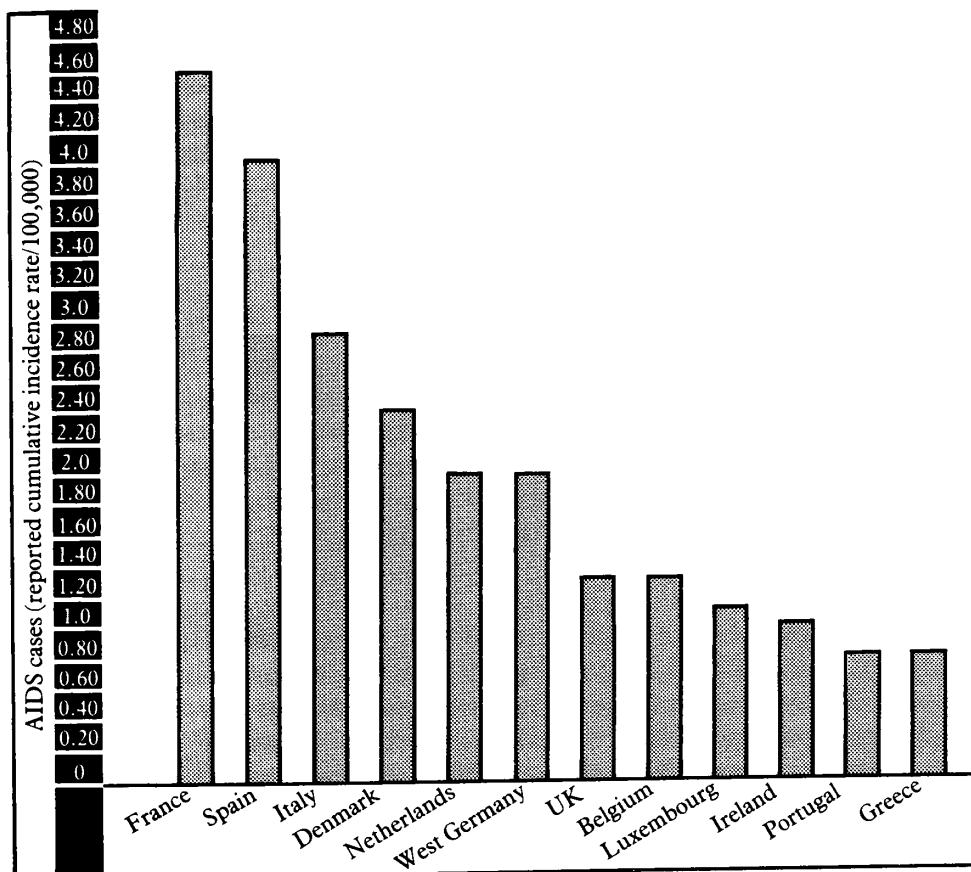
AIDS, or acquired immunodeficiency syndrome, is the most serious worldwide threat to public health to emerge in the last ten years. In the UK alone, where the problem is still much smaller than in the USA, Africa and many other EC countries (see Figure 16), there were more than 3,100 reported cases by March 1990. Of these, 56 per cent had already died. Although the number of AIDS cases has now plateaued, this has not been the case for those who are HIV positive. In 1988 it was estimated that the costs of hospital treatment (assuming no major advances in therapy) for HIV/AIDS patients range between £20–30 million,²⁷ but this does not include costs incurred in the community or the potentially large costs of prophylactic treatment if it is decided to use the drug Zidovudine (AZT) or other drugs on a large scale in asymptomatic HIV positive people.

Anxiety about AIDS stems not only from its incurable nature or from uncertainties about the growth of what is a new, and still little-understood epidemic, but from the realisation that its prevention requires changes in lifestyle that raise profound ethical issues. While our understanding of AIDS has grown enormously since the first case was diagnosed in 1981, there are few things that can be said with absolute certainty at such an early stage in the development of the epidemic. We are aware that many of the statements made today, may need revision in years to come.

AIDS is the end point in a wide spectrum of incompletely documented diseases caused by infection with the human immunovirus (HIV) which was first isolated in 1983. Approximately 50 per cent of those infected with HIV will have developed AIDS after ten years of infection, but this may be higher in certain sub-groups – especially those with co-existing sexually transmitted disease.²⁸

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Figure 16 Cumulative incidence of AIDS in the EC to March 1990



Source: World Health Organization. Global statistics to March 1990. AIDS, 1990, 4: 375-376,

Ways of transmitting HIV infection

All the evidence so far confirms that HIV cannot be transmitted by ordinary social or occupational contact.²⁹⁻³² Follow-up for periods of up to two years shows that household and non-sexual, close contacts of AIDS patients have not become HIV positive.³³ Proven cases of health care workers becoming HIV positive through casual exposure associated with caring for a patient are hard to document.³⁴ Even health care workers who have accidentally exposed themselves to HIV-infected blood run a very low risk of becoming HIV positive themselves³⁵ – a much lower risk than exposure to hepatitis B virus where 6-30 per cent of staff accidentally exposed become infected.³⁶ In a UK study of 150 laboratory workers exposed to blood or body fluids from patients infected with HIV, none had become HIV positive themselves in the first nine months of follow up.³⁷

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Sexual transmission

HIV can be transmitted through semen, blood and blood products³⁸⁻⁴⁰ and cervical and vaginal fluids.⁴¹ The commonest route of transmission so far identified worldwide is sexual, with considerable variation across Europe. In the UK up to 1990, 80 per cent of AIDS cases occurred in the homosexual/bisexual population. A similar pattern was evident in the Netherlands, Denmark, Sweden, Norway and the Federal Republic of Germany. In Italy and Spain, however, 66 per cent and 63 per cent respectively have occurred among intravenous drug users. In Scotland, while the greatest number of AIDS cases has been, and still is, among homosexuals, the proportion is changing as more intravenous drug users develop AIDS. In the Scottish population intravenous drug users comprised the majority of HIV positive individuals in 1990, so it is expected that the number of newly diagnosed cases of AIDS in intravenous drug users will soon exceed those in homosexuals.⁴² Heterosexual transmission is the most important route in many African countries where equal proportions of men and women have developed AIDS.⁴³

HIV virus has been isolated from other body fluids, including saliva, tears and breast milk. While there is no good evidence that infection can be transmitted through saliva or tears,⁴⁴ evidence is accumulating that transmission is possible through breast milk.^{45,46}

Most information we have so far on the relationship between sexual activity and HIV infection comes from research among homosexual men. It shows that multiple sexual partners and receptive anal intercourse are independent risk factors for HIV infection.^{47,48} Bleeding during or after intercourse, and any sexual contact involving semen, blood or excretions of infected partners were associated with a high risk of becoming HIV positive.⁴⁹

More recent evidence shows that the HIV virus can also be transmitted heterosexually both from men to women and women to men,⁵⁰ and that multiple partners⁵¹ and sex with prostitutes is associated with a high risk of becoming HIV positive in some African countries^{52,53} and parts of the USA and Europe.⁵⁴ The presence of genital ulcers and sexually transmitted disease increases the risk of transmission. Research on the sexual partners of AIDS sufferers, and of haemophiliacs who are HIV positive, suggests that the virus may be more readily transmitted from men to women than from women to men.⁵⁵

Transmission through transfusion of blood and blood products

Transfusions of blood and blood products were the second most important source of HIV infection in the UK until screening of all blood donors and heat treatment of blood products were introduced in 1985. Those most affected were haemophiliacs who formed the second largest group (6 per cent) of AIDS cases in March 1990. Research in British haemophilia centres shows that in 1986, 44 per

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cent of people with haemophilia A and up to 60 per cent of severe haemophiliacs (who needed multiple transfusions) were HIV positive by 1986.⁵⁶

Transmission through injecting intravenous drugs

Those who inject intravenous drugs are at high risk of developing AIDS even though they still form only a small proportion (about three per cent in 1990) of the total number of AIDS cases throughout the UK. Evidence from the USA, where intravenous drug users accounted for nearly one in five AIDS cases in 1986, suggests that the potential of this route of viral transmission has been hitherto underestimated.⁵⁷ The explosion of infection among intravenous drug users in Spain, Italy, Scotland and Thailand, further reinforces this concern. The virus is easily, and often rapidly, spread among intravenous drug users, and those most at risk of becoming HIV positive are those who share injecting equipment⁵⁸ and those who inject frequently or who go to 'shooting galleries'.⁵⁹ Although evidence is scanty, the injection of intravenous drugs may be a more efficient way of transmitting the virus⁶⁰ than sexual intercourse, and this is evidenced in the very short period over which groups of drug users who are known for sharing 'works' have become HIV positive.⁶¹⁻⁶³

European intravenous drug users with AIDS are much younger than other AIDS sufferers: three-quarters are under 30,⁶⁴ and by September 1986 over 50 per cent of intravenous drug users in one Edinburgh general practice were HIV positive.⁶⁵

HIV infection can also be transmitted from a pregnant woman to her infant either during pregnancy, birth or shortly after. There have been 39 cases of AIDS in children in the UK up to 1990, 24 born to mothers who were infected. Four of these mothers were intravenous drug users, five acquired the infection through transfusion, and ten through heterosexual transmission.⁶⁶ The risk of an HIV positive woman transmitting the virus is high, probably about 20-40 per cent in most studies, but the recent European Collaborative Study underway in ten countries, including Scotland, suggests that transmission rates may be lower at 13 per cent.⁶⁷

Predicting the future size of the HIV/AIDS epidemic

Attempts to make predictions have resulted in widely differing estimates for the number of people likely to become HIV positive and to develop AIDS. For such predictions to be useful we need to know more about the sexual behaviour of the population at risk; about changes in sexual behaviour over time; about the relationship between HIV infection and eventual disease outcome; and how long it takes from infection with HIV to the development of AIDS. Extrapolations from past UK and American data, or even from models which make assumptions about these largely unknown aspects of HIV infection, can lead to an unhelpfully alarmist view of possible

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future trends.

Predictions for England and Wales have been made by two major working groups in recent years, and illustrate how difficult a task it is in this field. The first was set up by the Chief Medical Officers of England and Wales, and the report of the working group (the Cox report)⁶⁸ was published in November 1988. At that time the number of reports of AIDS cases had been increasing exponentially in the homosexual category, with only a slight indication that the pattern of growth might be changing. Based on the information available at the time, the Cox report estimated that there were between 20,000 and 50,000 people infected with HIV in England and Wales at the end of 1987, of whom 13,000–30,000 were homosexuals. This gave a projection of 2,000 to 10,000 *new* AIDS cases by the year 1992, with a cumulative total of between 10,000 and 30,000 cases by that date.⁶⁹

However, these predictions have been proved too pessimistic, mainly because there has been a marked decline in transmission of HIV among homosexual and bisexual men, resulting from an apparently major change in behaviour in the homosexual population in the mid-1980s. The second working group reporting in January 1990 (the Day report),⁷⁰ more than halved the predictions for new AIDS cases given in the Cox report. The Day report estimated that the number of infected homosexuals at the end of 1988 was in the range 8,750 to 17,500, much lower than the Cox estimates. The projections for new AIDS cases among homosexuals in 1993 were in the range 875 to 1,500.

By contrast, the report pointed out that the increase in AIDS cases in injecting drug users and heterosexual contacts was still in an exponential growth phase (similar to the early phase of growth in homosexual and bisexual men). If this exponential spread continued, then by 1993, the Day report predicted that two-thirds or more of new AIDS cases would arise from the injecting drug users and heterosexual contact categories, compared with just seven per cent at the end of 1989. On the other hand, there was also some evidence that the exponential growth phase might be easing up in these two categories, in which case there may be little new transmission taking place in either group and only minor increases in cases will be seen in the next few years.

With this range of uncertainty in mind the working group projected that in 1993 the overall number of new cases of AIDS would be between 1,175 and 4,825. The projected number of AIDS deaths was 750 for 1990 and 1,540 for 1993, with a total by the end of 1993 of 6,380 AIDS deaths since the start of the epidemic. Unlinked, anonymous HIV testing programmes, as recommended in the Day report, will reduce some of the uncertainty in the predictions of future cases.⁷¹

6 Road accidents

No one should be free to harm others.

JOHN STUART MILL

Introduction Although we have already indicated in Chapter 2 that the UK's good international record for death rates among young people is mainly due to lower death rates from road traffic accidents, there is still a great deal of scope remaining for prevention. Accidents (road traffic accidents in particular) and poisonings remain the third most important source of life-years lost under the age of 85. This chapter considers the pattern and impact of road injuries on society. It examines those potentially avoidable factors which influence road injuries, and assesses trends in road deaths and casualties among different road users over the last decade. We consider the implications for policy in Chapter 7.

The impact of the problem In 1988 over 5,000 people died and nearly 63,500 were seriously injured on the roads in Great Britain. Although road deaths represent only one per cent of all deaths, the majority of victims were young – 36 per cent were under 25. Road accidents were the single most important cause of death in 5–24 year olds in 1988, and represented over two-thirds of all accidental deaths in this age group (see Table 12). Moreover, the children of manual workers are at much higher risk of being killed in road accidents than the children of non-manual workers.

Because young people are a major risk group, the cost of road accidents to society is high – estimated at over £5,400 million in 1988

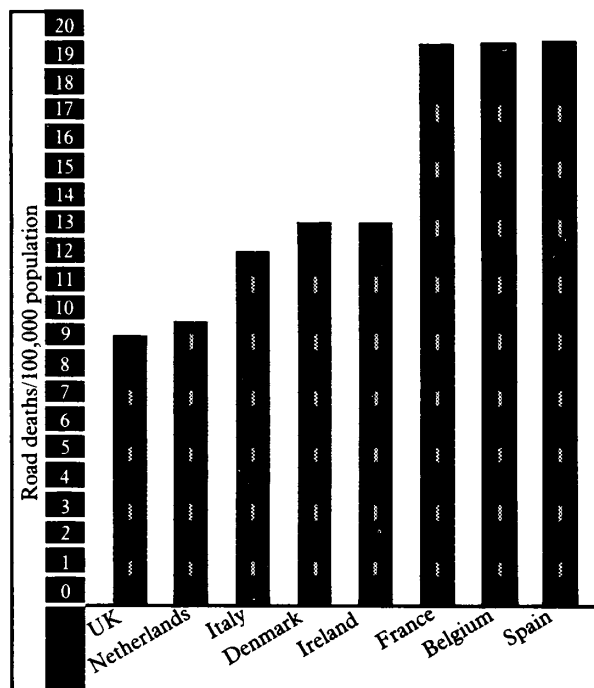
Table 12 Death on the roads in Britain (1988)

Age	Number of road deaths (registered)	Road deaths as percentage of all accidental deaths	Percentage of all deaths (in each age group)
0–4	93	29	2
5–9	148	66	22
10–14	169	70	25
15–19	674	78	33
20–24	756	72	27
25–34	720	55	13
65+	1,232	20	<1
ALL	5,092	38	1

Source: Department of Transport. Road accidents in Great Britain 1988. London, HMSO, 1989.

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Figure 17 Death rates on the roads in the EC (1987)



Source: Department of Transport. Road accidents in Great Britain 1988. London, HMSO, 1989.

(see Table 13). Although it is impossible to give the true cost of road accidents to society, or to compare them directly with the estimated costs of other public health problems, road accidents still rank high among other pressing challenges to public health, such as tobacco and alcohol. In 1987, 115,000 years of life were lost due to road traffic accidents in England and Wales, compared, for example, with 393,000 from cancers and 205,000 from coronary heart disease.

Table 13 The social costs of road accidents in Great Britain (1988)

1 To industry (lost output for non-fatal accidents)	£133m
2 Medical and ambulance costs for non-fatal accidents	£151m
3 Pain/grief/suffering for non-fatal accidents	£831m
4 Combined costs to industry, to NHS, and to relatives for suffering, and so on, for fatal accidents.	£2,821m
5 Police/insurance administrative costs	£186m
6 Damage to property	£1,375m
TOTAL	£5,497m

Source: Department of Transport. Highways economics note no 1. Road accident costs 1988. London, Department of Transport, 1989.

ROAD ACCIDENTS

Comparison with other European countries

In spite of these avoidable costs, the UK's safety record is among the best in the world – at least for car users. In 1987 the UK had the lowest overall death rates from road accidents in the EC (see Figure 17) and in world terms was only equalled by Sweden, and bettered by the former East Germany. These figures may not be strictly comparable because deaths are determined by the volume and pattern of use of motorised traffic, which vary widely from country to country. Nevertheless, the UK still compares well – in overall terms – with countries like Japan and the Netherlands whose patterns of roads in built-up areas and levels of car ownership are similar to the UK. Within the UK, the lowest road death rates in 1987 were in Wales (7.8 per 100,000) and the highest in Northern Ireland (13.6 per 100,000).

Accidents or avoidable injuries?

We tend to think of accidents as unavoidable events. But detailed research into their patterns and causes suggests that 'accident' may be an inappropriate word to describe a clear set of potentially avoidable events which result in injury. Every road casualty results from the interaction of the road user, the vehicles involved, the environment, and transport policy. While human error is clearly a factor in nearly all cases, the Transport Road Research Laboratory (TRRL) – the Department of Transport's research arm – has estimated that environmental factors are involved in 28 per cent of cases and vehicular factors in 8.5 per cent.^{1,2}

The road environment

While increasing vehicle ownership is related to a rising death toll on the roads throughout the world, deaths per vehicle tend to fall again once a certain level of car ownership has been reached.³ This may reflect increasing levels of development accompanied by higher density, slower-moving traffic and the gradual implementation of road safety measures. Most (77 per cent) road deaths occur in built-up areas, although the highest *risk* of death is in non-built-up areas. Road casualties are twice as likely to occur at night as during the day.⁴ Locally based accident investigations show that accident 'blackspot' areas tend to have poor road surfaces, poor traffic control or poor road design. Child casualties are most likely to occur very close to home.

The road user

While the largest *number* of deaths are among car occupants, followed closely by pedestrians, the *risk* of being involved in a fatal or serious accident is lowest in trains, buses and coaches. Motorcyclists, followed by cyclists are most at risk. Although this is in part due to the fact that motor cyclists and pedal cyclists tend to be much younger and more inexperienced than other road users, casualty

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rates for motor cyclists and pedal cyclists are still much higher than those for car drivers of the same age.⁵ Moreover, motorcycle accidents are different from cycling accidents. First, motorbike accidents are essentially a problem among young men: in 1988, 65 per cent involved young men, of which the largest proportion (38 per cent) was among 16–19 year olds. And second, motorcyclists are more likely than cyclists to be involved in accidents which kill others. Pedestrians are the third largest at-risk group, with most casualties occurring at both extremes of the age spectrum.

Drinking and driving

The Department of Transport has estimated that in 1987, 900 deaths – about 20 per cent of all road fatalities – were alcohol-associated. The percentage rises to about 60 per cent at night. Young men of 20–24 were the most likely to be convicted of drinking and driving offences in 1985, and the highest conviction rates are in the summer – not at Christmas.

Evidence for the involvement of alcohol in road deaths and injuries is convincing, and is based on an important controlled study which showed that, compared with someone who is sober, a driver with blood alcohol levels of 80 mg/100 ml (or 80 mg per cent which is the UK legal limit) is twice as likely to be involved in an accident. At 150 mg per cent the risk increases to ten-fold, and at 200 mg to twenty-fold.⁶ The findings of this study form the basis of our current drink and driving legislation. More recent research from TRRL shows that the risk is much higher for young, inexperienced, drivers (and drinkers) and rises steeply at 30 mg per cent.^{7,8}

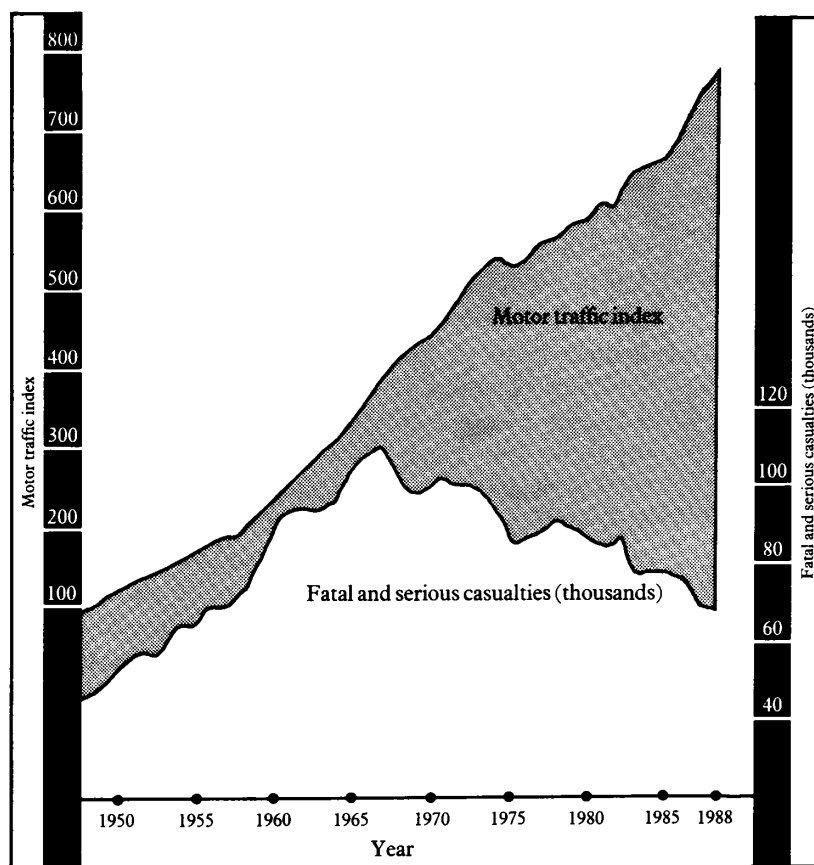
The vehicles

Vehicle size and design is important in accidents. First, two wheeled vehicles are more vulnerable than cars – the structure of which absorbs some of the impact in an accident. Two wheeled vehicles are less visible. Back seat car (and light van) passengers and pedestrians are still relatively more vulnerable than front seat passengers who are required by law to wear a seat belt because compliance with seat-belt wearing is still low in the back compared with the front of vehicles. Although the commonest injury in all road users is head injury, motorcyclists are now less likely to be admitted to hospital with head injury than other road users.⁹ This is most likely to be due to almost full compliance with the law which requires riders of two wheeled motor vehicles to wear crash helmets.

In 1983 the maximum possible speed of new cars bought by the average motorist was 50 per cent in excess of the maximum speed limit.¹⁰ The evidence linking excessive speed to higher accident risk is supported by good evidence.^{11,12} The TRRL estimates that high speed directly accounts for 10–20 per cent of accidents. A major review on road safety summarising more than 30 separate studies on

ROAD ACCIDENTS

Figure 18 Trends in road deaths in Great Britain (1950–1988)



Source: Department of Transport. Road accidents in Great Britain 1988. London, HMSO, 1989.

the effect of speed limits on road accident rates showed, with a few exceptions, that raising the speed limit increased the number and severity of casualties, and lowering it resulted in a reduction in casualties.¹³

The 1983 TRRL speed survey showed that:

- 40 per cent of cars and up to 90 per cent of coaches and HGVs exceeded the speed limit on motorways;
- 50 per cent of vehicles in residential areas exceeded the limit.

Although opinion polls show that the public does not think that the speed limit should be increased, as many as two-thirds of young male car drivers claimed to drive regularly at over 70 mph.¹⁴ In 1983 the risk of being found guilty of speeding was estimated at less than once in a lifetime.¹⁵

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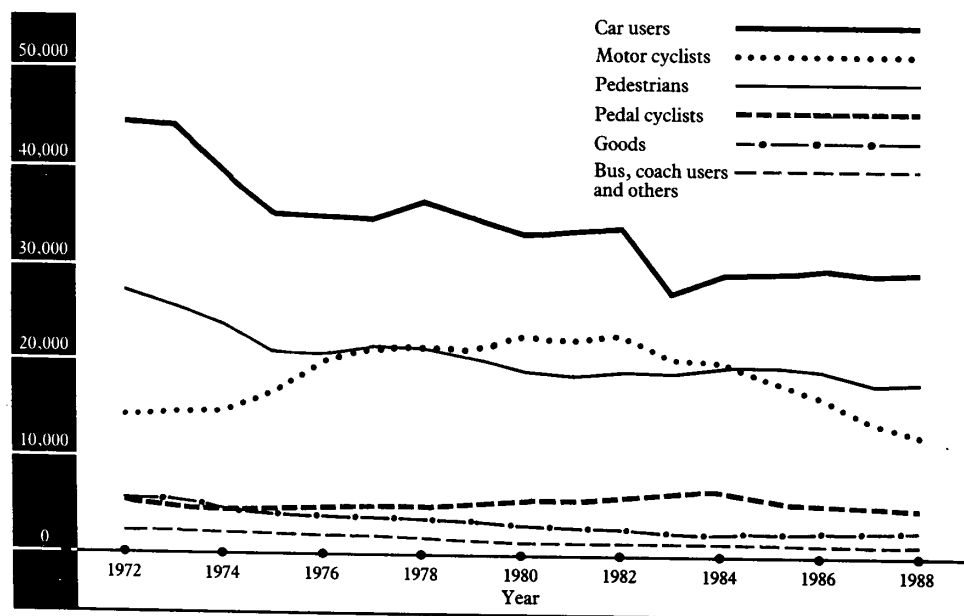
Trends in road safety

1988 saw the lowest number of people killed on the roads in Great Britain for three decades. The number of fatal and serious casualties has continued to fall since the mid-1960s, and fell by a further 26 per cent between 1978 and 1988 – despite a 37 per cent increase in the volume of traffic (see Figures 18 and 19).

But the reduction in casualties has not been uniform across all categories of road user (see Figure 19). Pedestrians experienced only a 16 per cent fall in fatal and serious casualties over the decade from 1978 to 1988, though there was a 27 per cent fall in pedestrian deaths. Pedal cyclists experienced a slight increase in fatal and serious casualties, of three per cent, but with a fall of 28 per cent in deaths.

Figure 19 shows that the most striking fall among those killed or seriously injured in the last decade occurred in car users following the legislation which made the use of seat belts mandatory in the front seats of cars and light vans in 1981. The evidence for its effectiveness is strong, and we review it in Chapter 7. Regular monitoring of seat belt use by the Department of Transport shows that compliance increased from an average of 37 per cent before the legislation to 95 per cent afterwards (see Figure 20) and that immediate reductions occurred in fatal and serious casualties of about 25 per cent for drivers and 30 per cent for front seat passengers.¹⁶ As might

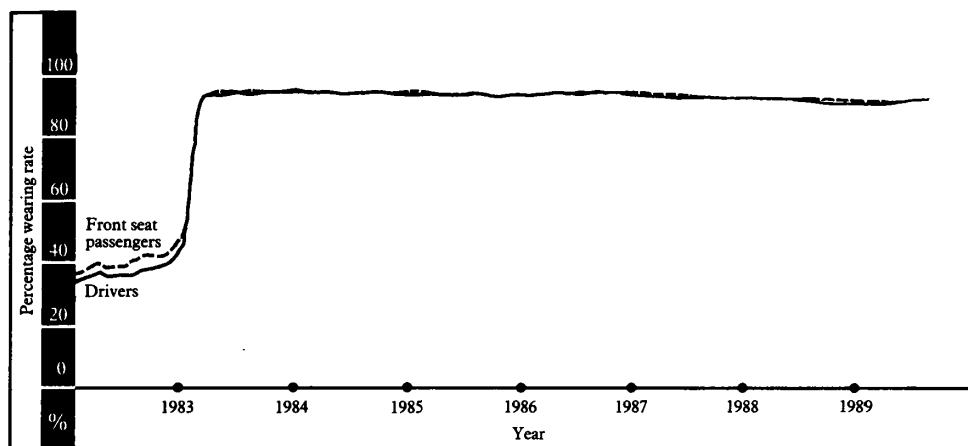
Figure 19 Fatal and serious road casualties by type of road user in Great Britain (1972–1988)



Source: Department of Transport. Road accidents in Great Britain 1988. London, HMSO, 1989.

ROAD ACCIDENTS

Figure 20 Recent trends in seat belt wearing among front seat occupants of cars and light vans in Great Britain (1982–1989)



Sources: Department of Transport. Road accidents in Great Britain 1985. London, HMSO, 1986.

Department of Transport. Further communication, June 1990.

be expected, the legislation had no effect on rear seat passengers (to whom seat-belt legislation was partially extended in 1990) or on other road users.

Another dramatic change has been in motorcycle casualties. The number killed or seriously injured increased from 1972 to 1983 from 14,000 to 23,000. Since then the number has fallen by 44 per cent to 13,000, and total motorcyclist casualties have fallen by 40 per cent from 74,000 to 43,000. This is thought to be due to changes in the licencing law in 1982 and the introduction of the two-part motorcycle test in the same year, followed by restrictions on the size of machine that learners could ride in 1983. This had the effect of reducing the number of new registrations of motorcycles, which fell from 313,000 in 1980 to 90,100 in 1988. Motorcycle traffic has also fallen, by two-fifths compared to 1982.¹⁷

7 Promoting a healthy lifestyle

One should eat to live, not live to eat.

MOLIERE

Introduction In Chapters 3–6 we analysed trends in the major causes of premature death, and the part played in each by what has become known as our ‘lifestyle’. ‘Lifestyle’ is a useful but much misunderstood term. It is sometimes seen as a set of individually determined behaviours – such as smoking, excessive drinking, and a lack of exercise – which cause ill health. The implication is that *individuals* have sole responsibility for their health, and that society has no part to play. This is a narrow view for two reasons. First, there are many aspects of our lifestyle which are conducive to *health* rather than to disease, and we consider some of these in later chapters. Second, it would run counter to the evidence to assume that people’s patterns of smoking, drinking, eating and sexual activity are determined by individual choices that are unaffected by social, economic or legislative factors.

In this chapter we examine the evidence for the effectiveness of both environmental and individually oriented measures in the promotion of a healthier lifestyle. Because most diseases are due to many causes, and individual risk factors contribute to a wide range of diseases, we now move away from individual diseases and concentrate instead on those specific determinants of health and disease which we have so far identified as being capable of contributing to health. We start with strategies for reducing cigarette consumption. We then consider diet, alcohol misuse, road use, and finally sexual and reproductive practices. In Part II of the report we consider the promotion of physical activity, the maintenance of social support networks (Chapter 9) and illicit drug misuse (Chapter 13).

Strategies for prevention Two broad strategies for the prevention of disease and promotion of health have been identified.

- **The population strategy** This involves measures applied throughout the community, and is akin to the major, public health initiatives of the nineteenth century such as the building of sewers. Today, it might involve mass measures such as increases in tobacco and alcohol taxation, or seatbelt legislation.
- **The high risk approach** This involves identifying and intervening *only* among those sections of the community who are perceived to be at risk of developing a disease or a health problem. This might mean offering heavy drinkers a programme for cutting down, or

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treating those with high blood pressure or high blood cholesterol levels.

The relative merits of each of these approaches have generated considerable debate – specially in the field of dietary change to reduce coronary heart disease.¹⁻³ In practice, the two approaches are not mutually exclusive, but interdependent, for the more successful the population approach is in reducing a problem, the fewer the remaining high risk individuals who need to be identified and treated or supported.

The 'high risk' approach is complementary to the 'population approach', and each has its advantages and disadvantages. Although the health benefits of the 'population approach' are likely to be greater overall than those of the 'high risk' approach, the population-wide measures usually offer small and sometimes imperceptible benefits for the individual. This phenomenon has been termed the 'prevention paradox'.⁴ The 'high risk' approach, on the other hand, offers bigger, obvious benefits for the individuals selected for it (such as the treatment of high blood pressure), and could be seen as less wasteful than the population approach which must be applied across the whole community. The 'high risk' approach also offers individuals a choice to opt in or out of an intervention at any stage, whereas population-based measures such as the mandatory use of seat belts or fiscal measures to discourage consumption of harmful products, have bigger implications for individual freedom. This highlights the need for the widest possible debate on all public health measures before their implementation.

Tobacco The ultimate public health objective for cigarette smoking can be seen as the elimination of all but occasional cigarette smoking. This puts cigarettes in a totally different category from other aspects of lifestyle such as alcohol, diet, and road use where the aim would be to promote healthy, safe and enjoyable patterns of use or consumption. A five-part strategy for the reduction of cigarette consumption forms the basis of recommendations made on successive occasions by WHO,^{5,6} two UK government reports^{7,8} and the Royal College of Physicians.⁹⁻¹¹ It comprises the following measures:

- regular increases in the real price of tobacco;
- a legislative ban on all forms of tobacco advertising or promotion;
- the creation of a non-smoking norm in public and workplaces;
- adequately funded public and professional education and information programmes;
- health warnings on all cigarette packs (and promotional material until a ban takes place).

These measures are also supported by the BMA, the royal medical

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Table 14 Public support for measures to control cigarette smoking (1987-1989)

	Those agreeing (percentage)		
	<i>All Persons</i>	<i>Current smokers</i>	<i>Non-smokers</i>
Those agreeing there should be restrictions:			
on smoking at work.....	70	55	77
on smoking in restaurants	82	69	87
on smoking in pubs.....	42	24	50
on smoking on public transport*	80	68	86
on smoking in public places - like banks and post offices.....	72	69	75
Those agreeing that the government should not allow cigarette advertising:			
'on hoardings and posters'.....	56	48	59
'in newspapers and magazines'	54	45	67
'of any kind at all'	45	36	48
Those disapproving of tobacco companies being given publicity in return for sponsoring sporting events*			
	45	38	51
Those agreeing the government should increase the tax on cigarettes**			
	51	23	54

* Nov 1988

** Nov 1987

Source: NOP Market Research Limited for OPCS. Smoking Habits, November 1987, 1988 and 1989 (unpublished). Crown copyright reserved.

colleges and the Royal College of Nursing. A survey in November 1989 found that a majority of the public supports restrictions on smoking at work, in restaurants, on public transport and in public places like banks and post offices. A majority also supported bans on cigarette advertising in newspapers and magazines and on hoardings (see Table 14). An earlier study found that 47 per cent of the public supported increases in cigarette taxation.¹²

Reducing the demand for cigarettes: taxation

There is now a large body of research on the factors affecting the commencement, maintenance and cessation of smoking. There is a close correspondence between the price of tobacco and cigarette consumption levels. Increases in the real price of cigarettes are usually followed by decreases in consumption¹³ (see Figure 21).

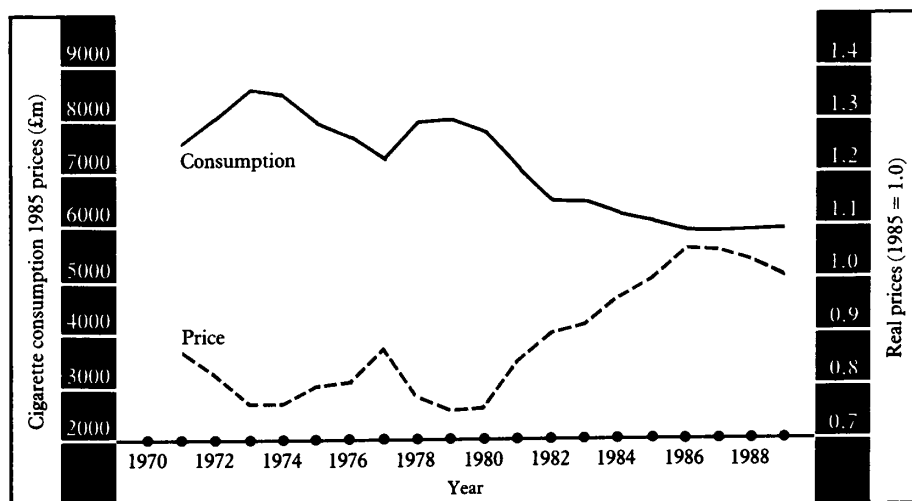
Economic analyses suggest that increases in cigarette taxation are an effective, if blunt, means of reducing cigarette consumption: for every one per cent increase in the price of cigarettes there is approxi-

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mately a 0.5 per cent decrease in cigarette consumption per head.^{14,15} Children starting to smoke, however, appear to be more sensitive to price changes than adults.¹⁶ Research based on data for the mid-1970s suggested that a policy of major tax increases (a 56 per cent increase in the 1972-3 price of cigarettes), education and control of cigarette advertising might achieve as much as a 40 per cent reduction in cigarette consumption.¹⁷ Fears that increases in cigarette taxation would result in a loss of tax revenue, that price rises would discriminate heavily against the manual classes and would contribute to unemployment, are not supported by research. First, cigarette consumption does not change dramatically with price changes, which means that price rises only reduce consumption by a small amount and tend to *increase* rather than decrease government revenue from cigarettes¹⁸ (see Figure 22). Second, recent analyses suggest that people in social classes IV and V may be *more* responsive than those in social classes I and II to price increases, and that the *lack* of adequate price increases over the last two decades may have contributed to social class inequalities in smoking rates.¹⁹ A recent analysis of tobacco pricing policy in Finland²⁰ came to the following important conclusions:

- increases in tobacco prices are effective in reducing consumption, but those which occurred in Finland between 1960-84 were not big enough;

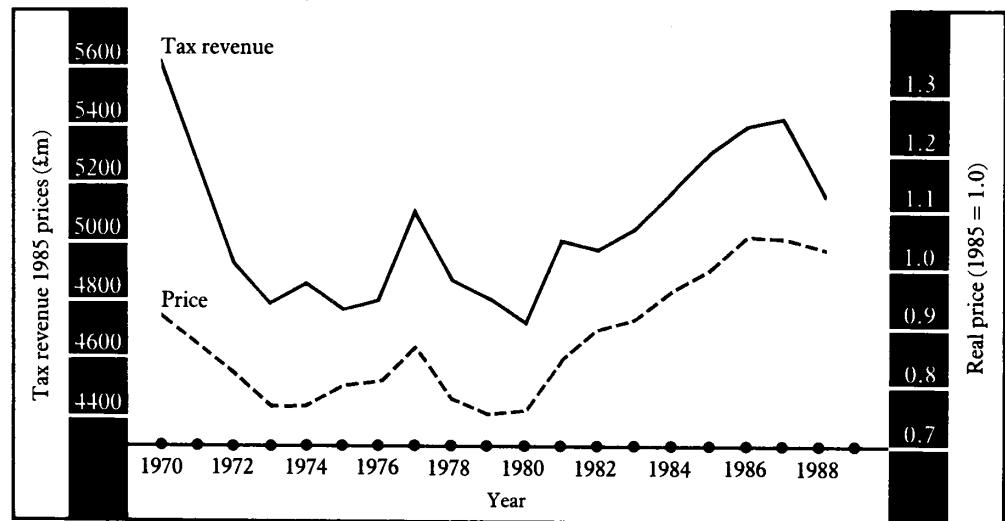
Figure 21 Consumer expenditure on cigarettes in relation to changes in the real price of cigarettes (1970-1988)



Source: Townsend J. Paper given at the 7th World Conference on Tobacco and Health, Perth, Australia, April 1990.

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Figure 22 Tobacco tax revenue and the real price of cigarettes (1970-1988)



Source: Townsend J. Paper given at the 7th World Conference on Tobacco and Health. Perth, Australia, April 1990.

- pricing policy cannot operate in isolation from other aspects of tobacco control policy such as education.

Finally, a detailed, independent analysis of the effects of prevention policy on employment in the tobacco industry concluded that the numbers directly employed by the industry are usually exaggerated. In 1985 there were 20,000 directly employed in the tobacco industry, and the development of new technology within these industries has had a much bigger impact on the numbers employed than prevention policy, although recent tax increases in cigarettes have speeded up the contraction.²¹

Smoking: education and information

It has proved difficult to disentangle the impact of education on smoking trends from that of taxation or other measures, as they are mutually reinforcing. In recent years, the build-up of regular anti-smoking campaigns in the mass media and elsewhere have had a more sustained effect which was evident before the early 1980s when the real price of cigarettes began to increase. It seems probable that the steadily increasing volume of high quality editorial coverage of smoking and health in the mass media^{22,23} is likely to have had a reinforcing role.

The importance of supplementing national measures with action tailored for individuals has been well-documented. General practitioners²⁴⁻²⁶ and workplace schemes^{27,28} have both been shown to be effective in helping people to stop smoking.

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Early efforts to demonstrate behaviour change through anti-smoking programmes at schools were disappointing but some later randomised controlled trials showed that programmes such as My Body were able to significantly delay the decision to start smoking.^{29,30} The ability of this and other smoking and health programmes to exert a beneficial long-term effect on smoking behaviour reflect the importance of operating in a 'healthy' social climate.

Smoking: advertising and promotion

Economic analyses of the impact of cigarette advertising on consumption are fraught with methodological difficulties. The tobacco industry spends at least £100 million each year promoting smoking. Industry-funded research has concluded that cigarette advertising does not increase total consumption, but merely affects brand preference.³¹ An independent review of studies in the field showed that the findings are limited by incomplete information on expenditure on advertising and sponsorship, by varying assumptions about the impact of diverse kinds of advertising, and by an inability to select out the potentially greater impact that advertising is likely to have on children.³² Nevertheless, of the two independent studies conducted, both found advertising to increase total consumption.^{33,34} No study has so far shown that a ban on cigarette promotion would reduce consumption, because most bans are partial and research has not taken this or other factors into account.^{35,36}

None of these studies has taken into account the effect of cigarette advertising on the general image of smoking, and its ability to outweigh the government's smoking and health message. The social climate is crucial in reinforcing the idea among children that smoking is still a socially acceptable practice.³⁷ There is a growing body of research which shows that children are more vulnerable to cigarette advertising than adults, that they are more likely to smoke those brands which are most heavily advertised, and that brand-switching is an important part of the process of becoming a new smoker.^{38,39} Moreover, a major cross-country analysis of the effects of advertising on consumption showed that advertising increases total consumption, and that those countries – such as Norway – which had banned cigarette promotion and taken other action to reduce smoking had shown significant reductions in smoking among young people.⁴⁰

Smoking: what progress has been made?

It is now a generation since the RCP published its first report on the dangers of smoking. The British response to repeated calls for action since then has slowly gathered momentum. There are probably more local initiatives throughout the country to reduce smoking than in almost any other public health field. Yet there are no nationally agreed objectives for smoking and health, and government action has been piecemeal.

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Under continuing pressure from the royal medical colleges and organisations such as ASH (Action on Smoking and Health) and the HEA/HEC, SHEG and the BMA, significant policy changes have occurred in three areas over the last decade:

- cigarette taxation;
- public education and information;
- advertising and promotion.

The tax on cigarettes has been increased nearly every year since 1974, although there was no increase in the 1987 pre-election budget, nor in 1988. In 1989 the increase in tax on cigarettes was in line with inflation, and was slightly above the rate of inflation in the 1990 budget. The real price of cigarettes rose by 30 per cent between 1980 and 1985. Despite this, cigarettes are still over 20 per cent cheaper in real terms than they were in 1948. Of greater concern is that EC proposals for tax harmonisation may result in an estimated 3 per cent increase in consumption.

There has been an increase in the budget for anti-smoking education from £0.5 million in the mid-1970s to about £8 million in 1990. Even though more money was spent by the national health education agencies on education against smoking than on any single other issue, the total amount is still small compared with the promotional resources of the tobacco industry. Baseline information on smoking trends and attitudes is better than in most other public health fields, although not all of it is published. The regular publication of tar, nicotine and, more recently, carbon monoxide yields of cigarettes, has provided the tobacco companies with an extra incentive to reduce further the tar yields of cigarettes.

Progress on the control of cigarette promotion has fallen behind that of many European and other countries. The 1965 legislative ban on TV advertising is frequently circumvented, and in 1984 there were more than 300 hours of tobacco-sponsored sport on TV. Cigarette advertising in the press, and cigarette sponsorship, have been subject to a series of voluntary agreements between the government and the tobacco industry that are regularly flouted. The 1986 agreement (still in force in 1990) did, however, introduce six new health warnings, and imposed a ban on all cigarette advertising in cinemas. There is a partial ban on cigarette advertising in some but not the most popular young women's magazines⁴¹, but the latest agreement on tobacco sponsorship falls short of the voluntary code imposed recently by the BBC and Independent Television on all tobacco-sponsored sport.

The main response by the tobacco industry over the last decade has been to make signs available to tobacco retailers reminding them that it is illegal to sell cigarettes to children under 16. The law is still

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regularly broken.

Despite small budgets, the health education agencies maintained a series of smoking and health initiatives at many levels ranging from mass media campaigns to long-term school programmes, community education projects such as Look After Yourself (see Chapter 9), and the regionally based Project Smokefree which was a community-wide campaign in Manchester. The HEA and ASH, together with 11 other organisations, including DoH and the cancer and heart disease research charities, organise an annual National No-Smoking Day which has had widespread publicity as well as supporting an estimated six per cent of the population in attempts to stop smoking.⁴² The publication in 1983 of the SHECC (Scottish Health Education Coordinating Committee) expert report⁴³ on smoking followed by a report from ASH in Scotland giving a breakdown of smoking-related disease by parliamentary and local authority constituencies significantly renewed concern about the need for further action on smoking.⁴⁴ The exercise was repeated for England and Wales in 1986 and published jointly by the HEC and BMA in a report *The Big Kill*.⁴⁵

Although it is beyond the scope of this report to give a comprehensive account of the breadth and number of local initiatives on smoking, major changes have taken place in health authorities and in primary care. The publication by ASH of *Smoking Prevention – A Health Promotion Guide for the NHS*, together with the work of the growing number of health education officers, prompted many authorities to develop smoking and health policies. A survey of regional health authorities (RHAs) commissioned for this project in late 1985 showed that smoking and health was an explicit part of the strategic plans of all but two English RHAs.⁴⁶ A later, follow-up survey by the HEA of all district health authorities (DHAs) in the same year showed that nearly all had developed, or were implementing, their own smoking control policies.⁴⁷ This was the case in nearly all Scottish Health Boards. An ASH survey of local authorities showed that by 1985 four out of five had followed suit;⁴⁸ in Scotland every single local authority had taken some action to restrict smoking.⁴⁹ One of the most striking examples of joint health board/local authority co-operation has been the establishment of Glasgow 2000, a community-wide project which aims to make Glasgow a smoke-free city by the year 2000. By 1988, a follow-up survey by the Faculty of Public Health Medicine and the HEA found 52 per cent of district health authorities and boards had coronary prevention programmes. Eighty-four per cent had a nutrition policy and 96 per cent had a smoking policy.⁵⁰

Following the Royal College of General Practitioners' (RCGP) initiative on the prevention of arterial disease,⁵¹ and the introduction of the new GP contract, advice and monitoring of patients' smoking

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is becoming usual practice in some primary care settings.

Promoting dietary change

In Chapter 3 we summarised the international scientific consensus on the role of diet in coronary heart disease, cancers and a number of other important health problems such as obesity, diabetes and bowel disease. Although much research remains to be done on the relationship between diet and various cancers, there is a striking consistency in the evidence concerning the *kind* of diet that would be conducive to health and would prevent a wide variety of diseases. We also summarised the quantitative dietary guidelines recommended by NACNE for the reduction of total energy derived from fats and saturated fats, an increase in fibre intake, and a decrease in sugar and salt intakes in the UK (see Chapter 3).

Are such goals achievable and, if so, how can they be achieved? There is already evidence that dietary habits have changed towards the NACNE goals over the last decade (see Chapter 3), and that during the last war, when a national nutrition policy was in being, aspects of our diet approached the NACNE goals.⁵²

In 1982 a WHO expert group identified the need for a comprehensive strategy involving a combination of the population and high risk approaches to heart disease prevention together with effective treatment.⁵³ Two subsequent WHO reports in 1984 developed more detailed plans for implementing the 1982 recommendations,^{54,55} and have been endorsed in the main by other more recent expert reports.⁵⁶⁻⁵⁹ Central to their recommendations were the following components:

- government should develop a national nutritional policy and should establish a mechanism for interdepartmental liaison;
- food and agricultural policies should be reviewed and brought into line with national nutritional goals;
- nutritional labelling of foods;
- locally coordinated, community-based prevention programmes;
- community and professional education.

The COMA report *Diet and Cardiovascular Disease* commissioned by the DHSS was the first major UK report to recommend how dietary change might be brought about to reduce heart disease. Its recommendations focussed largely on public and professional education, but it identified other components of the strategy, including legislation to make the nutritional labelling of fats mandatory, and an examination of ways of influencing the Common Agricultural Policy in the interests of nutrition and health.⁶⁰

Detailed implementation plans arose out of a conference organised by the Coronary Prevention Group, known as the Canterbury Conference, which was sponsored by 17 health organisations.⁶¹ It agreed

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a carefully worked out plan for agencies ranging from EC, government and health education to primary health care and the media. Many of its recommendations have since been endorsed by the BMA⁶² and have become part of health authority health promotion programmes. There has been an update on action taken since the Canterbury Conference.⁶³

Effective strategies for diet

There is a large body of agricultural, economic and market research on factors affecting food consumption patterns. Much of it concerns products that are irrelevant to health. Little effort has been specifically directed towards assessing how food policy might be oriented in the interests of health. Our own conclusions are necessarily based on limited information from educational and community intervention studies, and the findings of nutritionally motivated market research. Five broad strategies for implementation of the NACNE goals have been identified:⁶⁴

- *education and information* through schools, the community and product labelling;
- *pricing* to assist in the switch from harmful to healthy foods;
- *substitution* of harmful, hidden or additional products such as salt or sugar;
- *provision* of more healthy foods in catering establishments;
- *regulation* by good nutritional surveillance and control of the composition of goods and food advertising.

Diet: education and information

We have already summarised the evidence (see Chapter 3) which shows that dietary advice forms an essential part of successful community intervention in the prevention of coronary heart disease. The Oxford Heart Disease and Stroke Prevention Project has shown that it is feasible, using nurse practitioners, both to monitor dietary practices and to give dietary advice. Preliminary results suggest that the employment of a nurse 'facilitator' on a district-wide basis can significantly increase a practice's ability to record information on smoking and blood pressure as well as diet⁶⁵ but researchers have not yet reported on its effect on health outcomes.

Recent market research into consumer attitudes and behaviour in relation to food and health give us a better picture of the kind of nutritional labelling that would be most informative, but a survey commissioned by the British Nutrition Foundation in 1981-2 suggested that having appropriate knowledge and attitudes to diet does not necessarily lead to healthy buying patterns.⁶⁶ This is likely to be because food prices, advertising, personal and cultural preferences are also influential.

A joint survey conducted for the Consumers' Association, Ministry of Agriculture, Fisheries and Foods (MAFF) and the National

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Consumer Council in 1985,⁶⁷ whose results were developed into a rational strategy by CPG,⁶⁸ came to some important conclusions about what consumers understand about nutrition, what information they wanted through labelling, and how best it might be put across:

- Although people claimed to be eating more healthily, less than 30 per cent were classed as 'nutritionally aware' or knowledgeable about which aspects of diet should be changed in the interests of health.
- Over 90 per cent thought that it was important to show nutritional information on foods, 80 per cent said there should be information on fats, sugar and salt, and 70 per cent on fibre.
- Of the two preferred formats for nutritional labelling, people were most likely to recall nutritional information accurately from labels which gave simple, qualitative information using the 'traffic lights' or 'high', 'medium' and 'low' approach rather than detailed quantitative information.

Diet: prices, substitution and regulation

Evidence we review in Chapter 8 suggests that price and variable availability of foods influences food consumption patterns among the least well-off. The way in which a food pricing policy might be used to support healthy consumer choices has not been seriously explored. The full impact of UK and EC policy on the price of foods, and their impact on eating patterns await analysis. There is scope for reducing the salt and sugar content of processed foods. The role of food advertising – 40 per cent of which is for confectionery – in influencing consumer choices needs to be examined. Pressure on consumers – especially women – to cut down on starchy foods because they may be seen to be 'fattening' is misleading, and runs counter to the recommendations of the NACNE report.

Diet: the achievements of a decade

As in the case of tobacco, much has been achieved through local initiatives. With the exception of the new food safety regulations, the health aspects of national food policy appear to be restricted to infection control measures and the control of additives and contaminants rather than the development of an overall nutrition policy. There is no clear ministerial responsibility for nutrition which is currently divided between MAFF and DoH. The legislation on nutritional labelling recommended by the COMA report in 1984, has not yet taken place. A new EC directive issued in 1990 gives guidelines for nutrition labelling. Although labelling of foods will be voluntary, if a producer does decide to label, the format will be compulsory. Also expected are joint MAFF/DoH/HEA guidelines on nutrition, which give advice in terms of consumption of food groups instead of nutrients. The format currently being considered is not of the 'traffic

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lights' kind which consumers have found most helpful, but that preferred by the food manufacturers, and which consumers have found difficult to understand.⁶⁹ There have been no attempts to review the use of agricultural and manufacturing techniques from a health perspective.

The government's contradictory attitudes to public education on diet and health over the last decade are well documented.⁷⁰ In 1987 the Joint Advisory Committee on Nutrition Education (JACNE), which compiled *Eating for Health* was disbanded. DHSS and the Health Education Authority (HEA) launched a new healthy lifestyles campaign in Spring 1987 – a component of which is the promotion of a healthier diet. Known as Look After Your Heart, the campaign aims to add to existing efforts to reduce heart disease and cites the WHO target for the year 2000 of reducing heart disease by 15 per cent among those under 65. While this effort falls short of a national strategy, new efforts are being made to liaise with the NHS, industry, community organisations, schools and the mass media.

Most analyses of the decade point to the importance of the publication of the NACNE report by the HEC in 1983 in reinforcing the renewed interest in diet. Its impact on food and health policy within the NHS has been especially marked. In 1981 there were only three DHAs in England and Wales with food and health policies. By 1984, after publication of the NACNE report, 22 per cent had policies and a further 38 per cent were formulating them.⁷¹ Preliminary results from the most recent survey of the whole of the UK showed that 81 per cent of DHAs and health boards either had a formally approved food and health policy or are developing one.⁷² These welcome changes are beginning to extend to schools and local authority premises. A 1988 survey of local authorities in the UK showed that 7 per cent had a food policy for civic occasions; 14 per cent for staff restaurants; and 13 per cent for residential homes for children and elderly people.⁷³ A survey of 151 employers in 1985, however, showed that only 27 per cent provided health-oriented choices on canteen menus.⁷⁴

A further important, but inadequately researched, spin-off from the publication of the NACNE report has been the growth of media coverage of diet and health. The BBC in particular has a record of food and health coverage that pre-dates the NACNE report. But its coverage increased after the report's publication and included the launch of its own 'food and health campaign', and two major documentary series. This was followed by a further series on healthy cooking. It is not possible to gauge the extent to which the promotion of healthy eating has become part of primary care, and the effect of the call for action from the RCGP has not been formally assessed. But a Welsh community survey in 1985 gives us some idea

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of the extent to which GPs advise their patients on aspects of life-style. Advice about diet is still low on their list of priorities.⁷⁵ Despite this, some innovative projects are under way which use the ordinary consultation as a means of 'opportunistically' advising patients about diet and other risk factors for heart disease and stroke.

Although the UK has been slower to develop community-wide initiatives than have the USA and Scandinavia, a review of UK-wide initiatives in the field of heart disease prevention in 1986 was able to identify six major regional initiatives which contained a dietary component,⁷⁶ including Heartbeat Wales, a five-year project established in 1985 and aimed at involving the whole Welsh community in the reduction of heart disease. This was a pilot project initially funded by the Health Education Council, the Welsh Office and local industry, and was the largest project of its kind in Europe, and stimulated the DoH in England and Northern Ireland as well as the Scottish Office to launch their own initiatives. Heartbeat Wales, with its quantified goals and targets, offers a model that, given local commitment and funds, could be adopted in any other part of the country.⁷⁷

Another recent development has been the growing interest within some retail sectors of the food industry in developing healthier products. Some have adopted more informative nutritional labelling systems than those currently proposed by the government, together with a wider range of higher fibre, lower fat products – some of which are now advertised on television. While there are beneficial aspects to the development, there is growing concern about the potential for misleading the public with health claims for products and some recognition of the need for regulation of claims of this nature.

Alcohol: minimising the harm

Alcohol, unlike cigarette smoking, presents a complex public health challenge: how to minimise the harm without jeopardising the benefits. Based on the evidence we assessed in Chapter 5, it is clear that the objective for alcohol is *not* to prevent people from starting to drink, but to reduce average levels of consumption *throughout the community*. The WHO⁷⁸ has recommended three main methods of achieving these aims:

- fiscal measures to maintain the price of alcohol above that of inflation;
- controls on the availability of alcohol through licensing restrictions;
- public and professional education.

In the UK, these approaches have received broad support from the government's former Central Policy Review Staff, the Royal College

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of Psychiatrists, the RCP, the RCGP, the BMA, the SHECC and the Health Education Advisory Committee for Wales (HEACW).⁷⁹⁻⁸⁶ The Royal College of Psychiatrists has set a modest aim for the nation: to halt the current rise in alcohol consumption with the aim of a gradual reduction in the longer term. This, it suggests, can be achieved by a concerted strategy including interdepartmental government coordination, increases in alcohol tax, closer monitoring of licensing and advertising, improved education, training and treatment services as well as increased roadside breath-testing. The RCGP report emphasised the role of the GP in detecting and supporting patients in their efforts to cut down on drinking. The College of Psychiatrists' views were translated into quantitative terms by Action on Alcohol Abuse (AAA),⁸⁷ but the most detailed implementation strategy so far comes from the SHECC and the HEACW reports which have laid out clear plans for action by a wide range of agencies from government and the NHS to local authorities, industry and trades unions, the media, voluntary organisations, and the courts.

Factors governing the demand for alcohol

Factors governing alcohol consumption fall into two groups: those affecting demand and those affecting availability. Among the most obvious and most complex are national, cultural and religious traditions. It is likely that the social and cultural features of the local area might also influence consumption patterns, although an OPCS study of two English regions which differ widely in levels of consumption and alcohol-related harm, failed to show any locality-specific factor.⁸⁸

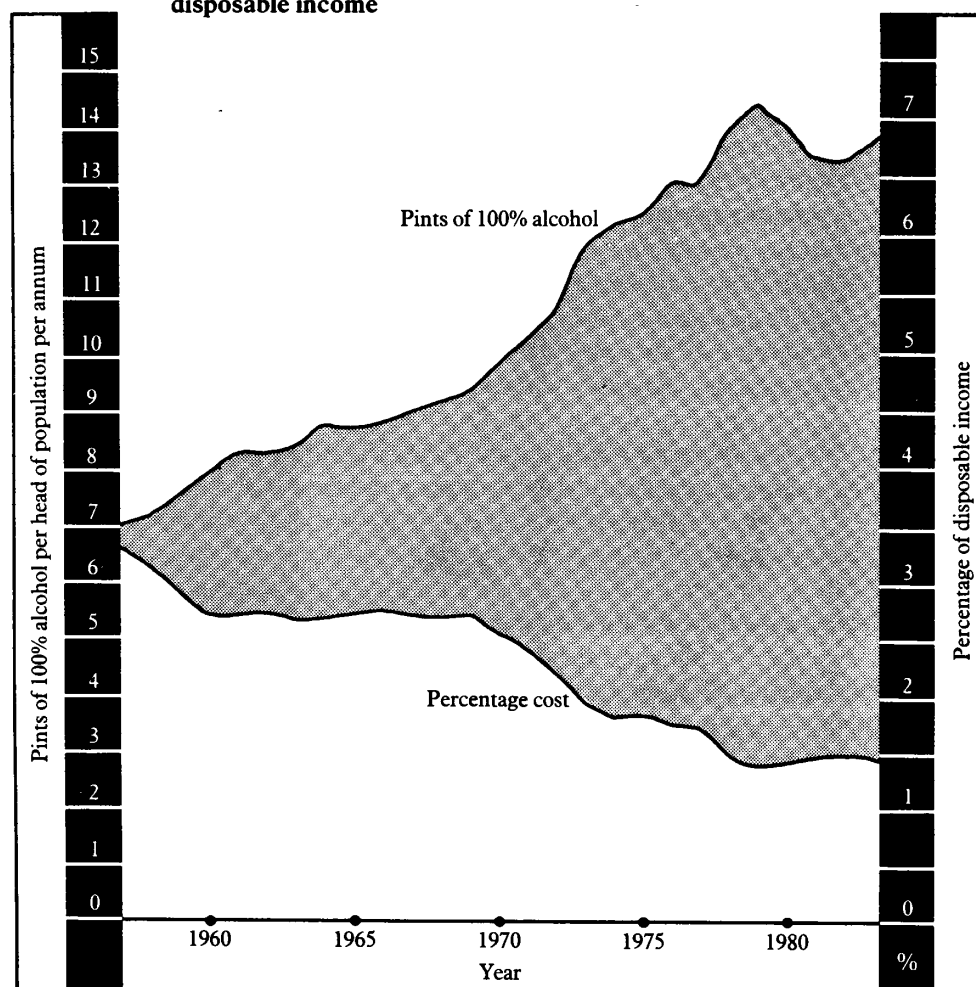
Price of alcohol

In the UK, and in many other affluent countries, the best-documented influence on per capita consumption is consumer purchasing power. Alcohol consumption increases with rising prosperity (as in the 1960s), and falls during economic recession – as evidenced in the UK between 1979 and 1982 when unemployment rose sharply. The real price of alcohol (in terms of disposable income) is also a key determinant of per capita consumption.^{89, 90}

The price of alcohol has halved relative to disposable income, and consumption doubled, in the two decades from 1960 (see Figure 23). In 1964 it took a manual worker six hours of work to earn the price of a bottle of whisky. Increases in disposable income over the next two decades meant that it took one-third of this time to earn the price of an equivalent bottle in 1984. As a reduction in disposable income is clearly undesirable, the best documented means of reducing alcohol-related damage would be to increase the real price of alcohol beyond that of inflation. Scottish research has shown that the real increase in the price of beer, which occurred in the March 1981

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Figure 23 Alcohol consumption and its relationship to price and disposable income



Source: Scottish Health Education Coordinating Committee. Health education in the prevention of alcohol-related disease. Edinburgh, SHEEC, 1985.

budget, resulted in a significant decrease in per capita consumption in a study representative of the community (although 20 per cent of this decline was attributable to unemployment).⁹¹ The research also showed that reductions in consumption occurred among heavy *and* moderate drinkers as well as lighter drinkers.

From the behaviour of the alcohol market, economists have attempted to predict the sensitivity (or elasticity) of consumption to price and income changes. Although findings vary, it is generally agreed that elasticity varies with different kinds of alcohol and that beer consumption is less sensitive than that of wine or spirits.⁹² The Central Statistical Office estimates that one per cent increase in the real price of alcohol will reduce per capita consumption of spirits by

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an estimated 1.6 per cent, but of beer by only 0.2 per cent.

Although independent economic analyses have not been able to show whether alcohol advertising increases total consumption, it would be naive to assume that the £200 million spent annually on the promotion of alcohol has no cumulative effect at all. The alcohol industry currently spends at least 100 times as much in promoting drinking as is spent on health education to advocate sensible drinking. The alcohol industry argues that advertising informs the consumer, yet in practice there is little information relevant to health on its products, and none at all in its advertisements. We need to know more about the role alcohol promotion plays in reinforcing a social climate that encourages heavy drinking and whether the images presented undermine the consumer's ability to make healthy choices. Moreover, the relative contribution that glamorised TV images of drinking might make is unknown. A detailed analysis of the portrayal of alcohol on TV showed that seven out of ten fictional characters were portrayed drinking. The dangers of drinking were rarely emphasised, and alcohol was mostly portrayed as a glamorous social lubricant.⁹³

Education about alcohol

Beliefs in the ability of isolated public education campaigns to change drinking patterns have been shown to be unrealistic. The most effective educational strategies are those which are linked to legislation, and preferably to a comprehensive national strategy to reduce alcohol consumption.⁹⁴ Alcohol education continues to receive a low priority in policy and resource terms in the UK. There is a need for a sustained national effort to educate the community about the sensible use of alcohol. A national survey conducted by the HEC in 1985⁹⁵ and subsequent research show that the public is ill-informed about alcohol: a majority thought it only harmed those who were 'dependent', and most did not understand that one standard unit of beer was no different from one unit of whisky or wine.

The need for better education for doctors is emphasised in research which shows uncertainty among GPs about what constitutes safe drinking.^{96, 97} Evaluations of SHEG and HEC's earlier campaigns in Scotland and north east England over the last decade confirm that mass media initiatives increased awareness of the problem, but the response was short-lived and had no demonstrable effect on behaviour.⁹⁸ The north east campaign resulted in a serious oversaturation of the alcohol treatment services.⁹⁹ A more recent HEA initiative *Understanding Alcohol* in south west England, aimed to progress through local cooperation and long-term planning rather than exclusive use of the mass media. After overcoming great difficulties, it ended up with an impressive record at regional and district level. But there was some concern that many of the initiatives

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of the project would not be able to survive after central funding ended.¹⁰⁰

The best researched education initiatives so far have been directed at the minority of people who are dependent on alcohol. Alcohol consumption can be reduced in about 60 per cent of clients, and one session of simple counselling may be as effective as longer term outpatient treatment programmes.¹⁰¹ With the exception of seriously dependent drinkers, total abstinence is neither a necessary nor appropriate goal for the majority who are able to limit themselves to sensible long-term drinking.¹⁰² A randomised trial showed that community-based day centre facilities were more effective in reducing alcohol consumption than both hospital and outpatient treatment.¹⁰³

Evidence concerning GPs and alcohol education is also encouraging.¹⁰⁴ A randomised controlled trial to determine the effectiveness of advice from GPs (who had received special training) to heavy drinkers, found that alcohol consumption was reduced significantly in the experimental group compared with controls.¹⁰⁵

The availability of alcohol

The availability of alcohol is largely governed by controls on the number and type of outlets selling alcohol, their hours of licensing, together with a minimum legal age for drinking, which is 18 throughout the UK. Relaxation of the licensing laws in the 1960s led to a massive proliferation in the number of outlets which sold alcohol. In 1986 there were over 193,000 – representing a more than 40 per cent increase since 1973. While these increases were accompanied by increases in per capita consumption (see page 63), the specific effects of licensing laws on consumption patterns are difficult to interpret. Experience worldwide suggests that dramatic relaxation (which occurred in Finland in 1969) or reduction in the number of outlets and/or licensing hours (which occurred in the UK in 1915) is followed by correspondingly dramatic increases (or decreases) in alcohol consumption (and damage). Against a background of many other influential socioeconomic factors it is much harder to assess the impact of minor changes in licensing, such as the small extension in licensing hours which occurred in Scotland in 1976 (and subsequently in England). Although there has been no adequately controlled research on the impact of the Scottish changes on per capita alcohol consumption, overall trends in alcohol-related damage have been broadly similar for men and women in both Scotland and England and Wales.¹⁰⁶ The more recent relaxation of licensing laws in England and Wales did not take health factors into account. There is no evidence either from Scotland, or elsewhere in the world, that relaxation of licensing laws can confer any benefit to health. Indeed, recent evidence from the USA suggests the opposite may be true.¹⁰⁷

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Drinking among young people

A reduction in the short-term, often fatal, consequences of alcohol misuse among the young, may be achieved not so much by reducing total consumption as by changes in the environments which promote inappropriate drinking. There is clearly potential for joint initiatives between the police and publicans to enforce the existing licensing laws governing under-age drinking. A joint educational and enforcement initiative between police and publicans in Devonshire demonstrated a significant reduction (nearly 30 per cent) in alcohol-related convictions over the period (and area) that the policy operated.¹⁰⁸ In the light of research which shows that the clustering of pubs in inner cities may contribute to alcohol-related crime among under 21s,¹⁰⁹ there is further scope for responsible use of licensing, together with efficient public transport services, in preventing alcohol-related damage among young people.

While the pub is a fundamental part of social life in both urban and rural communities, alcohol need not be seen as the only way to ensure social cohesion. The provision of a wider variety of cheap non-alcoholic drinks (which at present are often overpriced), together with a range of snacks, may relieve some of the traditional pressure on pub-goers to drink alcohol exclusively.

Alcohol: progress in the UK

Until recently, there has been little government action on alcohol.¹¹⁰ It was largely confined to a preliminary statement in 1981¹¹¹ and sporadic initiatives on drinking and driving (see Chapter 6). Alcohol taxation, which raises over £7.3 billion annually in government revenue, has not explicitly been used to control consumption with only sporadic budgetary price increases (such as in 1991), and government funding for public education on alcohol has remained small in real terms. The total alcohol education budget for SHEG and HEA has been very much less than that spent on mass media campaigns against illicit drugs. Limited funds have permitted only infrequent public education and information campaigns on alcohol over the years.

In 1987, the Ministerial Group on Alcohol Misuse was set up, initially comprising one minister and one official from each of the relevant government departments, chaired by the Deputy Prime Minister. Since its establishment, the Group has undertaken some promising initiatives, like strengthening the law on under-age drinking, improving the codes of practice governing alcohol advertising, toughening the measures against drivers who drink and issuing central guidance on cooperation at local level on alcohol misuse. However, all these measures can be considered relatively modest in relation to the action required for the size of the problem. By 1990, the group no longer existed. Instead there was a routine Cabinet Committee, still chaired by the Deputy Prime Minister, but subject

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to normal Cabinet Committee secrecy.

The alcohol misuse field has been characterised by too many ineffective agencies with overlapping functions. A DHSS/NCVO committee which reviewed their functions in England and Wales in 1982 recommended that existing agencies be amalgamated into one national agency for help and support services, that HEC/HEA and SHEG deal with public education, and that a new, independent, campaigning agency be established.¹¹² In the event, there are still several agencies in the field, some receiving government funding, which means that they may not be fully independent.

The potential for promoting sensible alcohol policies at a local level is extensive¹¹³ but has been slow to develop, especially in primary care.¹¹⁴ A review of action by health education units in England and Wales suggests that alcohol is given priority by a minority, with up to 17 per cent having designated a health education officer with specific responsibility for alcohol as well as a form of community alcohol control team.¹¹⁵ Progress in Scotland has been in many sectors. In the two years following the SHECC report on alcohol, a series of conferences and seminars had been organised for multidisciplinary audiences involving health boards, local authorities as well as contacts with GPs, local councillors, trades unions and the judiciary.

Alcohol: progress in other countries

While culture and history make it difficult to translate experience from other countries directly to the UK, the relaxation of previous controls on alcohol and the increase in consumption that took place between the mid-1950s and mid-1970s was a world-wide phenomenon which has led, in the last decade, to more effective action being taken in countries other than the UK. There have been extensive health education programmes in France together with some pressure on the wine industry to convert vineyards to other crops. Alcohol consumption fell by 17 per cent between 1977 and 1984. In the USA, constituent states have been compelled by federal government to raise the legal minimum age for drinking to curb drunken driving by teenagers. In the USSR, extensive fiscal, licensing and production restrictions introduced in 1986 are said to have reduced per capita consumption by 38 per cent. A multi-faceted programme in Sweden which included fiscal and educational measures together with a ban on alcohol advertising, a reduction in the alcohol content of beer, and restrictions on licensing hours, was associated with a 17 per cent fall in per capita consumption between 1977 and 1982, together with nearly a 30 per cent reduction in death rates from cirrhosis of the liver.¹¹⁶ The UK government, by contrast, has taken limited action on drinking and driving and allowed further relaxation in the licensing laws in England. Moreover, the Chancellor did not increase the excise duty on any alcoholic beverage from 1986 to 1989, allowing

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the real price of alcohol to continue falling. The 1990 and 1991 budgets did increase excise duties, slightly more than inflation. Of immediate concern in the future are the EC proposals for tax harmonisation in 1992 which, if implemented, will result in a predicted 36 per cent increase in per capita alcohol consumption.

Road use The promotion of safe road use, and the prevention of unnecessary deaths on the roads, is not always seen as a 'lifestyle' issue. But the cars we drive, the way we learn to use the road and the influence transport policy has on us forms part of our 'lifestyle' and can adversely affect our health, as do cigarettes, diet and alcohol. In Chapter 6 we examined the major determinants of road safety and the progress made in reducing the death toll on the roads over the last decade. Here we assess those policies which have contributed, or could contribute, towards further improvements.

Seat belts – lifesaving or risk compensation? We have already shown in Chapter 6 how seat belt use increased following the legislation and was followed by a dramatic fall in deaths to front seat car (and light van) occupants. It has been argued that while the legislation has saved the lives of front seat car occupants, it may have encouraged more dangerous driving – known as 'risk compensation' – and resulted in increases in casualties among other road users.¹¹⁷ Although there is a good reason to believe that 'risk compensation' does indeed occur when drivers have *direct feedback*, such as in the case of improved brakes or tyres, nearly all the available evidence suggests that it does not take place among seat belt users.^{118, 119} First, there is no clear upward trend in casualties among other road users such as pedestrians or cyclists. Indeed, between 1984 and 1988 they fell seven per cent and 16 per cent respectively. Second, observational studies show, if anything, that people who wear seat belts – voluntarily or compulsorily – are inclined to take fewer rather than greater risks on the road.¹²⁰ Third, a major DHSS case-control study in 15 hospitals throughout the UK showed that the legislation resulted in a 25 per cent reduction in casualties and a 20 per cent reduction in hospital admissions in the year following the seat belt legislation.¹²¹

Motorcyclists The 1981 Transport Act imposed new regulations on motorcyclists, limiting provisional licences to two years and requiring a more stringent, two-part driving test. The maximum allowable engine size for learners was also reduced from 250 cc to 125 cc. After reaching a peak in 1983, the number of motorcyclists killed or seriously injured has fallen by 44 per cent, to a figure of 13,000 by 1988. The number of 17–19 year old motorcycle riders who became involved in accidents fell by 60 per cent between 1982 and 1988.

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Local road safety measures

The reorganisation of local authorities in 1974 saw the transfer of responsibility for road safety in residential areas to local authorities, most of which have since developed accident investigation and prevention teams. Their road safety officers are now responsible for the educational aspects of road safety. Although national figures cannot reflect local initiatives, individual authorities have demonstrated substantial reductions in casualties at local accident blackspots.¹²² Low cost measures such as the redesign of junctions, improvements in lights and reduced speed limits were implemented by the former GLC at 1,500 sites, and resulted in an estimated saving of 3,000 accidents per year.¹²³

Drinking and driving

The 1967 Road Safety Act introduced the 'breathalyser' and made it illegal to drive a motor vehicle with a blood alcohol level over 80 mg per cent (milligrams per 100 millilitres). In the first year when public awareness and publicity surrounding the Act was high, casualties fell by 11 per cent and road deaths by 15 per cent.¹²⁴ The Department of Transport has estimated that the legislation saved 5,000 lives and prevented 200,000 road casualties in its first seven years of operation. But convictions for drunken driving rose in the mid-1970s, and by 1980 they were ten times the 1967 levels in England and Wales, and twice the 1967 levels in Scotland.¹²⁵ Although part of this rise may be attributable to increased police enforcement, there is no good evidence that this has occurred – except sporadically. The rise in drunken driving offences led the government to set up the Blennerhassett committee which concluded in 1976 that it was not so much that the Act was ineffective, but that it was not being properly enforced.¹²⁶ Its recommendations formed the basis for part of the 1981 Transport Act designed to improve enforcement of the 1967 Act and included the introduction of evidential breath testing at the roadside. In 1990, stiffer penalties for drinking and driving were also introduced.

Preliminary analysis by the Department of Transport claims that evidential breath testing, together with more national publicity, has resulted in a reduction in road casualties in non-built up areas. Returns from coroners for 1988 have shown 23 per cent of motorcycle riders and 20 per cent of car drivers killed were over the legal blood alcohol limit – the lowest proportion for a decade.¹²⁷

Education and training in road safety

The Department of Transport spent £3.6 million on promoting road safety in 1987 – about 0.06 per cent of total transport spending in England. Public education initiatives have been fragmented with isolated campaigns directed at individual road user groups. The Department of Transport acknowledges the difficulty of evaluating

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the effect of an educational initiative in isolation from other measures, but a controlled experiment on a drink and driving publicity initiative during Christmas 1982 was not able to demonstrate any significant effect.¹²⁸ The 1987 campaign may possibly have contributed to falls in the 1987 casualty figures for drink-drive accidents.

There is debate over the effect of education and training programmes for young people. While there is evidence that teaching primary school children the Green Cross Code has resulted in a reduction in childhood casualties, this effect is not sustainable.¹²⁹ Similarly, the National Cycling Proficiency Scheme has been demonstrated to improve cycling performance, but has had no demonstrable effect on casualties.¹³⁰ Of greater concern is the observation that those who are trained in motorcycle proficiency are *more* likely to be involved in accidents than those who are not.¹³¹

Maximising road safety – could we do better?

The TRRL has estimated that if existing practices are pursued, accidents could be reduced by one-sixth in the ten years between 1982–92. If new, effective, measures were introduced, accidents could be reduced by an estimated one-third.¹³²

The environment

Effective road safety policies require better interdepartmental coordination at national and local levels.¹³³ Road safety and better planned amenities – especially for pedestrians – are an integral part of transport policy in the Netherlands and Japan whose safety record for pedestrians is much better than in the UK.¹³⁴

As trains and buses offer the demonstrably safest means of travel, more effort might usefully be directed towards ensuring that public transport is not allowed to decline any further. There is some evidence that the operation of the cheaper fare systems by the GLC and the price freeze in south Yorkshire, resulted in an increased use of public transport in those areas – at a time of declining national use – and an associated reduction in road casualties.¹³⁵ But government's overall policies for transport involve further reductions in subsidies for British Rail, and the recent deregulation of the bus services.

Although 64 per cent of households own cars, the principle of controls on access and speed in the interests of pedestrian safety is widely accepted. TRRL analysis has shown that the deliberate provision of separate cycleways leading to major amenities, together with a pedestrian-centred policy like the Dutch *woonerven* (where pedestrians have greater rights than motorised transport) would result in better road safety records among both pedestrians and cyclists in the UK.¹³⁶

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The vehicles While car design has improved greatly, much remains to be achieved. Research has shown that design measures such as a reinforced passenger box, compulsory use of rear seat belts by all passengers, speed governors, and modification of seat belts and the steering column might further minimise passenger – and in some cases pedestrian – injuries.^{137, 138}

The road users Most technical or environmental measures need educational reinforcement to promote maximal effectiveness. Effective, voluntary measures such as the use of helmets for cyclists, are a good example of the need to improve compliance. The small budget and the current isolation of national and local education and training initiatives from those with experience in the production and use of educational materials is illogical. This is especially true of the lack of integration of the drink and driving initiatives into the HEA's overall alcohol education programme. In addition to education, the most effective way of reducing the alcohol-associated injury on the roads is to increase the probability of detection of alcohol-related offences. This has been achieved in Australia through the introduction of frequent or 'random' breath testing in New South Wales which has been shown to be both effective and acceptable to the public.^{139, 140} Such action is strongly supported by the medical profession, the police and the public in the UK but has been rejected by the government.

The consequences of what might be perceived as increased police interference in personal liberty might be overcome if the police were to adopt an educational rather than authoritarian approach. In New South Wales, police spend half an hour of each shift engaged in random breath testing. Random breath testing was recommended by the former government Think Tank, the Central Policy Review Staff,¹⁴¹ the Department of Transport's Blennerhassett committee,¹⁴² the BMA,¹⁴³ and the Royal College of Psychiatrists.¹⁴⁴ In 1982, the New South Wales government further reduced the legal alcohol limit from 80 to 20 mg per cent for 'novice drivers' – that is, those with a full driving licence less than one year old. Preliminary results suggest that this has been effective in reducing road accidents among young people.¹⁴⁵

Sexual and reproductive practices The tendency to consider the prevention of one disease in isolation from others has hitherto prevented us from seeing the strands of evidence which might unify rather than isolate policies on the prevention of cervical cancer and sexually transmitted disease with those concerning the prevention of the spread of HIV/AIDS. We return to this discussion in Chapter 13, where we look further at sexuality and its relationship to family planning. Such an approach might also

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minimise the waste of scarce resources, as well as highlight the opportunities for *primary* as well as secondary *prevention* of diseases such as cervical cancer.

Primary prevention of sexually transmitted diseases

Education is not the only available means for the prevention of the spread of HIV/AIDS. The national strategy for limiting the spread of HIV/AIDS already involves a combination of educational and public health measures aimed at the screening of blood and blood products and limiting intravenous drug use and needle-sharing (see Chapter 13). There are two broad approaches which are likely to have an impact on sexually transmitted disease: a reduction in the number of sexual partners and the promotion of 'safer sex' – that is, the use of barrier methods of contraception together with the avoidance of sexual practices which involve the exchange of infected body fluids. The value of these approaches will depend on their effectiveness as well as their feasibility, and on the ethics of advocating the required changes. From the evidence so far, we know that changes in sexual behaviour would need to be very substantial in order to influence disease trends. Celibacy is not a feasible option but reduction in the number of sexual partners and increased use of barrier methods of contraception are realistic objectives.

Research in the field of sexual behaviour is difficult to conduct and there are still very few studies of the effectiveness of barrier contraception in the prevention of HIV infection and AIDS. Laboratory experiments have shown that the virus does not leak through the major, commercially available, condoms¹⁴⁶ and that the virus may be inactivated by spermicides containing nonoxynol-9¹⁴⁷, but this evidence is limited as it is derived from the laboratory and not life. Condom use is associated with a lower risk of cervical pre-cancer¹⁴⁸ and of other STDs that are caused by viruses (for example, genital herpes) and bacteria (for example, gonorrhoea).¹⁴⁹

Some small studies among prostitutes and the sexual partners of AIDS sufferers suggest that condom use reduces the risk of becoming HIV positive,¹⁵⁰ but the dangers of condom use for anal intercourse are likely to be considerable as many condom brands currently available have been known to burst and the risk of infection is high in those who practise it.¹⁵¹ There is little information on the effect of other barrier methods of contraception, although one study has shown that the risk of cervical cancer among diaphragm users is 25 per cent of that among women who use other forms of contraception – even when sexual behaviour is taken into account.¹⁵²

It has been argued that it may not be possible to achieve major changes in patterns of contraceptive use, especially now that the pill is the predominant form of contraception among young heterosexuals. However, methods of contraception have changed relatively

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quickly over the last two decades, and condoms were the most popular form of contraception until the early 1970s when the pill took over (see Chapter 13). Weighed against this is considerable evidence that condoms are still relatively unpopular and disliked.^{153, 154} Moreover, the incentive to use condoms to avoid pregnancy is not relevant for homosexual men, and diaphragms have never been used by more than a minority of sexually active women. Recent research has suggested that future mass media and other educational initiatives should concentrate on generating a positive, caring image for condoms rather than on focussing on creating anxiety about AIDS.¹⁵⁵ Such efforts have already been made in New Zealand and Australia where condoms have been promoted as 'parachutes' and 'lifesavers'.

Evidence is also gradually accumulating that a reduction in risky sexual practices, as well as in the number of sexual partners, is an achievable goal among homosexual men. Prospective studies in the US^{156, 157} have shown that a reduction in transmission of the virus is associated with reductions in the number of sexual partners, in anal intercourse, and in condom use. British studies among homosexual men attending STD clinics have shown that the rate of rise of HIV infection in this group has slowed down since 1984, and that this has also been associated with a significant fall in diagnosis rates for gonorrhoea.¹⁵⁸ These changes have been much less impressive among heterosexual men so far.^{159, 160} What we do not yet know is whether changes in sexual practices are feasible among those who may not perceive themselves to be at risk, and who practise serial monogamy. In the USA, where the epidemic is three years further advanced than in the UK, many have attributed the slowing down in the exponential growth of the epidemic to changes in sexual behaviour. But this conclusion may be premature, as it could equally be explained by the dynamics of HIV infection.¹⁶¹

Secondary prevention: screening for cervical cancer

Screening to detect pre-cancerous stages of the disease is a method of proven value in reducing the incidence and mortality from cervical cancer, as well as of avoiding the trauma of radical surgery. Population screening programmes – when efficiently organised – have been shown to reduce both the incidence and mortality for cervical cancer. The incidence of invasive cancer has fallen by up to 50 per cent in all the Scandinavian countries which organised screening programmes.¹⁶² Although it is more than 25 years since the cervical screening programme was introduced in the UK, it has so far failed to reduce the incidence and mortality from cervical cancer in a substantial way.¹⁶³⁻¹⁶⁵ There were nearly five million cervical smears performed in 1987, representing an increase of 62 per cent between 1976 and 1987. This means, however, that the population cover was only about 20 per cent of women aged 15 and over. In parts of the

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country such as Aberdeen and Dundee, where the screening system is efficiently organised and gives reasonable population cover, the incidence of the disease has fallen substantially.^{166, 167}

National results are disappointing, largely because the screening programme has been organised in a haphazard way, with fragmented responsibility for its implementation. National estimates for the proportion of women who are screened in each age group have been late in coming; the national, computerised call-recall system has only recently been established, and it is not fully operational in all health districts. We know from individual studies that over half of the smears are taken from women under 35, and that 80 per cent of women who have invasive cervical cancer have never had a smear. We also know that women are poorly informed about the purpose and value of cervical screening.¹⁶⁸

Until the new GP contract came into place in 1990, GPs were paid to perform smears on individual women over 35 years of age every five years, and the evidence suggests that this has had little effect on the distribution of screening, which remains substantially concentrated on younger women. Some of the continuing fall in incidence and mortality that occurred in women aged 35–54 during the 1970s is probably attributable to screening. It has been estimated that in the 15 years prior to 1978, screening may have prevented up to 25 per cent of potentially invasive disease.¹⁶⁹

Effective screening programmes have the following identifiable features in common.¹⁷⁰⁻¹⁷⁵

- They are organised with the explicit aim of reducing mortality from cervical cancer, and the aim is to cover *the whole adult female population*.
- There is a computerised call-recall system based on population registers, and women are followed up until they attend.
- One person has overall responsibility for coordination and liaison with the local service.
- Adequate resources are available for taking, examining and reporting on smears efficiently.
- Women have the option of being examined by a woman doctor.
- Women are informed of the value and function of a screening programme.
- There is a built-in monitoring system to assess efficiency and effectiveness.

Health authorities and general practice have gone some way towards implementing these recommendations. A national, computerised call/recall system is in place and the new GP contract offers financial incentives to achieve good population coverage, but it is too soon to assess the impact of these changes.

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Some recent research has suggested that there may be a more quickly invasive variant of cervical cancer in young women¹⁷⁶ which may warrant changes in both screening and referral policy. Overall trends however, do not support this view,¹⁷⁷ and it would be premature to change current policy.

Some claim that the cost of cervical screening is higher than can be justified.¹⁷⁸ Their argument is essentially that, at £10 per examination, we spend £30 million per year on screening in the UK, and the most that could be claimed is that it has saved about 100 lives per year. This works out at £300,000 per life saved. Others disagree with this estimated number of lives saved, suggesting that the present screening programme may now be preventing as many as 2,000 cases of invasive cancer per annum,¹⁷⁹ perhaps half of which would lead to death if not diagnosed until they were invasive.

If present resources were more effectively managed it is probable that the number of cancers prevented and number of lives saved would be substantially greater. Table 15 illustrates the potential effect of five-yearly, three-yearly or annual screening in England and Wales if 100 per cent of women were screened at the stated intervals and not more often. This suggests that our current resources are sufficient to prevent 2,000 more cases each year, perhaps saving 1,000

Table 15 Estimated potential effects of different screening policies for women aged 20–64, in England and Wales, assuming 100% acceptance of screening

Screening policy	Number of cancers per annum	Number of cancers prevented	Number of smears per annum*	Cost of smears per annum
No screening	4,600			
'opportunistic' system	2,700	1,900	3,400,000	£34,000,000
<i>5-yearly</i>				
ALL WOMEN aged 20–64	700	3,900	3,400,000	£34,000,000
<i>3-yearly</i>				
ALL WOMEN aged 20–64	400	4,200	5,500,000	£55,000,000
<i>Annually</i>				
ALL WOMEN aged 20–64	300	4,300	16,500,000	£165,000,000

*The estimates of number of smears allow for the fact that about 20 per cent of the workload is in non-routine tests on women who have had a previous abnormality.

Source: Smith A, Chamberlain J. Managing cervical screening. In: Institute of Health Service Management. Information Technology in Health Care. London, Kluwer Publications Ltd, 1987.

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more lives, than we were achieving with the opportunistic system.¹⁸⁰ What most escalates the cost of each case prevented and each life saved is the inefficient distribution of screening.

Thus the most immediate priority is to improve the distribution of present screening resources by the methods outlined earlier. Whether or not there should be a change from a five-yearly policy to a three-yearly policy is principally an economic issue. Table 15 shows that such a change would, if fully implemented, prevent an additional 300 cases per year (150 lives saved) at an additional cost of 2,200,000 smears, or somewhat over £22,000,000, giving a marginal value of nearly £75,000 per extra case prevented or £150,000 per extra life saved. Because these figures are based on the target of 100 per cent acceptance of the recommended screening policy throughout life, they can really only be used to illustrate the marginal cost-utility of changing the screening interval. Health authorities who have decided to put more money into cervical screening should consider using it more effectively in measures to increase acceptance rather than shortening the screening interval.

Sexually transmitted disease: progress in the UK

No attempt has yet been made to develop a coherent strategy that links the prevention of sexually transmitted disease with sex education and family planning policy. Nevertheless, substantial progress has been made both at national and local levels to link strategies to reduce the spread of HIV/AIDS with those aimed at minimising the use of intravenous drugs (see Chapter 13). In the UK most action in the field was initially undertaken by voluntary agencies such as the Terrence Higgins Trust, and later by the College of Health and many other organisations such as Body Positive. The UK government has responded to the need to develop a population-wide approach to HIV/AIDS. Public health measures such as screening of all blood donors and the heat treatment of clotting factor concentrates were implemented quickly. Other measures such as syringe exchange schemes (see Chapter 13) have been introduced, although no attempt has yet been made to make condoms more freely available outside family planning clinics, some STD clinics and some drug dependency and information centres.

In 1986, the government established an interministerial cabinet sub-committee to coordinate national action on HIV/AIDS (this has since been disbanded). In the same year, the first national press information campaign was launched. In November 1986, £20 million was allocated to develop mass media educational initiatives on TV and radio as well as a leaflet entitled *AIDS: Don't Die of Ignorance* which was sent to every household. Collaboration with TV culminated in a TV AIDS Week in which all television channels participated. Since then, £14.5 million has been given to the MRC to

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support research into the development of a vaccine together with £3 million to WHO to support international efforts to combat AIDS. In late 1986, the DHSS established a National Advisory (telephone) Service on AIDS to support BBC radio initiatives and has increased its support to voluntary agencies in the field as well as establishing a new AIDS Trust in 1987, whose aim is to coordinate national and local action. The Health Education Authority has since taken over the management of the government's public education campaign on HIV/AIDS for the whole UK.

Monitoring of knowledge, attitudes and practices related to HIV/AIDS between February 1986 and 1987 showed a high awareness of the government's AIDS campaign and a high level of knowledge about AIDS. There was also evidence, in four waves of market research during the period, that homosexual men, but not heterosexuals, engaged in risky sexual practices less frequently and had reduced the number of their sexual partners.¹⁸¹ This trend had already begun before the government campaign, and credit must thus also be given to other educational initiatives, both by the media and by voluntary agencies and health professionals at STD clinics. Other research in STD clinics showed that successive phases of the government campaign resulted in waves of anxiety and major increases in attendance rates and requests for HIV counselling and screening.^{182, 183} While counselling and voluntary HIV testing is an essential part of the STD clinic service, little account has yet been taken of whether it is helpful to generate 'panic' testing and whether sufficient resources have been allocated to STD clinics to deal with the increased workload. Other qualitative research based on SHEG's work in Scotland has demonstrated the need to re-emphasise the dangers of transmission to heterosexuals and to correct misconceptions about the transmission of HIV.¹⁸⁴

It is beyond the scope of this report to describe in detail the many local initiatives that have been taken by both statutory and voluntary agencies. Nevertheless, we have been concerned about the relative imbalance of resources devoted by government to mass media campaigns at the expense of support that is needed by health education departments for longer term training and educational activities. Attention has also been drawn to this in the Social Services Committee's 1987 report on AIDS.¹⁸⁵ Local authorities have led many positive approaches by appointing special HIV/AIDS prevention officers, and by February 1987, 88 per cent of DHAs had also set up groups to coordinate local AIDS strategies, with nearly half having nominated individual AIDS coordinators.¹⁸⁶ This provision is now universal, as regional and district health authorities have been required to have such a person, as have Scottish health boards.

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Limiting HIV/AIDS: the future

It would be premature to judge the effectiveness of efforts to limit the spread of HIV/AIDS, not least because developments in the vaccine and treatment fields, as well as changes in the epidemic itself, may profoundly affect the future impact of HIV disease on society. Current knowledge suggests that the problem of AIDS will persist for at least another half a century. The current challenge is to limit further spread of the virus among intravenous drug users and heterosexuals. We cannot assume that measures which have begun to show results among homosexual men will be equally relevant for other groups, where sexual norms may be very different, and among groups such as intravenous drug users who may prove more difficult to reach. Heterosexuals may perceive themselves to be more at risk if the message is widened to include the prevention of other sexually transmitted diseases.

Breast cancer – reducing the death toll

We have already seen in Chapter 4 that breast cancer may be related to reproductive experience and that there is a possible, but as yet incompletely substantiated, association with obesity and a high fat, low fibre diet.

There are few realistic policy options for the primary prevention of breast cancer. It would be inappropriate to attempt to influence reproductive practices, and it is premature to make any recommendations concerning the use of oral contraception. The main policy option for the immediate future rests with early detection and prompt treatment. There is now good international evidence upon which a national mammographic breast screening programme can be based.¹⁸⁷

- There is no convincing evidence that self examination or screening by clinical examination of the breasts can reduce mortality from breast cancer.
- Screening using an x-ray technique known as mammography can reduce mortality among women aged 50–64 (in some studies up to 74) up to one-third. A fully implemented UK mammography service might be expected to save up to 2,000 lives per year among women over 50.
- Screening appears to be acceptable to women, and attendance rates can be maintained at above 60 per cent, and in favourable conditions up to 80 per cent.
- The radiation risk associated with the current techniques of mammography is negligible compared with its benefits although there are no estimates of its cumulative effects. Mammography is a highly sensitive technique that can accurately detect up to 90 per cent of breast cancers. Recent developments have greatly reduced the proportion of false positives.

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- There remain a number of unresolved issues which need further research, such as how often women should be screened, and the psychological impact of screening women.

On the basis of the available evidence a report commissioned by the DHSS (the Forrest report) recommended that a national programme should be gradually established throughout the UK in which women aged 50–64 should be screened every three years, with an eventual possible extension to include older women.¹⁸⁸ The estimated annual cost of such a programme would be £50 million at 1985–86 prices. The Forrest report identified the following essential components of a programme.

- It would require 120 new screening units to be established, each with access to a multidisciplinary team skilled in the diagnosis and management of breast disease. Each unit should serve a population of about 50,000 women covering about two health districts or boards.
- A specific person – probably a public health physician – should be designated as responsible for managing the service.
- There should be an up-to-date, preferably computerised, record system which is able to identify, invite and recall all women eligible for screening. This would normally be the FHSA register or its Scottish equivalent.
- Every eligible woman should be sent a personal invitation to be screened from her GP.

The government accepted the recommendations of the Forrest report but has committed insufficient resources to support the programme, especially for information, education and counselling services. Preliminary data suggest that uptake rates are generally better than for cervical screening, but that the Forrest estimates of avoidable mortality may have been too optimistic.

8 Promoting equal opportunities for health

Medicine is a social science, and politics nothing but medicine on a grand scale.

RUDOLPH VIRCHOW

Introduction In our analysis so far, we have shown that death rates have improved at all ages but that our international position would be much improved by more effective measures to prevent coronary heart disease and cancers. We have also pointed to the continuing social disparities in death rates at every stage in life, and specifically for coronary heart disease and lung cancer. In this chapter we consider inequalities in health across the whole range of disease, their determinants and their trends over the last decade. We consider inequality in health from a number of different standpoints including social class, education, housing tenure and geography, as well as gender and ethnic group. We conclude with an assessment of past policy, and implications of the findings for current policies to promote healthier lifestyles.

Social class and health Almost all health indicators confirm the association between the prevalence of ill health and poor social and economic circumstances.^{1,2} In 1981, the death rate was twice as high in the lowest social classes as in the highest (see Table 16). The expectation of life for a child with parents in social class V is over seven years shorter than for a child whose parents are in a social class I.

While there is still an incomplete understanding of this associ-

Table 16 Social class differences in death rates among adults in Great Britain (Standardised mortality ratios¹)

Social Class	1959-63 ²		1970-2 ²		1979-80 & 1982-83 ³	
	Men	Married Women ⁴	Men	Married Women ⁴	Men	Married Women ⁴
I Professional	76	77	77	82	66	75
II Intermediate	81	83	81	87	76	83
III N Skilled non-manual	100	103	104	109	106	107
III M Skilled manual						
IV Semi-skilled	103	105	114	119	129	133
V Unskilled	143 } ¹¹⁵	141 } ¹¹⁶	137 } ¹²¹	135 } ¹²⁴		
All	100	100	100	100	100	100

¹ SMRs express age-adjusted death rates as a percentage of the average (which = 100) at each date.

² England and Wales, ages 15-64 years.

³ Great Britain, age 20-64, 20-59 for married women.

⁴ Married women are classified by their husband's occupations

Source: OPCS Decennial supplements on occupational mortality. London, HMSO, 1971, 1978, 1986.

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ation, recent research has improved the position.

The relative disadvantage of those in the classes comprising the manual workers (classes V, IV and III manual) may be most simply expressed by comparing the actual number of deaths in these classes with the number that would have occurred if they had enjoyed the death rates prevailing among the largely non-manual workers (classes I, II and III non-manual). In 1981:

- men in the manual worker classes had death rates 45 per cent higher than men in the non-manual classes, and women had death rates 43 per cent higher;
- the excess mortality associated with being in the manual worker classes was greater than the total number of deaths from stroke, infectious disease, accidents, lung cancer and other respiratory diseases combined;
- if people in the manual worker classes had enjoyed the same death rates as non-manual classes there would have been 42,000 fewer deaths during the year in the age-range 16–74;
- if mortality at all ages is also considered, the total excess mortality associated with manual work social classes amounts to the equivalent of a major air crash or shipwreck every day.

What is especially striking is that these socioeconomic differences in mortality experience are not confined to a few diseases in which an excess vulnerability might be associated with specific occupational or social factors. The association between social deprivation and disease is broadly based. Of the 66 'major list' causes of death among men, 62 were more common among social classes IV and V (combined) than among all other men in 1981.³ Of the 70 major causes of death among women, 64 were more common among women married to men in social classes IV and V.⁴

Trends in health inequalities

Social class differences in death rates have widened almost continuously since 1951.⁵⁻⁸ While overall death rates have fallen over this period (see Chapter 2) the death rates in the non-manual classes have declined more than those in the manual classes (see Table 16). If this increased social class inequality is expressed in terms of the proportion of deaths among men and women that would need to be redistributed in order to equalise death rates, then that proportion has doubled since the second world war.⁹

A reduction in health inequalities in postneonatal mortality occurred during the 1970s (see Chapter 2). It was associated with a disproportionate reduction in the number of births in the manual classes during that period. Measuring inequality across *all* classes, however, rather than simply comparing extremes, suggests that this improvement has not continued since the late 1970s.

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Inequalities in the mortality experience of the social classes has persisted – and probably increased – at a time when general variation in the life-span has actually decreased.¹⁰ This reduced variation in life-span is predominantly attributable to a reduction in the importance of those causes of death that operate especially at younger ages (the infections and accidents), and a consequently greater influence of diseases that characteristically kill in late middle life or in old age. It is the more remarkable that death rates from these diseases continue to show such striking social inequality.

The reliability of the data

Wide social class differences in death rates, and consequently in expectation of life, have been reported since 1921 when social class analysis of mortality was first published by the Registrar General. These statistics, which formed the basis of the Black report on *Inequalities in Health*, published by the DHSS in 1980,¹¹ have always provided the main (but not the only) evidence of socioeconomic differences in health.

The Black report concluded that the observed disparities in health were real, and had widened continuously among adults since 1951. *The Health Divide*,¹² which reviewed the evidence published since the Black report, came to the same conclusion in 1988 as did a further review of the evidence in 1990.¹³ Others have argued that the figures are heavily influenced by the gradual upward movement in the class distribution of the population, and by a particular tendency of the healthiest individuals to upward social mobility.

The question at the centre of this issue is whether people in the lower social classes are less healthy because they are socially deprived and living in poorer circumstances, or whether they have moved into the lower classes because they are less healthy. Recent research suggests that there is a tendency for social mobility to discriminate against the less healthy at both ends of life. Childhood hospitalisation¹⁴ and short stature¹⁵ prejudice a person's chances of upward social mobility, and chronic illness later in life limits job choices and opportunities. However, these factors make only minor contributions to the observed class differences in health, and there is no evidence that their influence has increased.¹⁶⁻¹⁹

Measures which take account of the changing proportion of the population in different classes show that this process is not responsible for the tendency for social class differences in death rates to widen. The possible influence of revisions to the way in which occupations are allocated to the social classes has been examined by restricting the analysis to those occupations which can be consistently identified throughout the time period. The findings do not suggest that this is the source of the apparent widening in mortality differentials.²⁰ Further analysis of the OPCS Longitudinal Study

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1971–85, showed that differences in mortality between social classes in 1971 and 1981 increased and that this increase was not simply the result of artefacts of cross-sectional methods.²¹

Inequalities in the experience of illness

Not only are minor ailments more common among the manual classes, there is also evidence that people in manual classes who already have cancers, or heart disease, are less likely to survive.²² We do not have comprehensive statistics on the occurrence of illness, but interesting data are collected from the General Household Survey which relies on people's own assessments of their health. Although people's assessments of their own health are influenced by varying norms and expectations between classes, reported rates of chronic illness and days of restricted activity in 1986 were twice as high in social class V as in social class I. Differences in the reporting of illnesses which temporarily restricted people's activity were smaller. Surveys of people's perception of their health (as opposed to their sickness) have shown that a sense of wellbeing is also related to social class.²³ While social class differences in height and obesity are small, four times as many people in social class V had no natural teeth, compared with social class I in England and Wales in 1980, and, in 1983, five year olds from manual backgrounds had twice as many decayed teeth as those from professional backgrounds (see Chapter 12).

Newer classifications of deprivation

The observed health gradient is not unique to the Registrar General's social classification. In the largest prospective study of its kind, the Longitudinal Study, analogous gradients can be shown if people are grouped according to whether they own or do not own a car, own or rent their home, or by the amount of education they have had (see Table 17).

These different classifications are not simply different ways of identifying the *same* group of disadvantaged people. If two or more classifications are used simultaneously, even larger differences in death rates are found.²⁴ Thus, while all men who have access to one or more cars have death rates 15 per cent below the average, those who were also owner-occupiers in 1971–81 had death rates that were 23 per cent below the average.²⁵

Because people are allocated to the Registrar General's classes on the basis of their occupation, the classification is more suitable for men of working age than it is for many women, the elderly, the unemployed or the economically inactive (most of whom are women). People who cannot be regarded, for statistical purposes, as attached to a wage earner – and are often the most socially deprived – are left out of the classification. For such groups, classifying by housing tenure, education or income offers an alternative way of

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assessing health disadvantage.

Gender, class and health inequality

Mortality patterns for women follow generally similar class gradients to those of men when married women are classified according to their husband's occupation. However, two-thirds of married women are now engaged in paid work of their own. The classification may therefore conceal important occupational influences on women's health. There appears to have been an increase in mortality rates from lung cancer and coronary heart disease among women married to manual workers²⁶ (see Chapters 3 and 4), and it is important to identify any contribution that women's own jobs may make to these trends. This is especially so in the light of evidence that when working women's smoking patterns are analysed by their *own* class, the familiar class gradient disappears and women in social class I have a smoking prevalence similar to that for classes IV and V.²⁷

The only major analysis of women's mortality rates in relation to their own individual jobs highlights the need for further research. Cancers of the reproductive system (breast, ovary and uterus) were more common among professional women than among those with

Table 17 Mortality of men and women in 1971-81 by housing tenure, education and access to cars (England and Wales)

Socioeconomic indicator	Standardised mortality ratios ¹	
	<i>Men</i> (Aged 15-64 at death)	<i>Women</i> (Aged 15-59 at death)
<i>Housing tenure</i> ²		
Owner occupied	84	83
Privately rented	109	106
Local authority	115	117
<i>Education</i> ³		
Degree	59	66
Non-degree higher qualification	80	78
A-levels only	91	80
None or not stated	103	102
<i>Access to cars</i> ²		
One or more cars	85	83
No access to a car	121	135

1 SMRs express age-adjusted mortality as a percentage of the average for deaths in England and Wales.

2 Aged 15 years and over in 1971.

3 Aged 18-70 in 1971.

Source: Goldblatt P. Longitudinal study: mortality and social organisation 1971-81, England and Wales. OPCS Series LS No 8. London, HMSO, 1990.

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manual jobs. Although this may reflect differences in childbearing patterns, the mortality patterns for some textile and ceramic workers and cleaners may be work-related.²⁸

Health patterns among women may be compared with those of men – irrespective of class. Women seem to have a health advantage over men because they live longer and have lower death rates than men at every stage in life. On the other hand, women are more likely than men to suffer many kinds of ill health – especially mental ill health²⁹ (see Chapter 10). They also suffer ill health from sex-specific problems, such as cervical and ovarian cancers which may, in part, explain why young women are heavier users of health services than men. The full explanation, however, is more complex.

While a classification of women by their own occupation would be useful, it would shed no light on that large minority of women (nearly 40 per cent) who fall into the 'economically inactive' group. We have yet to find a satisfactory social classification for women which takes into account both their domestic and paid work. This is likely to be fruitful as we already know that, among women, marital status is not associated with the same patterns of mental ill health as in men.

Health, class and ethnic minorities

There are few studies of the class distribution of health among different ethnic groups in the UK. Studies of immigrants (based on the census classification of people by country of birth) found that only Irish immigrants showed the same social class gradient in mortality as the rest of the population.³⁰ The absence of a social class mortality gradient among immigrants from Africa, the Caribbean, Europe or the Indian subcontinent, may reflect selection and the insulating effect of their previous culture and environment. Evidence from other countries shows that these influences tend to diminish with time, and there is evidence that this is already occurring within the Asian community in the UK. Although overall death rates for first generation immigrants from the Indian subcontinent lacked any clear social class gradient, stillbirths and infant mortality rates for subsequent generations of Asian children studied in Bradford showed a steep gradient.³¹

Geographical inequalities

Socioeconomic differences make an important contribution to the marked geographical differences in death rates found in the UK – especially the higher death rates in the north and in Scotland compared with the south and east of the country (see Table 18). There are climatic, cultural and other natural factors – such as water hardness – which may contribute to this geographical pattern, but we know little about how they may exert their effects. The observed regional differences in death rates cannot be accounted for in terms

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Table 18 Social class differences in mortality by region

Social classes	Standardised Mortality Ratios. Average for Great Britain in 1979-80 and 1982-83 = 100					
	All	I	II	IIIN	IIIM	IV+V
<i>Scotland</i>						
M	123	74	90	111	137	157
F	124	83	93	100	130	141
<i>North West</i>						
M	114	70	86	105	120	146
F	113	75	88	97	109	135
<i>North</i>						
M	114	72	83	106	115	152
F	112	65	83	92	103	136
<i>Yorkshire and Humberside</i>						
M	104	75	80	100	105	134
F	102	68	79	84	100	120
<i>Wales</i>						
M	104	68	81	99	101	144
F	105	69	81	87	95	125
<i>West Midlands</i>						
M	102	67	76	93	112	127
F	100	67	79	85	105	113
<i>East Midlands</i>						
M	95	69	75	96	92	122
F	95	70	74	80	93	110
<i>South East</i>						
M	89	61	69	87	97	112
F	90	67	72	84	92	100
<i>South West</i>						
M	87	63	70	85	93	108
F	87	66	71	80	88	96
<i>East Anglia</i>						
M	79	65	65	80	80	93
F	81	61	70	72	79	81

Men 20-64, Women 20-59. Married Women classified by husband's occupation, single women by own occupation; N = Non manual; M = Manual.

Source: Office of Population Censuses and Surveys. Occupational mortality 1979-80 and 1982-3, Series D S No 6. London, HMSO, 1986.

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of differences in the social class composition of the regional populations,³² for regional mortality differentials are still present after adjustment for social class. The socioeconomic differences between regions tend to reflect differences between the circumstances of people in broadly similar occupational class categories, rather than differences in the proportions of people in different classes. In the more prosperous south east, people in *each* occupational category tend to do better than their counterparts elsewhere (see Table 18).

At the other end of the geographical scale, health differences between areas as small as electoral wards do reflect the differences in class composition of residential neighbourhoods. Differences in death rates between electoral wards have been studied in several cities. Findings suggest that 60 to 80 per cent of the variation in death rates is related to socioeconomic circumstances.^{33,34}

Inequalities: the contribution of medical treatment

The proportion of deaths in the UK today which are regarded as potentially preventable through good medical treatment is small – about five per cent. While many other diseases are partly treatable, it is generally accepted that medical care has had little impact so far on the overall death rate from some of the most important diseases, such as cancers and heart disease (see Chapters 3 and 4).

Although the data are difficult to interpret, social class differences in the uptake of medical care per episode of illness seem to be small. There are significant differences in the use of *preventive* health services, ranging from child health clinics to cervical screening, although systematic data are not available. While these deficiencies clearly need to be remedied, they are unlikely to affect the death rate from most cancers and heart disease which make the biggest contribution to overall mortality differentials.

The relatively minor influence of medical treatment is confirmed by studies which show that geographical differences in the death rate for all causes combined are more closely related to socioeconomic factors than to differences in medical provision.³⁵ Variations in the death rate from diseases regarded as 'amenable' to medical care do not reflect differences in the standard of medical services.³⁶ Although class differences in medically preventable mortality have widened slightly more than differences in mortality not regarded as medically preventable,³⁷ there is no general relationship between the treatability of a disease and the size of the social class difference in its mortality. Social class inequalities in medical care are therefore not a major explanation of mortality differentials.

Hazards at work

The contribution made by occupational health hazards to social class differences in death rates is difficult to assess. With the exception of

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those who work in laboratories, non-manual workers are likely to have much lower rates of exposure to chemical and other physical hazards, and so suffer less from both their known and unknown health effects than manual workers. But the distribution of other risk factors, for instance work-related stress, is unknown. Not only are its various components likely to have different social distributions, but their consequences for health are still uncertain (see Chapter 14).

Only a small proportion of the total mortality resulting from exposure to occupational health hazards is currently identifiable. Even what should be regarded as an occupational risk is hard to define. For instance, if exercise is beneficial to health, should the increasing tendency to sedentary work be regarded as an occupational hazard?

One way of estimating the influence of occupation on mortality is to assume that social class is a good guide to the health risks associated with people's domestic circumstances and way of life, and then to compare the variation in death rates between occupations before and after standardising them for their social class. In a study using 25 occupational categories and six social classes, 80 per cent of the mortality variation seemed to be associated with 'way of life' (that is, with social class), and the rest with occupation.³⁸ Despite its flaws, this is currently the best guide we have.

Genetic factors and health

It has been suggested that innate characteristics of individuals may determine their occupation – and therefore their social class – and that these characteristics may also determine health or the capacity of individuals to protect their own and their children's health. It has further been suggested^{39,40} that these characteristics may be multifactorially inherited and that their distribution in each generation is an important determinant of social mobility, and of health, and therefore of an association between health and social class.

Such influences can hardly account for social class mortality gradients that have been reversed in the past few decades – for example, the mortality from hypertension, coronary heart disease, stroke, peptic ulcer and suicide, nor for the steepening class gradient in other causes of death.

In the light of a considerable body of current evidence, we can conclude that material inequalities make an important contribution to continuing inequalities in today's major causes of death, such as heart disease, lung cancer, accidents and suicide. There are clearly other important cultural factors involved, but research in this area is still insufficiently developed for us to draw any reliable conclusions.⁴¹

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- Identifying specific risk factors** The available evidence is insufficient to identify more than a few of the risk factors that link specific aspects of socioeconomic disadvantage to health. While we may still lack knowledge of the exact *mechanisms* through which these factors operate, this does not put their contributory role in doubt.
- Income and health** Income is clearly associated with health. The evidence is clear that the death rates of old people are affected by changes in the real value of state old age pensions, and also that as occupations move up or down the occupational earnings rankings they show a corresponding and opposite movement in the occupational mortality rate.^{42,43} The implication is that income – perhaps the major determinant of standard of living and of life-style – has a direct effect on health. It is also clear that health is more sensitive to small changes in income at lower than at higher income levels.⁴⁴
- Unemployment and health** There is strong evidence that the deprivations associated with unemployment are damaging to health.⁴⁵ After adjusting for the effects of social class and age, the death rates of unemployed men and their wives are at least 20 per cent higher than expected.^{46,47} Unemployment is associated with an estimated 1,500 extra deaths among unemployed men and their wives for each million men unemployed.⁴⁸ The two-fold higher death rates from suicide among the unemployed in a given social class, point to the importance of psychosocial factors.⁴⁹ The relationship between unemployment and parasuicide (see Chapter 10) and the deterioration and subsequent improvement in mental health following unemployment and re-employment, add weight to the relationship between unemployment and mental ill health.⁵⁰ While unemployment undoubtedly damages a person's sense of self-worth, part of the psychosocial impact of unemployment must arise from the material disadvantages it brings.
- Lifestyle and socioeconomic disadvantage** The interrelationship of smoking, alcohol consumption, diet, physical activity and socioeconomic disadvantage are far from straightforward. There is a clear social class gradient in the prevalence of smoking, and those in the non-manual classes are more likely to have stopped smoking (see Chapter 4). Smoking is particularly prevalent among the unemployed. There is some evidence that smoking is associated with stress^{51,52} and that socioeconomic disadvantage is stressful. However, there is also evidence that stress does not impede smoking cessation.⁵³
- The relationship between socioeconomic disadvantage and alcohol consumption is more complex. The heaviest drinking is concentrated in the manual classes, but there is heavy drinking in all classes (see Chapter 5).

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Dietary differences between rich and poor make a major contribution to global inequalities in health. In a relatively affluent country such as the UK, they are most readily detectable among children born to working class parents, who are shorter than children born to professionals. But interest in diet has shifted more recently from simple undernutrition to malnutrition – the consumption of a diet that contains excessive quantities of fats, salt and unrefined sugars – which is known to contribute to coronary heart disease, and a range of other health problems (see Chapters 3 and 4). The National Food Survey shows that those in the lowest income categories eat – in many, but not all, respects – a less healthy diet than those with higher incomes; the poorest groups eat less fresh fruit, green vegetables and wholemeal bread (which is high in fibre), and more white bread and sugar, which contribute to obesity and tooth decay (see Table 19). But there is no equivalent social class gradient in the consumption of fats.

These consumption patterns almost certainly reflect income and cost considerations, as well as differences in culture or education. Research shows that *within* each income group the effect of additional children is to shift the pattern of food consumption nearer to that of poorer families.⁵⁴ The nutritional differences between large and small families within each income group are reflected in the tendency for people's height to be related, class for class, to their birth order and family size.⁵⁵ Small-scale studies^{56, 57} suggest that those on

Table 19 Income group differences in food consumption in 1988

Food	Ratio of average per capita consumption in high income compared with low income households*
Fruit	2.1
Wholemeal and wholewheat bread	1.4
Butter	1.05
Cheese	1.35
Fish	1.35
Vegetables	1.1
Margarine	0.59
Potatoes	0.63
Sugar	0.75

*High income denotes householders where the earners' average weekly income exceeds £375. Low income denotes households where the earners' average weekly income is below £100.

Source: Ministry of Agriculture, Fisheries and Foods. Household food consumption and expenditure 1988. London, HMSO, 1989.

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a low income may not be able to afford the diet recommended by the National Advisory Committee on Nutrition Education (see Chapter 3). Although these findings are based on data from highly selected groups, the lack of availability of a healthy range of foods in deprived areas is also an important feature limiting food choices.⁵⁸

People in low income households spend proportionally twice as much of their income on food as those in high income households.⁵⁹ There is also evidence of undernutrition among the poor. The diets of many school children leave them below the recommended intake for many nutrients,⁶⁰ and seven per cent of old people suffer malnutrition,⁶¹ half of women who are single parents on low incomes cut down on their own food consumption to save money,⁶² and 25 per cent of unemployed people do not have enough money for food at the end of the week.⁶³

The overall impact of social class differences in nutrition is not yet completely established. But the simultaneous widening of social differences in health and in nutrition during the decade following the end of war-time nutritional policy shows that they are important. Social class differences in total fat consumption remained small during the 1950s, immediately after the end of food rationing, but poorer people ate progressively more sugar while the better off ate increasing quantities of wholemeal bread. This period also saw smoking become more common in the manual classes.⁶⁴ The most dramatic change in the distribution of disease was the reversal of the social distribution of heart disease which had previously been more common among non-manual groups.⁶⁵

The importance of diet is also reflected in statistical relationships between nutrition and health which exist across regions as well as classes.⁶⁶ White bread, sugar and potatoes are eaten most by working class people and in the north of the country, while wholemeal bread, fresh fruit and green vegetables are eaten more by the non-manual classes, and those in the south. While the class differences in tooth loss are partly a reflection of differences in sugar consumption (see Chapter 12), the social distribution of obesity may also be influenced by differences in physical activity, rather than by the comparatively small differences in total calorie intake between classes. Leisure-time exercise is more common among professionals and high income groups, but some of this difference is offset by differences in physical activity between sedentary and manual occupations, and by the effect that car ownership has on people's walking (see Chapter 9).

Housing and health

The differences in death rates among owner occupiers, private and council tenants (see Table 17) reflect the influence of a wide range of socioeconomic factors, rather than of the standard of housing alone. Because people who live in overcrowded or substandard houses

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usually suffer from many other forms of disadvantage, it is difficult to disentangle the many influences at work. The widespread impression that housing is a direct determinant of health originated in the well known association between insanitary conditions, overcrowding and the high rates of infectious (especially respiratory) diseases in the past. While some modern studies have failed to identify any direct effects, most have found that factors such as overcrowding, structural deficiencies and lack of privacy do make a contribution to poor health.⁶⁷⁻⁶⁹ The location of housing may also have indirect effects on health. Estates where access to jobs, shops and health services is difficult tend to increase the disadvantage of those who live in them.⁷⁰ Two Scottish studies have recently found clear effects of damp housing on the health of children in a deprived area. Respiratory and bronchial symptoms, headaches and diarrhoea were much more common among children living in damp housing, and the effect of damp was independent of the effect of low income or smoking in the household.^{71, 72}

Although we are hampered by the lack of research, it is clear that much of the modern contribution which substandard housing makes to ill health arises less from its physical impact than from the social and psychological effects of damp, disrepair, inadequate facilities and cramped living accommodation. Housing is almost certainly an important factor in the large social class differences found in mortality from childhood accidents. The lack of indoor playspace and gardens means that young children are more likely to play unsupervised in the street. Another major and growing problem is that of homelessness. In 1990, local authorities accepted 164,000 housing applications from homeless people and families. In addition, estimates of 'concealed homelessness' among young, single people were put at 156,000 by Shelter.

Social support and health

There is increasing evidence to suggest that close or 'confiding' relationships and social support from friends and relatives may be protective of health^{73, 74} (see Chapter 9). Evidence from the Whitehall study of civil servants shows that those in the lower grades are less likely than those in administrative grades to have a social contact at home and at work and to see a close confidant daily.⁷⁵ It was once widely believed that social ties were closer in some of the stable, urban working class neighbourhoods than in some better-off areas – an impression which was fostered partly by the well known findings of studies like *Family and Kinship in East London*.⁷⁶ These close social networks may have been destroyed by the mass clearance of slums but this has not been adequately studied. In addition, social class differences in access to cars and telephones affect people's ability to keep in touch with more distant friends and relations. They are

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particularly important among elderly people.

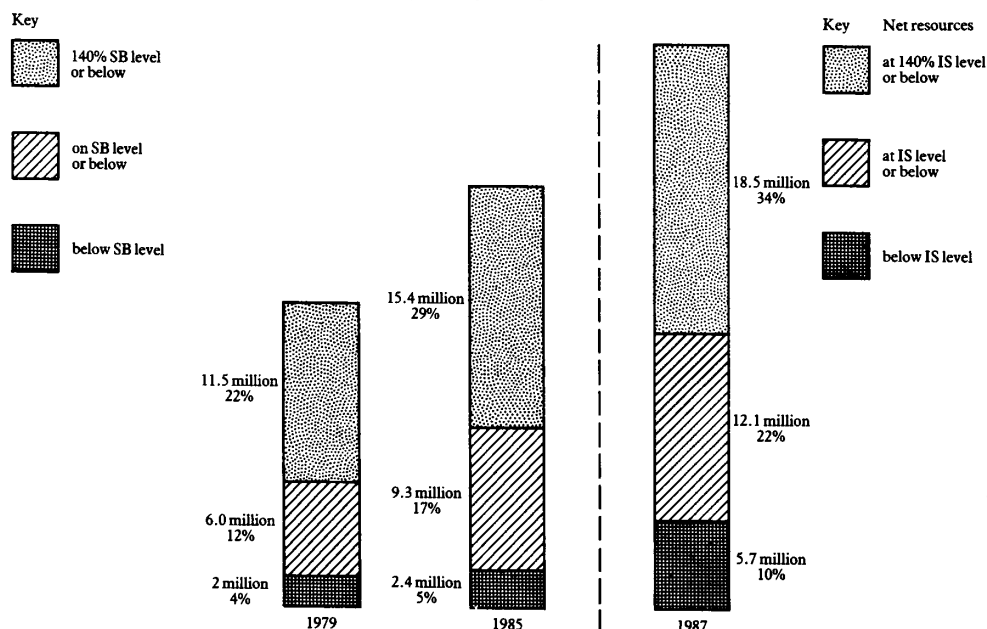
The disadvantaged

The number of people living in poverty depends on how poverty is defined. For the years up to 1985, the DHSS published official figures on 'low income families', based on the numbers of people living on incomes of 140 per cent of Supplementary Benefit (SB), or less. Other agencies also use the SB line as a poverty indicator, describing anyone living on or below the level of SB as living *in* poverty and anyone who lives on income between 100 per cent and 140 per cent of SB as living *on the margins of* poverty.

Based on the DHSS data, nearly one in three British residents (15.4 million people) lived in or on the margins of poverty in 1985 (see Figure 24). This included 85 per cent of the unemployed, nearly two-thirds of pensioners and single parents, and nearly half of families with three or more children.

Between 1979 and 1985 – a period for which comparable data are available – the number of people living in or on the margins of poverty increased by 33 per cent overall, with the biggest increase occurring among the unemployed and married couples with children.

Figure 24 Estimates of people living in or on the margins of poverty in Great Britain (1979, 1985, 1987)



Note: 1987 figures are not directly comparable with earlier years.

Sources: DHSS. Low income families statistics 1985. London, HMSO, 1988.

House of Commons Social Services Committee Session 1989–90. The income support system and the distribution of income in 1987. London, HMSO, 1990.

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In 1990, the House of Commons Social Services Committee published estimates for 1987 to try to fill the information gap left by the discontinuation of the DHSS statistics.⁷⁷ These are not directly comparable with earlier years because of changes in the social security system coupled with statistical alterations. In the process SB was replaced by Income Support. However, the 1987 figures still illustrate the important point – that the overall number of people living at very low levels of income in Great Britain was strikingly high (see Figure 24). In 1987, 5.7 million people were living on or below the Income Support line and a total of 18.5 million (a third of the population) were living on or below 140 per cent of that line.

In June 1989 there were 1.8 million people officially unemployed. This estimate increases considerably when those not registered are taken into account. Those most likely to be unemployed are the under 20s, ethnic minorities and disabled people. Figure 25 illustrates the trends in unemployment rates, and shows that rates rose very sharply in 1980 and 1981. This upward trend continued up to 1986, when it reached a peak of 11.8 per cent of the workforce. Since then there has been a steady fall in the rate, which in 1988 stood at 8.3 per cent. This positions the UK in the middle of the range of unemployment rates in OECD countries. The UK had the sixth highest rate out of the 14 OECD countries in 1988. Spain had the highest rate at 19.1 per cent and Sweden the lowest at 1.6 per cent of the workforce.⁷⁸

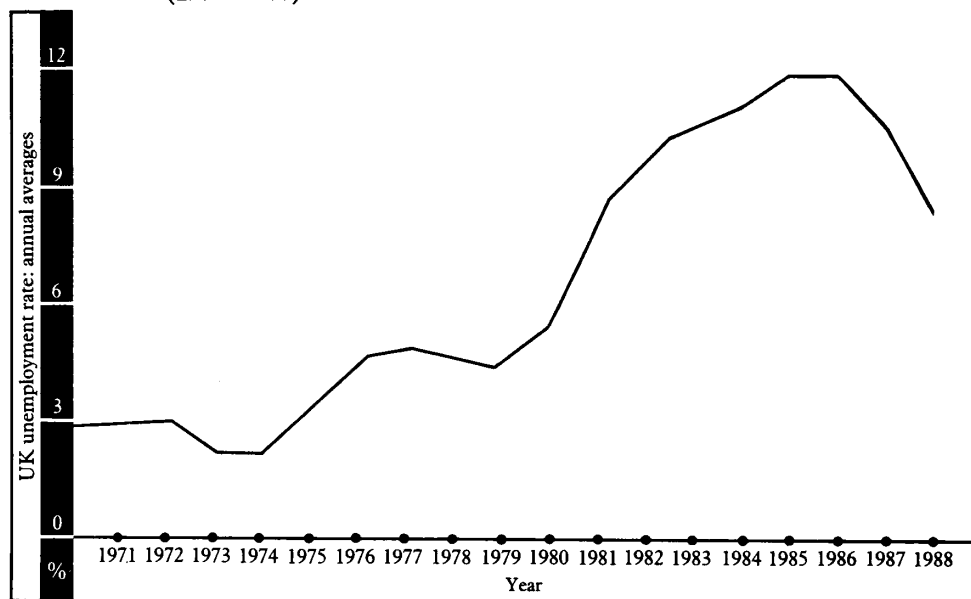
Possibilities for the promotion of health and prevention of disease

The reduction of inequalities in health is the first of the WHO's European *Targets for Health for All*.⁷⁹ All 32 European states, including the UK, are signatories to this document and have endorsed the aim that by the year 2000 health inequalities should be reduced by 25 per cent. Historically, the major advances in health reflect the fact that changes in social circumstances which are regarded as intrinsically desirable, tend also to be those which favour good health. Thus the kinds of housing, environments, types of employment, leisure activities and items of consumption to which people with greater choice have access, were generally – although not always – beneficial to health. Hence, past improvements in health have appeared more as a by-product of a rising standard of living than as a result of conscious policies to improve health.⁸⁰ Our continuing ignorance of the mechanisms through which deprivation operates should not prevent major improvements in health from taking place in the future, any more than it has in the past.

The relationship between deprivation and ill health offers four broad approaches to prevention.

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Figure 25 Trends in unemployment in the United Kingdom (1971–1988)



Source: Central Statistical Office. Social Trends 20. London, HMSO, 1990. Employment Gazette. August 1989, Table 2.1.

- The economic approach aims to increase wealth and to redistribute resources so as to reduce the deprivation.
- Risk factor reduction aims to sever the link between deprivation and ill health by promoting behaviour change (see Chapter 7).
- The educational approach aims to promote a better educated community – especially among the most disadvantaged.
- The community development approach aims to support and promote self-esteem and autonomous action among the most deprived groups in the community.

Reliance on risk factor reduction alone may inadvertently accentuate disadvantage as health promotion initiatives (for example, smoking) are more rapidly accepted among the more privileged (see Chapter 4). Moreover, there is a limit to the extent to which risk factors such as smoking, poor diet and physical inactivity can be changed without altering the circumstances in which they arise. In a report on *Health Education in Areas of Multiple Deprivation* from the Scottish Health Education Coordinating Committee (SHECC), the community development approach was strongly advocated, but it was envisaged as part of a wider strategy in which it would be necessary to reduce the deprivation itself.⁸¹ Risk factor reduction, educational initiatives and community development approaches are thus linked with and complementary to economic action.

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We believe that efforts to reduce specific risk factors, to promote a better educated community, or to promote community action among disadvantaged groups, are likely to become *more* effective once the burden of socioeconomic disadvantage is reduced. If the greater freedom of the middle classes and their greater command of resources enables them to be more responsive to health information and education, then it is reasonable to suppose that it would benefit health to extend that freedom to other classes. The notion that inequalities in health result from a cultural preference among working class people for a life that is 'short and sweet' is not supported by the evidence.⁸² Moreover, a major review of health and happiness showed that happiness and a good quality of life are highly correlated with longevity, as well as good income.⁸³

Income policy There are two possible approaches to the reduction of socioeconomic disadvantage: wealth creation and income redistribution. International comparisons of the relationship between income and mortality rates suggest that economic growth (and its associated creation of wealth) is associated with improved mortality rates.⁸⁴ But marginal changes in income (that is, income distribution) have also been shown to have a beneficial effect on the least well-off while making little difference to those who are better off.^{85, 86} Analysis of family incomes in 1983 shows that the incomes of the poorest 20 per cent of families could be doubled by redistributing 17 per cent of the incomes of the richest 20 per cent.⁸⁷

The implication is that wealth creation and income redistribution in favour of the poor are complementary approaches that could substantially improve the population's *overall* mortality rates. International comparisons confirm that there is a close relationship between a nation's income inequality and its average life expectancy.^{88, 89} This relationship holds in both affluent and poor countries, and is independent of the benefits of economic growth alone.⁹⁰

Analysis of changes in life expectancy earlier this century demonstrate the effects of income redistribution. During the first and second world wars, civilian life expectancy in England and Wales increased two or three times as fast as during the rest of this century. The greatest gains were among the poorest sectors of society.⁹¹ This is probably related to the fact that the wars virtually ended unemployment, were associated with a substantial redistribution of income as well as the development of certain minimum standards – such as food rationing.

Aside from general measures to promote increased wealth and a reduction in material inequalities, we have found few well-researched examples of initiatives which have been able to demonstrate reductions in specific aspects of health inequality. Sweden is

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often cited as an example of a country which has, through specific socioeconomic policies, narrowed health inequalities in infancy. But the supporting evidence is not clear cut. The reduction in regional differences in health care in Finland followed a conscious policy of better welfare and health service provision to the under-served areas.⁹² The best evidence comes from measures such as fluoridation and family planning policy, which we review elsewhere in this report. Here, there have been demonstrable reductions in specific aspects of health inequality.

Inequalities: implications for policy

The emerging picture is one which suggests that rather than being an intractable problem the health disadvantage of the working classes might be an area of public health in which major gains can most readily be achieved. Opinion polls have repeatedly shown that a majority of the public see unemployment and health as key areas for government action. In a survey for the British social attitudes report of 1987, 77 per cent of those polled endorsed the principle of progressive taxation and 72 per cent thought it should be government's responsibility to reduce income differences between rich and poor.⁹³

Based on its findings, the Black report recommended what it called a 'comprehensive anti-poverty strategy' with the primary goal of eliminating child poverty. It included the following components.

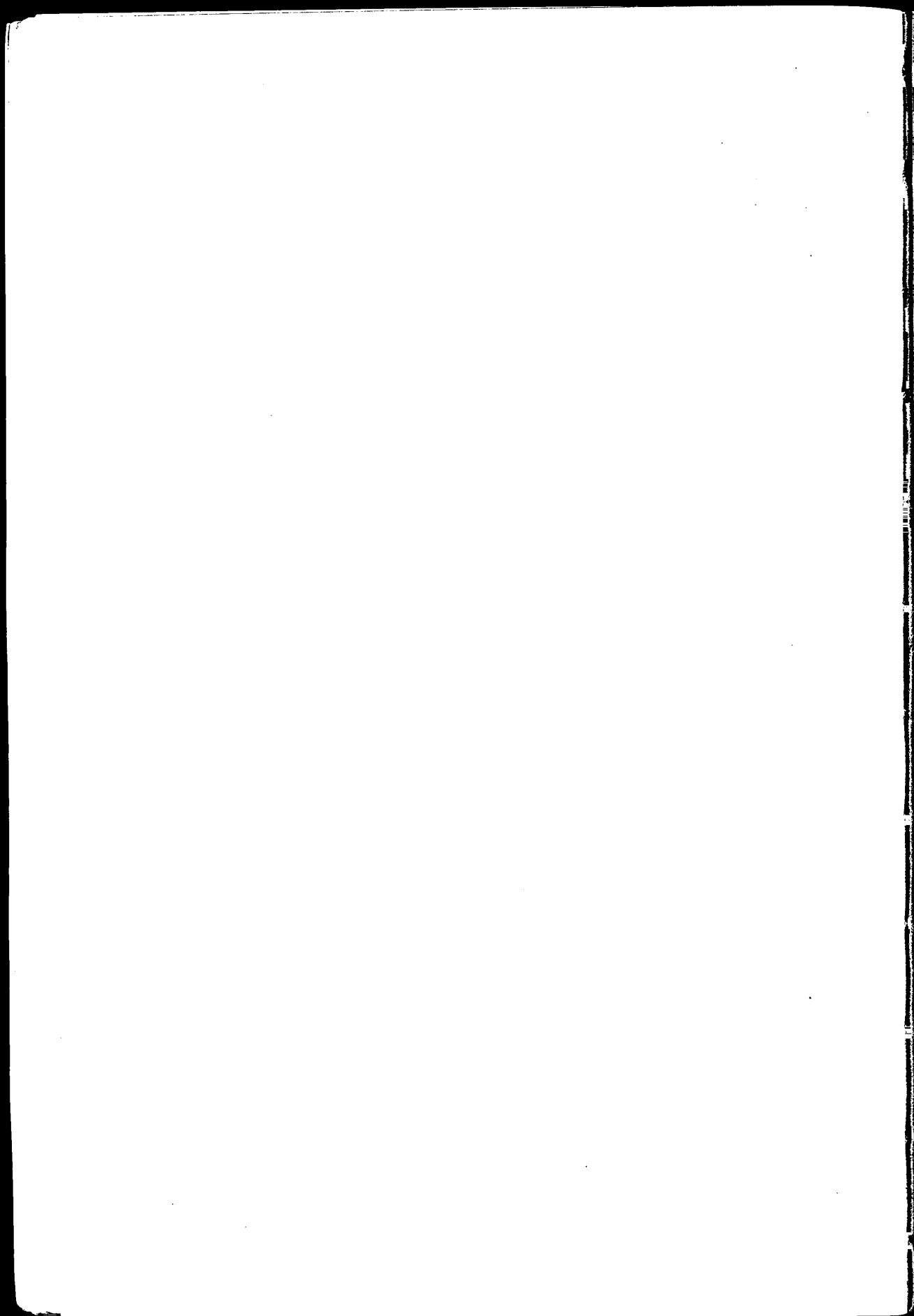
- A reduction in differences in material standards at work, at home, and in community life.
- Improvement in social security benefits, including child benefit and maternity grants.
- A shift of resources from hospital to community and preventive services within the NHS, including the establishment of a number of 'health development areas' in deprived parts of the country.
- Specific measures to reduce smoking-related deaths and promote road safety.

The government did not accept the major findings of the Black report and its recommendations were rejected on the grounds that they would cost too much to implement.⁹⁴ Research has now clarified the contribution of material deprivation to ill health and the findings have been confirmed in *The Health Divide* and in a report from the BMA.⁹⁵ In 1985, a report from the Archbishop's commission, *Faith in the City*, which assessed aspects of health and community life in inner cities, reiterated many of the findings of the Black report and made a number of recommendations concerning increases in expenditure on housing, the rate support grant, social security benefits and urban renewal projects.⁹⁶ The Institute of Fiscal Studies estimated that the proposals of *Faith in the City* would increase the standard

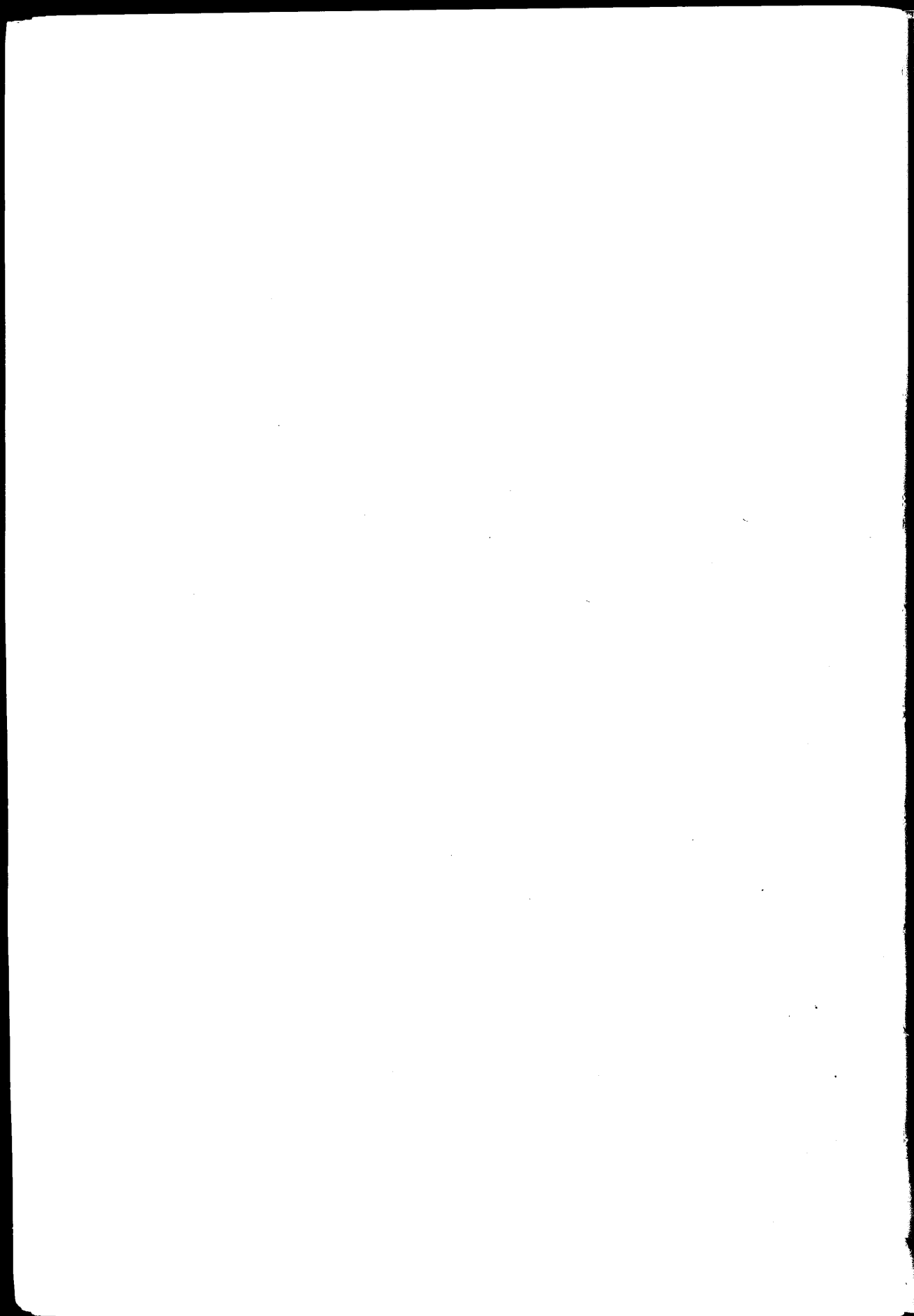
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income tax rate by 4p in 1985.⁹⁷ This compares with the government's estimate in 1979 that implementing the quantifiable Black recommendations might entail an extra 2p on the basic income tax rate, an amount equivalent to the actual reduction in 1988. This estimate did not take into account those recommendations, such as income redistribution, which do not involve any net increase in cost.

In 1988, *The Health Divide* concluded that while much local action had occurred – especially within metropolitan local authorities, by health education departments and primary health care workers – the response by government had been poor.⁹⁸ Our own survey of health promotion policy in RHAs however, showed that a commitment to the reduction of inequalities in health was not prominent.⁹⁹



PART II: LIVING BETTER



9 Promoting physical and mental health

By health I mean the power to live a full, adult, living breathing life in close contact with what I love – I want to be all that I am capable of being.

KATHERINE MANSFIELD

Introduction While few would deny that reducing the premature death toll from today's major causes of preventable mortality is a key public health priority, there is clearly more to healthy living than survival alone. In this, and the five following chapters, we assess the interactions between physical and mental health, and the potential for preventing ill health as well as promoting well being *during our lives*. In this chapter we assess the effects of different forms of physical activity on health and the quality of life. We then consider the difficulties presented by research on the role of stress in mental and physical health, followed by an assessment of the potential contribution to be made by social support.

Why exercise? Exercise has always been seen to be a good thing for body, soul and nation. While past efforts have been directed at promoting sport among the young and gifted, there has been a renaissance of interest in the value of regular physical activity for the whole community, irrespective of age, ability and state of health. It is based on the belief that regular exercise is not only enjoyable, but makes a major contribution to health and fitness at all ages.

Physical activity is a term for a complex set of activities of which exercise (and sport) form only two sub-categories. Some, but not all, of the components of physical fitness, such as cardiovascular fitness (the ability of the heart to perform effective work) muscular endurance, and strength, flexibility and body composition are now measurable.

Fit for what? Although there are few British data, and much of the evidence relates to middle-aged men, there is a general consensus now in favour of the health benefits of exercise. Much of it has been summarised in a conference report jointly sponsored by the Sports Council, HEC, and the Medical Research Society in 1983,¹ and in a Sports Council review.² Further evidence has accumulated since then,³ together with a detailed review commissioned by the American government's Centres for Disease Control in 1985.⁴ There are still large gaps in the evidence however, and its interpretation is

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hampered by poorly designed, unrepresentative studies of athletes; nonetheless a number of important conclusions can readily be drawn.

Physical aspects of fitness

The effects of moderate, rhythmic and regular exercise (such as brisk walking, running or swimming with 'overload' for 20–30 minutes about three times each week) have been studied in people up to the age of 70. Such training has a number of demonstrable effects.

- Improved cardiovascular function.
- This results in a better tolerated and sustained work effort, but is *not* necessarily synonymous with a reduction in risk of coronary heart disease (see below).
- Muscle size and strength improve, together with ligament strength. This can result in improved function of muscles which helps to maintain posture and thus protect against joint instability and injury, and back pain in pregnancy.
- These benefits can be produced over a three-month period in both men and women of all ages, but are only maintained while the activity(s) is maintained.
- The beneficial effects are more striking in those who are least active (that is, elderly people or those with chronic disease).

Physical activity in old age

Although the maintenance of fitness is beneficial to health at all ages, it is critical in elderly people and can mean the difference between independence and institutionalisation. As people get older there is a steady decline in the capacity to do physical work – maximum oxygen capacity, muscle bulk and strength decrease by about one per cent a year.⁵ This decline may eventually result in an elderly person no longer being fit enough to carry heavy shopping or to get up out of a chair without help. Although some of this decline is inevitable (see also Chapter 14), there is now good evidence that about 20 per cent or more is due to disuse, and is thus recoverable at any age.⁶ Such an increase in physical fitness might extend the period of independent living in old age by eight or nine years.⁷

If the central goal for health in old age is the promotion of independence and autonomy (see Chapter 14), then the maintenance of stamina, suppleness and strength through physical activity (see Table 20) is an integral part of this process.

Fitness and mental health

It is difficult to interpret some of the research on physical activity and mental health. It is often based on descriptive studies of highly selected groups, such as athletes, with few properly controlled studies. Nevertheless the available evidence⁸ suggests the following.

- The generally held view that exercise makes people 'feel good' is

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probably true. Population surveys in Canada, and small, randomised controlled trials in children and women have demonstrated that exercise – at least in the short term – results in a significant improvement in measures of self-confidence and self-esteem – both of which are correlated to physical fitness.

- Exercise has an antidepressant effect which has been most reliably demonstrated in the short term among mildly or moderately depressed people in both hospital and community-based populations.
- A number of poorly controlled trials show an association between exercise and a reduction in anxiety.
- Randomised controlled trials have shown that exercise can reduce the immediate physiological response to stress.
- The antidepressant, and possible anti-anxiety effects of exercise are biologically plausible. The epidemiological evidence is supported by some research in brain chemistry which shows that one of the immediate effects of exercise may be an increase in the brain levels of endorphins – substances whose effects are broadly those of an intrinsic heroin-like substance.

Table 20 Some essential components of fitness in old age

Fitness component	Impact of loss	Activity required to maintain fitness	Effects
STRENGTH	WEAKNESS	Isotonic and isometric exercise not sustained for more than ten seconds per contraction, for example swimming, stair climbing	Improved carrying ability; climbing stairs; getting up out of low chairs; improved mental well being
SUPPLENESS	STIFFNESS	Daily movement of large joints, for example hips and shoulders through full range	Prevention of falls and strains
STAMINA	EASY TIRING/ BREATHLESSNESS	Regular walking, swimming, digging, housework, dancing, about three times a week	Ability to perform a wider daily range of tasks without tiring; improved mental wellbeing

Source: Adapted from Muir Gray J A (ed). Prevention of disease in the elderly. Edinburgh, Churchill Livingstone, 1985.

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Exercise and the prevention of disease

Although there are still gaps in the evidence, those who are physically active throughout adult life live longer than those who are sedentary.⁹ This conclusion is based on a carefully conducted, if selective, follow-up study of Harvard University graduates whose leisure-time physical activity and its impact on health have been monitored for 16 years. Those who are active (that is, those who expend more than 2000 kcal of energy in leisure-time activities per week – mostly in sports, play and walking) live up to 2.5 years longer than those who are classed as inactive (that is, expend less than 500 kcal of energy per week).

Coronary heart disease

There are now many controlled prospective studies which show that those whose work or leisure involves vigorous, regular exercise, are between one-third and one-half as likely to develop or to die of coronary heart disease as those whose lives are more sedentary.¹⁰⁻¹³ The protective effect of exercise persists at all ages, and after other risk factors are taken into account. Although three of the four biggest studies involve men in selected jobs, and there is no corroborative evidence from intervention studies, the evidence is now sufficiently persuasive that vigorous exercise does have an independent, protective action against coronary heart disease.

Physical activity and other conditions

Research on the effects of physical activity on other conditions is less well advanced, but has been best documented for conditions which are themselves risk factors for heart disease, such as high blood pressure, obesity, and diabetes mellitus. This may partly explain the mechanisms through which exercise acts to protect against heart disease (see Chapter 3). Conclusions from the research are as follows.

- The relationship between physical activity and blood pressure (both systolic and diastolic) is inverse: the higher the level of physical activity the lower the blood pressure. Population studies suggest that physically active people have slightly lower diastolic blood pressure. (2–5 mm) and a correspondingly lower systolic pressure than those who are sedentary.
- Physical fitness programmes appear to significantly lower blood pressure, and the effect is most striking among those who already have mild or moderately high blood pressure. Difficulties in measurement and definition of high blood pressure have contributed to the inability to reproduce these findings in fully randomised studies.
- Those who are physically active – especially elderly people – are less likely to be overweight or obese and have been shown to have better control of glucose metabolism. This may result in a reduced risk of the kind of diabetes associated with overweight that is common among older people.

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- Physical activity in middle age confers relative protection against those fractures in old age that are caused by thinning bones or osteoporosis (see Chapter 14). While physical activity may help to slow down the bone-thinning process, it probably needs to be life-long and the evidence is not as good as that of the effect of hormone replacement therapy.¹⁴

The risks of exercise

Different forms of exercise clearly carry specific risks, some of which are well-documented like eye injuries related to squash; muscle, tendon and joint injuries related to running; and specific infections associated with swimming. Many of these are acceptable because they are understood and we know how to avoid them. Current concern, however, is focussed on whether vigorous physical activity of the kind needed to reduce the risk of coronary heart disease might also increase the risk of sudden death (which is almost always due to undiscovered, pre-existing heart disease). Research in this field is inadequate, and we know little about the risks of the most popular kinds of exercise now advocated.¹⁵ While there is good evidence to show that *long-term* moderate and vigorous exercise protects against heart attack and sudden death,^{16, 17} we have less reliable data on the short-term effects – especially in those unaccustomed to exercise.

The available evidence suggests that the small absolute increase in the short-term risk of sudden death from exercise in adulthood is greatly outweighed by the much larger reduction in the relative risk of heart disease in the long term. As the risk of heart disease in adulthood increases with age, we urgently need to establish more clearly how the short-term risk changes with age, so that the public and health professions can make informed decisions about the risks and benefits of vigorous exercise in middle and older ages.

Who exercises?

Surveys of physical activity vary widely in their findings and the variation is partly due to problems of definition. The two most reliable sources of information in the UK are the General Household Survey (GHS) which covers leisure-time activity in Great Britain, and the Heartbeat Wales community survey which covers work and leisure time activity (see Chapter 7). Large-scale but occasional surveys have been carried out in Scotland in 1984–86¹⁸ and Great Britain in 1984–85.¹⁹

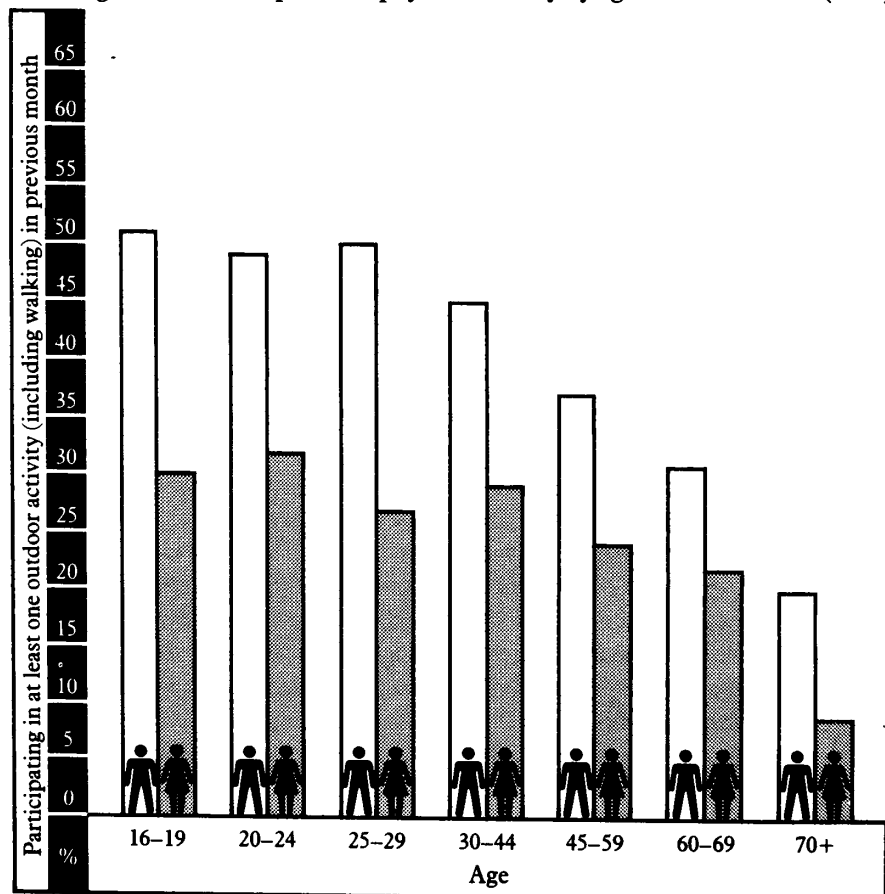
GHS data for 1986 show that sport and recreational physical activity is still a minority practice, with about one in three men and only one in five women participating in any activity. Walking remains the most popular activity in all age groups except the youngest, and only 18 per cent of the population participate in any other outdoor activity. Of the ten most popular sports, three (fishing, darts and snooker) involve little physical activity. Participation

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rates are higher for men than women in every age and socioeconomic group; professional men are three times more likely than women married to unskilled manual workers to be active sports participants. Levels of participation are highest for 16–19 year olds, and there is a steep decline with increasing age (see Figure 26). There is no national monitoring system for physical activity levels among children under 16, but a DES survey of 14–16 year olds in 1983 showed that the 70 per cent participation rates among schoolchildren drop sharply to 57 per cent among school-leavers.²⁰

The years 1977–1986 saw a small, but significant, increase in participation rates among both men and women (see Figure 27) in walking, athletics (which includes jogging), swimming and squash. This is in line with the findings of a representative poll commissioned by Fitness Magazine in 1984 which suggested that the proportion of

Figure 26 Participation in physical activity by age in Great Britain (1986)



Source: OPCS. General Household Survey 1986. London, HMSO. 1989.

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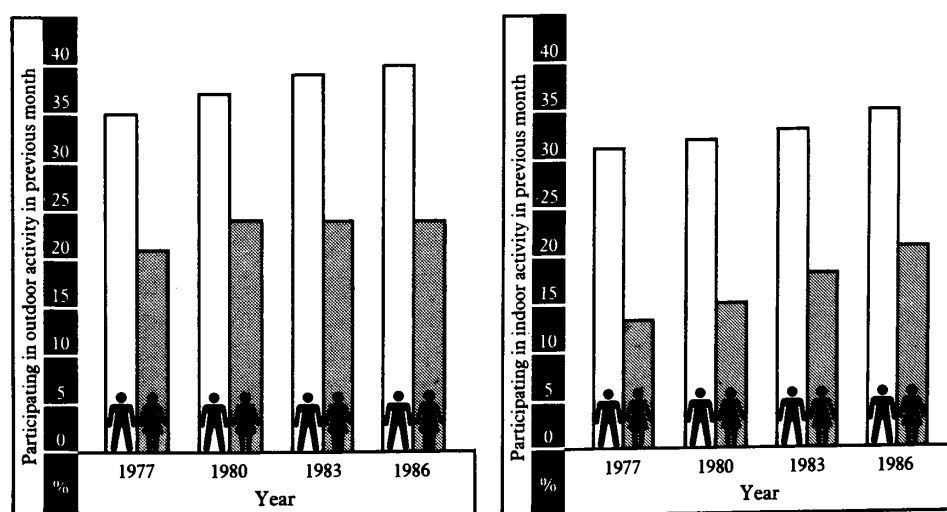
people taking moderate, regular exercise had increased. The age and socioeconomic gradient remained broadly unchanged, but by 1980 men in skilled manual jobs had overtaken professional men in participation rates for indoor sport²¹ – although this includes less active sports such as darts and snooker. The Welsh survey in 1985 paints a gloomier picture, although this may reflect lower participation rates in Wales than in other parts of the UK. Based on a composite index of work and leisure activity, it concluded that only one in five men and only two per cent of women were taking sufficiently vigorous exercise to help protect them from heart disease.²² A survey of over 10,000 Scottish people in 1984–1986 concluded that levels of physical activity in middle-aged men and women were low, and that this was not simply due to lack of knowledge about the health benefits of exercise.²³ A national fitness survey organised by the Sports Council, HEA and DoH was underway in 1990, with the results due to be published in Autumn 1991.

The determinants of physical activity

Patterns of physical activity are governed by complex factors. The cultural and political climates have been influential in increasing the amount of – often enforced – leisure, and new technology has reduced the amount of physical activity in paid and domestic work. Sex differences in participation in physical activity are heavily influenced by prevailing views of what is regarded as proper behaviour for women and men, and probably explain why women (but not men) use exercise as a means of weight loss.²⁴

The available research evidence²⁵ – nearly all of which is American

Figure 27 Trends in participation in sport and physical activities in Great Britain (1977–1986)



Source: OPCS. General Household Survey 1986. London, HMSO, 1989.

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– offers some important clues as to what prompts people to take exercise.

- Those who are physically active as children are most likely to continue to be so during adulthood.
- Enjoyment and social contact are more important motives for regular physical activity than health, although a MORI fitness poll in 1984 showed that interest in health and fitness were the second most important reason.
- A positive self-image and confidence in the ability to influence future activity levels.
- There is no evidence, as yet, to suggest that increased knowledge about the effects of exercise on health improves participation.
- Easy access to cheap facilities is an important factor in determining participation.

Physical activity: what has been achieved?

The growth of interest in sport pre-dates the current 'fitness movement', and stems from a long-standing concern about the high drop-out rate from sports among school leavers together with a desire to live up to the Council of Europe's 1960s charter, Sport for All. The Sport for All initiative gathered momentum following the creation of a Minister for Sport and, subsequently, the Sports Council, which officially launched the campaign in 1972. The success of the campaign, assessed in a report commissioned by the Sports Council,²⁶ has been partial.

- Central government funding for sport and specific local authority allocations have helped improve participation in sport.
- Despite small improvements, the Sport for All objective is far from being realised, and inequalities persist.
- Inequalities in the provision of sports facilities have diminished – especially for indoor sport.
- The recent recognition by the Sports Council of the need to reach deprived groups may offer a way forward.
- The shift away from the Sports Council's earlier emphasis on elite sports has been slow, and disproportionately large amounts of the Council's funds are still being spent on elite sport.

The clear strategy and ambitious target-setting exercise embarked upon by the Sports Council has not only permitted effective monitoring, but has helped to stimulate action. In 1965 more than 600 local authorities had no indoor swimming pools and most of the country's 239 sports halls were limited to schools and colleges. In 1972 the Sports Council set national targets to be achieved over the following decade.²⁷ By 1981 the targets set for swimming pools had been exceeded by nearly 100 per cent and large increases had also occurred in the number of newly built sports centres and golf

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courses.²⁸

Having identified women, school leavers, the over 50s, and low income groups as targets for the future, the Sports Council has begun to use mass media campaigns to reach them, and individual local authorities have made special provision for women and ethnic minority groups. The effect of this shift in policy remains to be seen.

While the Sports Council has helped to promote better provision of facilities, health education, voluntary agencies and local authorities have helped encourage participation. Exercise features as a major component within many of the HEA's programmes, especially the prevention of heart disease. The emphasis has been on the use of exercise promotion as a positive rather than negative force for good health in order to link several of the hitherto fragmented but overlapping programmes on health promotion in adulthood. This philosophy is encapsulated in the HEA's Look After Yourself (LAY) programme which involves the training of tutors who lead adult education courses dealing with exercise, healthy eating, relaxation and a flexible range of other topics, including alcohol and tobacco. This integrated approach to adult education mirrors that now being adopted in schools (see Chapter 12) and preliminary evaluation suggests the results are positive.^{29, 30} In 1981 there were 187 LAY classes in operation, but by 1986 this had grown to 2,500 involving nearly 100,000 people throughout the country, including public sector employees, as well as 60 per cent of health education units.

Earlier expectations that mass media and high profile promotional events might lead to lasting behaviour change have proved to be unrealistic. Their effect on public attitudes can be significant, however. The SHEG and HEC's joint sponsorship initiatives with the BBC and the Sports Council in Feeling Great, SHEG's Walk About a Bit campaign, and the HEC's Sunday Times Fun Run have been important in this respect. One of the most successful promotional initiatives of this kind was the HEC's Great British Fun Run which was a nationally organised round-Britain event with a series of associated local fun runs and health fairs. The evaluation³¹ showed that the event achieved a high public awareness, and the commitment and resources given to it have resulted in many health authorities and local councils increasing their own commitment and allocation of resources to the promotion of good health through exercise.

The promotion of innovative forms of exercise in schools has been slow. Evidence suggests that, with notable exceptions, the commonest kind of exercise at school remains competitive team games which come low on most teenagers' list of sporting preferences.³²

While exercise is a well-established part of rehabilitative practice in hospitals, its place within primary care is unclear. The innovative

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example of the Peckham Experiment in 1935, in which a health centre developed swimming and gymnastic facilities on its premises, has yet to be followed, and may now be inappropriate. A promising initiative by the Sports Council and the Mersey Health Authority has resulted in the creation of a sports development officer who advises individually referred patients about exercise and helps develop local exercise classes, such as LAY courses within primary care.

**Physical
activity: future
policy**

Progress over the decade has been substantial, but poorly planned. With the exception of the Sports Council's partial strategy, and the Faculty of Public Health Medicine's guidelines,³³ there are no national objectives or plans for promoting fitness and health. Federal government in the USA has led the way, and developed a challenging set of targets for the promotion of physical activity. This has more recently been translated into a practical plan for promoting physical activity at different stages in life.³⁴

Mental health

Although it is often asserted that mental health is more than simply the absence of mental disorder, theoretical definitions have so far proved difficult to translate into practice. The instruments for measuring mental wellbeing are poor compared with those for mental disorder. There are, however, increasing numbers of validated ways of measuring limited aspects of mental health.

**Stress –
separating fact
from folklore**

The complex nature of mental health has complicated the study of its determinants. While physical health, personality factors and socio-economic settings (see Chapter 8) are important, the study of stress offers one of the more problematic areas of research. An inadequate understanding of what constitutes stress has led to vague research and findings that are difficult to interpret.

Two fundamental difficulties facing research into stress involve defining what it is, and when it is unhealthy. While we all have a personal understanding and experience of stress, it is hard to translate this into research terms. Stress has been defined by researchers both in terms of environmental stimuli and as responses to such stimuli. This conceptual confusion arises from the need to study the *interrelation* between individuals and their environment as well as from the difficulty of distinguishing between the inevitable stresses of our lives and those which are potentially damaging.

Much of the UK research in this field stems from an important study of the role of life events in depression among women. This showed that major life events involving threat or loss (such as bereavement or unemployment) were most likely to have negative consequences for mental health³⁵ (see Chapter 10). This has since been supported in other studies.³⁶⁻³⁸ Other life events such as the

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short-term stress of examinations or perhaps loss by theft were not damaging.

The impact of stress on health

It has been fashionable to see stress as a major threat to mental and physical health. To what extent is this view sustainable? Research in the 1960s and early 1970s has repeatedly shown an association between stress – in the form of life events – and a wide range of mental and physical health problems.³⁹⁻⁴² However, it is still not clear whether the stress causes ill health or ill health causes stress, or even whether stress is as important as other contributing factors. This is because much of the research has been inadequately designed. In many cases, the data on stress has been retrospectively recollected and other contributing factors have not been taken into account.

These difficulties have still not been entirely overcome, even though there is now evidence that stress – in the form of reliably measurable life events – influences both mental and physical ill health⁴³ (see also Chapters 3 and 10). There remains no good evidence that stress is associated with cancer in general,⁴⁴ or with breast cancer in particular,⁴⁵ although it may influence the survival of those with breast cancer. Bereavement has been shown to increase the risk of death from all causes by 40 per cent in the short term.⁴⁶ This risk is confined to men, persists for up to ten years, and has been shown to be independent of other major risk factors such as socioeconomic and educational status and cigarette smoking.⁴⁷ The effects of adverse life events on the outcome of pregnancy have also been reliably demonstrated (see Chapter 11), as has their role in repeated hospitalisation, and there is evidence of the effect of prolonged marital discord in parents on the health of children.⁴⁸ Although statistical pooling of the data⁴⁹ suggests that stressful life events make a significant total contribution to mental ill health, individually they account for only a small proportion of reported mental ill health. The scope for prevention is likely to be limited as most of the significant life events are unavoidable. Indeed we know of no intervention studies which have been able to reduce the risk of mental ill health by attempting to reduce the risk of life events.

Stress – the role of social support

Apart from socioeconomic measures to reduce the stresses associated with low income and unemployment (see Chapter 8), there are few options open to us for relieving stress itself. Many stresses, such as bereavement, divorce or separation from children are an inevitable or common part of life. We thus need to explore ways of reducing the negative consequences of stress. There is now evidence which suggests that good relationships with lovers, relatives and friends are important in the maintenance of good mental health and may help

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protect against the negative effects of life events.^{50, 51}

A lack of this kind of social support is associated with depression, anxiety, heavy use of medical services and high blood pressure.⁵² Good social support also appears to protect against the negative consequences of stressful life events, including divorce, psychiatric and psychological symptoms, occupational stress and illness in the elderly.⁵³

Prospective studies in large, representative communities in the USA have strengthened the evidence that social support confers some protection from depression and depressive symptoms, and appears to exert its most important effect in the presence of environmental stresses. However, well-designed intervention studies are few and far between. There is some evidence – in specific instances – that informal support, such as the provision of lay-women companions to women in labour (see Chapter 11), or to women rearing children with chronic illnesses,⁵⁴⁻⁵⁶ may improve both mental and physical health outcomes.

The best available evidence linking social support to good health comes from three prospective US community studies.⁵⁷⁻⁵⁹ These studies must nevertheless be interpreted with caution because objective measures of initial health status and levels of social support were not always used.

Patterns of social support

The most extensive studies of patterns of social support have been in the USA. Although their findings must be translated to the UK with caution, they offer some insight into the scope for intervention studies.

- Women and men have equally large networks, although women's tend to be family-based and men's work-based. Older women tend to have wider social networks than older men.
- Marriage offers a special kind of intimacy and support (although it should be noted that it is also associated with mental ill health in women). Those who are divorced, separated or widowed have the least social support.
- People living in small, rural communities have a wider social network than those living in cities.
- Those who belong to clubs and the church have larger social networks than those who do not.

In the UK, evidence from a large study of male civil servants shows that working class men have less social support than middle class men (see Chapter 8). Representative information on women as well as men comes from the 1985 Welsh Heart Survey.⁶⁰ It showed that home-based social support is commoner among younger people and women, whereas social contact outside the home is commonest

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among young men. There were significant minorities of elderly people with poor social networks, at home and outside the home. The Health and Lifestyle Survey of 1984–85 found that those who had the fewest family, friendship, working and community roles had the lowest psycho-social wellbeing.⁶¹

Social support: implications for action

The possible protective effect of social support on mental and physical health requires further research. Well-designed intervention studies are needed which use reliable measures of the quantitative and qualitative aspects of social support. Research on patterns of social support suggest that the scope for health promotion may be limited, because it is the *quality* of support in a marital relationship that is crucial rather than the quantity, and this is not readily amenable to intervention. Nevertheless, those who tend to be socially isolated offer potential opportunities for health promotion, as well as for more research into the support needs of those who care for them (see Chapter 14). The potential for using the temporary social support of counsellors in situations other than bereavement warrants further investigation.

10 Preventing mental ill health

New opinions are always suspected, and usually opposed, without any other reason but because they are not already common.

JOHN LOCKE

Introduction In the last chapter we focussed on mental and physical health. In this chapter, we examine some of the major forms of mental ill health and the scope for their prevention. We start with a consideration of depression and an assessment of patterns of psychotropic drug prescription. We follow by considering suicide and parasuicide, and schizophrenia. Finally, we consider mental illnesses in children and elderly people.

The size of the problem More than five million people consult their GP each year because of mental ill health. It is the second most common reason for consultation, accounting for at least 15 per cent of all consultations, and was responsible for the loss of nearly 57 million working days in 1981–82. The DHSS estimated that mental illness and mental handicap cost the NHS £1.5 billion in 1985. About 70 per cent of women and 50 per cent of men will, at some time, consult their GP concerning their mental health. The two commonest problems presented by adults to their GPs are depression and anxiety. Women consult three times more often than men. Although the last decade has seen a pronounced decline in admissions to mental hospitals, there were still 197,000 such admissions in 1986 in England alone. Most were for schizophrenia and depressive illness. The biggest recent increases in admissions were for dementia and for drug and alcohol misuse (see Chapters 5 and 13). Scotland has higher admission rates to mental illness units than England and Wales. This probably reflects the larger number of psychiatric beds and psychiatrists per head of population in Scotland.

Depression and anxiety Depression and anxiety may be appropriate short-term responses to adverse situations. However, incapacitating forms of depressive illness and anxiety may persist for long periods. Depression is the commonest form of mental ill health in the community today, and is sometimes associated with, but is twice as common as, anxiety alone. Prevalence estimates from representative community studies suggest that about six per cent of men and 12–17 per cent of women suffer from depression – at least half of them long term. The most striking feature of urban surveys among women are the higher levels among

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working class women, up to one in four of whom suffer from depression.¹ Although comparisons are difficult, the overall rates of depression in rural areas are lower than those in the inner city,² and working class women in rural areas do not appear to be at increased risk as they are in inner city areas.

The determinants of depression

Although we do not know exactly what causes abnormal depression, it is clear that those at greatest risk are young to middle-aged, working class women. Recent negative 'life events' (see Chapter 9) involving loss are the most clearly identified risk factors for depression³ but experience of a 'life event' does *not* lead, on its own, to depression.

Early research suggested that there were a number of 'vulnerability factors', which, in the presence of a life event, markedly increase the risk of depression⁴ but more recent studies have not confirmed this⁵ – except in the case of one kind: the lack of a confiding relationship.⁶

Other individual factors have a role to play in depression. Recent interest has focussed on certain long-standing mental perspectives – known as 'cognitive sets' – which predispose to or protect against depression. More research is needed to elucidate their possible contribution to depression. Overall, the research findings so far do not offer any obvious means of preventing depression.

Benzodiazepines

Despite the genuinely high prevalence of depression, doctors' responses to their patients' mental health problems are not always appropriate. In 1988, general practitioners issued 23 million prescriptions for benzodiazepines – the main category of psychotropic (psychologically active) medicine prescribed today. Nearly all of these were for sleeping problems, anxiety and related forms of mental distress. Up to half of these were repeat prescriptions. In 1988 this cost the NHS £40.2 million. An international survey in 1981 showed that nearly seven per cent of British adults had used anti-anxiety and tranquillising medicines in the previous year.⁷ While the UK had lower usage rates than either the USA or most other European countries, it ranked third highest of 11 countries in long-term use, with about three per cent (about 1.25 million people) having taken them for over a year.⁸

While benzodiazepines do have a clear role in both hospital and general practice, estimates suggest that 15–44 per cent of long-term users – up to 175,000 people⁹ – experience withdrawal symptoms when stopping their use¹⁰ and often make considerable use of the NHS when trying to stop taking them. Moreover, they are often inappropriately prescribed both for depression (usually among women) and to those who have no discernible psychiatric illness at all.¹¹

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While the effects of long-term benzodiazepine misuse are not as damaging to health as those of cigarettes, alcohol or some illicit drugs, they demonstrably cause dependence and impair memory and adversely affect driving skills.^{12, 13} They are associated with a five-fold increase in the risk of road accidents and cause 'hangovers' and confusion among older people. There is a well-established association between taking repeated drug overdoses and the use of psychotropic medicines. In one study of people who deliberately took drug overdoses, over half had been on benzodiazepines, and, of these, one-third had no clearly defined psychiatric illness at all.¹⁴ Moreover, simple counselling in a primary care setting is as effective as benzodiazepine treatment in the treatment of anxiety.¹⁵

Benzodiazepines: trends in the last decade

Benzodiazepines were introduced into the UK in the mid-1960s. Following heavy promotional campaigns, they gradually took over from barbiturates as the new 'remedy' for insomnia and anxiety. Between 1970 and 1988 there was a fifty-fold reduction in barbiturate prescriptions. This was associated with concerted action by the medical profession to curb their use following the realisation that they were addictive, and potentially lethal. Recognition of the over-prescribing of benzodiazepines came in the late 1970s. The issue of benzodiazepine prescriptions for anxiety rose to a peak in 1979 and there has since been a 25 per cent fall to 1988. The prescription of benzodiazepine hypnotics (sleeping tablets) more than doubled, however, from 5.9 million in 1972 to 14.9 million in 1988. (see Figure 28). Some of the fall in sedative prescriptions can be attributed to the well-orchestrated campaigns by MIND – the National Association for Mental Health – supported by the media. The potential for further reduction – especially inappropriate long-term use – lies in the education of future doctors and the public.

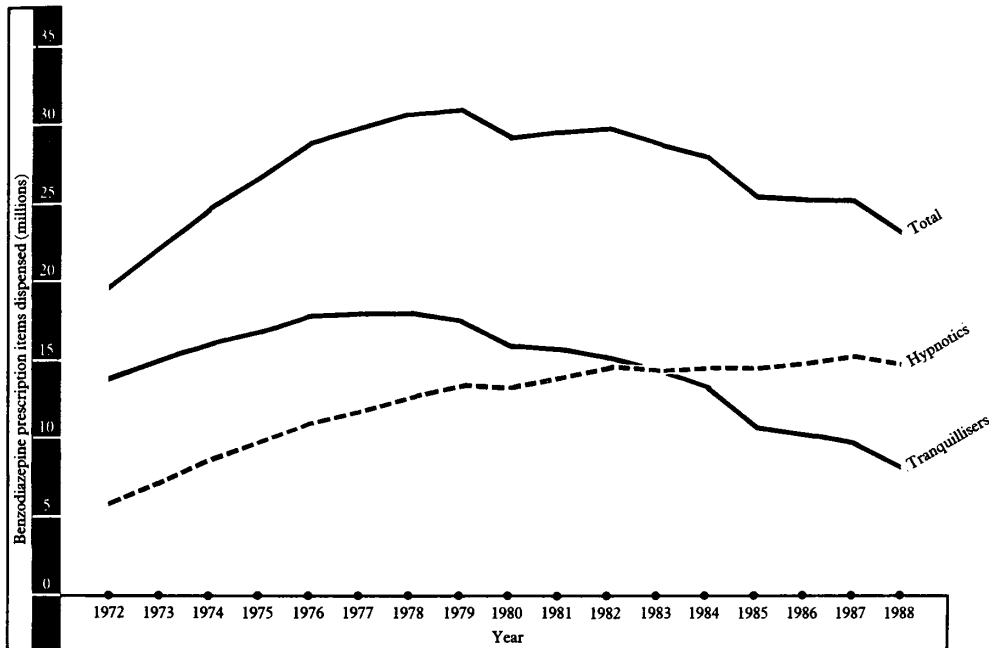
Suicide and deliberate self- harm

Suicide is an important cause of premature death and parasuicide (deliberate self-harm) is a major cause of suffering. Although we have about average suicide rates for the affluent world, 4,200 people in England and Wales committed suicide in 1988, and a further 100,000 are admitted to hospital for self-poisoning annually. Suicide is the third leading cause of death among 15–34 year olds, and parasuicide is the second commonest reason for emergency medical admission – costing the NHS an estimated £15–20 million annually in the mid-1980s.¹⁶

Although each suicidal act results from a unique combination of social and psychological factors, some important general features emerge from overall patterns of suicide and parasuicide that point to the scope for their prevention. First, suicide and parasuicide differ in many important respects (see Table 21). Most suicides occur in

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Figure 28 Trends in benzodiazepine prescriptions in Great Britain (1972–1988)



Source: House of Commons. Hansard. 27 February 1990.

middle age: rates are currently highest among men over 60 who are either widowed, divorced or single. Parasuicide, on the other hand, is more likely to occur in divorced young women in the manual classes and the rates are highest in divorced women.¹⁷ However, there are some important similarities between the two. Both suicide and parasuicide are much more common among the unemployed living in areas of multiple deprivation¹⁸ (see Chapter 8) and 40 per cent of those who commit suicide have a history of parasuicide.¹⁹ This has implications for prevention – if it is possible to identify those parasuicides at high risk of committing suicide.

Suicide trends and implications for prevention

Suicides reached a peak in 1963 and then fell dramatically until the mid-1970s (see Figure 29). Since then there has been a significant increase among men aged 15 to 44, but no significant changes in older groups. Among men aged 15–24 the increase was particularly dramatic with a 40 per cent increase between 1982 and 1987. In contrast, women in all age groups showed a decline in suicide rate, most marked in the 35–44 age group.²⁰

Suicide has always been a recognisable feature of most cultures. Despite this, the dramatically changing overall pattern over the last two decades, together with other factors associated with suicidal behaviour, suggest that there is some scope for prevention. First, trends

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Table 21 Summary comparison of parasuicides and suicides in the UK

	Parasuicide	Suicide
<i>Secular trend</i>	Now stationary	Increasing in males, stationary in females
<i>Sex</i>	Commoner in females	Commoner in males
<i>Age group</i>	Mostly below 45	Mostly above 45
<i>Marital status</i>	Highest rates in divorced and single	Highest rates in divorced, single and widowed
<i>Social class</i>	Higher in lower classes	Higher in lower classes
<i>Urban/rural</i>	Commoner in cities	Commoner in cities
<i>Employment status</i>	Associated with unemployment	Associated with unemployment and retirement
<i>Effects of war</i>	?	Lower in wartime
<i>Seasonal variation</i>	None evident	Spring peak
<i>Broken home in childhood</i>	Common	Common
<i>Physical illness</i>	No obvious association	Probable association
<i>Main psychiatric diagnoses</i>	Situational reaction, depression, alcoholism	Affective disorder, alcoholism
<i>Personality type</i>	Psychopathy common	No special type

Source: Adapted from Kreitman N. Suicide and parasuicide. In: Kendall R E, Zealley A K (eds). Companion to psychiatric studies, 4th edition. London, Churchill Livingstone, 1988.

in the UK show that the single most important factor in reducing overall suicide rates since the 1960s has been the elimination of carbon monoxide from domestic gas supplies.²¹ The implication is that controlling the availability of methods for committing suicide may further reduce death rates. In addition, suicide is influenced by glamorised reporting of suicides in the media.^{22, 23} Better public and professional awareness of the need to throw away unused or unwanted medicines from the home, together with restriction and supervision of the availability of painkillers in chemists and supermarkets, may help but are unlikely to have a major impact.

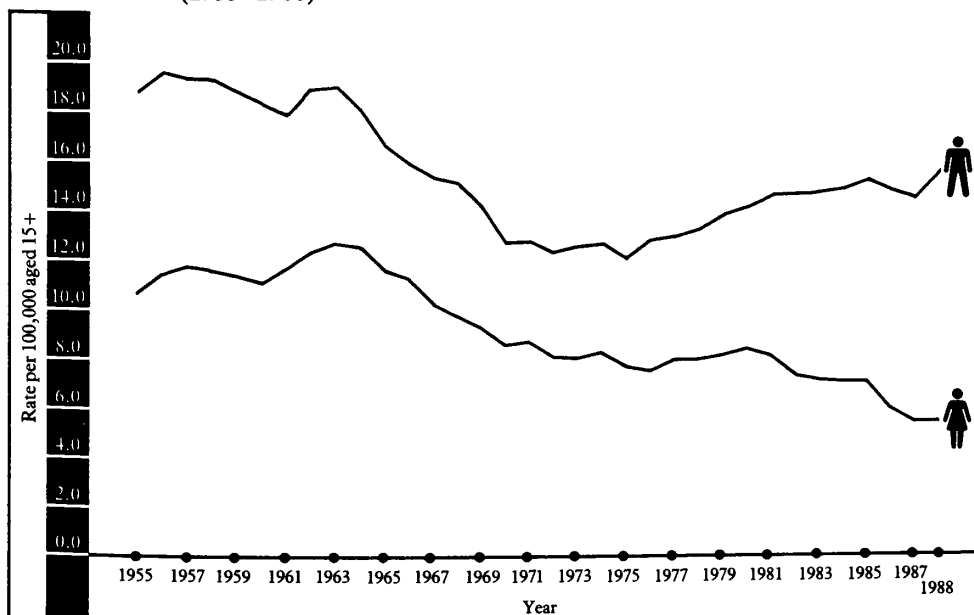
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The majority of people who commit suicide have suffered depressive illness and have contacted their GP in the month beforehand.²⁴ Primary care would seem to have a potential role to play in suicide prevention. Bereavement counselling has been shown to be effective in preventing a deterioration in mental health – especially among older widows and widowers who are at risk of suicide.²⁵ More research is needed to assess the effectiveness of such skills in other age groups. Community-based suicide prevention schemes like the Samaritans' telephone counselling service are beneficial in many ways, but have not been able to demonstrate any beneficial effect on suicide rates.²⁶ Efforts to screen for those who are at high risk of committing suicide have not yet proved to be feasible on a large scale.²⁷⁻²⁹

Trends in parasuicide and the potential for prevention

In the three decades before 1977 there was a sharp rise in hospital discharge rates for parasuicide among women.³⁰ But rates in every age group have since fallen. The more recent detailed analysis collected by the Regional Poisoning Treatment Centre in Edinburgh, confirms this trend for women and shows that parasuicide rates are highest among the younger age groups (see Figure 30).³¹ We do not know what underlies these changes in the pattern of parasuicide. Although there is little evidence to go on, the challenges raised in the prevention of parasuicide seem different from those of suicide. In

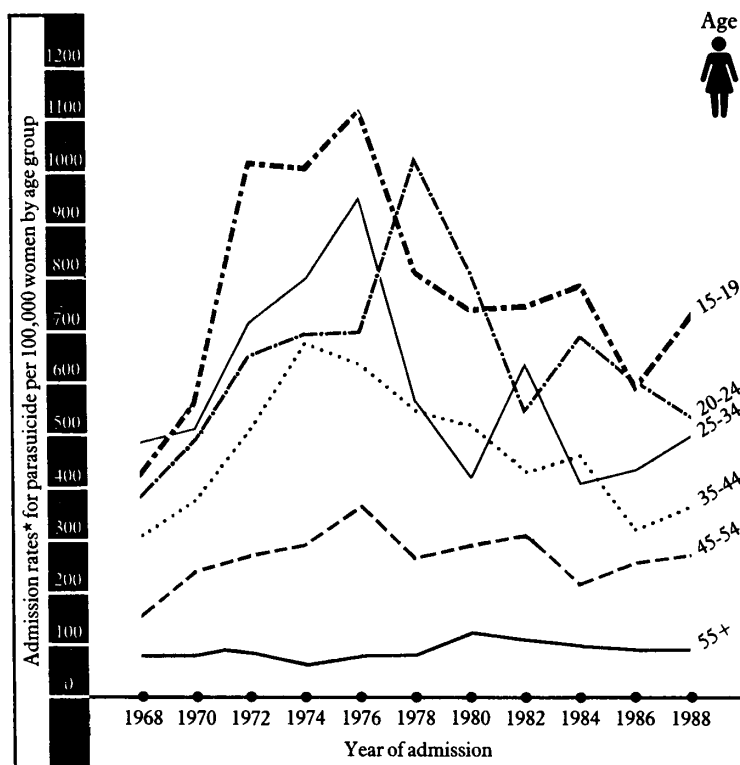
Figure 29 Trends in suicide by sex in England and Wales (1955–1988)



Source: OPCS Series DH2. Mortality statistics: cause. Various years.

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Figure 30 Trends in parasuicide among women in Edinburgh (1968–1988)



*From 1981 the new census base was used for calculations.

Source: Kreitman, N. Annual reports on admissions to the Regional Poisoning Treatment Centre, Edinburgh, various years.

parasuicide we need to prevent what is often an impulsive act. There is no evidence so far that contact with the Samaritans has any impact on the parasuicide rate, and intervention studies aimed at preventing repetitions among those who have already taken an overdose have all had negative results³²⁻³⁴ – although other beneficial effects were noted. As research shows that minor tranquillisers (mainly benzodiazepines) and non-prescription pain killers are the commonest means used in parasuicide,³⁵ one of the more obvious approaches to its prevention lies in avoiding unnecessary benzodiazepine prescriptions.

Schizophrenia There are about 150,000 people suffering from schizophrenia in the UK. While numbers are small compared with other types of mental illness, schizophrenia usually starts in early adulthood and imposes a heavy burden of care on families, the community and the NHS. It often requires a lifetime of medical follow-up with intermittent hospital admission. In England alone there were 29,000 admissions for

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schizophrenia in 1986. About 60–70,000 patients are in day care. The annual health care costs imposed by schizophrenia were estimated at over £200 million in 1978.³⁶

We do not know what causes schizophrenia, but twin and adoption studies show that there is a strong genetic component to the disease. Biochemical evidence of abnormalities in chemical messengers in the brain may ultimately lead to a better understanding of its cause. We know little, however, about the role of specific environmental factors in schizophrenia, especially as its incidence – with one or two exceptions – is similar in widely differing cultures. Although disharmony within families and social deprivation are associated with schizophrenia, evidence so far suggests that family members who are excessively critical or emotionally over-involved with those who develop schizophrenia, are more likely to affect the *course* rather than the *onset* of schizophrenia.³⁷ On the basis of current knowledge, we can do little to prevent the onset of schizophrenia, but the scope for minimising the disability it causes is much larger.³⁸

Mental ill health and handicap in children

The scope for the prevention of mental ill health in children is broad and has been outlined in a major report from the WHO in 1977³⁹ and more recently in a report from the RCGP.⁴⁰ We assess in other chapters many of the specific measures which can demonstrably contribute to the prevention of childhood mental handicap and psychiatric disorder. Some of the most exciting possibilities for prevention are in the field of mental handicap. The most important measures to prevent mental ill health in childhood include the following.

- The reduction of unwanted and unplanned pregnancies through the provision of family planning and abortion services (see Chapter 13).
- Antenatal screening and the offer of termination of pregnancy for the prevention of Down's syndrome and spina bifida. Newer techniques of gene mapping and sampling offer major opportunities in the near future for the prevention of genetic diseases (see Chapter 11).
- Avoidance of smoking and heavy drinking during pregnancy to prevent retardation of fetal growth and development (see Chapters 4, 5, 11).
- Prevention of premature births and of brain damage during delivery (see Chapter 11).
- Screening after birth for phenylketonuria and congenital hypothyroidism to prevent impaired intellectual development (see Chapter 11).
- Immunisation against rubella and measles (see Chapter 12).

More controversial has been the evidence concerning the effect of

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low levels of environmental lead on intellectual development. Although a DHSS expert group, and a subsequent review of the field,^{41,42} concluded that the evidence linking lead to intellectual impairment fell short of proof, public concern, together with differential taxation favouring lead-free petrol and a major campaign in the UK and EC, has led to one in five car users buying lead-free petrol. We believe that there is persuasive evidence linking environmental lead and intellectual impairment in children and that, since the reduction of atmospheric lead was both feasible and potentially desirable, there was sufficient justification for action.

More recently, concern has been expressed about the role of tartrazine (an artificial food colouring) in childhood hyperactivity. The evidence implicating tartrazine is weak, largely based on individual instances of behaviour disturbance. Hyperactivity is unlikely to be due to tartrazine alone.⁴³ A consensus development conference on the issue held by the National Institute for Health in 1982 concluded that more research was needed before any action should be considered. Concern about tartrazine should not be seen in isolation, and there is a need to look at the effects of a wide range of other food additives and constituents.

Child abuse The emotional, physical and sexual abuse of children has only recently been recognised as a major problem. Despite recent publicity and justifiable concern, there is little evidence to suggest that the incidence of physical child abuse is rising. While NSPCC child abuse registers recorded a 42 per cent increase in recorded cases of child abuse between 1985 and 1986⁴⁴ much of this is likely to be due to increased recognition and recording of a previously hidden problem. Increased publicity of individual cases probably contributed to the increase in numbers of children taken under the protection of the local authority. From 1980 to 1985 there had generally been a reduction in the number of children in England and Wales removed to a place of safety by local authorities. However, in 1986 and 1987 the number showed a sharp increase from 5,200 to over 8,000. This increase was then checked and fell back slightly by March 1988.⁴⁵

In 1988 the first national survey of Child Protection Registers was carried out in England and Wales. Approximately 40,900 children and young people were on the registers in March 1988, representing a rate of 3.5 children per thousand in the population under 18. Thirty-seven per cent were on the register under 'grave concern'; 28 per cent under 'physical abuse'; 15 per cent under 'sexual abuse'; and 13 per cent in the 'neglect' category. These figures are slightly lower, but broadly in line with those published by the NSPCC in 1987.

The severity of abuse also seems to have been changing. A survey

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based on all cases of child abuse resulting in physical injury in South Glamorgan between 1970–81 has shown a *fall* in severe injury with a steep rise in milder injuries since 1973.⁴⁶ The most likely explanation for these trends is that the concept of the 'battered child' did not reach official consciousness until the late 1960s, and since then the increase in reporting represents formal recognition of what was already happening. The decrease in severity of recorded injury, and earlier professional intervention, may be a positive reflection of that increased recognition. Similarly, increased awareness of the sexual abuse of children has led to a rise in the number of cases reported to paediatric departments.^{47, 48} The victims are usually girls under 10, and the perpetrators are usually men – commonly fathers and step-fathers living in the family home.⁴⁹

Although we know that children most at risk of physical abuse tend to come from multiply-deprived families, where young parents often live in over-crowded conditions, sexual abuse can occur in any social group. We do not at present know how to prevent either kind of abuse.

Public and political concern about recent individual cases of physical abuse has led to more clearly defined ways of managing and following up children after admission into hospital. A full inquiry into ways of minimising the damage to 'at risk' children resulted from an individual case in 1986. The inquiry recommended changes in training and coordination of a wide range of professional activities, translated by the DHSS into a set of guidelines for future inter-agency cooperation. Following the publication of the report of the Cleveland inquiry on sexual abuse,⁵⁰ the DoH issued further guidance for inter-agency cooperation and the regulations regarding child protection have been tightened up in the 1988 Children Act. Social measures may be expected to make a positive contribution to the prevention of physical abuse, together with early identification of parents at risk, although this has yet to be demonstrated. The provision of emotional support and, occasionally, emergency substitute child care may be life-saving in an emergency. Where biological parents are unable to look after their children themselves, long-term fostering and, preferably, adoption is the best means of preventing later emotional disorders in childhood.⁵¹

Emotional and behaviour disturbances in children

Emotional disorders affect about five per cent of children. Over-protective parents, families with severe marital problems, or ambivalence about a pregnancy are associated risk factors.⁵² Over-protectiveness may result from past experience of miscarriage, or from a combination of a physically disabled child and an anxious parental personality. Early recognition of the problem together with child-centred counselling may be helpful. Sensitive hospitalisation

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policies which allow frequent parental visiting may reduce a subsequent overprotective reaction.⁵³

Conduct disorders ('delinquency') in older children and teenagers include aggressive behaviour, truancy and stealing. In the last two decades there has been a trebling of the delinquency rate among 14–17 year old boys. Although delinquency is still about five times as common in boys as girls, this ratio has been falling.⁵⁴ There is now clear evidence that conduct disorders, as well as other emotional disorders in adolescents, are twice as common in inner city as in rural areas.^{55,56} A major study comparing inner London with the Isle of Wight⁵⁷ came to the following conclusions.

- The two-fold difference in prevalence is real and not due to ethnic differences or the drifting of the mentally ill into the inner city.
- While poverty and low socioeconomic status play a part in the higher inner city rates, they explain only a small part of the differences.
- Differences in patterns of disorders among parents were the same as among children.
- Inner city problems were most likely to be chronic, starting early in childhood.

A number of different research approaches have shed further light on those aspects of inner cities that may predispose children (and their parents) to mental ill health.

- The higher inner city rates are not simply due to high population density or urbanisation, and city living on its own is not a sufficient explanation.^{58,59}
- Rates vary widely within the inner city. Children living above the fifth floor in housing estates have higher levels than those living on lower floors.⁶⁰
- Research shows clearly (see Chapter 12) that the school itself has an independent, influential role in truancy and scholastic performance.
- Psychosocial adversity in the family has a key role, and those families with high adversity rates in *either* inner London or the Isle of Wight were equally at risk of having children with psychiatric disorder.⁶¹ It is likely, therefore, that the main adverse effect is indirectly exerted on children through direct adverse effects on parents.

Although there is little supporting evidence as yet, the following areas have been identified for potential public health action:

- improved building design with more security and privacy;⁶²
- better supervision and planning, together with control of alcohol at football matches;

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- improved leisure facilities – delinquency rates are highest in cities with fewest leisure provisions;⁶³
- improved school organisation (see Chapter 12).

Older people The prevention of mental ill health in an expanding population of older people is one of today's biggest public health challenges. Although the majority of over 65s are neither mentally nor physically ill (see Chapter 14), both depression and dementia are important problems. Fifteen per cent of over 70s (and 20 per cent of the over 85s) suffer from dementia. In 1986, 20,800 people in England were admitted to hospital with dementia, but by far the largest burden of responsibility falls on the community, either through surviving relatives, neighbours and friends, or on health and social services; more than five times as many demented people live in their own homes as in institutions. Inadequate data makes it difficult to estimate the total cost of dementia to the NHS, but in 1977 £138 million was spent on the care of the demented in psychiatric units and residential homes.⁶⁴

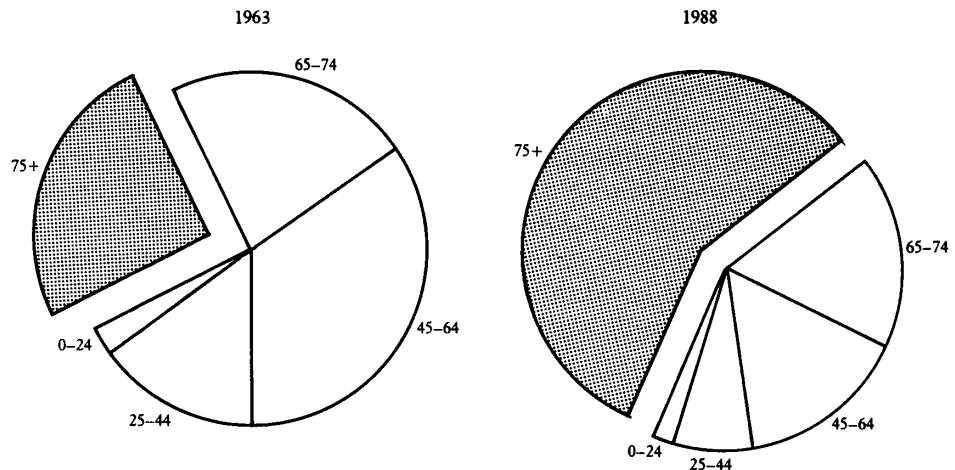
Dementia Although the age-specific prevalence of dementia has remained unchanged, continuing expansion of the elderly population, especially among those over 75 and 85, has meant that the crude prevalence of dementia has risen very quickly and is likely to continue to do so for at least another 20 years (see Figure 31). The OPCS Survey of disability in Great Britain in 1985 and 1988 found the prevalence of disability associated with 'intellectual functioning' ranged from 20 per 1,000 population aged 16–59, to 40 per 1,000 for the 60–74 age group and 109 per 1,000 in the 75 and over age group.⁶⁵

The outlook for the prevention of dementia is limited at present, but not wholly bleak. Dementia is of two major kinds: the Alzheimer type (in which there is a gradual degeneration of brain tissue) and multi-infarct dementia (which is caused by a series of small strokes which gradually reduce active brain substance). Although there is little we can do at present to prevent the Alzheimer type, enough is now known about its biochemistry to offer scope for research into its prevention in the near future. The multi-infarct kind of dementia accounts for up to 30 per cent of all dementia,⁶⁶ and high blood pressure is a risk factor. A reduction in blood pressure in middle age will therefore not only reduce the risk of coronary heart disease and stroke, but may also reduce the incidence of dementia – although this has yet to be demonstrated.

While we do not yet know how to prevent dementia, knowledge of those who are at risk may help prevent some of its consequences. In an average general practice where one in ten people over 65 will be demented, as many as 80 per cent may be unknown to their GPs.⁶⁷

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Figure 31 Women residents in Scottish mental illness hospitals and units: percentage distribution by age in 1963 and 1988



Source: Information Services Division. Scottish health statistics 1989. Edinburgh, Information Services Division, 1989.

There is still untested scope for developing a system of regular, outside support for the demented living at home which may minimise the distress of dementia both to older people themselves and to those who care for them. This could also offer an opportunity for reviewing unnecessary drug prescriptions – especially benzodiazepines which can lead to an incorrect diagnosis of dementia and should form part of the over 75s health check required by the new GP contract. Support through respite care for those who bear the brunt of looking after elderly relatives with dementia may not merely be humane, it may also avoid depression among carers themselves (see Chapter 14).

Depression in old age

Dementia is not the only major psychological problem in old age. Indeed, more than three times as many people over 65 suffer from depression. Representative community surveys suggest that about 17 per cent of people over 65 are depressed – about the same prevalence as among younger women. Again, the rates are twice as high for older women (23 per cent) as for men (12 per cent).⁶⁸

Three major sets of factors are important features associated with depression in old age: deteriorating brain function; physical disease; and psychological factors. The last two offer most potential for prevention. As people get older they are more likely to become physically ill. As many as 60 per cent of depressed elderly people also have significant accompanying physical illness.⁶⁹ If this can be shown to be a cause of depression, then it offers scope for prevention. Because 'life events' involving loss and bereavement are important factors in

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depression, the elderly are clearly vulnerable, although they show less severe bereavement reactions than people in other age groups. Bereavement counselling by both professionals and trained lay people can be of value,^{70, 71} especially as 30 per cent of people over 65 live alone and may not be able to express their grief to anyone else. These findings need to be translated into better preventive practice in primary care since one large study showed that as many as two-thirds of elderly widows were not visited by their GP in the six months following a bereavement.⁷²

11 A healthy maternity

It is the customary fate of new truths
to begin as heresies and end as
superstitions.

THOMAS HENRY HUXLEY

Introduction In the last two chapters we assessed the potential for promoting physical and mental health and for preventing illness throughout the age spectrum. In this and the next three chapters we consider the potential for promoting specific aspects of health at different stages in the life cycle. We begin with maternity and move on, in the following chapters, to childhood, adolescence, adulthood and old age. We do not attempt to be comprehensive, but rather to use each stage of the lifecycle as an opportunity to focus on several key areas which offer potential for the prevention of disease and promotion of health. In this chapter we start with an assessment of change in the experience and outcome of pregnancy over the last decade, and the contribution made by the maternity services.

Recent trends and today's challenges Carrying and giving birth to a wanted child remains one of the most significant and rewarding events in the lives of women and men. It is also a safer experience today than ever before for both mother and child. Death of the mother during, or as a result of, childbirth is now rare and only ten women in every 100,000 died as a result of childbirth in England and Wales in 1988. As we have seen in Chapter 2, mortality around birth and in early infancy continues to decline, although there has been a levelling off in the rate of decline in the 1980s, and even a rise in rates in 1986. There is no room for complacency.

With the decline in death rates there has been a broadening of the objectives of the maternity and allied services. Official policy reflected in the three reports from the House of Commons Social Services Committee on perinatal, neonatal and infant mortality^{1, 2, 3} (the first two known as the Short reports), the government's replies,^{4, 5} and the subsequent guidelines issued by DoH's Maternity Services Advisory Committee,⁶⁻⁸ now endorse these wider goals which might be summarised as follows:

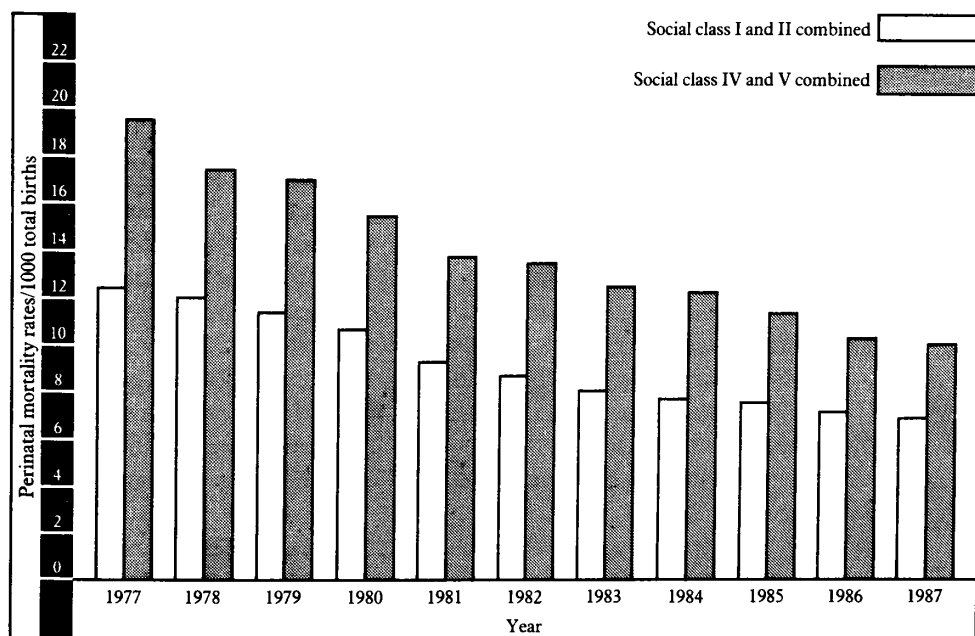
- to reduce perinatal and neonatal mortality rates (that is, deaths around birth and in the first month of life);
- to eliminate disparities in these death rates between different sections of the community;

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- to minimise impairment, disability and handicap;
- to promote the social and emotional wellbeing of parents and children.

The reduction of the social disparity in perinatal mortality rates between non-manual and manual social classes (see Chapter 8) remains a challenge. In 1987, babies born to the manual classes (IV and V combined) were nearly 150 per cent more likely to die in the perinatal period than those born to professional classes (I and II). The relative disparity has remained unchanged over the last decade (see Figure 32). Analysis by ethnic origin reveals a complex picture for the years 1982–85. The groups studied were babies of mothers born in the UK, Eire, India, Bangladesh, East Africa, West Africa, the Caribbean and Pakistan. Infant mortality for mothers from Pakistan and the Caribbean was considerably higher than that of mothers born in the UK. Mothers from India, Bangladesh and East Africa, however, had similar levels of infant mortality to the UK. Differences emerged for each period of infancy. Whereas all mothers born outside the UK showed excess perinatal and neonatal mortality over those born in the UK, this was not true for mortality after the first

Figure 32 Trends in perinatal mortality rates by social class for England and Wales (1977–1987)



Sources: Whitehead M. The health divide. In: *Inequalities in health*. London, Penguin, 1988.
OPCS Series DH3, No 21. Mortality statistics. Perinatal and infant: social and biological factors 1987. London, HMSO, 1990.

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month of life (the postneonatal period). Postneonatal mortality was raised only for the babies of mothers from the Caribbean and Pakistan: for mothers from other countries the rate was *lower* than the level for the UK-born mothers.⁹

The Scottish Stillbirth and Neonatal Deaths Survey, which has conducted a confidential inquiry into every perinatal death since 1977 (and every neonatal death since 1985), shows that low birthweight and congenital malformations are the most important determinants of perinatal death.^{10,11} Although perinatal mortality rates are sometimes used as indicators of the quality of the maternity services, low birthweight is more closely associated with poverty than with medical care. Poverty is further associated with higher maternal smoking rates which are also associated with low birthweight. It has been argued that in comparing the perinatal mortality in different countries, adjustments should be made for differences in the birth prevalence of low birthweight and congenital abnormalities. When these adjustments were made to statistics for 1978, the adjusted perinatal mortality rates for the UK compared favourably with those of Scandinavia and other parts of Europe, where crude perinatal mortality rates have always been much lower.

Although this suggests that our treatment services cope very well with low birthweight babies, it strongly suggests the need to concentrate on *preventing* low birthweight and congenital abnormality which explain much of the UK's poor international record. In 1987, 4.7 per cent of babies born to fathers in social class I in England and Wales weighed less than 2,500 gm (the usually accepted threshold for low birthweight) compared to 8 per cent for babies in social class V. Stillbirth and early neonatal death rates among babies weighing less than 2,500 gm were over 40 per 1,000 in 1987, compared with under 1.5 per 1,000 for normal birthweight babies (3,000–3,500 gm). Two-thirds of low birthweight babies are born to working class mothers and despite improvements in the survival of babies in all birthweight categories the proportion of total births, where babies weight is under 2,500 gm has remained unchanged at around seven per cent over the last three decades. Although this figure is lower than for the USA and parts of Eastern Europe, the proportion of low birthweight babies in Sweden and Finland is less than five per cent.

In Chapter 8 we assessed the contribution made by material deprivation to health in general. Its contribution to perinatal mortality is important, but we do not know how big it is. Congenital abnormality continues to account for one in five of all perinatal deaths. Death rates vary markedly throughout the UK and the rest of the world. This is largely a reflection of the varying incidence of low birthweight and central nervous system malformations which mani-

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fest either in their fatal form (anencephaly) or in a related, seriously disabling form (spina bifida).

Childhood disability and handicap

The OPCS surveys of disability in Great Britain, carried out between 1985 and 1988, estimated that there were 360,000 children under 16 with one or more disabilities – just over 3 per cent of all children in Great Britain. Of these, 5,500 – under 2 per cent – lived in communal establishments.¹² The vast majority lived in private households and of these 7 per cent had disabilities caused by congenital problems. A proportion of cases linked to perinatal factors are potentially preventable through maternity care. An earlier study estimated that two per cent of the population suffered mild intellectual impairment (with an IQ between 50–70) which is concentrated among low birth-weight babies from working class families.¹³

Sudden infant death syndrome (SIDS)

It has been suggested that there is considerable scope for the reduction of mortality due to SIDS or 'cot deaths'. As we have shown in Chapter 2, SIDS now represents a major cause of death in the first four months of life. Wide variation in reporting has led to difficulty in interpreting the data, but respiratory disease is the most commonly associated factor. There is no associated cause in up to 48 per cent of cases.¹⁴ While we are far from clear about the causes of SIDS, one intervention study in Sheffield suggests that about 15 per cent of these deaths may be preventable by the use of a scoring system to detect high risk babies at birth, together with extra health visiting support during the first 20 weeks of life.¹⁵ These Sheffield findings need confirmation elsewhere before a conclusion on effectiveness can be reached.¹⁶

Social features of childbearing

Surveys of women's experiences of pregnancy and childbirth, based on selected samples, suggest that while many women find childbirth an enjoyable experience,¹⁷ hospital and antenatal care is characterised by long waiting times, poorly organised and dreary surroundings, and impersonal care.¹⁸

A review of innovations in antenatal care,¹⁹ together with more recent surveys of users in 1981 and 1983,²⁰ suggest that there has been a conscious effort by some authorities to provide more flexible and supportive services. The availability of good health education material like the HEA's *Pregnancy Book* and SHEG's *Book of the Child*, as well as information on antenatal care in a number of other languages, has increased, but there is little evidence that the antenatal clinic is being systematically used as an opportunity for the exchange of information and advice. Most maternity units allow fathers to attend and assist in the birth and more mothers are now given their babies to hold immediately after birth.²¹ Mothers are also

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Table 22 Trends in breast feeding in England and Wales (1975–1985) and Scotland (in brackets)

	Attempting breast feeding at birth (%)	Still feeding at six weeks (%)	Introducing solids before 3 months (%)
1975	51	24	85
1980	67 (50)	42 (32)	56
1985	65 (48)	40 (29)	62

Source: Martin J, White A. Infant feeding 1985. London, OPCS/HMSO, 1988.

given support with breast feeding, largely by health visitors, midwives and counsellors. Three national surveys of breast feeding reflect this new emphasis to some extent: in 1985, 40 per cent of women in England and Wales were still breast feeding at six weeks compared with 24 per cent in 1975. The lack of improvement in breast feeding rates between 1980 and 1985 has been disappointing. (see Table 22).

There are still wide regional and social class disparities in breast feeding, the proportion in 1985 being highest (74 per cent) in London and south east England and lowest in Scotland (48 per cent). However, rates of breastfeeding among mothers of first babies are falling in all regions. Older, professional women are more likely to breast feed than younger, working class women.²²

How have the maternity services changed?

Virtually all women receive some form of maternity care, although the women suffering most social deprivation – especially Bengali women – are least likely to attend early or be adequately informed of maternity services, or may not be referred by their GP.^{23,24} There have been efforts to change this position for example by a DoH-funded Asian Link Worker Scheme but initiatives are hampered by lack of long-term funding. The most striking change occurring over the last 15 years has been increased medical intervention at all stages of pregnancy, childbirth and the neonatal period. There was a profound shift of responsibility for antenatal care from the midwife and the GP to the hospital consultant in the 1970s. In the 1970 British Births Survey, only 22 per cent of women were seen exclusively in a hospital unit, whereas in a study of the whole of Aberdeen in 1979 this proportion had increased to 71 per cent.²⁵ While Aberdeen may be atypical, the figures do reflect a genuine increase that took place over this period. Although there are no national data, there has been some shift back to shared GP/midwife/consultant care since then, with some consultants – notably in Scotland and inner London – holding antenatal clinics in the community.

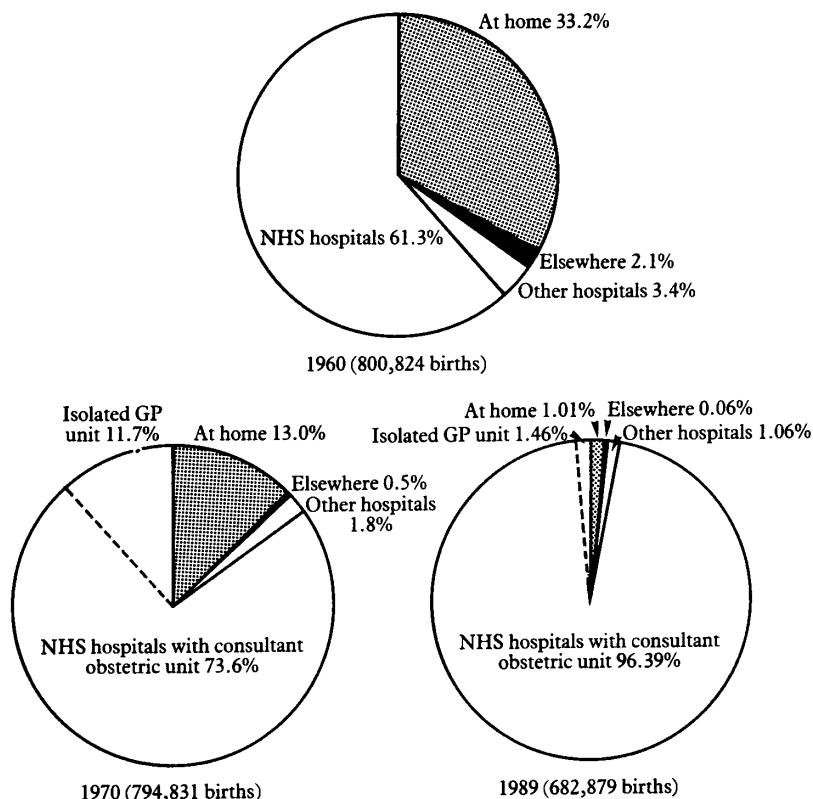
Although there are no national estimates, more and more pregnant women are undergoing antenatal investigation, with more than 80

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per cent having a routine ultrasound scan at 16–18 weeks of pregnancy.²⁶ Screening services for the detection of Down's syndrome are patchy, with poor overall uptake, but screening for neural tube defects is now available in every health authority. Counselling provision – especially in the genetic field – had developed in about 20 centres by 1983.

In 1989, 99 per cent of babies in Great Britain were born in hospital. This is the culmination of a trend away from home and GP unit deliveries which has taken place over the last three decades (see Figure 33). Government policy has led to the closure of many isolated GP maternity units with a relative concentration of deliveries in larger, consultant units. There has been a concomitant increase in intervention in labour (see Figure 34) with large increases in the proportion of women having episiotomies in the 1970s – a procedure whereby the skin around the opening of the vulva is cut, ostensibly

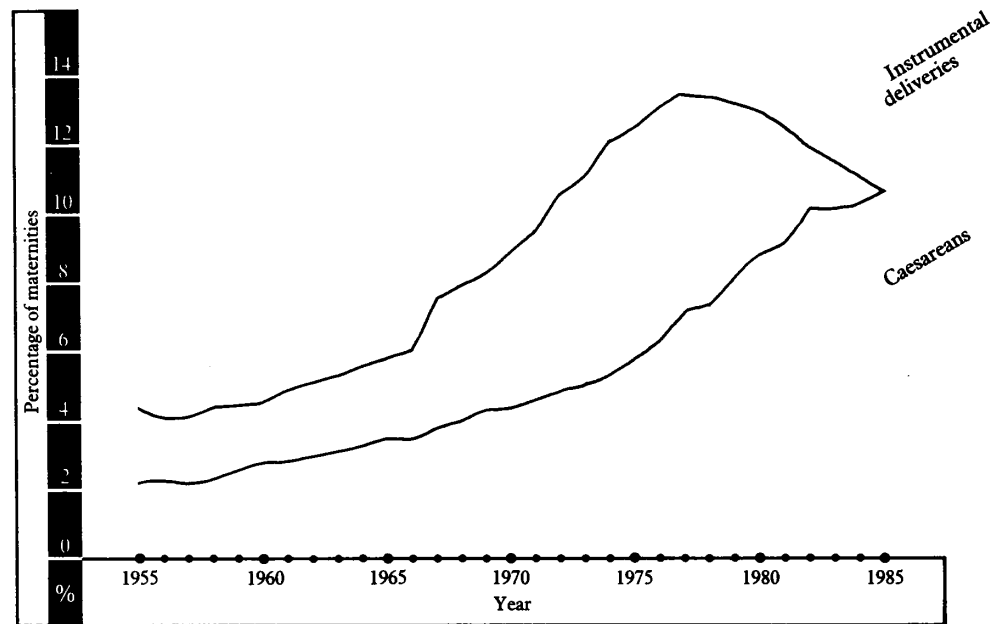
Figure 33 Trends in the place of delivery 1960–1989 (England and Wales)



Sources: Macfarlane A, Mugford M. Birth counts: statistics of pregnancy and childbirth. London, HMSO, 1984.
OPCS. VS2 returns for 1989.

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Figure 34 Trends in obstetric intervention in England and Wales (1955–1985)



Sources: Welsh Office. Maternity in-patient enquiry. For 1982–84 – House of Commons. Hansard, 12 January 1987, col 133–134. For 1985 – House of Commons. Hansard, 24 July 1987, col 713.

to prevent serious tears when the baby is born. The artificial induction of labour increased to a peak in 1974, then fell and remained at about 35 per cent until 1980. It has since fallen to about 18 per cent. The caesarean section rate more than doubled in England and Wales from 4.3 per cent of deliveries in 1970 to 10.6 per cent in 1985. The picture is similar in Scotland with an increase in caesarean section rates from 8.5 per cent in 1975 to 13 per cent in 1985. In 1991 we were still awaiting more recent national figures for England and Wales on obstetric intervention for the years after 1985, but these have not yet been published.

Following a series of recommendations from the Short reports, the British Paediatric Association and the Royal College of Obstetricians and Gynaecologists, there has been an increase in the provision and use of special and intensive care baby units. By 1977 as many as 20 per cent of newborns were nursed in special care baby units, but since 1983 there has been a decrease in special care and an increase in intensive care, because the criteria for admissions have been revised.

The rationale for the changes

Antenatal care The Short reports have reiterated their belief that antenatal care, and early attendance in particular, is effective in

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reducing perinatal mortality. Although there is an inverse relationship between perinatal mortality and frequency of attendance at antenatal clinics,^{27, 28} the effect of early attendance on perinatal mortality has never been properly tested. Moreover, the observed association may be explained by the fact that women who book early at antenatal clinics are more likely to come from professional backgrounds and thus to have a lower risk of perinatal death – irrespective of whether they attend early or not.

Antenatal care is a complex mixture of interventions that would make a randomised control trial impracticable, and probably unacceptable. However, recent research offers a more realistic picture of what we can expect from it. A study of all pregnant women in Aberdeen in 1975 showed that many of the problems arising in pregnancy are unpredictable, and that antenatal visits up to the 32nd week of pregnancy (excluding screening for genetic and chromosomal disease which was not assessed in the study) are diagnostically relatively unproductive. The study concluded that antenatal visits for low risk women could be reduced and blood pressure screening tests more efficiently and comfortably performed by the midwife at home or in primary care.²⁹

Psychosocial interventions The widely held belief in the value of the prevention of anxiety and provision of a socially supportive environment during pregnancy and labour is increasingly borne out by the evidence. Not only can stressful experiences for the mother adversely affect events from conception to birth³⁰ but intervention consciously designed to support women can positively affect the outcome of pregnancy.³¹

A statistical pooling analysis of 29 registered randomised controlled trials up to 1985³² of some form of social support (all non-clinical interventions involving information, health education, counselling and changes in the organisation or environment of care were defined as 'social support') showed that it had the following significant, beneficial effects:

- a reduction in the amount of drugs used for pain relief in labour (this was mostly as a result of antenatal education/preparation classes);
- a reduction in the risk of prolonged labour;
- a reduced risk of instrumental delivery, maternal anxiety and postnatal depression.

Although the pooling exercise did not demonstrate a significant effect on the proportion of low birthweight deliveries *overall*, a significant beneficial effect was detectable in one of the trials among women in the highest risk categories. Although this may be an isolated finding, it offers a possible way of reducing the incidence of low

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Table 23 The main antenatal and neonatal screening tests of proven effectiveness

Problem	Approx prevalence/ 1,000 births	Levels of implementation in the NHS
DISORDERS AFFECTING THE FETUS		
1 Anencephaly	20	Probably variable
2 Spina bifida		
3 Down's syndrome	20	Partial and variable
4 Rhesus disease	15	
5 Thalassaemia major	70	Full
6 Haemophilia	5	Experimental
	0.4	?
ANTENATAL DISORDERS AFFECTING THE MOTHER		
1 Eclampsia	20	Probably good
2 Iron deficiency	10-300	Full
3 Rubella	3	Full
4 Sickle cell anaemia	1	Probably full
5 Congenital syphilis	2	Full
DISORDERS AFFECTING THE NEWBORN		
1 Congenital dislocation of the hip	10	Probably good
2 Congenital hypothyroidism (underactive thyroid)	2	Full
3 Phenylketonuria (genetic defect in protein metabolism)	1	Full

Source: Adapted from Wald N (ed). Antenatal and Neonatal Screening. Oxford, Oxford University Press, 1984.

birthweight babies among working class women³³ who are under more stress than other women.³⁴ This approach has produced promising results in the field of smoking in pregnancy, where working class women have higher rates than professional women (see Chapters 4 and 8). Randomised trials suggest that *supportive*, rather than didactic, advice given about smoking during pregnancy is more effective.³⁵ We await the results of other trials of social support offered by midwives or their aides to women in high risk groups.

Antenatal and neonatal screening Screening of the parents and fetus for risk of abnormality during pregnancy (antenatal screening) and after birth (neonatal screening) is one of the best researched areas of maternity care. It has been estimated³⁶ that if antenatal and neonatal screening tests (and treatment) of proven value (see Table 23) are effectively implemented:

- perinatal mortality in the UK could be reduced by 20 per cent;

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- 11–13 per cent of severe childhood disability (mental and physical) could be prevented.

Table 23 summarises the main cost-effective antenatal and neonatal screening tests which are currently available. Screening for neural tube defects (NTDs) – that is, spina bifida and anencephaly – and Downs' syndrome, currently offer the most important means of reducing the birth prevalence of congenital abnormality.

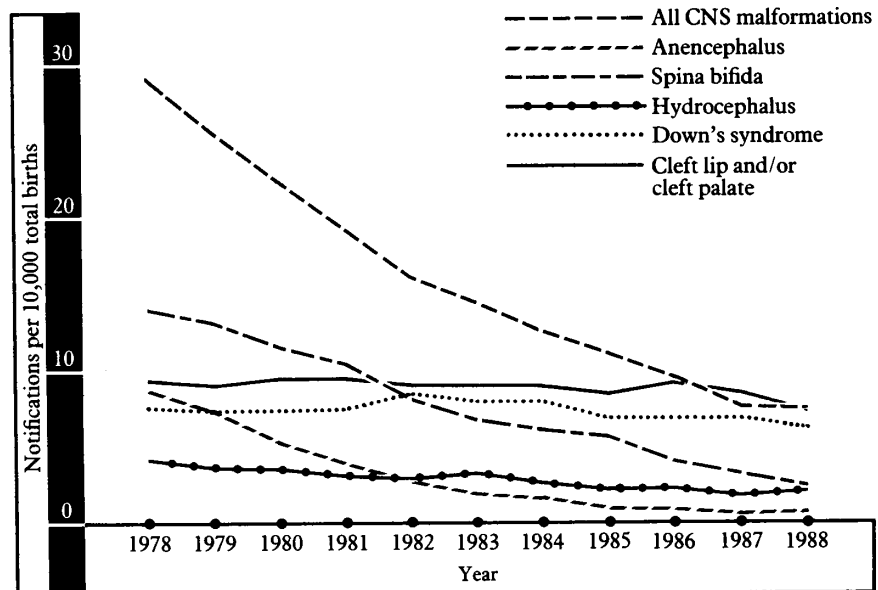
There is now good evidence to justify the routine use of ultrasound to screen all women early in pregnancy; it has beneficial outcomes in specific instances, such as the confirmation of the diagnosis of neural tube defects and genetic diseases linked to the sex chromosome (for example, haemophilia) where ultrasound diagnosis of the baby's sex is now very accurate.^{37,38} It has been argued that because ultrasound has been shown to be a relatively safe test all women should be tested. Others suggest that women feel reassured following a normal ultrasound scan, although the findings of existing studies are mixed.³⁹ The results of a major controlled trial – the Helsinki Ultrasound Trial – were reported in 1990. The main finding was that ultrasound at 16 to 18 weeks resulted in reduced perinatal mortality, due to improved early detection of major malformations which led to induced abortion.⁴⁰

Neural tube defects (NTDs) Eighty-four per cent of babies who survive with open spina bifida (the kind of NTD detectable by antenatal screening) are severely disabled.⁴¹ The risk of NTDs increases for women who have had a previously affected child, but the major determinants lie in the environment and are thus potentially preventable. There is marked geographical variation in these conditions in the UK, with Wales, Northern Ireland and Scotland having the highest rates, together with the north and western parts of England. Preliminary studies suggest that multi-vitamins – especially folic acid found in leafy vegetables – may be protective. We await the results of a major MRC trial of vitamin supplementation.

The detection of a high level of protein known as alphafetoprotein (AFP) in the mother's blood between 16 and 18 weeks of pregnancy is an effective screening test for NTDs. If backed up with a further test – amniocentesis, which shows high levels of AFP in the fluid surrounding the fetus – about three-quarters of open spina bifida and nearly all anencephaly can be detected. Further investigation with an ultrasound scan can increase the detection rate of spina bifida to 91 per cent. At 1980 prices, the total cost of the screening process, including scanning and amniocentesis, was £6.50 per woman screened. Assuming a detection rate of at least 75 per cent, the benefit to cost ratio was estimated at 8:5.⁴² In other words, for every £5 spent on screening, £8 will be saved by preventing NTDs.

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Figure 35 Notification of congenital malformations in England and Wales (1978–1988)



Source: OPCS Series MB3, No 4. Congenital malformations 1988. London, HMSO, 1990.

The long-term decrease in central nervous system (CNS) malformations continues. The notification rate for CNS malformations has fallen by 75 per cent since 1978 – from 29.2 per 10,000 births to 7.3 in 1988. However, the decrease has not been uniform over all the conditions within the group (see Figure 35). Those which are most likely to be detected antenatally by diagnostic ultrasound or alphafetoprotein screening showed the largest decrease.⁴³ Anencephaly has fallen by 95 per cent since 1978 (detectable during antenatal screening), whereas the rate for hydrocephalus (without spina bifida) has only fallen by 51 per cent over the same period. Hydrocephalus might be detected by ultrasound scan, but is unlikely to be detected by alphafetoprotein testing. Only about one-third of the decline can be directly attributed to screening (together with termination). The rest is unexplained, but may be due to environmental factors such as dietary change.

Down's syndrome Ninety-five per cent of cases of Down's syndrome result from a non-heritable abnormality in the 21st chromosome which is accurately detectable by amniocentesis. Down's syndrome is the commonest cause of institutionalisation for mental handicap, and among children of school age 30 per cent of those with learning difficulties suffer from Down's syndrome. The risk of giving birth to a baby with Down's syndrome increases with the mother's age and rises to one in 250 between the ages of 35 and 39,

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and one in 45 over the age of 45. Economic studies show that the benefits of screening for Down's syndrome outweigh the costs if it is used in women aged 35 or over – the age when the risk of having a Down's baby exceeds that of abortion due to amniocentesis (up to 1 in 100).⁴⁴

Although the evidence supporting screening for Down's syndrome at 35 and over is good, the 1980 Short report recommended that only women over 40 should be offered amniocentesis. Despite inadequate information about policy and practice, the available evidence suggests that screening is offered in a patchy fashion to women at ages which vary from health authority to health authority. In 1978, 14 per cent of women aged 35–39 and only 41 per cent of over 40s had amniocentesis in the UK.⁴⁵ More recent evidence from individual health authorities suggests that uptake had increased only to 49 per cent in women over 38 by 1980.⁴⁶ We urgently need to know whether this poor progress is due to a lack of availability of screening services around the country and their poor organisation, or whether women are inadequately informed or counselled about it or have ethical objections to it.

The lack of an overall downward trend in the notification of Down's syndrome (see Figure 35) reflects only in part the patchy implementation of screening policy. While older women still have the highest risk of having a baby with Down's syndrome the largest *numbers* (about 80 per cent) of affected women are now in the younger age groups. These trends have important implications for other public health policy areas (see Chapter 7) – especially on diet or alcohol and even AIDS – where measures designed *only* to reach high risk sectors of the community will leave the problem largely unresolved.⁴⁷

However, a potentially cost-effective means of extending screening for Down's syndrome to younger women is now available. For there is now good evidence that Down's syndrome is related to abnormally *low* levels of AFP in the mother's blood which can be detected by the screening test already used for NTDs.^{48,49} Research in one health authority suggests that a policy which combines amniocentesis in older women with AFP screening for under 35s could detect 40 per cent of all Down's syndrome babies – a five-fold improvement on the current position.⁵⁰ These conclusions are now supported by the early findings of a multi-centre trial in the USA⁵¹ and by further UK evidence.⁵²

Innovations in screening for genetic disease The development of methods for mapping faulty genes, and even, ultimately, for replacing them (through developments in recombinant DNA techniques) offers scope for future prevention of genetic disease. This scope is limited, however, to the detection of defects in single genes,

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which account for only a small proportion of all genetic disease. The gene responsible for cystic fibrosis – the commonest disabling genetic disease in the UK – has recently been identified and much progress has been and could be made in the prevention of genetic diseases such as thalassemia major and sickle cell disease which are caused by single gene defects in the haemoglobin molecule and represent a major worldwide challenge.

The most promising recent development in the screening field has been chorionic villous sampling (CVS) – a technique in which a small sample of fetal tissue can be removed for genetic and chromosomal analysis. Its main potential advantage is that it can be performed much earlier in pregnancy (8–11 weeks) than amniocentesis (16–18 weeks), and may offer an effective means of earlier detection. CVS, when used in conjunction with an information and counselling service, has been shown to reduce the birthrate for thalassemia major by 60 per cent in the Cypriot community and by 20 per cent among Asians of East African origin in the UK.⁵³ While the service was regarded as acceptable to these two communities, it was not by women of Pakistani origin who now give birth to more babies with thalassemia than other ethnic groups in the UK.

CVS,⁵⁴ along with other developments in gene-mapping and potential 'gene therapy', may offer a cost effective means of preventing increasing numbers of genetic diseases such as sickle cell disease and fragile X syndrome – a cause of mental handicap in males second only to Down's syndrome. The successful implementation of CVS depends not only on trials of its effectiveness but on full discussion of its ethical implications with those most likely to be affected. This is why the unique involvement of user groups in the MRC trial of CVS is of considerable importance.

Intervening during labour The use of many previously untested obstetric interventions has recently been called into question. Research has shown that practices such as shaving the pubic area, giving enemas and the use of gowns, masks and sterilising procedures in normal, low HIV-risk deliveries are unnecessary. The belief that episiotomy is better than no intervention at all is unfounded.⁵⁵ A major randomised controlled trial of fetal monitoring in labour, compared with traditional intermittent monitoring with a fetal stethoscope, showed that if used with monitoring of pH (acidity levels) in the baby's blood it was better able to detect fetal distress in high risk, prolonged labours. It was also able to reduce convulsions significantly in the newborn by more than 50 per cent. The study has not been followed up for long enough yet to detect whether this policy has any effect on subsequent disability. Conclusions so far suggest that such monitoring should be restricted to women in high risk categories only.^{56,57}

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Recent debate has been about the increasing use of caesarean sections and the move away from home and GP unit deliveries to hospital birth. While it is clear that caesarean sections can be lifesaving for the baby in certain situations, there is disagreement on the exact indications for the operation and this is reflected in the wide variations in the proportion of caesarean deliveries throughout the UK. Concern stems from the desire to minimise unnecessary intervention during childbirth⁵⁸ and to avoid the small, but significant, extra risk that caesarian section imposes on the mother. Increases in what is often unjustified medical intervention in labour account for more than half of the rise in caesarean sections over the last 15 years.⁵⁹ There is thus scope for reducing unnecessary caesareans by the more judicious use of techniques such as fetal monitoring.⁶⁰

The 1980 Short report recommended a shift away from home and GP unit births to hospital births for all mothers. This conclusion was based on data for home-versus-hospital births in 1975 which seemed to suggest that perinatal mortality rates were higher at home than in hospital.⁶¹ But detailed analysis of the data, together with more recent findings from the Cardiff Births Survey, has shown that these conclusions were unfounded. When home deliveries are analysed by *intended* place of delivery it is clear that they fall into two distinct groups: intended or planned home deliveries which are safe, and unplanned deliveries in which illness and death rates among the newborn were higher than for planned deliveries.⁶² Analysis of all home births in England and Wales in 1979 showed that when births were analysed by *intended* place of delivery rather than by where they happened to occur, perinatal mortality rates for intended home deliveries were substantially *lower* than in consultant units.⁶³

More recently, research from New Zealand, where nearly one third of births take place in small GP units, has shown that for babies weighing over 1500 gm perinatal mortality rates were significantly lower in GP units than in larger, consultant units. Only babies weighing less than 1500 gm benefited significantly from delivery in a consultant unit.⁶⁴ While these findings should give us cause to review our own policies, there are problems of comparability presented by this and other research from abroad.⁶⁵

Intensive care of the newborn A detailed consideration of neonatal intensive care is beyond the scope of this report, but its rapid growth raises some important ethical issues. While the provision of effective neonatal intensive care has contributed to the improved survival of very low birthweight babies,⁶⁶ there is growing concern that this may lead to a rapid increase in the prevalence of seriously disabled children.⁶⁷ For the risk of impairment – especially cerebral palsy (spastic children) – rises as birthweight falls. This is already apparent in Sweden where the incidence of cerebral palsy has been

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rising since the 1960s.⁶⁸ Although there are no comparable national UK data, results of research into the births of all children born in one region showed no increased prevalence of disabled children at the age of three – despite a concomitant fall in perinatal mortality in recent years.⁶⁹ This study was not large enough to settle this important issue. A number of questions require wide public discussion: for instance, does the salvage of increasingly small babies result in a greater burden of disability in the community and, if so, are we prepared to accept *and* act on the consequences?

12 Promoting child health

Love is like the measles; we all have to go through it.

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Introduction

The health of children is an important indicator of the nation's overall health and childhood is a time when opportunities for maximising health potential are likely to be great. It is disappointing, therefore, that there is little reliable national information (apart from that on mortality) on health, disease and disability in childhood, and still less on the possible relationship between child health and adult health.

From the limited data so far available it is clear that health in childhood can be shaped by influences acting long before birth and childhood itself. Children born to manual workers are less likely to survive infancy and early childhood, and those brought up in deprived, inner city areas are more at risk of conduct and other emotional disorders (see Chapter 10). Children's physical and mental health can be significantly affected by their parents' family planning practices (see Chapter 13) as well as by events which may take place during pregnancy and around birth (see Chapter 11). In this chapter we assess opportunities for promoting health during childhood itself. We focus on the general contributions made by the family and the school, and assess the value of specific contributions made by the health service. We then consider two specific areas in more detail: immunisation and dental health.

Parents – an important resource

The health of children and their parents is inextricably linked. The impact of parents' health and behaviour on that of their children is well-documented in some respects, and we know that parents who smoke or drink heavily are more likely to produce children who do likewise. We also know that postnatal depression, family disharmony, parental neglect and, of course, abuse, can have profound effects on children's wellbeing and development (see Chapter 10). But we have neglected in both research and policy terms the impact that children have on their parents' wellbeing. A commitment to promote health in childhood must therefore also involve a consideration of factors which promote or compromise the health of parents who are primarily dedicated to the healthy development of their children.

There is now evidence that bringing up a mentally handicapped child takes a toll of the mental health of the child's parents – especially its mother.¹ But rearing healthy children can have adverse

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effects on the mental health of their mothers – especially working class women (see Chapter 10). A small but important study of the impact of caring for pre-school children on the health of mothers in 102 families has shown that most mothers bear the brunt of all child-care and spend 70 per cent of their 15 hour working day with their children. This leaves little time for relaxation and is associated with symptoms of emotional upset in most mothers.²

This study also highlighted the positive contribution that parents make to their children's emotional and physical development. Eighty per cent of the mother's activities recorded in a diary were deemed to be oriented towards their children's nutrition and health. This reinforces other research into more specific aspects of child health which show that parents deal with 90 per cent of childhood illnesses themselves and that parental participation in the use of preventive services such as child health clinics can improve both their effectiveness and efficiency.

An important recent social change has been the increasing proportion of women in paid employment. This is likely to have major implications for child health and development. In 1988 two-thirds of women of working age were in paid work and this figure is expected to rise among young women.³ The available evidence suggests that women have neither abandoned their traditional child-rearing responsibilities nor transferred more of that responsibility to their partners.⁴

Nursery provision

State and workplace nurseries can offer an acceptable solution for the increasing numbers of families where both parents are in paid employment. State provision of such facilities is virtually non-existent in the UK – except for children from multiply deprived families. This position reflects a long standing British concern about the potential adverse effects that separation from the mother may have on the young child, together with possible adverse effects of nursery care itself.

In the postwar period it was widely believed that children between the ages of six months and three years could suffer what became known as 'maternal deprivation' resulting in permanent emotional damage if separated from their mother.⁵ More recent research has shown this view to be poorly founded as it was based on observations of unrepresentative samples of institutionalised children who had been emotionally deprived for other reasons.⁶ The available evidence today⁷ shows that separation of a child from its mother is not harmful in itself and that emotional disturbances in children are more likely to originate from family discord. While attachment relationships are important in the promotion of good child development, a child's attachment to its mother is not a unique, irreplaceable relationship.

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There is no evidence that day care nurseries are damaging to children and *high quality* care confers some social advantages on attenders. The relative effects of different forms of day care (including childminding) are at present the subject of a major study.

Recent progress in legislation

Family policy is poorly developed in the UK, and while we have kept pace with other European countries in equal pay and opportunities legislation we compare poorly in employment protection, parental leave and nursery care provisions. Although the 1980 Employment Protection Act goes some way towards protecting the mental and physical health of both mother and child in the first six months of the child's life, a survey of the EC in 1985 showed that the UK was the only country which pays less than 75 per cent of previous earnings during maternity leave and requires a woman to have been employed continuously for two years to be eligible for leave.⁸ Moreover, the UK is one of only three EC countries which make no statutory provision for parental leave following maternity leave.

Education for health

While we have documented throughout this report the impact of specific health education initiatives on children's health and behaviour, there has been little emphasis so far on the role of education *in general* in promoting healthy development among children. It is widely agreed that pre-school education – either through play groups or nursery school – has a favourable effect on children's emotional and intellectual development. It is therefore encouraging that attendance at nursery school in England has increased over the last decade from 28 per cent of under fives in 1975 to 48 per cent in 1988.

The most detailed research on the direct impact of schooling has been conducted on children of junior and secondary school age. There is now compelling evidence that, after taking other major factors into account, some schools have protective effect on scholastic achievement, attendance rates and even delinquency rates.^{9,10} In a major controlled study of 12 schools in inner London, the following factors were significantly associated with successful achievement at school and low delinquency rates:

- a good mix of intellectually able and less able pupils;
- the use of rewards and praise;
- an attractive school environment;
- encouragement for children to participate in the running of the school together with firm leadership and participation by the teaching staff;
- teachers' attitudes and behaviour.

These findings¹¹ add to the debate about how schools might be organised in the interests of promoting the social and emotional

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development of children.

Growing recognition of the potential of the school as a medium for promoting health has resulted in a marked move away from one-off, topic-based health education teaching towards integration of health education throughout the curriculum.¹² The importance of encouraging pupils of all ages to participate actively in their own learning about health is now recognised. The impetus for this change came from a number of joint initiatives between the Schools Council and the HEC which resulted in the development of programmes such as All About Me for 5–8 year olds and Think Well for 9–13 year olds. They have gained wide acceptance and have been implemented in one form or another throughout the UK. The Schools Council programmes are founded on three main principles which are now well-established in many other educational programmes.¹³

- The success of the educational approach depends on fulfilling social and emotionally defined outcomes as well as medical objectives.
- The programmes need to be integrated right across the curriculum.
- Learning in general, and health-related behaviour in particular, are enhanced by methods geared towards promoting a child's self confidence and decision-making skills.

Careful evaluation in 120 schools showed that many of the objectives are achievable when measured in terms of teacher/pupil acceptability and the development of self-esteem, although changes in health-related behaviour such as smoking and diet were difficult to detect.¹⁴

Parallel approaches designed for older secondary school students have been developed since the mid-1970s. These are based on research into small group work to help promote the development of 'life skills'. Such approaches, now to be found in operation within social education curricula, are deliberately designed to help students develop a positive self-image to foster the idea that they can take charge of their own lives and relationships.

While specific issues such as smoking, drug-taking and sexually transmitted disease arise in discussion, they are *not* the central theme of this approach and are discussed in the context in which they arise. The aim is to allow the students, ultimately, to make informed *choices* about health-related behaviours. Evaluation of this approach has shown increases in confidence and self-awareness among students and that it is widely accepted by teachers throughout the country.^{15,16}

Child health surveillance

Modern ideas about child health surveillance stem from the need to see child health in terms which are broader than the prevention of

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disease alone. This is clearly reflected in the policy statements from the Health Visitors' Association (HVA)¹⁷ which is consistent with WHO objectives for child health.¹⁸ The HVA has identified four essential components of surveillance: screening tests (procedures designed to detect specific disorders); health promotion support (advice on all aspects of child health including immunisation); developmental screening (examining the child to detect any deviation from the normal range of development); and developmental assessment (assessment of abnormal findings identified by screening).¹⁹

Screening tests for hypothyroidism (an underactive thyroid) and phenylketonuria (a genetic disorder of metabolism) in the newborn have been shown to be effective (see Chapter 11). Other potentially effective tests for problems such as undescended testes, congenital dislocation of the hip, and hearing and visual impairment, require clear guidelines for implementation.²⁰ The WHO has concluded that screening tests for hearing and visual impairment are of proven efficacy,²¹ although the screening intervals and staff deployed need further considerations.²² While there is evidence that systematic screening policies in a primary care setting are able to detect a number of childhood disorders, false-positive and negative diagnosis rates are high^{23,24} and it has been difficult to demonstrate that screening has a beneficial impact on health.²⁵

Despite the patchiness of the data, a considerable body of additional information has accumulated from three postwar prospective studies of child health and development. In the case of visual and hearing impairment, where there are effective interventions for preventing disability, these studies point to some of the prerequisites for establishing an effective screening programme.^{26,27} Visual and hearing impairment are common problems in childhood. About four per cent of children aged 5–7 have moderate visual impairment, and six per cent of seven year olds have significant hearing deficits. Untreated visual impairments such as squint can result in permanent damage and subsequent reading difficulty. Children with untreated hearing impairment are more likely to be educationally and psychosocially handicapped than normal children at age seven.²⁸ Screening at repeated intervals is essential, because one normal result may be followed by the detection of subsequent abnormalities – especially in the case of visual impairments such as myopia (short-sightedness) which is not usually apparent before the age of seven.

Health promotion support The potential impact of support and advice on health in childhood is a neglected area of research. Although we know that health visitors and GPs are important and valued sources of advice and support for parents of pre-school children, we do not know whether this advice beneficially affects health outcomes. Information on some health-related trends in

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childhood is now sufficiently detailed to prompt intervention studies on the effect of advice from health professionals in these areas. We know, for example, that although the average height of children continued to increase between 1972 and 1980, there is still scope for improvement as children from less well-off families remain shorter than children from well-to-do families.²⁹

Developmental screening and assessment Developmental screening was introduced in the UK more than 25 years ago. Yet there is still no good information on which tests are valid, effective and reliable; when it is best to do them; and how much emphasis should be placed on their results.^{30,31} While it has a potential role to play in reassuring parents about their children's development, one of its main difficulties is that there are no *fixed* points in a child's development which offer *clear-cut* distinctions between normal and abnormal development. This raises a number of problems concerning the value of screening tests.³² Delay in achieving developmental milestones is a poor predictor of subsequent abnormality and most children who start walking or talking late turn out to be normal. The assumption that delayed development in early years is critical and leaves irreversible damage is unfounded, for development is a dynamic process and children can learn new skills throughout childhood. While education and early stimulation of children from deprived backgrounds can result in developmental benefits, these may be temporary unless parents also play an active role. Although there is some evidence that early intervention can reduce speech, language and behaviour problems,³³ there is little firm overall evidence that it has any lasting effect.

Little thought has been given to the potential anxiety that developmental screening could create among parents and their children, and still less the possible misdirection of effort from advice and support towards time-consuming, untested observations which parents are mostly well-equipped to do themselves.³⁴

Implications for policy

A series of major reports on child health, led by the government's 1976 report *Fit for the Future*,³⁵ (known as the Court report) at once reflect and attempt to overcome the uncertainties in the field of child health surveillance. The Court report, and its sequels from the National Children's Bureau in 1987, the BMA, British Paediatric Association (BPA), HVA, RCGP, and the Faculty of Public Health Medicine,³⁶⁻⁴⁰ have identified the essential elements of child health services:

- Child health services should be integrated within primary health care and child health surveillance should be the joint responsibility of parents, health visitors and GPs. There will be a continu-

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ing need for clinical medical officers – especially in inner city areas.

- There should be a reliable national and regional monitoring system, and this is slowly being built up through the Child Health Computing System.
- While the validity and reliability of developmental screening remains in question, there should be an agreed means of assessing a child's development throughout the pre-school and school years. It may be best to adopt an 'anticipatory care' approach in which opportunities for advising and reassuring parents about aspects of child development are created within the ordinary consultation process.
- There should be clear agreement about professionals' responsibilities for different aspects of child health surveillance.

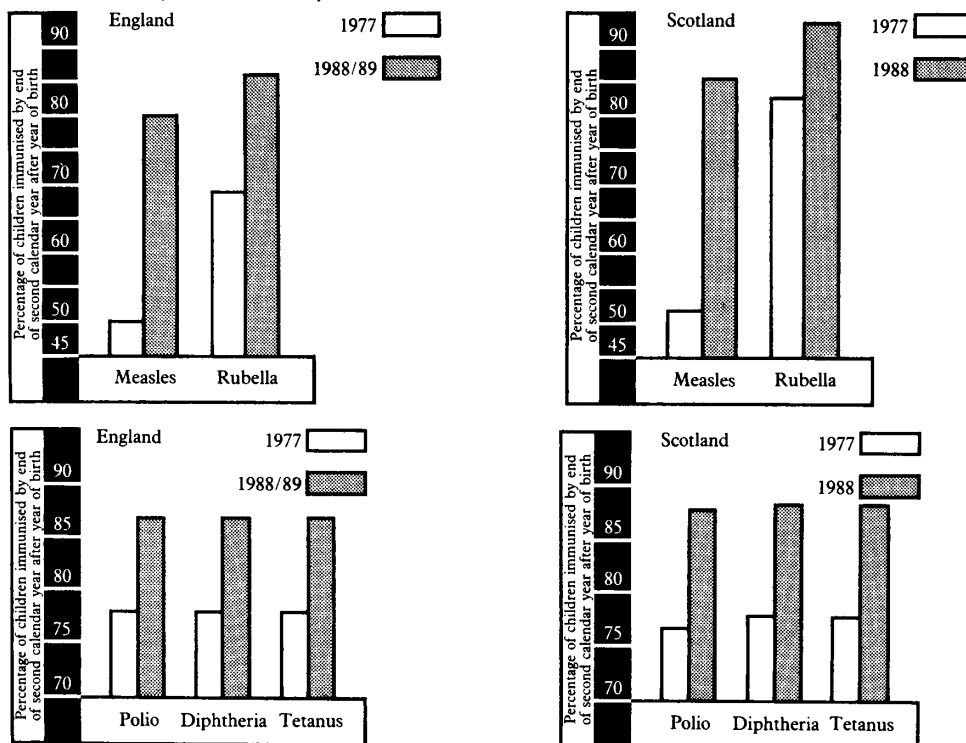
Differing professional perceptions have largely been overcome with the publication of *Health for All Children: a Programme for Child Health Surveillance* in 1989, which brought together representatives from all the relevant professional bodies in a Joint Working Party on Child Health Surveillance. The Working Party reviewed the scientific basis for each component of the surveillance programme and produced a consensus report on what the *content* of such a programme should be.⁴¹ They recommended examinations in the neonatal period, at discharge or within ten days, then at six weeks, eight months, twenty-one months, thirty-nine months, five years and periodically throughout the school years. Procedures considered to be essential and scientifically well-founded included checks for congenital dislocation of hips and testicular descent, screening for hearing and visual impairment, height, weight, listening to the heart at five years old, as well as immunisation at appropriate times. They also stressed the importance of health promotion and taking notice of parental concerns at every stage, including parents' worries about behaviour. However, behavioural screening questionnaires were not recommended for routine use, but only in selected cases under appropriate supervision.

Immunisation – a challenge to the child health services

Immunisation remains one of the best documented ways of protecting health and is a central feature of all child health care programmes. There is also evidence that the benefit-to-cost ratio of immunisation programmes is favourable. Economic analysis of the successful US measles and rubella programmes in 1981 suggests that the costs imposed by these diseases were 15 and 11 times greater than the costs of the respective immunisation programmes.⁴² We must, however, be cautious in translating these findings to the UK.⁴³ While we must await a full economic analysis of the UK position,

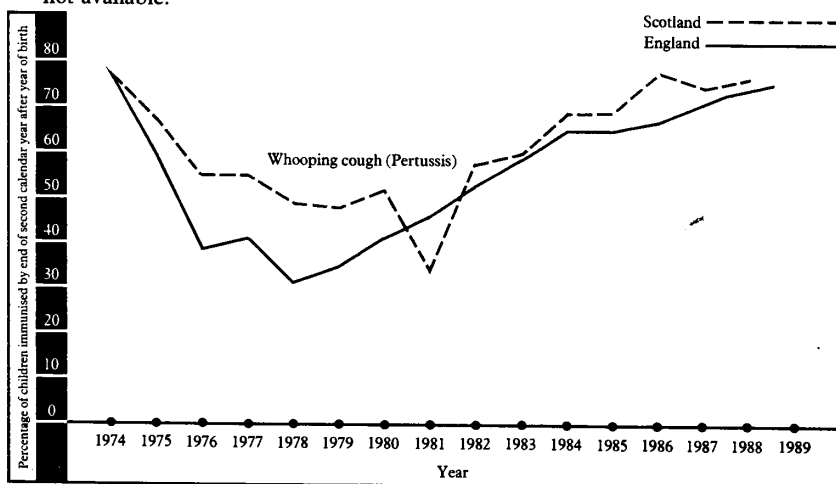
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Figure 36 Trends in immunisation uptake in England and Scotland (1977-1988/89)



Rubella immunisation applies to girls immunised by the end of their 14th year after birth.

Figures for Scotland exclude Lothian Health Board for which comparable figures are not available.



Sources: Department of Health. Health and personal social services statistics for England. Various years.
Communicable Disease Surveillance Centre, 1990.
Information Services Division. Scottish health statistics. Edinburgh, HMSO, various years.

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preliminary results suggest that the benefits of the UK programme outweigh the costs.⁴⁴

Goals for immunisation policy

WHO aims to eliminate measles, polio, tetanus in the newborn, diphtheria and congenital rubella by the year 2000. In support of this goal they have set a target of 90 per cent immunisation uptake rates for each of these diseases to be achieved for all European children under two by 1990.⁴⁵ While such immunisation targets might be achievable, the total eradication of these diseases may not be possible.⁴⁶ However, more realistic goals have been set in the USA for major reductions in these diseases (without elimination) by the year 1990.⁴⁷

The European targets – with the exception of past rubella policy – are all translatable into UK policy. The DoH set targets of 90 per cent uptake of vaccines by 1990 for the diseases illustrated in Figure 36, with the aim of total elimination of the diseases by the year 2000. Whatever the criteria used, achievements in the UK have, so far, been encouraging. Diphtheria, polio and tetanus have all but disappeared from the mortality and disease statistics, and there is a welcome upward trend in immunisation uptake rates for other diseases (see Figure 36). The UK has recently picked up on lost ground and is approaching both national and international targets for rubella, measles and pertussis (whooping cough). The previously unsatisfactory position of the UK was highlighted in two major British reports to Parliament in 1986.^{48,49} The UK record had also been poor, until recently, in an international context. Not only did it do worse than the USA and most of eastern, and some of north western, Europe, but it also lagged behind a number of third world countries such as Chile, Brazil and the Gambia⁵⁰ which had better immunisation uptake rates for measles and pertussis.

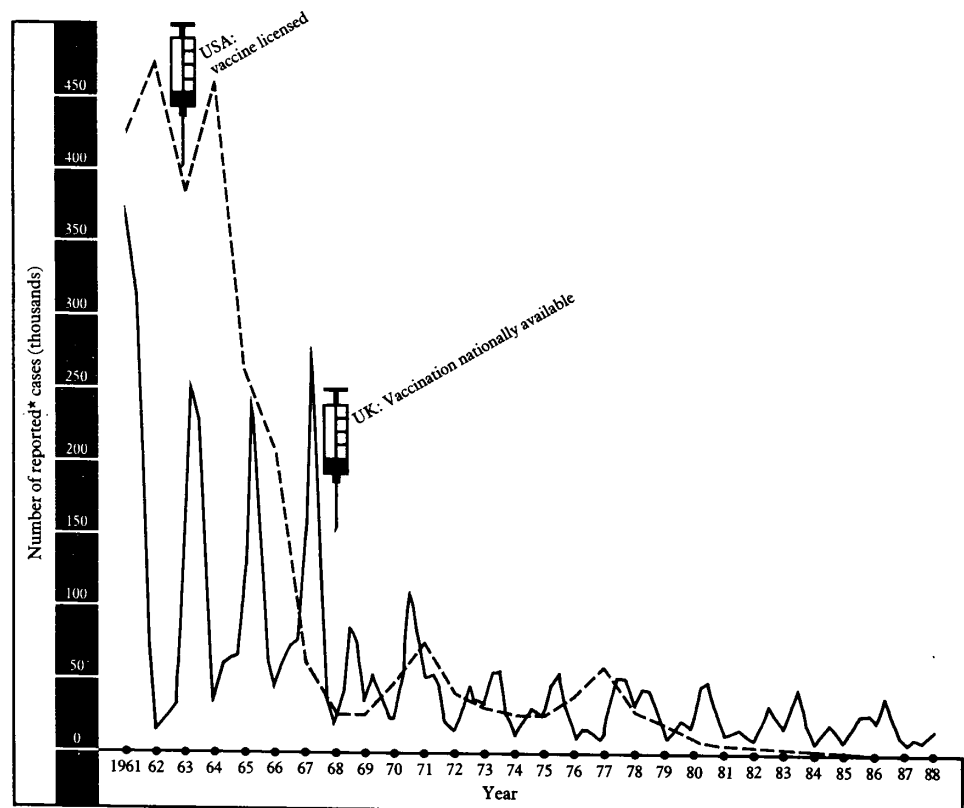
National averages hid what can be achieved regionally. Scotland usually does better than England, and the Borders and Dumfries and Galloway Health Boards had the best immunisation uptake levels in the UK in 1988. In England and Wales the gaps between the best levels achieved in Wessex and East Anglia RHAs and the worst in the Thames RHAs need further effort. Local findings so far suggest that social class disadvantage (see Chapter 8) is only part of the explanation and that varying commitment and organisation of district immunisation programmes play an important role.^{51,52} This has been demonstrated in many deprived areas recently where uptake rates have improved greatly.

Measles Although measles is now rarely fatal in the UK, there are still about 50,000 reported cases each year and this is likely to be at least a 50 per cent underestimate. Measles is still a serious disease. Up to 10

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per cent of children develop complications, including four per cent with chest infections and 0.5 per cent with a rare but serious form of encephalitis (inflammation of brain tissue). Measles itself is at least ten times more likely to cause permanent damage to the nervous system than the measles vaccine, where adverse effects are extremely rare. Since its introduction in 1968, the impact of the measles immunisation programme has been substantial: the annual number of reported cases is now about one-fifth of what it was in the pre-vaccine era (see Figure 37), but in much of the last decade the number of reported cases has remained between 10–50,000. The biannual epidemic pattern has now been blurred. The national immunisation level of 80 per cent in England (85 per cent in Scotland) was still below the DoH target of 90 per cent by 1990, but the situation has improved with the introduction of triple vaccine (MMR) see page 184).

Figure 37 Measles in England and Wales, and in the USA: trends in reported cases (1961–1988)



*Cases in England and Wales are reported quarterly
Sources: Centre for Disease Surveillance and Control, 1988.
Centre for Disease Control, Atlanta, USA.

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Evidence of successful practice in the USA and Scandinavia has stimulated improvements in the UK. In the USA, immunisation is a legal precondition for school entry and, in some states, for pre-school entry too. By 1981, 97 per cent of children at school entry had proven evidence of measles immunisation.⁵³ This, together with a major public education programme, surveillance and active intervention on individually reported cases, has brought the USA close to reaching its own and WHO's targets for the year 2000 (see Figure 37). Similar success has been achieved in Sweden without compulsion.

Measles: improving UK performance Although the new triple vaccine is already having an impact, local research in Scotland⁵⁴ suggested that four barriers are still important.

- A third of parents did not see measles as a serious condition.
- More than half had doubts about the vaccine's safety.
- Although eight in ten GPs supported immunisation, only three in ten had an active recall system for children of fifteen months.
- Although health visitors and public health physicians were convinced of the value of the vaccine, a minority of GPs thought it was ineffective or dangerous.

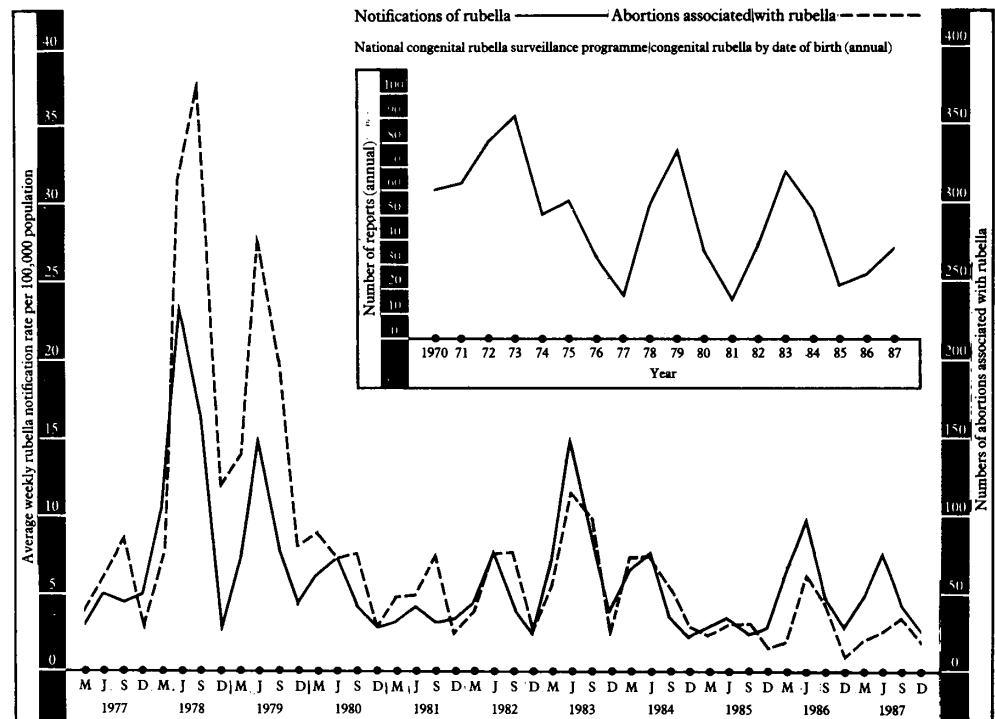
The disparity between the American and British programmes led to a 160-fold higher notified incidence in the UK in 1985, but this position is expected to change following the introduction of MMR.

Rubella Rubella, or German measles, is a minor childhood illness, but infection during pregnancy can, if contracted in the first three months, lead to congenital rubella syndrome (CRS). Almost half of CRS babies have serious, multiple disabilities including deafness, blindness and mental impairment. Estimates for England and Wales in the pre-vaccine era suggest that 15 per cent of deafness of neurological origin was due to rubella – about 225 cases per year.⁵⁵ In 1987 the lifetime health costs of caring for a multiply disabled child with CRS were estimated at £175,000.⁵⁶

CRS is one of the few congenital problems that is, in principle, wholly preventable. The objective of past UK immunisation policy has been to eliminate CRS without attempting to eliminate rubella itself. The method proposed to achieve this was – until recently – the immunisation of all girls aged 10–13. It was introduced in 1970 and backed up in 1976 with screening and immunisation of all non-pregnant women of childbearing age who were not immune (seronegative). In 1983, the DHSS, together with the national health education bodies and the Rubella Council, launched a £2 million educational drive to increase rubella vaccine uptake. Its effects

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Figure 38 Trends in rubella infection and rubella-associated abortion in England and Wales (1977–1987) and in CRS in the UK (1970–1987)



Sources: OPCS Series MB2. Communicable diseases. Various years.
 OPCS Series AB. Abortion statistics. Various years.
 Unpublished data provided by National Congenital Rubella Surveillance Programme. June 1990.

should already be in evidence as the first generation of girls eligible for the vaccine are now well into their childbearing years. Some, but not all, of the signs were encouraging. Vaccine uptake in schoolgirls increased by 17 percentage points to 86 per cent between 1977 and 1988/89 in England, and to 93 per cent in Scotland (see Figure 36) and surveys of girls and young women show that 90 per cent or more are now immune or seropositive.⁵⁷ Evidence from a major study in Manchester has demonstrated that with careful coordination through a responsible nurse it is possible (in a hospital setting) to increase total immunisation uptakes among adult women to 85 per cent. Between 1979 and 1984 the proportion of women who were still seronegative after childbirth was reduced from 6.4 per cent to 2.7 per cent.⁵⁸ Yet despite this impressive coverage, CRS has not been eliminated from Manchester.

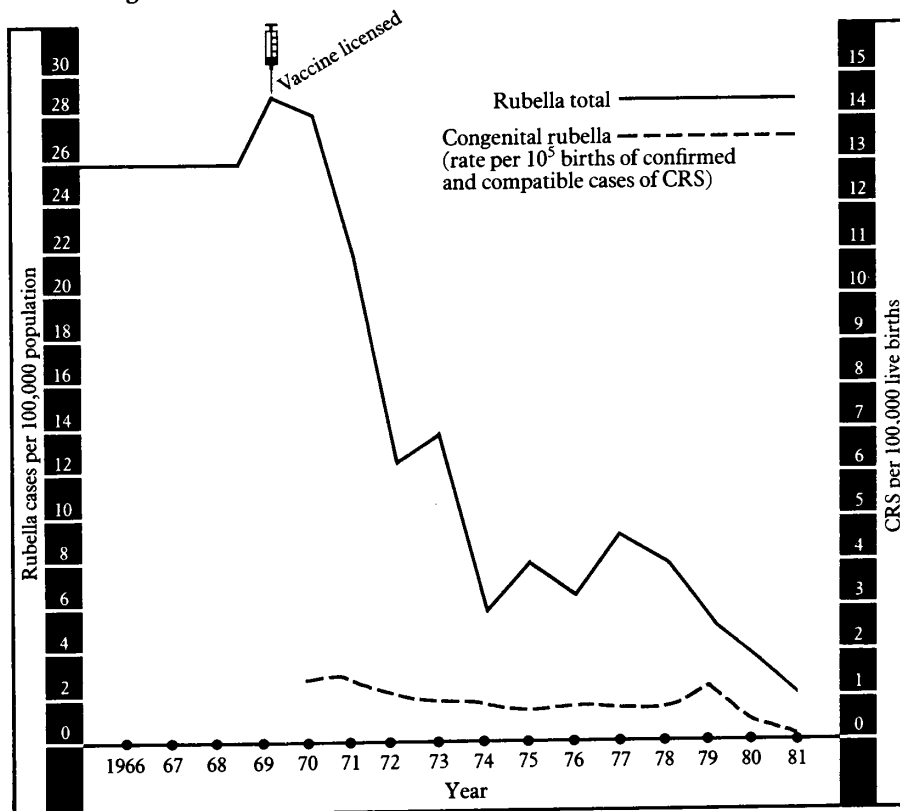
Evidence for the success of the UK programme must ultimately come from a combined analysis of trends in CRS cases and rubella-

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associated terminations. Continuous monitoring by the National Congenital Rubella Surveillance Programme between 1970 and 1987 shows that during the worst epidemic of the decade (1978/79) the immunisation programme did not prevent an increase in either the number of cases of CRS or the number of rubella-associated abortions (see Figure 38). During the more moderate epidemic in 1982/83, the number of CRS cases did not rise as much as expected,⁵⁹ and the number of rubella-associated terminations was not as high as in previous epidemics.

The US rubella immunisation programme was quite different from the UK programme until the 1988 changes. In the US, the aim is to *eliminate* rubella as well as CRS through compulsory immunisation of both boys and girls aged 12–15 months. All the evidence so far suggests that the US approach has had substantial success (see Figure 39), although the number of reported CRS cases may be underestimated by up to 90 per cent⁶⁰ and the absence of data on rubella-associated terminations makes it difficult to be certain.

Figure 39 Trends in rubella and CRS in the USA (1966–1981)



Source: Gruenberg EM (ed). *Vaccinating against brain syndromes: the campaign against measles and rubella*. Oxford, Oxford University Press, 1986.

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The programme is cost-effective and simple to implement. It also has the advantage of being administered to children as a combined vaccine with measles and mumps. In the light of this and other evidence, the DoH introduced a new policy from October 1988 in which all children at 15 months old are offered rubella immunisation as part of a new triple vaccine for mumps, measles and rubella (MMR). This has proved very popular with parents and professionals and returns for 1990 indicate a much higher uptake rate for MMR vaccine compared to measles vaccine alone – in the region of 87 per cent. If progress continues for the rest of the year, the country may come close, or even meet, the 90 per cent DoH target for 1990.

Pertussis (whooping cough)

Pertussis, like measles, now rarely causes death or permanent damage to children in the UK. Nevertheless it is still a serious disease for infants under six months, 60 per cent of whom need to be admitted to hospital – often to intensive care. Following the introduction of an effective vaccine during the 1950s, immunisation uptake reached 80 per cent and the four-yearly pertussis epidemics were substantially reduced (see Figure 40). There was, however, a resurgence of the disease in the late-1970s. Immunisation uptake rates fell to a very low level of 31 per cent in 1978 following widespread publicity given to the possibility that the vaccine might cause brain damage. The powerful impact of the mass media on parents' decisions is illustrated by the fact that while pertussis immunisation levels fell, diphtheria and tetanus – the other two components of the vaccine – remained steady. There was a new pertussis epidemic in 1977–1979 in which there were over 100,000 cases reported with a death toll of 27.

The National Childhood Encephalopathy Study was set up in 1976 to examine the alleged connection between pertussis vaccine and brain damage. It found that the risk of severe, acute neurological illnesses (those affecting the brain and nervous system) related to pertussis itself was *greater* than that attributable to the vaccine. Although no vaccine can be entirely risk-free, the risk of such illness attributable to whooping cough vaccine is very small: about one in 100,000 doses.⁶¹

Since then, recent public education campaigns, together with renewed efforts by health professionals to restore parents' confidence in the safety of pertussis immunisation, have begun to be effective. Uptake has more than doubled since 1978, reaching 75 per cent in England and Wales and 76 per cent in Scotland in 1988/89 (see Figure 36). This still falls short of the peak of 81 per cent reached in 1969 which substantially reduced past epidemics. The predicted

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1985 and 1988 epidemics were not averted, although they were smaller than the previous two (see Figure 40).

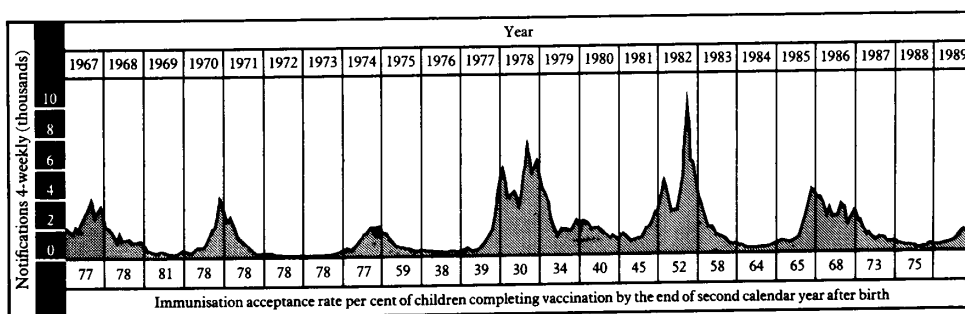
Improving immunisation uptake

Research into non-vaccinated children suggests that there are two barriers still to be overcome. First, nearly four in ten parents in one study were still worried that pertussis vaccine caused brain damage and, equally important, some doctors (especially GPs) still advised against vaccination, even when there were no relevant grounds for doing so.^{62,63} The 89 per cent uptake rate attained in some of the Scottish Health Boards should serve as a yardstick of what can be achieved, despite these difficulties. Research into the development of a new vaccine may help allay fears in the future.

Tuberculosis

A better nourished population living in less crowded housing, together with effective treatment and active immunisation programmes, have ensured the continued decline of TB. Although there were still over 5,000 reported cases (and 430 deaths) in England and Wales in 1987, the cost-effectiveness of continued mass vaccination has been called into question.⁶⁴ It is current policy in nearly all health authorities to vaccinate schoolchildren between 11 and 13, together with all newborn babies in areas where TB incidence is high (case reports of TB are 14 times as common among people of Asian origin than of white origin). The DoH's Joint Committee on Vaccination and Immunisation has estimated that between 1967 and 1981 eight million BCG vaccinations prevented only 500 cases of TB in white people. Predictions suggest that by the year 2001 mass vaccination will prevent only 45 cases. The MRC estimates that replacing mass vaccination with a selective approach will, lead in 1991, to only 40 cases per year requiring treatment that might otherwise have been prevented.⁶⁵

Figure 40 Whooping cough in England and Wales: trends in reported cases (1967-1989)



Source: Prepared by the Communicable Disease Surveillance Centre, 1990.

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Immunisation implications for policy

In the past, some countries have achieved more than the UK by adopting different immunisation policies, and others did better simply because their policy was more effectively implemented. In the USA and eastern Europe, for example, immunisation is a compulsory requirement for school entry. These countries are rapidly approaching the WHO targets. The Scandinavian countries have also achieved good results⁶⁶ without using compulsion, but the centrally controlled services of the small Scandinavian countries may not be translatable to the UK. In the UK, a well-organised programme can achieve good results.⁶⁷ Evidence from the USA, Scandinavia and the UK suggests that some of the key features of a successful immunisation campaign include:

- a well-funded, coordinated effort between central government and responsible local authorities and professionals;
- sensitive publicity campaigns with local sources of advice (often the public health physician) aimed at both informing public and professionals;
- a single person at district or primary health care level (or both)⁶⁸ with overall responsibility for implementing the immunisation programme;
- an effective, but flexible, system – almost always computerised – for calling and following up different target populations,^{69,70} and a reliable system for monitoring uptake within primary care;
- an additional intensive strategy for reaching highly mobile or socially deprived groups;⁷¹
- good liaison between public health physicians, DHAs and primary health care staff and parents which has been shown to work well through immunisation advisory clinics,⁷² or specially trained immunisation nurses;⁷³
- audit of progress in primary care and a reliable system of feedback of information from DHAs to individual practices.

We welcome the introduction of measles, mumps and rubella (MMR) combined vaccine for under twos in 1988, as a much needed policy change. We considered it particularly important because:

- In those parts of the country which have achieved very high rubella vaccination rates (over 90 per cent) for both teenage girls and women after childbirth, CRS has not been eliminated.^{74,75}
- The triple MMR vaccine has been shown to be effective in the USA (as a single dose in children 12–15 months) and Scandinavia where it is given in a two-dose schedule at 18 months and 12 years.^{76,77} Analysis of 30 years' experience of using the mumps vaccine as part of the triple vaccine in the USA suggests that the benefit to cost ratio of mumps vaccination is high at 39:1.⁷⁸ In

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1983 it was estimated that mumps vaccination reduced the number of cases from over two million to under 33,000.^{79,80} We also welcome the accelerated schedule for diphtheria, tetanus, polio and whooping cough, introduced in May 1990. This may further boost the uptake rates towards the desired targets – especially in inner city areas where attendance for later doses falls off rapidly with time.

The future of immunisation

Although immunisation policy has so far focussed on childhood, we also have effective vaccines against hepatitis B (a chronic and sometimes fatal liver disease) and pneumococcal pneumonia which can be fatal in elderly people. There is scope for improving the uptake of hepatitis B vaccine among at-risk hospital staff and extending it to homosexual men who are also a high risk group. Experience with the pneumococcal vaccine in the elderly is limited and requires further research. While we are still a long way from finding a vaccine that might be effective against HIV/AIDS (see Chapters 5 and 7) it is conceivable, although far from a reality, that a vaccine might be developed against a form of meningitis caused by an organism (meningococcus) that is resistant to many antibiotics, and finally, in the distant future, to cervical cancer.

Dental health

The mouth is the gateway for what we eat, drink and smoke. It is not surprising, therefore, that it harbours two of the commonest, preventable diseases which reflect our modern lifestyle: tooth decay (caries) and chronic gum (periodontal) disease. Together they account for the extraction of eight million teeth every year, leaving a quarter of all British adults with no natural teeth. Most of the £800 million spent on dental health care each year is devoted to the treatment and alleviation of pain caused by these two diseases. Poor dental health starts early in childhood and, despite improvements in recent years, much remains to be achieved: in 1983 nearly half of our five year olds and 93 per cent of 15 year olds in England and Wales had evidence of tooth decay.

Promoting dental health

A combination of a diet that is high in refined sugars (mainly sucrose) together with inadequate oral hygiene (irregular and incorrect toothbrushing) lead to the accumulation of dental plaque (a substance containing bacteria which coats the teeth and can lead to the destruction of enamel and gums) which causes tooth decay and gum disease.⁸¹ Inadequate tooth brushing is the major determinant of chronic gum disease but is a poor predictor of tooth decay. High levels of dietary sugar are the main cause of tooth decay. These conclusions are supported in evidence summarised by numerous national and international expert committees.⁸²⁻⁸⁶

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Table 24 Fluoridation in the UK – its impact on dental decay in children

(a) *Anglesey vs Arfon (Wales) (5/12 years old)*

	Anglesey (fluoridated)	Arfon (non-fluoridated)
DMF score* (age 5)	1.58	3.55
Number of 'milk' teeth extracted per 100 children (age 5)	1	45
Number of permanent teeth extracted per 100 children (age 12)	13	74

(b) *Changes in the extent of decay among 5 years old*

	Birmingham (Northfield) (fluoridated) DMF score*	Dudley (non-fluoridated) DMF score*
1967	4.88	5.19
1970	2.63	5.07
1980	1.22	3.45

*DMF score = Decayed missing or filled teeth.

Sources: Jackson D, James PMC and Thomas FD. Fluoride in Anglesey: a clinical study of dental caries. *British Dental Journal* 1985, 158, 2: 45–49.

Anderson RJ, Bradnock G et al. The reduction of dental caries prevalence in English school children. *Journal of Dental Research* 1982, 61 (special issue): 1311–1316.

Fluoridation Fluoridation is one of the most effective ways of reducing tooth decay in the community. This conclusion is supported by the evidence considered by every major independent and government expert committee examining the role of fluoridation of the water supplies.⁸⁷⁻⁹¹ Moreover, in 1985 the Knox report⁹² commissioned by the DHSS, together with the verdict of a court case concerning the safety of fluoridation, should have finally allayed any fears that fluoridation (at levels of one part per million) might pose a risk to health. Worldwide evidence, also confirmed in the UK, shows that fluoridation can reduce the prevalence of tooth decay in children by at least 50 per cent, and extractions by 15 per cent (see Table 24). Five year olds living in Anglesey (a fluoridated area) have 56 per cent fewer decayed, missing or filled teeth (DMF score) than their contemporaries living in non-fluoridated Arfon on the Welsh mainland (see Table 24(a)). Between 1974 and 1983 tooth decay fell 44 per cent among five year olds in Anglesey compared with only 22 per cent in Arfon.⁹³ Similar changes have occurred in Birmingham (Northfield) where the water was fluoridated in 1964.⁹⁴ The DMF score among five year olds was reduced by 75 per cent between 1967 and 1980 compared with only 34 per cent in Dudley, which is not fluoridated

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(see Table 24(b)). 1985 estimates of costs suggest that at 7p per person per year fluoridation in Birmingham is cheap to implement than the £6 dental care costs incurred for the average five year old.⁹⁵ US experience also suggests that fluoridation leads, in the long term, not only to the preservation of healthy teeth, but to an increase in the number of children for whom an individual dentist can provide care.⁹⁶

Even more importantly, experience from fluoridation in Newcastle shows that this measure reduces dental decay throughout all social classes and thus has the potential to help reduce the social class disparity in tooth decay.⁹⁷ Evidence from the trends so far, however, show that gains in dental health in both fluoridated as well as non-fluoridated areas are greatest among social classes I and II. This probably reflects the much higher sugar consumption among working class families (see page 193).

In 1985, about 5.5 million Britons – only 10 per cent of the population – had fluoridated water supplies. Areas covered included the Midlands, north east England and parts of Wales. Implementation of fluoridation in the UK lags seriously behind other countries such as the USA, where 95 million people drink fluoridated water, and the Republic of Ireland where fluoridation is mandatory. Both public and professional support is substantial. Between 1974 and 1978, 90 per cent of the former area health authorities were in favour of fluoridation, together with 71 per cent of the public polled throughout the UK for the National Association of Health Authorities in 1985. Part of the delay was due to a legal technicality which was rectified in October 1985 through the Water (Fluoridation) Act. Regional health authorities everywhere (except Northern Ireland) are now free to ask water authorities to fluoridate local water supplies. Urban water supplies are, technically, the easiest to fluoridate. Smaller water supplies may prove to be more difficult and expensive.

Dental health and a healthier diet

Evidence from the USA – where fluoridation programmes are advanced – makes it clear that fluoridation alone will not eliminate tooth decay in the UK. For dietary sugar is the most important determinant of tooth decay. The average Briton consumes nearly twice the amount of sugar recommended by NACNE⁹⁸ and the BMA⁹⁹ to promote a reduction in tooth decay, as well as obesity and its associated ill health (see Chapters 3 and 7).

While the absolute amount of sugar in the diet is an indicator of the risk of tooth decay, the frequency of its consumption and the way in which it is consumed, are more important predictors.^{100,101} Those who eat sugary foods often, and especially between meals, are at greatest risk of tooth decay. This kind of eating pattern is predominant among pre-school¹⁰² and secondary school children.¹⁰³ In a

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culture where the over-consumption of calories is a major problem, the current high intake of sugar represents unnecessary additional or 'empty' calories. These levels are not inevitable: the government's wartime nutrition policy led to much lower sugar consumption levels and a subsequent reduction in tooth decay of 30 per cent among five year olds and 43 per cent among 12 year olds.¹⁰⁴

The consumption of sugar, like that of other products which can be hazardous to health, is determined by complex cultural, commercial, socioeconomic and individual factors. Little of the interplay between these factors has been adequately researched, but it is clear that the message to reduce sugar intake must make itself heard against a background of £400 million of confectionery advertising and a retail and entertainment sector where sweets and sugary foods are the most available snacks.

A study on feeding attitudes and practices among women and their pre-school children has demonstrated that social and cultural factors are powerful determinants of what children eat and why, and that the offering and acceptance of sweet foods symbolises the power relationship between mother and child.¹⁰⁵

The health consequences of current, high sugar consumption levels are much wider than dental health alone. The high prevalence of overweight, obesity and its attendant risks of diabetes and coronary disease (see Chapter 3) and low intakes of unrefined carbohydrates in the diet, are also related to high levels of sugar consumption.

Health education and oral health

While a reduction in sugar consumption and the establishment of water fluoridation are central to the prevention of dental decay, they will not significantly affect chronic gum disease. This requires long-term education programmes to encourage regular toothbrushing in early childhood. There is good evidence from the UK and Scandinavia that health education programmes directed at both parents and children make an important contribution to dental health.¹⁰⁶ The Natural Nashers dental health education project for 13-14 year olds sponsored by the HEC demonstrated that it is possible not only to improve knowledge and attitudes towards oral hygiene but to reduce plaque scores.¹⁰⁷ The Natural Nashers programme (and the dental health component of SHEG's Be All You Can Be campaign) is now being successfully disseminated through cooperative efforts of district health authorities and local education authorities, and had reached 100 DHAs in England and Wales by 1985.¹⁰⁸

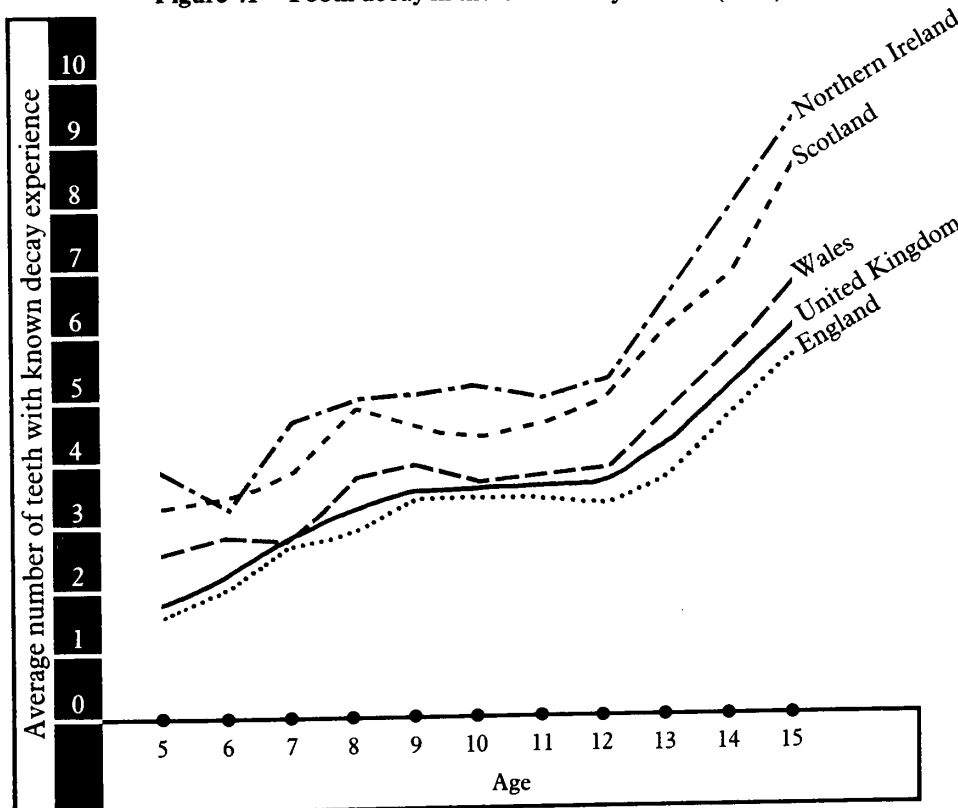
The role of dentists and auxiliary staff

While dentists have contributed towards the relief of pain and the preservation of teeth that are already decayed (especially among adults) there is no good evidence that visiting the dentist, even on a

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regular basis, has had any major impact on the prevalence of either tooth decay or gum disease.^{109,110} As research has not been able to demonstrate any clear health benefits from six-monthly dental check-ups, there is good reason for extending the period between visits to 12 months.¹¹¹ The potential for turning the dental screening visit into a preventive rather than restorative event is currently limited by the under-use of dental auxiliaries but may change following implementation of the new dental contract which eliminates the fee-for-item of service system for children. We know little, as yet, about attitudes among dentists and auxiliary staff to preventive work, although the nature of auxiliaries' work offers an obvious starting point. Recent experience with the use of fissure sealants among children suggests that when levels of overall decay are very low, a small proportion of decay in remaining fissures may be prevented in a cost-effective way. This is currently the subject of a DoH investigation.

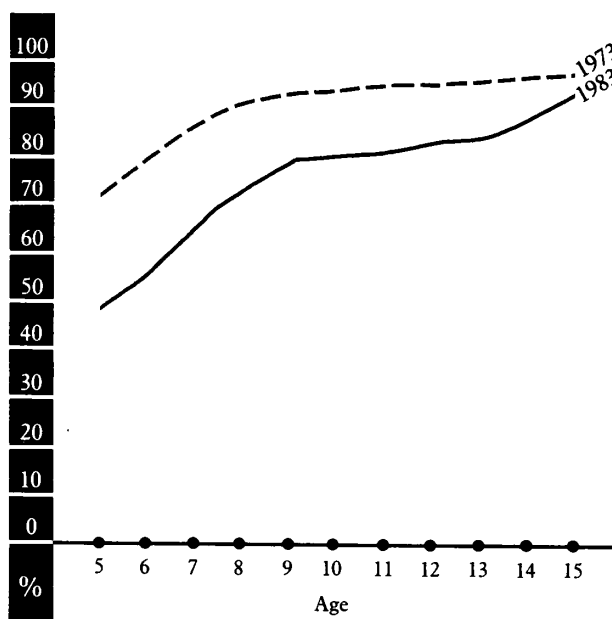
Figure 41 Tooth decay in the UK: 5-15 year olds (1983)



Tooth decay is measured by the number of decayed, missing or filled 'permanent' teeth (DMF ratio) plus the number of decayed or filled 'milk teeth' (df ratio).
Source: Todd JE, Dodd T. Children's dental health in the United Kingdom. OPCS. London, HMSO, 1985.

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Figure 42 Trends in tooth decay among children in England and Wales (1973–1983)



Tooth decay is measured by the number of decayed, missing or filled 'permanent' teeth (DMF ratio) plus the number of decayed or filled 'milk teeth' (df ratio). Source: Todd JE, Dodd T. Children's dental health in the United Kingdom. OPCS. London. HMSO, 1985.

Trends in dental health in the UK

Children, and to a lesser extent adolescents, enjoy better dental health today than at any time since the second world war. Although it is hard to find objective confirmation of changes in gum disease (which afflicts 99 per cent of adults), there is good evidence that tooth decay is decreasing among children. An OPCS survey of children's dental health in 1983 showed that, among 5–15 year olds, English children had the lowest levels of tooth decay in the UK, and Northern Ireland (followed by Scotland) the highest levels (see Figure 41).

Comparison with a survey in England and Wales a decade earlier showed that dental health had improved in all age groups. The improvement was most striking among five year olds where the proportion of children with decayed teeth fell by one-third (from 71 per cent to 48 per cent) over the decade (see Figure 42). In Scotland a 1986 follow-up survey of children found that there had been an improvement in the proportion of sound teeth in eight year olds and a reduction in missing teeth.¹¹² (No follow-up information is available for England and Wales.) Despite these encouraging trends, the prevalence of tooth decay is still unacceptably high in children as well as in adults and there is no evidence of a narrowing in the social class or

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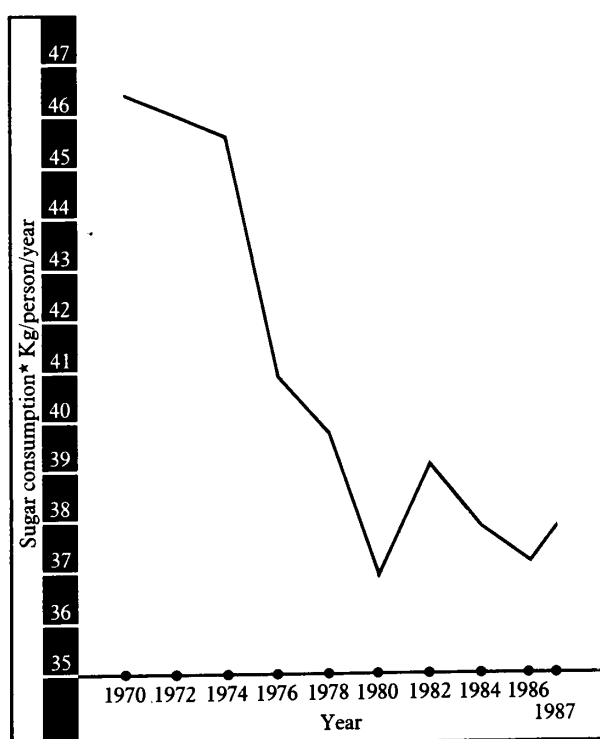
geographical disparity in tooth decay.

Explaining trends in dental health

The reasons underlying the encouraging decline in tooth decay among children in the last decade are multifactorial and unlikely to be explained by either water fluoridation or dental care patterns, which have remained largely unchanged. The 18 per cent fall in per capita sugar consumption between 1970 and 1987 has almost certainly contributed to the decline (see Figure 43), although the higher levels of sugar consumption in social class IV and V may in part explain the continuing social class disparity (see Chapter 8).

There are, however, two major changes over the last decade which go some way towards explaining the overall encouraging trends: the almost universal inclusion of fluoride in toothpaste¹¹³ (use increased from five per cent in 1970 to 97 per cent in 1978), together with continuing efforts to improve oral hygiene through school health education. While clinical trials of fluoride toothpaste predict that tooth decay can be reduced by about a quarter over a short period,¹¹⁴ the

Figure 43 Trends in total sugar consumption in the UK (1970–1987)



*Total supplies of sugar including the estimated sugar content of manufactured goods (except alcoholic drinks).

Source: Ministry of Agriculture, Fisheries and Foods. Economics and Statistics (Food) branch B, 1990.

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actual fall in tooth decay was much greater than the trials predicted. It has been argued that the effect of long-term fluoride toothpaste use, together with some retention and swallowing of the toothpaste, have probably boosted the effect of fluoride. In addition, fluoride toothpaste has a much bigger effect on newly erupted teeth in infancy and this may explain why the predictions underestimate the actual effects of fluoride toothpaste.

Improved health education is almost certain to be responsible for some of the improvement – especially in very young children. Nevertheless, the 1983 OPCS survey shows that the educational message is still misunderstood. Although three-quarters of parents knew that sugar causes dental decay, most said that *toothbrushing* rather than cutting down on sugar was the best way to reduce it.

13 Health in adolescence

Children of the future Age,
Reading this indignant page;
Know that in former time,
Love! sweet love! was thought a crime.

WILLIAM BLAKE

Introduction Adolescence is a time of uncertainty, experiment and change. We have chosen to focus on the health implications of two contrasting issues – sexuality and illicit drug use – not because they affect this age group alone, but because they illustrate the relationship between the inexperience of adolescence and some of the consequences for health. We have already assessed the public health implications of cigarette smoking and alcohol consumption – both of which usually start in adolescence or earlier (see Chapters 3, 4 and 7) – and have assessed ways of minimising ill health and premature death from two specific sexually transmitted diseases: cervical cancer and HIV/AIDS (see Chapters 4, 5 and 7). We now broaden our discussion of sexuality in three ways. We assess sexual health from the viewpoint of personal relationships, control of fertility, and sexually transmitted disease in general. We then consider trends in illicit drug misuse and their possible explanations. We conclude the chapter with an assessment of action to curb the use and minimise the harm caused by illicit drugs.

Sexuality: satisfaction and safety The sexual expression of love and tenderness is of profound importance in all our lives. It would be thus disingenuous to claim that our assessment of sexuality and its health consequences could be value-free. WHO has furthered our thinking by identifying three elements that should inform any discussion of sexuality and health:

- the capacity to enjoy and express sexuality, without guilt or shame, in fulfilling emotional relationships;
- the capacity to control fertility;
- freedom from disorders which compromise health, and sexual or reproductive function.

In our consideration of the prevention of cervical cancer and the spread of HIV/AIDS (see Chapter 7), we stressed the need to integrate policies for the prevention of sexually transmitted disease on the one hand, with those aimed at promoting freedom of sexual expression and control of fertility on the other. This is not merely because contradictory policies do not work, but because a properly

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coordinated common strategy is likely to be more cost-effective.

Sexuality and health

We can say little with certainty about how we, as a society, express ourselves sexually and the extent to which it brings us happiness. We know a little, but not much more, about how early in life we become sexually active and how many sexual partners we have. We are left to draw conclusions from scant research on selected groups of people. We have very little information on men, but a large, although unrepresentative, survey of 15,000 women readers of *Woman* magazine in 1982 concluded that over nine out of ten women saw sex as an important part of their relationships and three-quarters were either very happy or reasonably satisfied with their sexual relationships.¹ Despite this, a majority felt that they could not talk freely with their partners; few saw themselves as good lovers; and less than half usually reached orgasm.

Some small scale qualitative research on teenage boys suggests that they still seem unwilling to share in the responsibility for their sexual activities,² but larger studies of older men in the US show that they have similar hopes and aspirations to those of women. Although boys and girls first become sexually active at earlier ages, most teenage girls still believe that partners should stay faithful to one another. We have no information on boys' views.

Fertility control

The reduction in perinatal and maternal mortality which resulted from better birth spacing was evident earlier this century.³ But today's fertility rates are already very low; childbirth is a much less risky experience for both mother and child and there is a range of freely available, as well as relatively safe and effective, forms of contraception. Contraception can thus be seen for the potential it has to promote a better quality of life, and not only through the avoidance of ill health caused by too many unplanned pregnancies.⁴⁻⁷

Trends in fertility and abortion

Fertility rates in England and Wales have declined dramatically among women in all age groups over the past thirty years, though there have been slight increases in rates in some age-groups since 1978. The total period fertility rate (the average number of children who would be born per woman given current age-specific fertility rates) decreased from 2.5 children per woman in the later 1960s to a trough of 1.6 in 1977. Since then the rate has fluctuated, but has remained well below 2.1 in the ten years to 1988.⁸

The teenage birth rate (15 to 19 year olds), which comprises about 9 per cent of the total period fertility rate, followed a similar pattern, at least up to 1983: a decline of about 40 per cent occurred during the 1970s with a levelling-off at about 30 births per 1,000 women aged 15-19 from 1977 to 1983. Since then the teenage birth rate has risen

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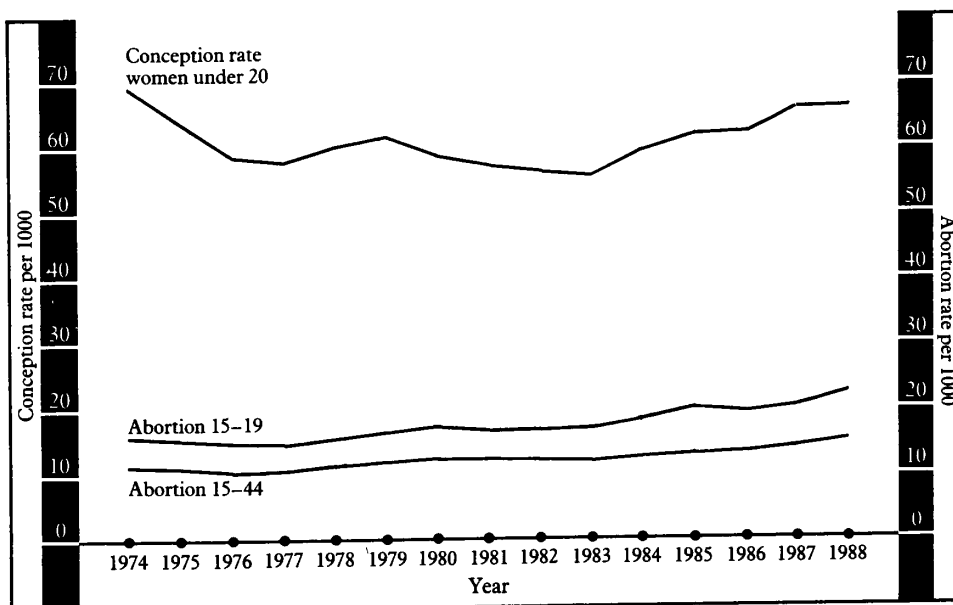
every year reaching 32.4 births/1,000 women under 20 in 1988.

After the 1967 Abortion Act, abortion rates rose rapidly between 1969 and 1973, from 5.3 per 1,000 women aged 15–44 in England and Wales to 11.4 per 1,000. Rates fluctuated in the late 70s/early 80s, but have risen steadily since 1983 from 11.9 to 15.2 in 1988 (see Figure 44). The rising trend in abortion can be attributed to increases affecting the age range 16–34. Teenagers aged 15–19 are more likely to have an abortion than older women (see Figure 44), but the greatest increase in rates has occurred in those aged 20–24. In contrast, there has been very little change in rates for girls under 15 and women over 34 over the past 20 years.

It is instructive to look at trends in conception rates (births plus terminations) as well. Following a long steady fall since the 1960s, the teenage conception rates have been rising sharply since 1983, with a 19 per cent increase from 1983 to 1988 (see Figure 44).

There is speculation that these trends might reflect greater difficulty faced by teenagers in obtaining contraceptive services following the clinic closures of the late 1980s – although the rise in abortion and conception pre-dates these closures. Another possibility is that they may reflect a change in contraceptive use, from more to less secure methods, following health concerns emerging over IUD and pill use, for example, or the fear of HIV infection.⁹

Figure 44 Trends in conception and abortion rates in England and Wales (1974–1988)



Sources: OPCS Series FMI. Birth statistics. London, HMSO, various years.
OPCS Series AB. Abortion statistics. London, HMSO, various years.

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Whatever the reason, currently there is concern about the rise in teenage conception rates, as pregnancy is still hazardous for teenage mothers and their babies and there are too many who become pregnant when they do not want a child.¹⁰ The greater increase in abortion rates among 15–24 year olds also remains cause for concern. Moreover, women in the youngest age groups experience the greatest difficulty in obtaining abortions. A study of abortions among women in Wessex in 1975 showed that less than half of those aged 17–18 obtained their abortions before the 12th week of pregnancy, compared with 70 per cent of women in other age groups.¹¹ The most recent review of late abortions in 1984 shows that this position has not changed.¹²

Sexually transmitted disease

Trends in sexually transmitted disease are often hard to interpret because we have to rely on selective national information from attendances at sexually transmitted disease clinics and genito-urinary medicine departments. Numerous factors, such as changing social perceptions, improved professional recognition and diagnosis, can artificially boost the numbers coming forward to such clinics.¹³ Incomplete information had led to numerous claims concerning the existence of 'epidemics' of individual, sexually transmitted diseases such as herpes and non-specific urethritis. While the available evidence confirms that there is a true epidemic of HIV and AIDS (see Chapter 5) and probably of genital warts (see Chapter 4) we urgently need to monitor representative samples of the *whole* community in order to be able to predict more accurately the future impact of some of these problems.

Analysis of the trends by the Communicable Disease Surveillance Centre (CDSC) shows that the big increases in both the numbers of reported cases and attendances for herpes and non-specific genital infections are exaggerated by other factors, and that the only real increases in incidence that have taken place are for genital warts and HIV/AIDS (see Table 25).

Sexuality: explaining the changing picture

The last two decades have seen a number of unprecedented social changes which have had a profound bearing on attitudes towards sexuality and the expression of sexuality. The growth of the women's rights and gay rights movements has prompted a more open assessment of the role of sex in human relationships. This, together with a liberalisation of attitudes to the sexual expression of love, the development of oral contraception and earlier physical maturity, has been influential in promoting greater confidence in the way sexuality – especially among women – is expressed. Growing fears about HIV/AIDS, however, have led to a reassessment of sexual attitudes and demonstrable changes in sexual behaviour in the homosexual com-

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munity (see Chapter 7). The risk of HIV/AIDS, together with renewed calls for sexual fidelity, may have equally profound effects on attitudes to sex and sexuality in years to come.

The enabling family planning legislation of 1974, the provision of free contraception since 1975, and the 1967 Abortion Act (which applies everywhere in the UK except Northern Ireland) have had a central role, not only in the reduction of unwanted pregnancies and perinatal mortality (see Chapters 2 and 11), but also in helping to remove some of the fear and misery previously associated with the unwanted consequences of sexual activity. Although there are no national data, the bigger reductions in fertility among working class than middle class women suggest that public health legislation, combined with education and information programmes, can reach all classes. Sex education in schools has had a major contributory role, although its effect cannot be separated from that of the numerous

Table 25 Trends in the six most common sexually transmitted diseases in England (1977–1987)

	<i>Numbers of cases seen in NHS GUM clinics</i>		<i>% change in attend- ance</i>	<i>Assessment of trends</i>
	1977	1987		
Non-specific genital infection	95,865	131,916	+48	Exaggerated increase due to better detection
Candidiasis (thrush)	38,090	59,768	+57	Often not sexually transmitted
Gonorrhoea	58,734	25,265	–57	Real decrease due in part to slower rates of partner change or safer sex
Genital warts	23,776	74,542	+213	Real increase; some due to growth of professional interest
Trichomoniasis	20,051	10,658	–47	No change
Genital herpes	7,722	16,699	+115	Most due to increased publicity, awareness and new treatment

Sources: Department of Health. Health and personal social services statistics 1989 edition. London, HMSO, 1989.
Department of Health. On the state of the public health 1988. London, HMSO, 1989.

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other measures which have also been important. Fears that sex education leads to unacceptable early sexual experimentation are not supported by the evidence which suggests that there is little difference in the age of starting to have sexual intercourse among children who have had sex education compared with those who have not.

The patchy provision of abortion services, the lack of accurate, easily available pregnancy testing services, together with poorly developed family planning services for young people may, in part, explain why young women delay seeking an earlier abortion. But we need to know more about why such women avoid consulting a doctor earlier so that more appropriate services can be developed. The chances of a woman obtaining an early abortion still depend mainly on the beliefs of the doctors she consults. This partly explains why there are still more abortions performed outside than inside the NHS, although poorly organised services in the NHS – a lack of day care facilities and inadequately trained staff – often make an abortion in the charitable part of the private sector a quicker, more humane experience.

Towards healthier sexuality – how can progress be made?

Experience of the last two decades, together with detailed international research on the factors which influence fertility control, now offer more information on the components of an effective strategy for reducing unwanted pregnancies – especially among young people. The Lane committee,¹⁴ which reviewed the workings of the 1967 Abortion Act in 1974, concluded that an efficiently functioning Abortion Act can form only a part of the strategy. Improved education about aspects of human sexuality, together with acceptable contraception, abortion and counselling services in the NHS, were also of central importance. The findings of a 37 country study by the US Alan Guttmacher Institute in 1985 show that high teenage pregnancy rates were not the inevitable accompaniment of liberal attitudes to sex and sexuality.¹⁵

In-depth analysis of the six industrial countries in the Guttmacher report showed that all had a much lower pregnancy rate than the USA (see Table 26). The study showed that the common characteristics of those countries with the lowest teenage pregnancy rates were:

- liberal attitudes towards sex;
- easily accessible contraceptive services for teenagers;
- effective formal and informal programmes of sex education.

In contrast, factors related to the high US teenage pregnancy rates were:

- poverty;
- a high degree of 'religiosity';

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- restrictions on teenagers' access to contraception.

The importance of education, together with the provision of accessible services, has been confirmed in other research which shows that long-term educational commitment among women is a key predictor of reliable contraceptive use.¹⁶ The low teenage pregnancy rates in Sweden and the Netherlands were *not* associated with increased abortion rates or decreased rates of sexual activity. In Sweden this success has been associated with government-supported, local and national education programmes^{17,18} and in the Netherlands with widespread, open discussion of sexuality together with high quality primary care services which are accessible to young people. The very high rates in the USA seemed to be associated with media which conveyed sex in an irresponsible fashion at the same time as the prevailing moral climate advocated abstinence. This hampered proper dissemination of information about sexuality and contraceptives.

Trends in contraceptive use

There has been a steady increase in contraceptive use since 1970. By 1986, over 70 per cent of women aged 16–44 in Britain used some form of contraception. Use was highest among married or cohabiting women (81 per cent) and lowest among single women (48 per cent); just over half of those in their late teens used contraception. When people who were sterile or trying to have a child were excluded, the proportion of sexually active women not using contraception fell to less than 10 per cent.¹⁹ This contrasts favourably with the 45 per cent of Americans aged 15–44 who use no contraception.²⁰

Although the pill is still the most popular form of contraception, there has been a steady fall in its use over the last decade (see Figure 45). Worry about the increased risk of heart disease and stroke among older women, and among those who smoke and take the pill,²¹ together with new evidence of a possible link between the pill

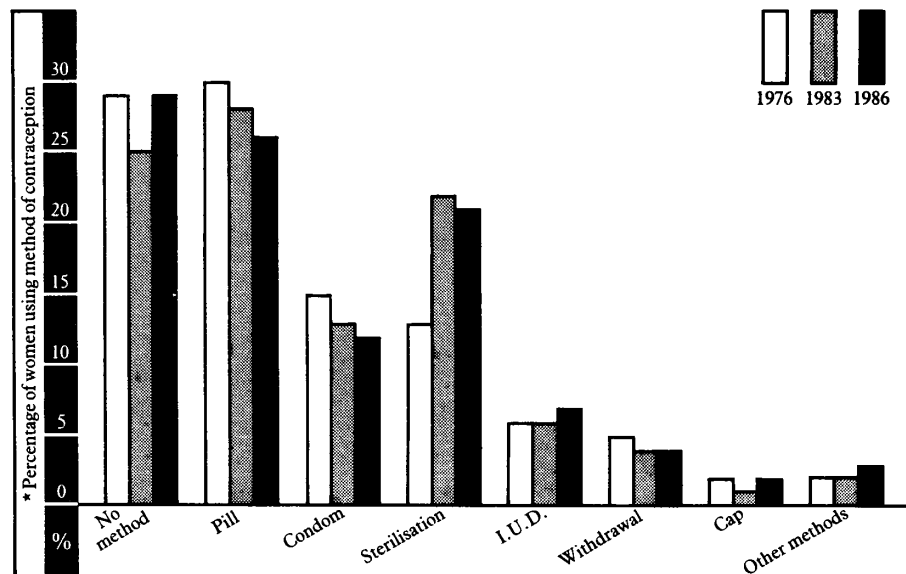
Table 26 Pregnancy rates among 15–19 year olds: an international comparison

	<i>Pregnancy rate per 10,000</i>
USA	96
England and Wales	45
Canada	44
France	43
Sweden	35
Netherlands	14

Source: Alan Guttmacher Institute. Report to the Ford Foundation on the findings and policy implications of a comparative study of teenage pregnancy and fertility in developed countries. New York, Alan Guttmacher Institute, 1985.

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Figure 45 Trends in contraceptive use among women in Great Britain (1976–1986)



*For women aged 16–44 in 1976 and 1986 surveys; women aged 18–44 in 1983 survey.

Sources: Dunnell K. Family formation survey 1976, Table 8.5.

OPCS. General Household Surveys for 1983 and 1986. London, HMSO.

and breast cancer (see Chapter 4) has been associated with this decline.

The most striking change in patterns of contraception has been the increase in the use of vasectomy and sterilisation, now the commonest forms of fertility control among older, married or cohabiting couples who have completed their families (see Figure 45). The previous resistance of men to vasectomy has largely disappeared. In 1986 there were equal proportions of men and women who had been sterilised.

By contrast, the use of barrier methods of contraception has continued to decline, with fewer than one in four couples using the sheath or diaphragm/cap in 1986. While the sheath was the most popular form of contraception until the 1960s, it was rapidly replaced by the pill. This has important health implications as those most at risk of sexually transmitted disease – including AIDS and cervical cancer – are in the youngest age groups where the use of non-barrier methods is high. These trends, together with evidence that the active component of contraceptive jelly used with the diaphragm/cap may be able to neutralise the HIV (and possibly other) virus (see Chapter 7), have implications for future family planning policy.

Family planning services

Family planning has been demonstrated to be highly cost-effective: every £100 spent by the NHS on it can result in a £500 saving by preventing unwanted pregnancies.²² Two surveys of DHA family planning services in England and Wales in 1982 and 1984 showed that, despite financial stringencies, the services were well maintained throughout both countries and that doctors and nurses were receiving adequate in-service training – increasingly organised by individual DHAs.²³ But more recent information showed that since 1985 DHAs have been cutting clinic sessions to save money.

Current gaps in the provision of specialist services include a lack of female sterilisation and vasectomy services, with less than half providing special sessions for young people (see Table 27). This is an important omission as there is good evidence that young people are more likely to use such specialist services.^{24,25} The DoH provision of funds to set up three special schemes for young people was therefore welcome and the evaluation report is awaited. We need to know more about the quality of the family planning service offered by general practice, used (but not preferred) by 60 per cent of people.

Sexuality and family planning: information and education

Despite its proven value, and the obvious support it receives from 96 per cent of parents and 95 per cent of teenage children, there have been numerous barriers to the effective dissemination of information and education about sexuality and family planning. The government's ambivalent stance was evidenced in its refusal to allow the HEC to publish a leaflet on sexuality and contraception while recognising the need to promote the use of condoms and 'safe sex' in its campaign on HIV/AIDS (see Chapter 7). Condom advertising is not permitted in cinemas and the IBA did not permit television advertisements to promote condoms as a protection against sexually transmitted disease until August 1987. Past efforts by the Family Planning Association have met with opposition from the IBA which insisted on amendments to a TV advertisement designed to promote more responsibility among men – on the unsubstantiated grounds that it would offend viewers. Another project, Men Too, focussed on the hitherto neglected role of men in family planning and sexual relationships. It has potential for expansion to deal with new challenges presented by sexually transmitted disease and HIV/AIDS.

The role of the media in shaping attitudes to sexuality is an important, under-researched field. British television documentaries have made a major contribution, while the most irresponsible programmes currently shown are imported from the USA.

The transfer of responsibility for sex education from local authorities to school governors in the 1986 Education Act was primarily a response to a minority of MPs who wanted to give parents the right to remove their children from sex education lessons. However, much

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Table 27 National summary of DHA family planning services, January 1983–January 1984, England and Wales

	DHAs providing service	DHAs not providing service	Services expanded	Services maintained	Service reduced	NA*	HP**
	(%)	(%)	(%)	(%)	(%)		
Clinics	100	0	14	81	4	1	
Doctor sessions	100	0	12	82	5	1	
Post-coital service	83	17	31	50		19	
Vasectomy	35	65	5	29	1	38	27
Female sterilisation	12	88	1	13	1	50	35
Sub- fertility	28	72		31	1	57	11
Psycho- sexual sessions	77	23	14	59	3	23	1
Special sessions for young people	44	56	7	41	1	51	
Domiciliary family planning	63	37	13	50	3	34	

* no answer ** hospital provision

The percentages are based on the completed returns from 145 district health authorities out of a total of 162 DHAs approached.

Source: Family Planning Association. Report on district health authority family planning services in England and Wales. London, FPA, 1985.

progress has been made in schools. Studies in the mid-1970s²⁶ suggested that sex education was sporadic, taught as an isolated, single topic, and restricted mainly to the 'mechanics' of animal and human reproduction. A similar survey of schools in three cities in 1986²⁷ showed that there have been the following major changes.

- Eighty-nine per cent of teenagers and 78 per cent of parents said that they had had some primary school education about sex and personal relationships.
- The range of topics covered at secondary school was much wider, including personal relationships, contraception and sexually transmitted disease; nearly 30 per cent had covered homosexuality.
- The teaching was firmly integrated into the curriculum rather

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than treated as an isolated topic.

The survey also showed that there was little parental involvement in primary or secondary sex education. Nearly half the teenagers said they had not discussed sex with their mother, and nearly three-quarters had not talked to their father about it.

Future investigations

Although a consideration of sub-fertility is beyond the scope of this report, it affects an estimated one in ten couples, is likely to grow in relative importance if fertility levels remain low, and if the trend among women to postpone pregnancy until their 30s continues. Little is yet known about the birth control or counselling needs of differing ethnic groups,²⁸ still less about sexuality in old age. These should become areas of future attention. The move from a narrow, family planning base towards a broader interest in psychosexual problems (see Table 27) in clinics may play an increasingly important role in these and other issues.

Illicit drug use

The challenges presented by illicit drug use are complex and rapidly changing. Although the threat posed to the public health by legal drugs such as tobacco and alcohol is currently much greater, the evidence suggests that the use of potentially hazardous illicit drugs is growing rapidly. Furthermore, evidence is accumulating to suggest that the intravenous use of illicit drugs is likely to be the most important influence on the future size of the HIV/AIDS epidemic in the UK.²⁹

Most recent surveys suggest that experimentation with illicit drugs by teenagers is still rare, that most use is occasional and does not lead to dependence.³⁰ Table 28 shows that the drug most commonly used is cannabis. Nevertheless, we cannot afford to be complacent since the most reliable estimates suggest that there were at least 50,000 people in the UK who were dependent on opiates (heroin and morphine-like drugs) in the early 1980s. It is clear that use is not concentrated in London alone, for use of the whole range of illicit drugs may be just as extensive in Scotland.³¹ We do not yet know how to assess the extent of damage associated with illicit drug use. The small numbers of deaths in England and Wales directly associated with opiates (221 in 1988) and solvent misuse (111 in 1987 in England) tells us little about the social and psychological damage associated with their use and the rate of HIV infection, even though most experimentation with illicit drugs does not result in long-term harm to the user or to society.

While we have some information on the extent of experimentation with illicit drugs among young people, much less is known about modes of drug use and the relationship between occasional use and persistent, often intravenous, use. The stereotype of the intravenous

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Table 28 Recent estimates of the prevalence of illicit drug use among young people

STUDY	YEAR	AGE	PREVALENCE (per cent)		
			<i>Cannabis</i>	<i>Solvents</i>	<i>Heroin</i>
Lothian school leavers (survey 1)	1983	19-20	22-35	1.6-2.3	0.6-0.7
Lothian school leavers follow-up (survey 2)	1988/89	25	11.8	0.0	0.1
Schools in England and Wales	1986	Secondary school age	17	6	2
3 areas of Britain	1987	12-13	1	2	0.3

Sources: Plant M.A. *Drugs in perspective*, London, Hodder and Stoughton, 1987.
 Bagnall G.M. Use of alcohol, tobacco and illicit drugs amongst 13-year-olds in three areas of Britain. *Drug and Alcohol Dependence*, 1988, 22: 241-251.
 Bagnall G.M. Personal communication, June 1990.

heroin user of the 1960s is probably no longer appropriate as most of today's illicit drug takers use more than one drug. Evidence from a study of heroin use in northern England suggests that heroin smoking has become a stable pattern in certain localities.³² While heroin smoking is less hazardous than its intravenous use, we know little about the relationship between smoking and intravenous use, and whether smoking heroin is a transient practice.

Illicit drug use: recent trends

Trends in official data on convictions and seizures of illicit drugs and on hospital admissions for treatment of drug-related problems are difficult to interpret because they reflect changes in policies to control drug misuse as well as possible changes in actual use. Nevertheless, it is clear that there has been a rapid growth in drug use since the late 1970s, especially opiates, amphetamines and cocaine. The number of new narcotics addicts notified to the Home Office in the UK between 1973 and 1988 increased nearly seven-fold. The number found guilty or cautioned for drug offences increased two-fold overall, with more than a six-fold increase in the numbers of offences associated with heroin. The number of police seizures for heroin and cocaine increased by more than 13-fold and five-fold respectively.

A more comprehensive assessment of the official statistics on opiate use in an inner London borough, together with information

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from surveys and from fieldwork by statutory and voluntary agencies in contact with drug users, confirms a real increase in opiate misuse (primarily heroin) in inner London between 1977 and 1983.³³ Extrapolation from these figures in the whole of the UK suggests that Home Office figures represent a five to ten-fold underestimate of the actual prevalence, which may have risen by ten-fold between 1970 and 1983.³⁴

The increase in experimentation and use of illegal drugs is also confirmed by the findings of community studies, although these are not fully comparable and may reflect patterns of drug use in a particular region. All the studies before the mid-1970s showed that only a small minority had ever used illegal drugs, that cannabis was the drug most commonly used (with amphetamine in the 1960s) and that use of heroin and cocaine was rare. Solvent misuse (including glues and other volatile solvents) was first documented in the mid-1960s. Although there are no reliable national data, individual studies now suggest that as many as 23–25 per cent of 13–15 year old boys in Glasgow have engaged in solvent misuse.³⁵ In the last decade the best data come from a prospective study which followed up Scottish 15–16 year olds in the Lothian region. In 1979, 15 per cent of the boys and 11 per cent of the girls reported using drugs 'for kicks'. At the age of 19–20 (in 1983) these figures had increased to 37 per cent for males and 23 per cent for females. Cannabis was still the drug most commonly used; the proportion having tried heroin, although higher than in the 1960s, was still less than one per cent.³⁶ In 1989, when these school-leavers were followed up again at age 25, illicit drug use had declined substantially. The prevalence of heroin use was 0.1%, solvent use was nil and cannabis use nearly 12 per cent.³⁷ A similar picture has emerged in other recent prevalence studies of teenagers and young people and is supported by indirect evidence showing that the proportion of fourth year students in Wolverhampton schools who knew someone taking illegal drugs doubled from 15 per cent in 1969 to 31 per cent in 1989.³⁸

The relationship between the use of legal drugs (such as tobacco and alcohol) and illegal drugs merits further research. It has been argued that while increases in the price of tobacco and alcohol are associated with a fall in their consumption, this may result in a shift to greater use of illicit drugs such as heroin, whose street price is low,³⁹ and that this might affect those who have least money to spend. The picture is probably more complex: while studies of teenagers confirm that the use of illicit drugs has risen faster than that of alcohol or tobacco, the recent downward trend in cigarette consumption among adults has not occurred among teenagers (see Chapter 4).

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Explaining patterns of drug misuse

The misuse of illegal drugs is determined by a complex of individual, social and international factors. The use of illicit drugs is not confined to any particular lifestyle or socioeconomic group, although historical analysis suggests that those who are most at risk of misuse are a young, but changing group.

There are clearly a number of identifiable broad influences that help to explain the sharp rise in opiate misuse since the mid-1970s. At that time, political changes in Iran led to the influx of large quantities of cheap, pure heroin which were smuggled into the UK and other parts of western Europe. Between 1978 and 1983 the 'street price' of heroin is estimated to have halved relative to inflation.⁴⁰ This extended the geographical and financial availability of heroin beyond those who could afford it in the 1960s.

There is a growing body of evidence which has linked the misuse of heroin with social deprivation^{41,42} and with unemployment in particular.^{43,44} This has been a persistent finding in recent surveys of drug use, and of some indicators of related harm. In the USA the rise and more recent fall in illicit drug misuse has been closely associated with similar changes in levels of unemployment. However, evidence from northern England suggest that unemployment only predicts high levels of misuse when associated with easy local availability.⁴⁵

Drug misuse: minimising the harm

It is probably not feasible to eliminate all illicit drug use because there will always be a black market associated with drugs whose use is prohibited. Although the legalisation of drugs such as heroin might end the black market⁴⁶ we know of no evidence to suggest that misuse and related harm would be reduced. It is possible, however, to define three more realistic goals:

- to reduce experimentation with potentially hazardous illicit drugs;
- to help those who are dependent on such drugs to stop or reduce the harm associated with use;
- to minimise the harm associated with continued drug use.

We believe that these goals are likely to be achieved by a combination of measures designed to reduce the supply and demand for illicit drugs and discourage the more hazardous forms of drug use, together with supportive socioeconomic measures aimed at reducing the deprivation associated with a high risk of misuse (see Chapter 8). This is supported by the conclusions of the government's report on the prevention of drug misuse from the Advisory Council on the Misuse of Drugs (ACMD).⁴⁷

Reducing the supply of drugs

Attempts have been made to control the supply of drugs at international level by crop substitution and control of trafficking, and at the national level by better policing and enforcement of the drugs laws together with tight controls on the prescription of narcotic drugs. In practice, the impact of such measures is likely to be different for those who experiment with drugs and those who are regular users. While it is true that the more a drug is available the more people are likely to experiment, small increases or decreases in supply are likely to have very little effect. By contrast, a small decrease in supply in an already tight market can lead to a dramatic shift among existing users from one illicit substance to another,⁴⁸ as has been shown to be the case in the USA.⁴⁹ Furthermore, efforts to reduce illegal trafficking and promote better enforcement, however enthusiastically supported, will never be complete. It has been estimated that no more than 10 per cent of the total amount of heroin available on the black market is confiscated,⁵⁰ and efforts have not yet succeeded in forcing up the street price of heroin.

Opiate and amphetamine prescribing patterns were a major source of illicit supply of these drugs before powers under the 1971 Misuse of Drugs Act restricted their prescription. While such restrictions have dramatically reduced the contribution of medical prescriptions to the black market, methadone prescribed by registered medical practitioners still finds its way there.

Reducing the demand for drugs

The two approaches aimed at influencing demand involve education to reduce experimentation and treatment and support for those who wish to stop using drugs. Educational initiatives can be considered at several levels, ranging from mass media approaches to long-term drug education programmes aimed at young people, parents and professionals.

Extensive evaluation of drug education programmes has shown that education alone cannot be expected to change behaviour. Evaluation of drug education programmes for young people has been extensive – especially in the USA. The findings from such research have been remarkably consistent and have been summarised in the ACMD report.⁵¹ Its main conclusions are given below.

- Knowledge about drugs can be increased⁵² but changes in attitude are harder to achieve.⁵³ Indeed, there is some worrying evidence that the more young people are informed about illicit drugs, the safer they feel about using them.^{54,55} Overall, drug education programmes have been ineffective in changing behaviour,^{56,57} and sometimes even counterproductive.⁵⁸⁻⁶⁰
- Mass media campaigns that focus on single drugs and use shock tactics designed to influence young people are, at best, inappropriate and can actually lead to experimentation with drugs.⁶¹⁻⁶³

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Isolated examples of careful use of the mass media to publicise campaigns directed at irresponsible prescribing by doctors (for example, the CURB campaign to reduce barbiturate prescription, (see Chapter 10) have been more successful in influencing their target audiences.

- The most useful drug education campaigns for young people are now thought to be those which put legal and illegal drugs into a realistic social and cultural context, and attempt to encourage young people to develop sufficient knowledge and self-confidence to make appropriate decisions concerning their use.^{64,65}

We have little reliable information on the effectiveness of treatment and rehabilitation in both reducing demand and minimising the more harmful consequences of drug misuse. Progress has been hampered by incomplete agreement on what the goals for treatment should be, and whether long-term abstinence is seen as the ultimate aim. This, together with ill-informed views on the nature of opiate dependence and withdrawal, has led to unnecessarily negative conclusions about the value of treatment and rehabilitation. Some US research suggests that the image of heroin use as the most intractable addiction is too pessimistic⁶⁶ and that more long-term follow-up studies of drug users are needed. An important study in the UK showed that as many as 35 per cent of opiate users attending a drug dependency unit were still abstaining after ten years.⁶⁷

Most research has been conducted on a select minority of drug users who attend inpatient, hospital-based drug dependency units over a short period. Yet the available evidence suggests that inpatient treatment is not superior and is more costly than outpatient treatment.⁶⁸ Moreover, the findings from one Scottish practice show that users dependent on opiates are more likely to consult the GP than the hospital.⁶⁹ These findings may reflect the local situation and more research is urgently needed on how best to support dependent drug users in the community. The potential for developing such support in primary care is substantial and could operate alongside the well-established drug support network run by voluntary agencies. A survey of GPs in England and Wales in 1986 showed that one in five had seen patients with problems related to illicit drugs in the previous month.⁷⁰ Over half the patients were under 25 and two-thirds wanted help with withdrawal. The same survey showed that a majority of GPs believed that those dependent on opiates were difficult to treat and nearly half were either unprepared or unwilling to take responsibility for treatment.⁷¹

Reducing the harm among continuing drug users

The possibility of reducing drug-related harm without necessarily reducing drug use itself has recently gained considerable currency. While there is a danger that such an approach may seem to condone potentially hazardous use of illicit drugs, the need to minimise the

spread of HIV/AIDS through intravenous drug misuse and the sharing of infected 'works' (see Chapter 5) has become urgent. The government has evaluated 15 needle exchange schemes where intravenous drug users are given clean syringes in exchange for used ones in order to stop needle-sharing. The long-term outcome of such a policy in terms of reducing the risk of the spread of HIV/AIDS, hepatitis B and other infections is not yet known, but evaluation so far shows that such schemes were inadequate.⁷² The introduction of pharmacy-based schemes may improve the effectiveness of the needle exchange programme. We do not yet know enough about occasional or recreational drug use and its relationship to persistent misuse to recommend measures to prevent this transition. Any attempts to influence this transition will need to proceed with caution, but more research may throw light on this ill-understood aspect of drug misuse.

**Drug misuse:
progress in the
UK**

Despite a continuing lack of knowledge, the ACMD⁷³ and the more recent Social Services Committee report⁷⁴ concluded that the dramatic growth of drug misuse warranted a practical response. The ACMD recommended a comprehensive strategy which included controls on the drug supply through strengthening licensing and prescription controls; a balanced drug education programme which focussed on the integration of drug education in other aspects of the curriculum and avoided sensational mass media campaigns; improved professional training; and the development of community-based local initiatives by RHAs and DHAs. It envisaged that such a strategy would be coordinated by an interministerial committee, with a new national body to help monitor the activities of local drug advisory committees.

The national campaign against the misuse of illicit drugs was subsequently launched by the government in 1985. Despite claims to the contrary, it is still too early to tell whether it has had an impact. The government has not so far completely followed the advice of the ACMD. It has established an interministerial committee on drugs chaired by the Home Secretary which has outlined its general strategy but avoided setting any long-term objectives, emphasising the essentially unachievable aim of eliminating all illicit drug misuse. The committee has attempted to control illicit drug supplies by contributing to international projects on crop eradication and substitution and has strengthened police and customs enforcement activities. It has also expanded the provisions of the Misuse of Drugs Act to bring dipipanone, diethylpropion, barbiturates and benzodiazepines under strict control. It also introduced legislation in 1986 which enables the assets earned by convicted traffickers to be confiscated.

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National efforts to reduce demand through education and the provision of treatment and support services have been less satisfactory. Despite a substantial body of evidence pointing to the counterproductive effects of sensational mass media campaigns focussing on single drugs, a £2 million series of TV commercials (followed by a further £2 million series) under the banner *Heroin Screws You Up* was launched in England and Wales in 1985, directed mainly at teenagers and their parents. Despite government claims that the campaign was responsible for increasing awareness and negative attitudes to illicit drugs, its evaluation was inadequate^{75,76} and increases in awareness were equally likely to have resulted from a series of major, independent initiatives on television (such as the BBC's *Drugwatch*) and in other media. The equivalent campaign run in Scotland by SHEG was more in line with ACMD recommendations and included a low key approach: *Choose Life not Drugs*. Subsequent initiatives were aimed at reducing the risk of HIV infection. More long-term initiatives for both teachers and pupils have been prepared by the national health education agencies working with TACADE and the Institute for the Study of Drug Dependence.

The planning and development of longer term, local treatment and rehabilitation services has been poor. Recommendations from both the ACMD and the Social Services Committee reports to provide continuing central funding to support the development of a diverse range of NHS and community-based services have not been fulfilled. Instead, a central fund of £17 million was established in 1986 to support community-based initiatives for a maximum of three years only and £5 million has been allocated on an apparently one-off basis to RHAs to develop their drug dependency facilities. The provision of drug dependency units is still heavily concentrated in London; longer term rehabilitation is still left largely to the underfunded domain of voluntary agencies.⁷⁷ Although nearly all health authorities have now set up multidisciplinary drug committees and are developing much needed local harm-reduction schemes and rehabilitation services, most of these have been funded with ear-marked AIDS monies which may be discontinued. The challenge for the future is to develop and expand a more equitably distributed network of diverse harm-reduction treatment and rehabilitation facilities to cater for a much wider range of drug users than has hitherto been considered. The development of syringe exchange and information services, through pharmacies which deal with large numbers of high-risk users, is a recent example of innovation in this field. The need to move from hospital-based to community and primary care-based treatment schemes remains pressing.

14 Health in adulthood and old age

Start Young, Stay Active.
CICERO 44BC (*On old age*)

Introduction This chapter first assesses the influence of paid work on health and the opportunities for promoting health in the workplace. We consider progress in reducing work-related disease over the last 15 years and assess the implications of our findings for future policy. We then move on to assess whether goals for health promotion in old age are different from those in younger people, ways in which they might be achieved, and how much progress has been made in the UK.

Health in the workplace While it has long been recognised that the working environment, and work itself, can jeopardise health, the UK has been slow to act on this knowledge and even slower to see the opportunities that the workplace offers to promote health and to prevent disease. The workplace offers access to 26 million adults – the majority of whom are young and often difficult to reach through other means. As a major proportion of the workforce are manual workers, there are also special opportunities to reach many of the people who are most at risk, not only of work-related ill health, but of many other aspects of ill health (see Chapter 8).

Ill health at work Official figures suggest that about two per cent of all deaths in 15–64 year olds in Great Britain – 550 injuries and 900 ‘prescribed’ (compensatable) industrial diseases in 1987/88 – are directly attributable to work. In 1978 the Royal Commission on Civil Liability – the most recent report to produce such data – found that of 1.8 million non-fatal injuries, 45 per cent of those in men arose from work and 23 per cent in women. In 1979–80 the working population made more than nine million claims for new spells of sickness, of which 9,500 were deemed to be due to ‘prescribed’ disease. The limitations of the prescribed disease category prevent a full assessment of the burden of ill health attributable to the workplace, but the two commonest groups of occupational disease recorded in Great Britain in 1988 were hearing loss and musculo-skeletal problems (see Table 29).

While prescribed work-related injury and disease form only a small proportion of the total burden of ill health, they represent an underestimate of the true importance of occupational disease because they do not take account of many disorders which are not prescribed diseases. However, even when these factors are taken into account, work-related disease still accounts for only a relatively small fraction of the total mortality in the community. Despite this, there

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Table 29 Incidence of 'prescribed' occupational disease in Great Britain (1987-1988)

<i>Occupational disease</i>	<i>Numbers recorded</i>
Infections	6
Poisoning and other diseases	70
Respiratory system	1,531
Musculo-skeletal connective tissue	1,844
Skin	368
Hearing loss	1,837
TOTAL	5,656

Source: Health and Safety Commission. Annual report 1988/89. London, HMSO, 1990.

is no room for complacency because our knowledge of workplace hazards is far from complete.

Trends in occupational disease

Prescribed, work-related diseases and injuries are preventable almost by definition because they are caused by identifiable agents in, or aspects of, the working environment. It is difficult to assess progress in the UK because information on prescribed diseases is not available for individual causes. Over the last 20 years there appears to have been a steady fall in the incidence of work-induced injuries and prescribed diseases. While this may be partly due to declining hours of work (a shorter working life) and unemployment, the gradual implementation of the Health and Safety at Work Act (1974) has probably had an important long-term role in this reduction. The Act placed new, enforceable responsibilities on employers to provide a safe and healthy workplace as well as to maintain high standards of monitoring and evaluation of control measures.

In the manufacturing and construction industries, however, there has been a significant and sustained increase in reported major injuries and still more in accident rates – a 43 per cent increase for construction and 33 per cent for manufacturing from 1981 to 1985. The Health and Safety Executive concluded that the figures must reflect a real deterioration in safety standards over the period.¹

Much of the progress in the reduction of occupational risks has come from the control of known occupational causes of life-threatening diseases, such as asbestos-related lung cancer and mesothelioma and bladder cancer caused by aromatic amines used in the rubber and dyestuffs industries. There are now stringent controls on the permitted concentration of asbestos fibres in the workplace and the use of blue asbestos is banned. The rubber industry's response to the evidence linking dust and fumes to bladder, lung and stomach cancers has been swift and positive.² Two years after the Employment Medical Advisory Service (EMAS)³ confirmed the find-

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ings of early research, the British Rubber Manufacturers Association, together with the relevant trade unions and the Health and Safety Executive (HSE), published a guide⁴ which recommended immediate control of all dust and fumes.

Towards the new occupational health

WHO and the International Labour Organisation (ILO) defined the aims of occupational health, as long ago as 1950, as 'the promotion and maintenance of the highest degree of physical, mental and social wellbeing of workers in all occupations by prevention of departures from health, and controlling risks'.⁵ This principle is today embodied in WHO's European strategy for Health for All by the Year 2000.⁶ Until recently, emphasis in the workplace has been on the provision of remedial services. In the last ten years there has been a growing awareness of the need for much broader preventive activity as the workplace has a significant role to play in promoting health both in relation to traditionally perceived occupational hazards and to more general health promotion issues. This trend was confirmed in the 1983-85 report of EMAS, the former medical arm of the HSE.⁷

The older idea that a work-related disease had to be one in which work exposure was a 'necessary' cause (that is, prescribed diseases) has given way to a wider concept of work-relatedness which derives from a better understanding of the multifactorial nature of disease. WHO has divided work-related disorders into four new categories (see Table 30) which give a better idea of the scope for prevention in the workplace.^{8,9} This classification expands the opportunities for using the working environment as a focus for the promotion of health. Category II of work-related disease, for example, includes heart disease, which is the leading cause of death in the UK, and mental ill health which is the second most common reason why people consult their GPs (see Chapter 10).

Research has helped to identify work-related factors contributing to heart disease among viscose rayon workers.¹⁰ A controlled, prospective study comparing Finnish rayon workers who were exposed to carbon disulphide with those who were not, showed that in the first five years of the study, exposed workers were nearly five times more likely to die of heart disease than non-exposed workers – even after accounting for other major risk factors. Measures were then taken to reduce carbon disulphide levels to below 10 parts per million and 10 years later death rates among the exposed rayon workers had fallen to the same level as those in the non-exposed group.¹¹

Evidence is now accumulating that other work-related factors may contribute to, or aggravate, heart disease, including sedentary work (see Chapter 9) and job stress (see Chapter 3). Some of the components of job stress, such as 'moonlighting' or working overtime

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Table 30 Categories of work-related disease

<i>Category</i>	<i>Definition</i>	<i>Examples</i>
I	Work – the necessary cause	Lead poisoning
II	Work – a contributory causal factor, not a necessary one	Coronary heart disease, mental ill health
III	Work – provokes a latent or aggravates established disease	Peptic ulcer, eczema, mental ill health
IV	Work – offers ready accessibility to potential dangers	Innkeeping (alcohol) Medicine (drugs)

Source: Schilling RSF. More effective prevention in occupational health practice. *Journal of the Society of Occupational Medicine* 1984, 71–79.

for long periods,¹² together with rigid work routines¹³ and shift work,¹⁴ are associated with an increased risk of heart disease. In the prospective Framingham study on heart disease, a combination of highly demanding work and poorly defined supervision was a powerful predictor of subsequent heart disease in women – even when adjusted for other major risk factors.¹⁵ In Category IV disease (see Table 30), where access to potential dangers at work is the important factor, innkeepers and bartenders have been shown to have a higher risk of cirrhosis of the liver than any other occupation¹⁶ and suicide in medical laboratory workers is much higher than in other occupations.¹⁷ This clearly offers scope for developing preventive policies for the control of alcohol and drugs at work, as well as counselling and support programmes.

The working environment and quality of life

Difficulties in definition and measurement are less easy to overcome in the study of the impact of work stress on mental health and the quality of working life. Few would doubt that underpaid work, authoritarian management, inflexible working hours and routines, and some modern production methods, diminish the quality of a working person's life, but we have no good means of measuring their impact on health. Concern has been expressed that today's working population may be experiencing the adverse psychosocial effects of new electronic technology and prolonged enforced leisure (in many cases unemployment),^{18–20} but research has so far been inconclusive and uncertainty on the evidence²¹ concerning the health effects of visual display units (VDUs), for example, continues. Trades unions have already adopted a preventive strategy on VDUs. They have negotiated agreements specifying lighting arrangements and limiting exposures to four hours a day.²² The challenge now facing employers is to minimise these sources of occupational stress by planning work

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and work hours in such a way as to stimulate a participating workforce and maximise satisfaction among employees. The challenge to epidemiologists and social scientists is to find ways of measuring the effect of such interventions on the physical, mental and economic wellbeing of the workforce.

Progress in the workplace

To get a clearer picture of what is being done to promote health in the workplace, we and the HEC commissioned a survey of major UK employers' associations and trades unions.²³ The sample was neither comprehensive nor representative of the whole of industry. The aim was to gain a general impression of the way in which occupational health was interpreted in practice by major public and private sector employers and trades unions. The pattern of results showed that, on the whole, public sector employers and trades unions were most likely to have developed policies and practical occupational health programmes. Private sector employers were doing less well.

It was clear that both employers and trades unions gave issues such as alcohol, smoking, stress and nutrition nearly as much priority as the traditional occupational concerns of noise, safety and dust control (see Table 31). Trades unions gave more priority than employers to nutrition and much more to family care issues, such as maternity/paternity leave and child care. Contraception, sexually transmitted disease and personal development were accorded very little priority by either trades unions or employers. Clearly, some of the major risk factors for coronary heart disease – with the notable exception of obesity – are now emerging as key issues for future action in the workplace. Among all trades unions and employers, those issues which have had the most significant influence on their occupational health programmes over the last decade were identified as government legislation (the Health and Safety at Work Act) and a number of specific health matters arising in the workplace. Health promotion agencies were seen to have little influence. Over 60 per cent of respondents saw government grants as the most useful way of encouraging the establishment of occupational health programmes in the future and nearly half wanted to see the secondment of skilled health promotion staff to industry.²⁴

The role of occupational health services

Unlike the situation in France and Germany, whose occupational health services are a statutory part of their health service, occupational health services in the UK remain mainly private and fragmented. In 1976, one-third of industrial workers had no occupational health cover.²⁵ By 1985 the HSE concluded that there had been little progress and expressed concern that up to half the workforce were likely to have no occupational health cover as they were employed in small firms with 250 employees or less, where services

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Table 31 Ranking of priority issues for health in the workplace

<i>Highest priority</i>	<i>No priority</i>
Noise	Contraception
Safety	Sexually transmitted disease
Dusts	Personal development
Muscular/chemical hazards	
Alcohol	
Smoking	
Stress	
Nutrition	

Source: Webb T, Schilling R et al. Health at work? A report on health promotion in the workplace. Research Report No 22, London, Health Education Authority, 1988.

are virtually non-existent.²⁶ Moreover there has been little development of a coordinated occupational health service in the NHS – Europe's largest employer. Medical students and GPs generally receive very little occupational health training, and although there were good postgraduate nursing and medical courses, the majority of occupational health staff working in industry have no professional qualifications.²⁷ Training is not financed by government.

Any call for improvement or upgrading of the occupational health services should be based on evidence of their effectiveness. It is disappointing, therefore, that there has been so little research in this field in the UK.²⁸ The multifactorial nature of work-related health problems requires a realistic assessment of the role of occupational health staff together with other contributing influences.

The provision of, and research into, occupational health services and programmes in the USA is highly developed. This is partly because major employers bear the cost of health care of their employees. Many US employers also believe that such programmes help to provide a fitter, more productive and satisfied workforce.²⁹ But American economic analyses may not apply in the UK and we need more information on the costs and benefits of health promotion programmes in the UK. From the little we know, there seems to be obvious scope for the reduction of absenteeism and improvement of productivity, as well as for the promotion of a better quality of working life. The evidence suggests that smoking is responsible for the loss of 50 million working days a year – for smokers take, on average, twice as much sick leave as non-smokers.³⁰ Alcohol misuse has been estimated to cost industry over £1,714 million each year.

We also lack good evidence of the effectiveness of coordinated health promotion policies and programmes in the workplace. Most of the available evidence is based on programmes designed to reduce the risk of coronary heart disease. A WHO collaborative study in the

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prevention of heart disease – in which the UK participated – was able to demonstrate that a simple, factory-based programme of advice on diet, smoking and exercise could significantly reduce heart disease.³¹ The scope for this kind of intervention is actively being pursued in numerous industries in Wales as part of the Heartbeat Wales programme (see Chapter 7). Advice and education about a healthy lifestyle is being backed up with workplace policies which ensure that catering policy makes a wide range of healthy foods available and that smoking control policies, and the provision of exercise and showering facilities, make it easier for employees to act on the advice they are given.

There is now a growing body of evidence, mainly from the USA, that it is possible significantly to reduce smoking in a workforce³² and generate economic gains for employers.³³ These findings have not been confirmed in a UK context. The savings in terms of improved productivity due to reduced sickness and absenteeism alone are likely to be substantial. Surveys in the early 1980s suggest that nine out of ten employers still had no formal policies on smoking at work (except for safety reasons) and most thought that employees would object³⁴ – although the opposite is the case (see Chapter 7). Other research suggests that a lack of occupational health staff with appropriate communication skills is a major bar to developing such policies.³⁵ Yet many individual companies have not only been prepared to develop such policies, but have found them to be acceptable to employees.³⁶

We have yet to see widespread implementation of the *spirit* of the Health and Safety at Work Act which clearly places a responsibility on employers to protect the 'health' and 'welfare' of their employees as well as their 'safety'. Our survey of workplace employers and trades unions has shown that the interest is there, although the necessary will and support needed to translate this into practice is often lacking. Increasing evidence of the adverse effects of passive smoking has led to a series of cases being brought against employers by non-smokers in the UK and elsewhere. This is likely to result in a significant increase in the provision of smoke-free workplaces.

Health in old age

One of the most obvious achievements of the last few decades has been the increase in size of the elderly population. Improved standards of living and child health earlier this century, together with better nutrition, prevention and health care, have all helped to ensure that by 1987 the average expectation of further life at 65 for a woman and man in England and Wales was 17.4 and 13.5 years respectively (see Chapter 2). The retired population now forms about 16 per cent of the community. Population projections for the next 35 years suggest that the biggest expansion in numbers will take place

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in the oldest age groups: a 23 per cent increase in the 65–79s and a 45 per cent increase in the over 80s is expected between 1988 and the year 2025 (see Table 32).

A striking aspect of old age in the UK and the rest of the affluent world is that two-thirds of retired people are women and that 80 per cent of the people who care for the elderly are also women. By the age of 85, women outnumber men by four to one. The reasons why women outlive men have not been adequately researched, but are mainly because mortality rates for heart disease and lung cancer have, so far, always been lower in women than for men. This gap may well close as smoking takes its toll on women as it has on men (see Chapter 4).

The challenge – to die young as late as possible

While the postponement of premature death might be a valuable goal for the under 75s, it is less appropriate for older age groups. The realisation that the measurement of disease and death rates is an unsatisfactory way of assessing health in old age has led to the search for new indicators which could form a more helpful basis for policy and planning. The accurate assessment of health in old age requires the regular collection of national data on the prevalence of disease, disability and dependency if we are to build up a picture, not only of those who survive, but of the proportion of people who can expect to live 'autonomous' or disability-free lives.³⁷

The multidimensional assessment of health in old age forms the cornerstone upon which policies need to be based – especially as multiple, chronic conditions³⁸ are more common in old age. There are five important dimensions of such an assessment: the ability to perform activities of daily living; mental health; physical health; and social and economic function.

A realistic objective is for the majority of us to live long, disability-free lives, to die ultimately at the limit of which is seen as our average biological lifespan (about 85). This position, represented graphically by the curve in Figure 46, is known as the 'rectangular curve'.³⁹ It has been suggested that, in ideal circumstances, curves B and C,

Table 32 Population projections in the United Kingdom

Age	1961 (millions)	1988 (millions)	2025 (projection millions)	Projected percentage change (1988–2025)
Under 16	13.1	11.5	12.1	+5
16–39	16.6	20.4	18.6	–9
40–64	16.9	16.2	19.0	+17
65–79	5.2	6.9	8.5	+23
80+	1.0	2.0	2.9	+45

Source: Central Statistical Office. Social Trends 20. London, HMSO, 1990.

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representing disease and disability survival curves, would approach those of curve A. The hope would be to 'compress' or shorten the period towards the end of our lives when the risk of disability increases. This, according to WHO, would increase independence and autonomy.

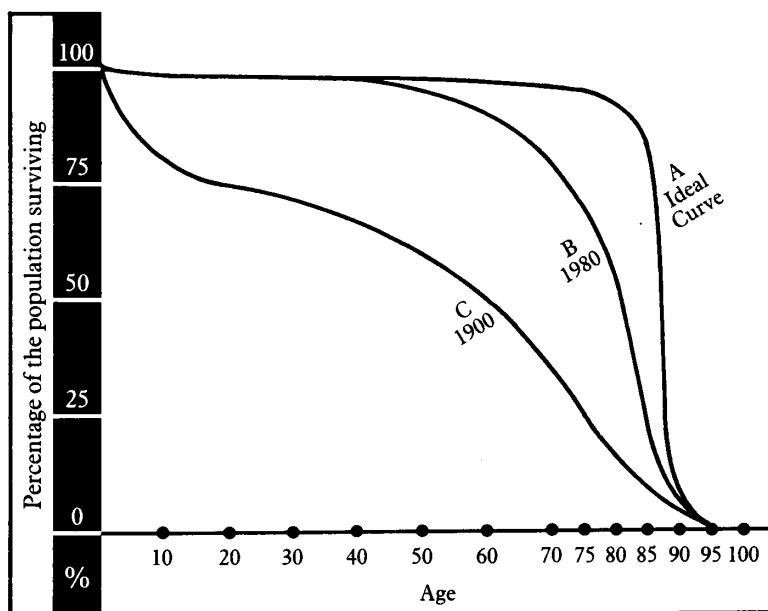
We do not yet have enough UK or international information on whether the idea of dying a 'natural death' could be a reality and we await the outcome of Scandinavian research which is following a representative group of the elderly into advanced old age.

The health of the elderly in the UK

Data now available in the UK have begun to permit a shift from disease measurement towards a fuller assessment of independence in old age. The available mortality data show that the major diseases which kill old people are the same as those which kill the middle-aged.⁴⁰ Among 60–84 year olds, where the information is most accurate, coronary heart disease, cancers (lung, large bowel and breast in women) were responsible for 57 per cent of deaths among men and women in England and Wales in 1989.

The prevalence of ill health increases with age. In Great Britain in 1987, seven out of ten people over 75 reported suffering chronic ill health (see Table 33). There is some suggestion of rising trends in ill health over the last decade, but these are based on self-reported

Figure 46 Towards a natural death: the rectangular human survival curve, 1900–1980 (US data)



Source: Fries R, Crapo L. Implications of the rectangular curve. San Francisco, W H Freeman and Co, 1981.

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Table 33 Ill health in old age in Great Britain (1987)

<i>Indicator</i>	<i>Age 65-74</i>	<i>Age 75+</i>	<i>All ages</i>	<i>Trend 1972-87 (all ages)</i>
Chronic sickness	61%	72%	33%	↑
Restricted activity number of days/person/ year	44	59	27	↑
GP consultations average no/person/year	6	7	5	No change

Source: Office of Population Censuses and Surveys. General Household Survey 1987. London, HMSO, 1989.

information which is subject to ill-understood fluctuations. The over 65s also suffer from multiple, chronic conditions, with arthritis and joint problems, followed by respiratory disease, most commonly reported.⁴¹ Other problems such as cataracts and dementia tend to be under-emphasised. The presence of disease gives us little idea of the true level of incapacity or loss of independence it imposes. For example, while diabetes is a chronic disease it may result in little loss of independence, and it is this which is important in old age. The presence of multiple health problems need not *necessarily* compromise a person's functional status.

A more informative picture emerges from studies of the functional capacity of the elderly. Although methods differ and results often depend on self-reported data without accompanying objective testing, two major representative studies of the over 65s, one covering Great Britain⁴² and one covering Scotland,⁴³ show that up to three-quarters of elderly people see themselves as healthy for their age and 63 per cent in the Scottish study had no evident disability (see Table 34). In the study of Great Britain, over 80 per cent were independent in 'activities of daily living' (ADL). The picture for the over 75s also shows that only a minority suffer severe functional incapacity (see Table 34). But when mental function was included in the assessment (as in the Scottish study) the majority among the over 65s who were independent in ADL was reduced to 54 per cent (see Table 34). Overall, therefore, the widely held negative view of old age is not substantiated by the evidence. A qualitative study showed that elderly people held a positive view of themselves and their abilities.⁴⁴ This is an important finding because other research suggests that *self-perception* of health among elderly people is a more accurate predictor of future mortality than other measures that may seem to be more objective.⁴⁵

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Progress towards 'natural death' in the UK

An assessment of how much progress we have made in the UK towards living disability-free lives and dying a 'natural death' (see Figure 46) depends on a number of assumptions. First, it implies that we know enough about the biology of old age to be able to predict with confidence that there is a natural limit to the lifespan of about 85 years. Second, it assumes the current reductions in death rates (see Chapter 2) will slow down in very old age – for which there is little evidence in the UK.⁴⁶ Third, it assumes that preventive measures will reduce the incidence of the major chronic diseases. While this is possible for some diseases, such as lung cancer and respiratory disease, it is likely that heart disease and stroke will continue to be major causes of mortality in a majority of elderly people for a long

Table 34 Independence and health in old age: two community studies

<i>The General Household Survey (1985)</i>			<i>The Scottish study in Clackmannan (1976)</i>	
INDICATOR	AGE		INDICATOR	AGE
	65+	75+		65+
	(%)	(%)		(%)
<i>General health</i>			<i>General health</i>	
Good/fair	77	74	'Good for age'	61
<i>Mobility</i>				
Unable to go out alone	13	22	No disability	63
<i>Self care</i>			<i>Impairment</i>	
Unable to wash all over alone	9	15	Trouble with joints	17
Unable to feed alone	1	1	Trouble with chest	16
			Trouble with back	9
<i>Domestic tasks</i>				
Unable to shop	16	26	Functional incapacity (appreciable or severe)	17
Unable to cook	8	13		
<i>Use of services in last month</i>			Independent in daily activities and mental function	54
GP's surgery	26	23		
Community nurse	8	10		
Chiropodist	7	11		
Home help	9	18		
Meals on wheels	2	5		

Sources: Office of Population Censuses and Surveys. General Household Survey 1986. London, HMSO, 1989.

Bond J, Carstairs V. Services for the elderly: a survey of the character and needs of a population of 5,000 old people. Scottish Health Services Study No 42. Edinburgh, SHHD, 1982.

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time to come, although future generations entering old age may have less atherosclerosis. Moreover, we still do not know how to prevent arthritis and dementia (see Chapter 10) which are major causes of disability in old age and are likely to increase in prevalence as the numbers reaching old age also increase. Despite these uncertainties, it is possible that some of the loss of functional capacity associated with ageing is avoidable. This should act as a stimulus to develop appropriate policies for both elderly people and their carers rather than a justification for not pursuing strategies to prevent premature death earlier in life.

Towards a policy for promoting health in old age

One of the biggest barriers to effective health promotion in old age is the negative attitude to old age that prevails among the public, the media and some professionals. Not only is ageing seen as a period of inevitable decline, the terminology we use to describe old age often has a negative, pejorative meaning.

It is government policy to support elderly people so that they may live independent lives in their own homes.⁴⁷ This is also the goal of statutory and voluntary agencies concerned with old age (and the BMA) and is assumed to be the aspiration of most elderly people themselves. WHO has recently translated this overall goal into six more specific objectives:⁴⁸

- to prevent unnecessary loss of functional capacity;
- to maintain the quality of life in old age by preventing distressing symptoms;
- to assist elderly people to live in their own homes and to prevent unnecessary admissions to residential care;
- to prevent the breakdown of informal networks of care, particularly families;
- to prevent unnecessary decline in functional capacity and quality of life if admission to long-stay care is essential;
- to prevent iatrogenic (doctor-induced) disease, including the distress that can be caused by inappropriate interventions in old age.

Such ambitious goals for the promotion of health in old age demand a broad response. Three overall approaches are open to us:

- social and welfare policy;
- support for a healthy lifestyle;
- health care policy.

These three approaches are clearly interdependent and we assess each in turn.

In this report our terms of references have so far precluded a detailed discussion of the contribution of medical care to the

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promotion of health. Conventional wisdom suggests that it is small. But this assumption needs re-examination in the context of old age, where the primary goals are the promotion of autonomy and independence and *not* simply the postponement of premature death. The successful integration of prevention, treatment and rehabilitation in British geriatric practice should prompt a reassessment of the role of medical intervention in the promotion of health in old age.

The potential of the hospital and specialist services to preserve and improve functional capacity in old people is considerable. Among those aged 65 and over in England there are over 1,000 operations a week for cataract, 500 prostatectomies and 500 hip replacements, while large numbers of patients receive surgical or gynaecological repair, are being treated for angina and diabetes, or are being rehabilitated from stroke. Yet, despite considerable expenditure on these specialist services, there are few representative national or regional data on their outcomes and effectiveness. For example, although we know that hip replacement surgery is cost effective⁴⁹ in terms of quality of life gained, waiting lists vary widely from district to district. Information on the role of other medical treatments in maintaining the functional wellbeing of elderly people is almost completely lacking.

Social and welfare policy

The promotion of autonomy in old age requires action on many fronts. While there has been little direct research on the impact of income, housing, transport and communication policies on wellbeing, it is obvious that they have considerable bearing on the ability of elderly people to function independently in the community. State pensions form the major source of income for retired people. While they have increased in real terms since 1976, pensioners still formed 30 per cent of those living in or on the margins of poverty in 1987 (see Chapter 8). One third of pensioners are so poor that their resources are on or fall below the Income Support line. British pensioners also fare much worse than many of their European contemporaries whose pensions begin to approach a replacement rather than a subsistence income.⁵⁰

Housing

There is considerable scope for the promotion of independence through safe and sensitively designed housing. Elderly people are more likely than others to live in old, dilapidated housing: they occupy nearly one-third of houses deemed to be unfit. Against a background of major reductions in public expenditure on housing, it is hard to see how the necessary improvements can be made. About half of elderly people are owner occupiers, and it is this sector which contains some of the poorest housing stock. There was a 38 per cent increase in the number of owner-occupied homes designed as unfit

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between 1971 and 1981, yet improvement grants to owner occupiers decreased by 28 per cent between 1974 and 1985. The Scottish study of the elderly at home showed that nearly 60 per cent of their houses had no aids such as handrails or non-slip mats, and nearly half of the occupants had no obvious way of signalling in an emergency⁵¹ – a finding confirmed in the 1985 study of elderly people throughout Great Britain⁵² in which only 69 per cent of one-person elderly households had a telephone.

Housing and cold-associated ill health

The potential for adequately heated and insulated housing to prevent unnecessary extra ill health in the elderly has not been fully assessed,⁵³ but research on the role of low indoor temperatures in precipitating disease as well as discomfort suggests that they are important. While community⁵⁴ and hospital studies⁵⁵ show that severe hypothermia affects only a small proportion of the elderly⁵⁶ (there are about 500 deaths from hypothermia recorded by OPCS in England and Wales each year) recent research has highlighted the much bigger problem of what is now known as 'cold-associated disease'. Analysis of weekly death rates between 1974 and 1984 shows that 80 per cent of weekly fluctuations can be explained by changes in temperature. From these figures it has been estimated that there are about 40,000–75,000 cold-associated deaths in the UK every year.⁵⁷ This represents 12 per cent of all deaths and is two to three times as high as in America and in other parts of Europe where winter temperatures are much lower.⁵⁸

The impact of cold-associated disease is felt most in elderly people and is apparent in major increases (about 50 per cent) in mortality from respiratory disease, heart disease and stroke (about four per cent) during severe winters.⁵⁹ Although there has been a fall in the number of cold-associated deaths over the last 25 years, countries like Sweden and the USA have reduced these seasonal swings more effectively than the UK – despite bigger drops in average winter temperatures.⁶⁰ A national hypothermia study in the UK⁶¹ showed that those at highest risk were likely to live alone, have no central heating, unheated bedrooms and no community services. Based on these findings it recommended:

- effective insulation in elderly people's homes;
- an adequate heating allowance;
- the issue of low wattage electric blankets to those at high risk.

Other international research has shown that the spread of central heating has made an important contribution to the fall in cold-associated deaths throughout Europe, Japan and the USA.⁶² The minimum recommended indoor temperature for adults in the UK is 18.3°C and WHO has recommended that 21°C should be viewed as a

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minimum for elderly people.⁶³ Yet indoor temperature surveys in 1972 showed that three-quarters of their living rooms were below the UK minimum for adults⁶⁴ when the outside temperature was 5°C. There is no evidence that the situation has improved since then.⁶⁵ Government policy on the prevention of cold-associated problems in the elderly is contradictory. Severe weather payments are available when outside temperatures are very low, but the termination of the system of insulation grants has made it difficult for all but better off individuals and the most imaginative local authorities to improve insulation in elderly people's homes.

Sheltered housing

Although only a tiny proportion of elderly people live in sheltered housing (1.3 per cent in a Scottish study), the growth of the elderly population in the 1970s led to an expansion in the building of sheltered housing. Such building in the public sector is now at a standstill, although it continues in the private sector.

There has never been a clear policy of eligibility for sheltered accommodation and local authority provision varies widely,⁶⁶ although the average – 27 per 1000 elderly – is below the arbitrarily designated ideal of 50 per 1000. Limited funds have led many authorities to develop alternative schemes of sheltering with 'mobile wardens', 24 hour on-call systems, and alarms. But they still await evaluation.

Planning transport and leisure

Two-thirds of households with elderly people have no access to a car. Thus cheap and accessible public transport is a central factor in determining whether old people can continue to participate in the life of the community. The deregulation of buses and increases in fares (see Chapter 6) disregard this requirement. According to the 1985 General Household Survey, a quarter of the over 75s did not use public transport because of physical difficulties. Although there has been little research in the UK, the findings of major prospective health studies of over 70s and over 80s in Sweden and Denmark suggest that bus design and traffic control systems need amending as the landing platform on buses was too high for many old people and timespan between changing traffic lights was not long enough for an elderly person to cross the road safely.^{67,68} The Department of Transport is currently examining the UK position. Many local authorities have adopted sensitive policies for maximising the social integration of old people, such as door to door bus services, mobile day centres, improved concessionary fares, and easy access to shopping, health centres and public buildings.⁶⁹ Such policies, together with well thought out recreational and sports facilities and adult education courses, can help elderly people to reach their potential.

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Supporting a healthy lifestyle in old age

Good health in old age depends, in part, on the avoidance of diseases when younger. We have already discussed the measures needed to reduce smoking and to encourage healthy eating, moderate drinking and regular physical activity among younger people (see Chapters 7 and 9). Research on whether similar measures *in old age* have any beneficial effect is lacking. One community survey in Cardiff showed that older people – especially the over 75s – have lower smoking rates, drink less and take much less regular exercise than younger adults.⁷⁰ At present we have no good information on the effect of changing smoking, drinking and eating habits in old age, although one American study has shown that people who stop smoking in old age have lower subsequent rates of heart disease.⁷¹ The promotion of physical activity in old age is one area where the evidence for its beneficial effects justifies action. For research now shows that some of the loss of fitness in old age is not inevitable and results from disuse – rather than from the ageing process itself (see Chapter 9).

General nutrition in elderly people has been the subject of considerable concern. Major community surveys show that most have an adequate diet,⁷² although about one or two per cent (about 200,000 people) suffer from serious subnutrition. While detailed assessment of under-nutrition has shown that deficiency of nutrients, such as folic acid and vitamin D, are associated with ill health, supplementation has not been shown to be beneficial.⁷³ The evidence that abnormal bone thinning (osteoporosis), which affects 25 per cent of women by the age of 60, can be delayed by calcium supplementation is mixed.⁷⁴ But hormone replacement therapy (oestrogens combined with progestogens) is demonstrably effective in preventing osteoporosis.⁷⁵ Although the risk of heart disease associated with this treatment is not a problem, an increased risk of breast cancer is.⁷⁶ The question of whom or how to select for treatment is not yet resolved either.

Care in the community – supporting self care and community care

In our enthusiasm to promote health in old age, we often forget that old people themselves, together with their families, relatives and friends, have a key role in maintaining a good quality of life. The present challenge to community agencies and to health and other professionals is to find a balance between actions designed to support (rather than undermine) the efforts of elderly people and their families to look after themselves, without at the same time neglecting their welfare needs. We await the implementation of the NHS Community Care Act – now delayed until 1993.

Although a detailed account of how voluntary and statutory provisions in the community have contributed to their autonomy is beyond the scope of this report, active partnership between elderly people and voluntary agencies such as local Age Concern groups is

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widespread.⁷⁷ In 1985, Age Concern and the HEC launched a joint initiative, Age Well, which aimed to support and raise the profile of existing initiatives organised by elderly people and by local agencies. The Age Well campaign formed part of the HEC's Health in Old Age programme which received six per cent of the HEC's total programme budget for 1986/7. SHEG and the Welsh Office have also launched their own small initiatives on health in old age, but financial support has been limited and the Age Well programme has come to an end. Age Concern already provides a number of training courses for professionals with an interest in old age, but research commissioned by the HEC shows that undergraduate, in-service and continuing education for health workers is seriously lacking.⁷⁸

Despite many innovative schemes, statutory provision of services, such as leisure facilities, adult education activities, day centres and lunch clubs, tend to be neglected in favour of the provision of meals on wheels. There is now increasing recognition of the emotional and social support that district nurses, social workers and home helps can give elderly people and some authorities ensure they are adequately trained. Better coordination and interdisciplinary training of such 'paid carers' will lead to a more sensitive distribution of services where they are needed.⁷⁹

Supporting informal care

Debate on the provision of community support for the growing number of elderly people is often inappropriately focussed on an assumed huge burden of resources that will have to be shifted into statutory and residential services. While the need for such services will undoubtedly increase among the over 85s, 95 per cent of the elderly people continue to live in their own homes and between 1975 and 1985 there was only a six per cent increase in their numbers in residential care (relative to a 26 per cent increase in the total number of over 75s between 1971 and 1981).

It is clear from the major national study of informal carers by OPCS⁸⁰ and from more selected community studies in general practice,^{81,82} that the mainstay of support for old people continues to come from self-care and unpaid female relatives.^{83,84} Despite changes in the social roles of women, they continue to shoulder this responsibility willingly,⁸⁵ often with very little outside support and at great personal cost,⁸⁶ including restrictions in personal freedom⁸⁷ and high levels of anxiety and depression.⁸⁸ The major studies point to the following conclusions.

- The main supporters identified by elderly people themselves are wives, daughters or daughters-in-law.
- The main kinds of material support offered are help with housework, shopping, mobility and, to a lesser degree, personal care.

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- An inverse care law appears to operate whereby the more disabled the elderly person, the lower is the likelihood that her supporter will receive help from the statutory services.
- Most statutory support is concentrated among those elderly who live alone and have no immediate informal network.

Despite the minimal demands of informal carers, most remain unfulfilled: about a third would like some short, occasional respite, yet in one study less than half reported having had a few days off in the previous year.⁸⁹ In the same study, relief care had been organised by the health or social services in only seven per cent of cases. Many schemes like the Crossroads Care Attendant Schemes have established national networks that provide trained, paid carers, but such efforts cannot be expected to bridge the gap.⁹⁰ This is regrettable as there is now some evidence that respite care can postpone institutionalisation and increase the quality of life of carers.⁹¹

The full value, extent and personal costs of informal care are only just being realised. Few cost benefit studies of various types of community care include a proper assessment of the costs of informal care.⁹²

Preventing disability, promoting functional dependence – the role of the NHS

We have already referred to the potential role of the hospital services in promoting health in old age. The primary health care team also has a major potential contribution to make.

Avoiding iatrogenic action While overprotective behaviour by health and other professionals can be a problem, iatrogenic, or doctor-induced health problems, are probably one of the commonest preventable problems in old age. The overprescription of drugs to old people is a complex and poorly documented field. While we know that the elderly receive a disproportionate amount of all drug prescriptions, we do not know exactly what proportion is appropriate. There is a higher prevalence of ill health and a higher incidence of GP consultations than in young people. Elderly people are especially vulnerable to doctors who overprescribe medicines. They are more likely than other groups to receive repeat prescriptions⁹³ and in one study up to 28 per cent of repeat prescriptions to the elderly were deemed unnecessary.⁹⁴ Studies of admissions of elderly people to hospital suggest that at least 10 per cent are associated with the overprescription of drugs.⁹⁵ Drug groups commonly overprescribed include benzodiazepines, diuretics and digoxin.⁹⁶ Measures to minimise overprescription and unnecessary multiple drug prescribing have been recommended by the RCP⁹⁷ and RCGP,⁹⁸ and include:

- regular feedback on prescribing practices;
- better education and information for both prescribers and clients

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from independent sources;

- clear, computerised recording systems for drugs and repeat prescriptions.

These should be an integral part of the 75 + health check required in the GP contract.

Screening elderly people Research that has demonstrated an iceberg of undetected disease in elderly people has raised some unresolved questions about the value⁹⁹ and practicability¹⁰⁰ of establishing screening programmes (the early detection of undiagnosed disease) for them. Evidence supporting screening for disease is mixed. While screening for breast cancer in women aged 50–64 demonstrably reduces mortality (see Chapter 7), biochemical and x-ray screening tests in elderly people have no demonstrable role outside the hospital. The value of screening for high blood pressure is, at present, uncertain. The European Working Party on High Blood Pressure in the Elderly, which conducted the first randomised controlled trial of treatment for high blood pressure in the over 60s,^{101,102} has demonstrated a 52 per cent reduction in the incidence of non-fatal strokes as well as a 60 per cent reduction in fatal heart attacks, and this has been confirmed in general practice.¹⁰³ The Canadian Task Force on Periodic Screening has recommended two-yearly screening for high blood pressure in the over 65s,¹⁰⁴ but the side effects of treatment and interactions with other drugs present special problems in elderly people.¹⁰⁵ We await a final assessment of risk and benefit in the current MRC trial of high blood pressure in the elderly, but there is sufficient evidence and consensus to support a blood pressure screening programme up to the age of 80.¹⁰⁶

Interest in screening has now broadened from the detection of disease to assessment of functional capacity and social need. Results from the limited number of trials¹⁰⁷⁻¹⁰⁹ so far, suggest that health visitor assessment and intervention on an annual or quarterly basis does not have much impact on levels of disability but can increase use of appropriate services and may reduce the need for hospitalisation. Although screening is assumed to add to an elderly person's quality of life there is no firm evidence yet. Even if this were regarded as a sufficient basis for setting up a screening programme, a general practice with a population of 4,000 would require 18 extra hours of health visitor time per week for the first year alone.¹¹⁰ While the case for establishing a full screening programme for elderly people is not yet convincing, there is scope for using the consultation itself as an opportunity to detect hitherto unrecognised problems ('case-finding'). As 90 per cent of the over 75s will consult their GP at least once a year¹¹¹ and the minority who do not appear to be in good health,¹¹² attention has now been focussed on the use of the consul-

LIVING BETTER

tation itself ('anticipatory care') to detect unrecognised problems. A short questionnaire which is designed to assess key *functional* problems (such as mobility, foot care, hearing and vision) is now being investigated.¹¹³ The benefits to old people themselves are obvious and are supported by the RCGP and Age Concern.¹¹⁴

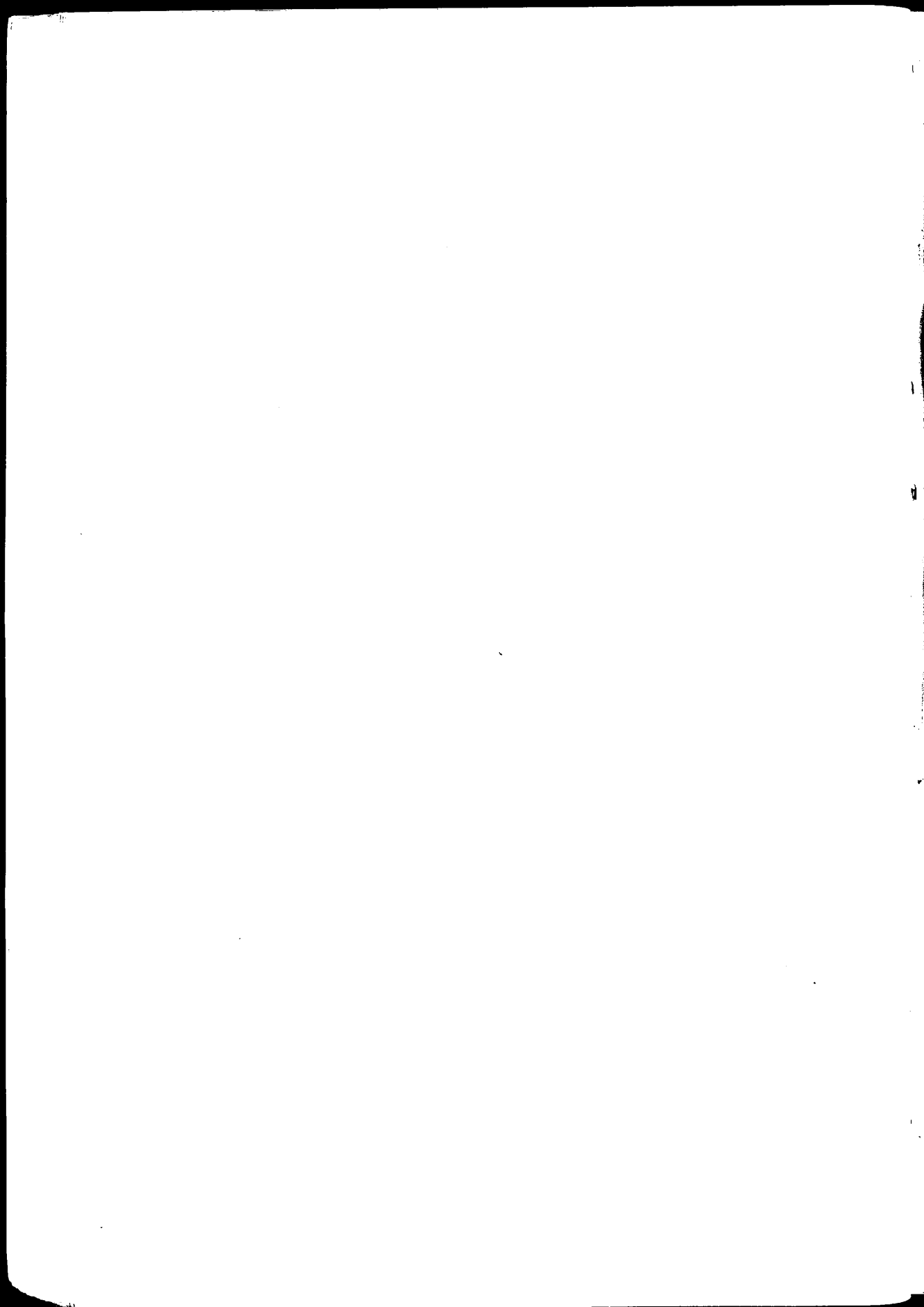
Recent convincing evidence supporting a social, rather than medical approach to screening among elderly people, comes from a randomised trial of an occupational therapy-based approach to elderly people with disabilities related to arthritis. This showed that assessment and provision of simple aids significantly improved functional status.¹¹⁵

The requirement in the new GP contract for all GPs to offer a 'health check' for the over 75s offers an opportunity to improve functional status in elderly people. Cost-effective ways of providing this service through the consultation itself and avoiding the opportunity costs of unnecessary medical screening and home visits have still to be found.

Dying with dignity

Three out of four people now die in hospital. This profound shift from home to hospitals is sometimes seen as an unwelcome medical intrusion into a natural process. But many elderly people and their families and friends are glad of the option. In many cases, sudden fatal illness precludes any other choice, but an elderly person and his or her family should, where possible, be offered a choice of where to die. Dying in hospital undoubtedly increases the risk of unnecessary medical intervention and emotional neglect, but dying at home with inadequate care and support is not necessarily preferable. It has left many GPs inexperienced and unsure as to how best to support the dying and their relatives at home.¹¹⁶ At a time of financial stringency it has proved difficult to provide the necessary nursing support services – especially night nurses – whose contribution has been regarded as essential.¹¹⁷ Six out of ten GPs in one survey were keen to look after more dying patients at home, but nearly as many wanted further training – especially in communication skills and bereavement counselling. If this survey reflects attitudes among GPs in general, then there is clearly the will in primary care to support the dying and the bereaved at home. What is needed is a reorientation of training and services so that GPs and other primary care staff can help their patients to die well.

PART III: TOWARDS A STRATEGY
FOR THE 1990s



15 The basis of the strategy

'Discern the Past
Understand the Present
Declare the Future.'

SOCRATES

Introduction In this chapter we identify 17 priorities for public health action which emerge from our review of public health in Parts I and II of the report. We discuss the justification for our choices, and set out the framework within which we shall develop our detailed strategy in Chapters 16 and 17.

Priorities for public health action Our analysis in Parts I and II of the report shows that we can identify a number of public health priorities where there is sufficient evidence to conclude that action would have a significant benefit on health. The following 17 areas for action emerge.

The reduction of tobacco consumption This mainly concerns cigarettes, but also relates to other forms of tobacco consumption such as sucking tobacco (see Chapters 3, 4, 7, 13).

The promotion of a healthy diet This primarily requires a decrease in the consumption of saturated fats, sugar and salt and an increase in dietary fibre intake (see Chapters 3, 4, 7, 12).

The reduction of alcohol consumption This involves reducing average alcohol consumption for the whole population and is not simply a matter of reducing the prevalence of heavy drinking (see Chapters 5, 6, 7).

The promotion of physical activity There is a need for an increase in regular physical activity in all age groups (see Chapters 9, 14).

The promotion of road safety This aims at a further reduction in the numbers of road accidents and their consequences (see Chapters 6, 7).

The promotion of health at work This concerns the promotion of health and the reduction of health risks at work (see Chapters 4, 14).

Effective maternity services This concerns interventions, the care of both the mother and the child during pregnancy and labour, and around birth (see Chapters 2, 11).

Child health surveillance This includes both immunisation against infectious disease (see Chapter 12) and the early detection of remediable ill health.

Early cancer detection At present, this mainly relates to screen-

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ing for breast cancer and cervical cancer (see Chapters 4, 7).

High blood pressure detection and prevention This concerns blood pressure screening as well as the promotion of dietary improvement (see Chapters 3, 9, 14).

The reduction of psychoactive drug misuse This concerns reduction both in the misuse of prescribed psychotropic drugs and in the use of illicit drugs (see Chapters 5, 10, 13).

Services for the elderly This includes social, welfare, education and leisure as well as health services for the elderly (see Chapter 14).

The maintenance of social support This concerns the preservation and maintenance of supportive social networks (see Chapters 9, 10, 11).

The promotion of dental health This involves fluoridation as well as dietary change and the reduction of tobacco use (see Chapters 3, 12).

The promotion of sexual health This includes the promotion of rewarding sexual relationships, the control of fertility and the prevention of sexually transmitted disease, including cervical cancer (see Chapters 4, 5, 7, 13).

Adequate income This concerns increasing national wealth, reducing income inequalities and reducing unemployment (see Chapter 8).

Safe housing This concerns the provision of enough, well-designed and soundly constructed housing (see Chapters 8, 10, 14).

While there is sufficient evidence to warrant action in each of these areas, our review shows that the evidence supporting a *detailed* strategy for action is stronger in some cases than others. Moreover, we believe that it is better to limit our detailed recommendations to those areas where we feel confident that the evidence, and our understanding, is strong enough to justify doing so. We also believe that it is important to make explicit the basis for a rational strategy. We have, therefore, identified six criteria upon which our recommendations are based:

- the strength of the evidence supporting the need for action;
- the strength of the evidence supporting the feasibility or effectiveness of action;
- the degree of public support or acceptability;
- the degree of professional support;
- the degree of political support;
- the economic benefits.

Although we lack good information in relation to many of these criteria, we have attempted throughout our foregoing analysis to document the degree of public, professional and political support for public health measures that have been shown to be effective. After

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considering these six criteria we have divided our 17 public health priorities into three groups.

- 1 Those where both the evidence and the support for action is strong.
- 2 Those where the case for action is strong, but more evidence of the feasibility of implementation is still needed.
- 3 Those where the case for action is strong, but where detailed recommendations are beyond the scope or expertise of this committee.

1 Public health priorities where the evidence and support for action is sufficient

Tobacco	Maternity services
Diet	Dental health
Alcohol	Early cancer detection
Physical activity	High blood pressure reduction
Sexuality	Immunisation
Road safety	

As guidance for the reader we set out in Table 35 the justification for selecting these priorities based on the six criteria we have tried to use throughout the report. Although the quality and reliability of the evidence concerning public, professional and political support is much greater in some areas (such as tobacco) than others, we believe that the evidence supporting the development of a detailed strategy in each case is strong. We set out our detailed recommendations for each in Chapters 16 and 17.

2 Public health priorities where the case and/or support for action is strong, but where more evidence of the effectiveness of action is needed

Psychoactive drug misuse	Child health surveillance (other than immunisation)
Health at work	Social support

Despite the government's highly visible, mass media initiatives to reduce **illicit drug misuse**, we believe that the disproportionate attention devoted to heroin in the mass media at the expense of other drugs may prove to be counterproductive. We believe that much more effort should be directed towards testing the effectiveness of community and individually oriented support. While national and international measures are clearly needed to help control the trafficking of opiates, we would like to see more research devoted to the consequences of the heavy focus on heroin for other patterns of drug misuse before unreservedly endorsing current strategies. We do, however, welcome recent initiatives to control the spread of AIDS through the provision of exchangeable syringes and hope that community-based programmes tailored to specific, local drug problems, together with innovative forms of support for drug users who wish to end their dependence, prove to be successful.

Other, promising opportunities for the prevention of **psycho-**

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Table 35 Choosing public health priorities and their justification

I: Priorities where the evidence justifying detailed action is strong

Priority	Evidence for action	Feasibility/ effectiveness of action	Public support	Professional support	Political support	Possible economic benefits
Tobacco	*****	****	****	*****	***	? ¹
Diet	****	****	***	?	?	?
Alcohol	****	****	**	***	*	?
Physical activity	****	**	?	?	**	?
Sexuality	*****	****	****	****	****	*** ²
Road safety	*****	*****	****	?	**	?
Maternity	*****	****	*****	*****	*****	***** ³
Immunisation	*****	*****	****	*****	****	*** ⁴
Dental health	*****	*****	****	*****	****	?
Early cancer detection	*****	****	?	****	****	** ⁵
Hypertension reduction	****	****	?	****	?	** ⁶

1 It is probably not possible to do a full benefit to cost analysis of the impact of tobacco prevention policy, but GPs' advice to patients to stop smoking is highly cost-effective.

2 This refers to the positive benefit to cost ratio for family planning services.

3 This refers to the positive benefit to cost ratio of antenatal screening for Down's syndrome and neural tube defects.

4 This refers to the positive benefit to cost ratio of immunisation programmes in the USA.

5 This refers to the accepted cost-effectiveness of breast screening, and to what, in the committee's view, could be a cost-effective cervical screening programme.

6 This refers to the known cost-effectiveness of screening for high blood pressure in primary care.

II: Priorities where the case for action is strong but where more evidence for effective intervention is needed

Priority	Evidence for action	Feasibility/ effectiveness of action	Public support	Professional support	Political support	Possible economic benefits
Psychoactive drugs	****	*	?	?	****	?
Health at work	****	*	?	?	None	?
Social support	***	*	?	?	?	?
Child health surveillance	****	**	***	****	**	?

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III: *Priorities where the case justifying action is strong, but where the expertise or scope of the committee is limited*

Priority	Evidence for action	Feasibility/ effectiveness of action	Public support	Professional support	Political support	Possible economic benefits
Services for the elderly	*****	**	?	?	*	?
Adequate income	****	***	**	?	?	?
Safe housing	**	****	****	****	*	?

- ***** Very strong evidence or support
- **** Strong evidence or support
- *** Fairly good evidence or support
- ** Some evidence or support
- * Poor evidence or support

active drug misuse lie in the further reduction of inappropriate benzodiazepine prescription. While policy in this field is still in the early stages of development, the considerable media attention given to the topic seems to have contributed to the downward trend in prescriptions for sedatives.

While the **workplace** offers obvious opportunities for reducing ill health and preventing disease, the committee did not feel there was sufficient evidence available upon which to base a detailed strategy for the promotion of occupational health. Although the control of well-known hazards in the rubber and asbestos industries and, to a lesser extent, smoking and diet are well-researched and implemented, these are the exceptions to the general lack of research and evaluation of workplace health promotion in the UK. We need to know much more about the effects of such activity on employees' health, and how occupational health staff might best be deployed in such initiatives, before we can recommend detailed action.

In the case of **child health**, the way forward is hampered by a lack of knowledge of the value of interventions, such as advice on a healthy lifestyle, and inadequate research on how to make worthwhile interventions (such as screening for hearing and visual deficits) effective and efficient. With the exception of **immunisation**, therefore, the committee did not feel able to make detailed recommendations for an overall child health programme. We hope that local efforts that are currently being researched will fill this unacceptable information gap.

Although evidence is now accumulating that **social support** may be important in the protection of physical, and possibly mental

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health, we have little information on how it might be most helpful to intervene. With the exception of isolated, although important, trials of social support in pregnancy and early childhood, there is little research which points the way forward for effective intervention elsewhere. Indeed the scope for intervention may be very limited, as it is not simply the amount of social support which counts, but its quality. In our view, the best opportunities – although largely unresearched – lie in areas where intervention might be best directed towards maintaining rather than supplanting *existing* networks for the elderly with much more priority being given to support for informal carers.

3 Public health priorities where the case for action is strong, but where detailed recommendations are beyond the remit or the expertise of the committee

Services for the elderly
Adequate income
Safe housing

In the case of **services for the elderly** there are two main difficulties which confronted the committee. First, it is obvious from our discussion of the promotion of health in old age (see Chapter 14) that action is needed on a wide number of fronts, ranging from social welfare and housing policy to education, leisure and health promotion services. We feel that others may be more competent to make detailed recommendations on these issues. Second, many of the measures likely to have a significant impact on the health of the elderly concern the delivery of effective treatment, such as hip replacement, cataract and gynaecological surgery, and support services from local and health authorities. While we remain convinced of the value of these services, it is beyond the primary remit of this report to discuss treatment and support services in any detail. We know others are working in this field and look forward to the results of their deliberations.

While we believe that the provision of an **adequate income** for everyone, together with a reduction in unemployment, is likely to have major benefits on wide-ranging aspects of health (see Chapter 8), it is beyond the expertise of this committee to propose a detailed strategy for how such objectives may be realised by government and others. Nevertheless, we reiterate the central importance of ensuring that the health effects of socioeconomic policy are taken into account. We also emphasise throughout our detailed strategy the need to develop measures to reduce inequalities in specific aspects of health and its determinants. Indeed the success of any strategy designed to promote health or to prevent disease is dependent on the simultaneous development of socioeconomic policies that are conducive to the reduction of inequalities in income and to the creation of wealth.

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In the case of **housing**, the evidence linking bad housing to poor health is clear and the improvement of our housing stock is a priority in itself that would be likely to result in improvements in the quality of life for many of the most deprived in the community. The health benefits of a more sensitive housing policy for the elderly are likely to confer major gains in health. Nevertheless we believe that others are more qualified to advise on how housing policy should be developed in the interests of promoting good health.

The elements of the strategy

In keeping with our analysis in Parts I and II of the report, we can identify three overall health goals which form the cornerstones of our approach:

- Goal 1: to promote longevity;
- Goal 2: to promote a better quality of life;
- Goal 3: to promote equal opportunities for health.

The strategy itself can be divided into three interconnected parts:

- resources for health;
- lifestyle for health;
- preventive services for health.

We next consider the framework for the strategy together with a brief discussion of what resources might be needed to support public health action. We devote each of the remaining chapters to developing the other two components of the strategy. In order to set out a coherent plan of action we have adopted a uniform way of dealing with each of the public health priorities. For each we set out the following elements:

- general objectives;
- quantified targets to be achieved by the year 2000 or earlier;
- expected or possible health outcomes;
- recommendations for implementation to identifiable national and local agencies: we concentrate our recommendations on those agencies and organisations which have clear responsibilities for health.

While we consider it essential that each of these agencies should be responsible to the interests of public, community and voluntary agencies, it is not the role of this report to recommend to either individuals or community agencies what their contribution to public health should be.

Resources for health

Our foregoing analysis has made it clear that a comprehensive strategy to promote public health needs to be underpinned by the

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following elements:

- good organisation;
- adequate funding;
- long-term commitment and programme planning;
- well-defined research and evaluation.

We have already pointed to some of the strengths and deficiencies in these elements in the UK and compared our position with that of other countries. It is beyond the scope of this report to undertake a major review of organisation, funding, programme planning and research, as much of the necessary information was not available to us. We have chosen instead to concentrate on how these issues relate to the specific public health priorities we have defined. Nevertheless it is obvious from our review that the following elements should form the foundation of an effective public health strategy – irrespective of the issue concerned:

- high-level ministerial responsibility and accountability for public health;
- interministerial liaison that permits the health aspects of all public policy to be taken into account;
- good channels of communication between central government and local health service and other agencies, with sensitive consultation of community and professional opinion;
- adequate central government funding to support the implementation and research components of a long-term strategy at national, regional and local levels, with specifically allocated local funds;
- a national plan for health with a set of clearly defined, quantified targets (where possible) for the nation that is reflected in the plans of national health promotion agencies, health and local authorities, and primary care;
- an annual mechanism of reporting back to the nation on progress, at national and local levels.

Towards a new UK approach

In the last chapter we referred to WHO and to some health authorities in the UK which have set numerical targets for the promotion of health and reduction of disease. In the interests of promoting a clearer set of recommendations for action on each of our identified issues, we have chosen to adopt an approach which is complementary to, but distinct from, the setting of disease reduction targets.

We focus instead on setting targets for influencing the *determinants* of disease and health which we define numerically where the data allow. We believe that this shift in emphasis will not only help to define health responsibilities both inside and outside the NHS, but

THE BASIS OF THE STRATEGY

will also enable us to set realistic targets which are achievable in policy terms. It will allow agencies to develop appropriate tools for monitoring the implementation process as well as the health outcomes. Most important of all, however, this approach allows for the logical expression of the fact that most avoidable diseases have many causes and that each individual cause or determinant of health and disease will in turn contribute to a range of different diseases. In this way we avoid making predictions about disease and health outcomes that are notoriously difficult to make and are also subject to medium-term fluctuation.

For example, while we consider that the reduction of mortality from lung cancer and coronary heart disease is likely to result from measures to reduce smoking, we cannot yet predict accurately what the disease outcomes might be over the next decade. In the case of smoking-induced disease, this is because smoking is only one of many factors involved in the causation of coronary heart disease and today's lung cancer rates reflect smoking patterns of more than two decades ago which were very different among men and women. This serves to complicate any predictions about future trends as lung cancer will continue to rise among women for many years, even if we are successful at reducing the current smoking rate among women as well as men. For these reasons, it seems wiser to set targets for the reduction of smoking in various sectors of the community and to measure the health outcomes, rather than to set the health outcomes in the first place and to monitor smoking rates.

Setting targets Target-setting has long been seen as an essential part of the formulation of any strategy in the commercial sector. It has increasingly become part of the planning process in the NHS as well. Pressure on the new generation of NHS managers to choose between and monitor different aspects of policy in the NHS has led to an increasing tendency to define policy targets in numerical terms and to monitor progress accordingly. More than half of the English regional health authorities in our own survey in 1985 had adopted a set of numerical targets for the promotion of health. This method of setting objectives has the following advantages.

- The setting of a clearly defined numerical target offers a clear means of monitoring progress.
- It can act as a stimulus for the provision of an appropriate local database on the health of the community which might not otherwise be available.
- It offers a way of highlighting key aspects of health promotion policy which are distinct from, but complementary to, other aspects of NHS policy.

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- Target-setting can offer a way of ensuring better commitment and implementation of health policy.

Target-setting has also some disadvantages.

- It tends to focus exclusively on what is easily quantifiable and often omits aspects of health that are difficult to quantify.
- It sometimes encourages an unjustifiably didactic approach, especially if not accompanied by sufficient public debate.
- Careless target-setting based either on inadequate data or unrealistic short-term objectives can be counterproductive, and lead to unnecessary stresses being placed on those expected to achieve them.

In our strategy, therefore, we have attempted to quantify only those targets for which we have a sufficient past database to predict potential future achievement. We have also identified other targets for action which may not yet be quantifiable, but which represent areas of policy in which progress can usefully be made. The aim of target-setting, in our view, is not to use it as a method of penalising policy makers if they fail to reach targets, but rather as a positive source of inspiration for those concerned with promoting the health of the nation.

16 Lifestyles for health

Give me neither poverty nor riches;
feed me with food convenient for me.

PROVERBS XXX, 8

Introduction In the previous chapter we briefly outlined the first part of our proposed strategy. This concerned the 'resources' necessary to support the overall strategy. We also identified 11 of 17 public health priorities for which we believe detailed plans for action can be justified. These now form the basis of the second and third parts of the strategy for which we developed detailed recommendations in this and the final chapter. They can be grouped as follows:

Lifestyles for health

- Tobacco
- Diet
- Physical activity
- Alcohol
- Sexuality
- Road safety

Preventive services for health

- Maternity
- Dental health
- Immunisation
- Early cancer detection
- High blood pressure detection

In this chapter we give detailed recommendations for action in the six priority areas we have defined as 'Lifestyles for health'.

Tobacco

General objectives

- 1 To create a physical and social environment where non-smoking is the norm.
- 2 To support the creation of a generation of non-smokers.
- 3 To maximise public awareness of the risks of smoking across all sectors of the community.
- 4 To support the efforts of those who wish to stop smoking.

TARGETS TO BE ACHIEVED BY THE YEAR 2000 (OR EARLIER)

- 1 To increase the percentage of adult non-smokers (including ex-smokers) in the community to at least 80 per cent.
- 2 To increase the proportion of children under 16 who are non-smokers to at least 95 per cent, and to reverse the trend towards increased smoking in girls.

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- 3 To reduce the gradient in smoking rates between manual and non-manual classes.
- 4 To ensure that at least 95 per cent of children and adults understand the risks of smoking.

EXPECTED HEALTH OUTCOMES

- | | |
|------------------------------------|--|
| Physical health | <ol style="list-style-type: none">1 A reduction in coronary heart disease mortality in the under 65s and a reversal of the upward trend in mortality from this disease among manual workers (Chapter 3).2 A reduction in mortality from lung cancer in men under 65 and a reversal of the upward trend in incidence of lung cancer among women over 55.3 A further decline in chronic lung disease. A reduction in the contribution made by passive smoking to lung cancer (Chapter 4).4 A small contribution towards a reduction in the numbers of low birthweight babies and in perinatal mortality, and a reduction in the incidence of stroke and coronary heart disease associated with the use of oral contraception (Chapters 4 and 13). |
| Mental and social wellbeing | <ol style="list-style-type: none">1 Increased fitness (Chapter 9).2 Increased productivity at work and a reduction of absenteeism due to smoking-related diseases (Chapter 14). |

RECOMMENDATIONS FOR IMPLEMENTATION

- | | |
|-------------------|---|
| Government | <ol style="list-style-type: none">1 Cigarette taxation should be increased annually to keep pace with inflation.2 An advertising levy (a 10 per cent levy would raise approximately £10 million) should be imposed on total expenditure on tobacco promotion to finance additional public education programmes.3 A legislative plan should be set out with the aim of banning all forms of tobacco advertising and sponsorship over a two-year period.4 The ceiling for maximum permitted tar yield of cigarettes should be gradually reduced to 10 milligrams of tar.5 Two new tar bands should then be created:
 'Dangerous' – under five milligrams per cigarette;
 'Very dangerous' – under five to ten milligrams tar per cigarette.6 There should be a changing series of strengthened and enlarged health warnings on cigarette packs (and on advertising until it is banned).7 There should be an immediate ban on the sale or promotion of chewing and sucking tobacco. No new tobacco product should be introduced into the market without a major inquiry into its health effects. |
|-------------------|---|

LIFESTYLES FOR HEALTH—TOBACCO

- 8 Government funding for the national smoking education programme should be increased.
- 9 Government funds should not be used to support the growth or manufacture of tobacco at home or abroad.

Health promotion

- 1 New emphasis should be given to more recently discovered health effects of tobacco such as passive smoking, the combined risks of smoking and oral contraceptive use and the relationship of smoking to cervical cancer, coronary heart disease and the loss of fitness.
- 2 Programmes should be designed to reach those groups where smoking prevalence is static or increasing – including children, especially girls, and those in manual work.
- 3 There should be better consultation and coordination between government and local and voluntary agencies to support smoking control policy.

Cigarette and tobacco retailing industry

- 1 Attempts should be made to diversify into non-tobacco products.
- 2 Attempts to create new markets abroad should cease.
- 3 The industry should endeavour to retrain employees likely to be made redundant as the tobacco trade continues to decline.

The communications media

- 1 Continual efforts should be made to ensure adequate coverage of both new and well-known health aspects of tobacco.
- 2 Editors and programme makers should be free to comment on matters relating to smoking, despite possible pressure from advertising and promotional interest in tobacco.
- 3 Fictional characters should, whenever possible, reflect the non-smoking majority in the population.

Training institutions

- 1 The influence of smoking on health should be adequately presented in the training and education of doctors, dentists, nurses, health educators, paramedical professionals and environmental health officers.
- 2 Students should be taught appropriate communication and other skills necessary to support efforts to reduce smoking in the community and in individuals.

Local authorities

- 1 There should be a clearly stated policy on smoking and health in each local authority.
- 2 The following elements should be covered:
 - smoking at meetings held on local authority premises;
 - tobacco sponsorship or advertising on local authority owned premises or billboards;
 - enforcement of the law governing the sale of cigarettes to

TOWARDS A STRATEGY FOR THE 1990s

minors;

- plans for developing and monitoring smoking policy and smoking education programmes in primary and secondary schools;
- plans to use the strengths of environmental health officers to promote smoking and health policies in restaurants and shops.

Health authorities

- 1 The reduction of smoking and smoking-related diseases should form part of a clearly stated strategy for the promotion of health at both district and regional levels.
- 2 The elements of the smoking control strategy should include:
 - a non-smoking norm at all health authority meetings;
 - a clearly signposted non-smoking norm in all health premises with special areas set aside for smokers;
 - a ban on the sale of cigarettes on health premises;
 - support for patients and staff in their efforts to stop smoking.
- 3 There should be a named public health physician or health education officer with responsibility for overseeing the implementation and monitoring of the smoking and health policy.

Primary health care

- 1 Family health services authorities (FHSAs) and their Scottish equivalents should develop clear objectives for the reduction of smoking in the community as part of the overall long-term strategy for primary health care.
- 2 There should be an agreed method in general practice for encouraging and supporting the reduction of smoking among individual patients.

Employers and trades unions

- 1 There should be a clearly stated signposted smoking control policy in the workplace that has been jointly agreed between employers and trade union representatives.
- 2 Facilities should be made available to employees to assist them in their efforts to stop smoking.
- 3 Occupational health staff should be involved in this enterprise.

Nutrition

General objectives

- 1 To create an environment in which healthy food is accessible to all sectors of the community.
- 2 To create a climate in which the nutritional aspects of food are taken into account in the development of food policy.

LIFESTYLES FOR HEALTH—NUTRITION

- 3 To increase public, professional and political awareness of what constitutes a healthy diet.

TARGETS TO BE ACHIEVED BY THE YEAR 2000 (OR EARLIER)

- 1 To reduce the proportion of total energy intake derived from fats to 30 per cent.
- 2 To reduce the proportion of energy derived from saturated fats from 17 to 10 per cent.
- 3 To reduce the average blood cholesterol level in the community to 5.2 millimoles per litre in the over 30s and to 4.7 millimoles per litre in the under 30s.
- 4 To reduce total sugar intake from 38 kilograms per head per year to 20 kilograms per head per year and to minimise the eating of sugary foods between meals.
- 5 To increase the total dietary fibre intake – especially cereal fibre – from approximately 20 grams per person per day to 30 grams per person per day.
- 6 To reduce the average salt intake from approximately 10 grams per person per day to 5 grams per person per day.
- 7 To reduce the socioeconomic disparity in intake of high fibre foods and sugar intake.

EXPECTED HEALTH OUTCOMES

- | | |
|------------------------|---|
| Physical health | <ol style="list-style-type: none">1 A reduction in incidence and mortality from coronary heart disease. An increase in expectation of life, especially at the age of 45 (Chapters 2 and 3).2 A possible reduction in incidence of bowel and breast cancers (Chapter 4).3 A reduction in the incidence of inflammatory bowel disease, constipation, obesity and diabetes (Chapter 4).4 A reduction in the incidence of dental decay in children (Chapter 12). |
|------------------------|---|

- | | |
|------------------------------------|---|
| Mental and social wellbeing | Increased productivity due to prolongation of life in middle age and reduction in disability (Chapters 2, 3 and 4). |
|------------------------------------|---|

RECOMMENDATIONS FOR IMPLEMENTATION

- | | |
|-------------------|---|
| Government | <ol style="list-style-type: none">1 Government should develop a clearly stated national nutritional policy based on the above targets.2 The DoH should be responsible for ensuring that the nutritional aspects of food policy in other departments are adequately reflected.3 The Ministry of Agriculture, Fisheries and Foods (MAFF) should |
|-------------------|---|

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implement a comprehensive food labelling system which clearly informs the consumer of the fat (saturated and polyunsaturated), sugar, fibre and salt content of all foods. A simple 'traffic lights' system of identifying foods that are high, medium or low in the above substances should be adopted.

- 4 MAFF should make representations to the EC to modify policies which run counter to the guidelines recommended in the NACNE and COMA reports.
- 5 To restore the balance of information to the consumer, a levy on the advertising and promotion of foodstuffs (a 0.1 per cent levy would raise approximately £4 million) should be imposed to help finance public education and information programmes on nutrition.
- 6 Steps should be taken to return to agreed minimum nutritional standards in schools.

Health promotion

- 1 The long-term nature of any programme to promote healthy eating should be set out in a clearly stated strategy that reflects the above quantified targets.
- 2 The promotion of healthy eating should form part of a more comprehensive approach to promote healthy living.
- 3 Health promotion agencies should assist with information and monitoring support to promote healthy eating within local health and other authorities.
- 4 Priority and funding support for regional and local programmes should be given to those parts of the UK (for example, Scotland) where diet-related disease (especially coronary heart disease) levels are highest.

Training institutions

- 1 The study of diet-related disease and nutrition should form an integrated part of the undergraduate, postgraduate and continuing education programmes for doctors, nurses, health educators, dietitians, teachers and environmental health officers.
- 2 Professionals should be encouraged to develop skills to help put this special knowledge into practice.

Food and drug industry

- 1 Retailers should develop a policy of maximising access and information to consumers of a wider choice of healthy foods – especially in parts of the country where it is poor.
- 2 Attempts should be made by food manufacturers to minimise the amount of salt and sugar added during food processing.
- 3 Food manufacturers and government should agree on an implementable code of practice for the responsible advertising of food and confectionery.
- 4 This should be monitored by a body independent of the food and

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advertising industries and representing consumer and health interests.

- 5 The growing emphasis on the advertising of healthy foods should be encouraged.
- 6 Drug manufacturers should avoid adding sugar to medicines.

Local authorities

- 1 There should be an explicit policy within the authority to promote healthy nutrition.
- 2 This policy should include:
 - provision of adequate information;
 - provision of a range of healthy food at local authority-organised functions;
 - encouragement by environmental health officers to promote the growth of 'healthy menus' in restaurants and catering establishments;
 - development of healthy catering policies and nutritional standards in schools;
 - development of nutrition education programmes in the curricula of both primary and secondary schools;
 - the appointment of a local education authority adviser with special responsibility for nutrition education;
 - the development of nutrition education courses for adults, including the Look after Yourself package.

Health authorities

- 1 The promotion of healthy nutrition and the reduction of diet-related disease should be a clearly stated part of regional and district health promotion plans.
- 2 This strategy should include:
 - provision of healthy food alternatives for patients and staff in health authority premises;
 - provision of informative material about healthy nutrition through menus and leaflets addressed to patients and staff;
 - provision of dietary advice in suitable health authority settings, including antenatal and child health clinics.

Primary care

- 1 There should be an agreed means of assessing, recording and monitoring diet and weight in the whole practice population.
- 2 A named person within each practice should be responsible for agreeing long-term targets for monitoring and promotion of healthy nutrition with the FHSA (or Scottish equivalent).
- 3 Agreement should be reached on which primary care staff are to be involved in counselling to promote healthy nutrition, and how such work might be evaluated.

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Employees and trades unions

- 1 A conscious effort should be made to provide healthy food alternatives in staff canteens and restaurants.
- 2 Complementary information on diet and health should be made available to staff.
- 3 Occupational health staff and trade union health and safety representatives should be jointly involved in the development of programmes and advice concerning healthy nutrition.
- 4 Occupational health staff should establish a nutritional surveillance system including weight monitoring, dietary profiles and blood cholesterol measurements.

Alcohol

General objectives

- 1 To promote patterns of alcohol consumption that minimise its harm without jeopardising its benefits.
- 2 To create an environment which minimises pressures to drink excessively and maximises choice of non-alcoholic alternatives.
- 3 To improve understanding of the adverse medical, psychological and social effects of excessive drinking and to promote a better understanding of what constitutes 'safe' drinking patterns.
- 4 To support the efforts of those with alcohol problems who wish to cut down on their drinking or remain abstinent.

TARGETS TO BE ACHIEVED BY THE YEAR 2000 (OR EARLIER)

- 1 To halt the rise in per capita alcohol consumption by 1989 and to reduce it by 20 per cent by the year 2000.
- 2 To halt the rising consumption of alcohol among women.
- 3 To reduce high levels of alcohol consumption and harm among high risk occupational groups, including those in the alcohol production and retailing industry, managerial and business executives, and journalists.
- 4 To reduce by at least 20 per cent the proportion of men who drink over 20 standard units of alcohol per week and the proportion of women who drink over 14 standard units of alcohol per week.
- 5 Substantially to reduce drinking and driving – especially among the under 25s.
- 6 To reduce the numbers of heavy drinkers, problem drinkers and those dependent on alcohol.

EXPECTED HEALTH OUTCOMES

Physical health

- 1 A reduction in alcohol-related disease, including cirrhosis of the liver, high blood pressure, cancer of the oesophagus and digestive tract, obesity, and deaths and injury from accidents at work, at

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home, and on the roads (Chapters 5, 6 and 14).

Mental and social wellbeing

- 1 Economic benefits, such as increased productivity, and reduced absenteeism (Chapters 5 and 14).
- 2 Reduction in domestic violence, child abuse and assault (Chapters 5 and 10).
- 3 Reduction in public drunkenness and criminal damage (Chapter 5).
- 4 Reduction in admission for hospital treatment for alcohol dependence (Chapter 5).

RECOMMENDATIONS FOR IMPLEMENTATION

Government

- 1 Taxation on all alcoholic drinks should be adjusted annually to keep pace with the retail price index.
- 2 It should be mandatory for all alcohol advertising and containers to display clear information on the alcoholic content of the product being sold or advertised.
- 3 There should be warnings to consumers on all advertising material on what constitutes excessive or unsafe patterns of drinking.
- 4 There should be an annual levy imposed on alcohol advertising (a three per cent levy would raise approximately £5 million) which should be used to help finance public and community education and information programmes.
- 5 Present funding for national alcohol education programmes should be increased to £10 million per annum.
- 6 There should be no further relaxation of the licensing laws.
- 7 The law relating to roadside breath testing legislation should be clarified so that it is clear that the police are legally allowed to breathalyse motorists at any time.
- 8 It should be an offence to sell alcoholic drinks to persons under the age of 18 (not merely those *known* to be under age) and this legislation should be enforced.

Health promotion

- 1 There should be a clearly defined long-term strategy for the reduction of alcohol consumption. Its objectives and targets should be numerically defined.
- 2 Funds for supporting alcohol education programmes should be allocated separately from those devoted to illicit drug education.
- 3 There should be better integration of the currently sporadic drink and drive campaigns, together with the national alcohol education programme.
- 4 More effort should be made to support and evaluate activities aimed at reducing alcohol consumption among individuals in primary care, the workplace, and voluntary and community groups.
- 5 The content of national alcohol education programmes should be

TOWARDS A STRATEGY FOR THE 1990s

linked to specific government initiatives such as drinking and driving, the labelling of alcohol containers and advertising.

The communications media

- 1 More conscious effort should be made to present the harmful effects of alcohol.
- 2 The images of drinking presented in the press, radio and television should be realistic reflections of the negative as well as the positive effects of alcohol.
- 3 There should be a code of practice governing the way in which alcohol is presented on television to young audiences.

Alcohol and advertising industries

- 1 There should be a stricter code of advertising practice that is enforceable by a newly appointed independent body. The code should proscribe the use of alcohol advertising and promotion which associates drinking, especially excessive drinking, with glamour or sexual prowess.
- 2 Better information and confidential help with alcohol problems should be available for employees in the alcohol industry.
- 3 More visible efforts should be made to support campaigns promoting safer drinking.

Local authorities

- 1 There should be an overall commitment to minimise alcohol related harm.
- 2 Local authority policy should deal with the following areas:
 - local authority meetings and entertaining should offer non-alcoholic drink in preference to alcohol during the working day;
 - health considerations should be taken into account when new licences to sell alcohol are granted;
 - non-alcoholic drinks should be offered at local authority leisure and recreation premises in preference to alcoholic drinks;
 - alcohol education should form an integrated part of primary and secondary school curricula and there should be an education adviser with overall responsibility in this field;
 - the police should make efforts to create a climate where drinking and driving is regarded as unacceptable and to enforce the existing drinking and driving laws.
- 3 Local authorities should offer confidential alcohol counselling or referral services, and occupational health staff should be involved in running such programmes.

Health authorities

- 1 The reduction of alcohol consumption and its related damage should form a specific part of strategic and DHA plans.
- 2 Health authorities should have clearly defined policy objectives concerning alcohol and health, including:

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- a ban on the sale of alcoholic beverages on health authority premises during working hours;
 - a ban on alcohol drinking among all health authority employees who are involved in direct patient contact in clinical work;
 - several options for referral of patients for alcohol counselling;
 - better coordination of policy on the referral of patients with alcohol problems between psychiatry, social work and other medical departments.
- 3 More support should be given to community agencies concerned with helping those who wish to reduce their drinking.

- Primary care**
- 1 There should be an agreed method of assessing, recording and monitoring the drinking habits of all patients.
 - 2 There should be agreed objectives for the reduction of alcohol consumption within each practice population.
 - 3 Primary health care staff should have an agreed system of referral and support of patients with drinking problems.

- Employers and trades unions**
- 1 There should be a clearly defined policy on the sale and drinking of alcohol during working hours among employees whose safety and health as well as that of others may be put at risk.
 - 2 Non-alcoholic beverages should be offered in preference to alcoholic ones at meals and social functions organised during working hours.
 - 3 There should be a confidential counselling programme available for employees who wish to seek help in overcoming an alcohol problem.
 - 4 Occupational health staff, where possible, should be involved in organising and administering such a programme.

Physical Activity

- General objectives**
- 1 To encourage participation in appropriate, regular physical activity in all age groups and sectors of the community.
 - 2 To provide cheap, accessible sport and recreation facilities for all members of the community.
 - 3 To increase public and professional understanding of the importance of physical activity to the maintenance of health.
 - 4 To create a social climate in which regular physical activity is seen as a normal part of work and leisure.

TOWARDS A STRATEGY FOR THE 1990s

TARGETS TO BE ACHIEVED BY THE YEAR 2000 (OR EARLIER)

- 1 To increase the proportion of ten to 15 year old schoolchildren participating in regular, vigorous exercise to at least 90 per cent.
- 2 To increase the proportion of the population participating in regular aerobic physical activity to 30 per cent between ages 16-64.

EXPECTED HEALTH OUTCOMES

- | | |
|------------------------------------|---|
| Physical health | <ol style="list-style-type: none">1 Increase in physical fitness (Chapter 9).2 Prevention of the loss of stamina, strength and suppleness – especially in old age (Chapters 9 and 14).3 Decrease in obesity, blood pressure and diabetes, with concomitant decrease in coronary heart disease in the long term and probable increase in lifespan (Chapters 3 and 9).4 Possible reduction in osteoporosis (Chapter 14).5 Increased risk of sport-related injuries and possible small increased short-term risk of heart disease (Chapter 9). |
| Mental and social wellbeing | <ol style="list-style-type: none">1 Increase in sense of mental wellbeing and possible antidepressant effect (Chapter 9).2 Improved self image (Chapter 9).3 Increase in social contact (Chapter 9).4 Increased independence and autonomy in the elderly (Chapters 9 and 14). |

RECOMMENDATIONS FOR IMPLEMENTATION

- | | |
|-------------------------|--|
| Government | <ol style="list-style-type: none">1 Financial support for the Sports Council should be increased in real terms.2 Tax incentives for employers should be introduced to encourage the building of better sports and recreational facilities at work. |
| Health promotion | <ol style="list-style-type: none">1 Efforts should be made to work closely with the Sports Council to highlight the link between health and sporting activities.2 The promotion of physical activity should form a clearly defined part of an overall, long-term health promotion strategy.3 A narrow focus on the role of physical activity in the prevention of coronary heart disease should be avoided; new efforts should be made to focus on the importance of physical activity for wider aspects of health, particularly in old age.4 The enjoyment of non-competitive sport and the social contact it offers should be given more emphasis in future information and education programmes.5 More effort should be made with the Sports Council to find ways |

LIFESTYLES FOR HEALTH—PHYSICAL ACTIVITY

of making physical activity more attractive to women of all ages, to the elderly, and to those on low incomes.

Training institutions

- 1 The physical education training curriculum should be widened to encourage the development of skills in non-competitive sporting activities such as movement, dance and aerobic activities.
- 2 The broader implications of physical activity for health and disease should be covered as a formal part of the training of physical education and health professionals.

Local authorities

- 1 There should be a long-term plan for improved provision of sports and recreational facilities that is in keeping with plans for Sport for All.
- 2 Special provisions should be made to cater for the target groups identified in the Sport for All strategy, including women, the over 50s, lower socioeconomic groups and school leavers.
- 3 The promotion of physical activity should form part of a comprehensive programme of education and information, including plans for adult education courses.
- 4 Levels of physical activity in schools should be monitored and the range of activity offered should reflect the interests of those who do not wish to participate in competitive sport as well as those who do.
- 5 There should be better liaison with local industry and employers to promote better sports facilities in the workplace.
- 6 School sports and recreational facilities should be accessible to the rest of the community out of school hours.
- 7 Sport and recreational activities should be adequately advertised in the local community.
- 8 There should be plans to develop safe cycleways and exercise facilities in local parks to promote physical activity.

Health authorities

- 1 The promotion of physical activity should be part of health authorities' strategic and district plans.
- 2 Health authority premises should make adequate provision for sporting and exercise facilities.
- 3 Health authorities should collaborate with local industry, local authorities and community agencies in promoting better provision and participation in physical and sporting activities, such as local health fairs.

Primary care

- 1 Assessment of levels and advice on physical activity to patients should become part of good practice in primary care. The responsibilities for doing this should be clearly agreed between GPs and other primary care staff.

TOWARDS A STRATEGY FOR THE 1990s

- 2 An agree method should be devised for recording habitual physical activity in patients' notes.
- 3 Information should be made available to patients on the health benefits of exercise and on the availability of sport and recreational facilities.
- 4 Patients who are overweight should be routinely advised to take more exercise. Efforts should be made to support and encourage such activities.

Employers and trades unions

- 1 Exercise facilities should be made available in the workplace. If the workplace itself is too small, there should be liaison with other local workplaces to provide joint facilities.
- 2 Workplace exercise programmes should be used as an opportunity to raise other aspects of health, including nutrition – such as in the Look after Yourself programmes.
- 3 Occupational health staff should be involved in the organisation and monitoring of exercise programmes.
- 4 Adequate shower facilities should be available for staff who cycle to work or who wish to take exercise during their breaks.

Sexuality

General objectives

- 1 To promote the rewarding expression of sexuality to help fulfil emotional relationships.
- 2 To promote individual control over fertility.
- 3 To minimise the adverse health consequences of sexual activity.
- 4 To support those in need of help and advice with sexual or reproductive problems.

TARGETS TO BE ACHIEVED BY THE YEAR 2000 (OR EARLIER)

Sexual expression

- 1 To increase the proportion of adolescents who are adequately informed about the social, psychological and medical implications of sexual intercourse.
- 2 To increase to at least 95 per cent the proportion of adolescents who feel free to discuss their sexual feelings openly with their teachers in a school sex education programme.

Control of fertility

- To increase to at least 95 per cent the proportion of women and men at risk of unwanted pregnancy who use safe and effective forms of contraception.

LIFESTYLES FOR HEALTH—SEXUALITY

Prevention of sexually transmitted disease

- 1 To ensure that more than 95 per cent of all those who are sexually active understand the medical, psychological and social consequences of multiple sexual partners.
- 2 To reverse the downward trend in the use of barrier contraception among those under 25.
- 3 To increase the responsible use of barrier contraception among men and women under 30 who are likely to have more than one sexual partner in a year.
- 4 To increase the proportion of boys and girls who understand and feel confident about the proper use of barrier contraception.
- 5 To increase understanding among women of the value and purpose of cervical screening.
- 6 To increase to at least 60 per cent the proportion of all women aged 20–65 who have a cervical smear every five years.
- 7 To increase the proportion of women aged 45 to 65 who have regular cervical smears, and to reduce the social disparity in patterns of cervical smear testing in all age groups under 65.

EXPECTED HEALTH OUTCOMES

Physical health

- 1 A reduction in the transmission of HIV and an eventual reversal of the epidemic rise of AIDS (Chapters 5, 7 and 13).
- 2 A substantial reduction in the incidence and mortality from cervical cancer (Chapters 4, 7 and 13).
- 3 A reduction in other sexually transmitted diseases (Chapters 7 and 13).

Mental and social wellbeing

- 1 A reduction in unwanted pregnancies and the accompanying increased risk of mental ill health and marital disharmony (Chapters 10 and 13).
- 2 Increased self confidence and satisfaction in personal relationships (Chapter 13).
- 3 Increased control over fertility (Chapter 13).

RECOMMENDATIONS FOR IMPLEMENTATION

Government

- 1 The current, isolated programme to control AIDS should be integrated into a more coherent strategy for the prevention of AIDS and of other sexually transmitted diseases, including cervical cancer, together with plans to reduce unwanted pregnancy – especially among teenagers.
- 2 The provision of contraceptive services by general practitioners should be extended to condoms.
- 3 DoH should take a lead in encouraging much wider availability of condoms, especially through retailers, in pubs and in other places frequented by young people.
- 4 All imported condoms should undergo mandatory quality testing.

TOWARDS A STRATEGY FOR THE 1990s

- 5 The 1967 Abortion Act should be maintained and extended to Northern Ireland.
- 6 The expertise of the Family Planning Association in public education and information on a wide range of issues related to sexuality and health should be supported by increasing its annual budget.
- 7 Extra central funds should be given to health authorities and FHSAs for the adequate funding of a comprehensive cervical screening and follow-up service throughout the UK.

Health promotion

- 1 An attempt should be made to rationalise the hitherto disparate, but common, strands of health promotion activity concerned with responsible use of safe contraception, the prevention of cervical cancer and other sexually transmitted disease, together with the prevention of the spread of AIDS.
- 2 There is a need to focus on the risks of multiple partners, not only in the prevention of AIDS, but also in the prevention of cervical cancer and other sexually transmitted disease.
- 3 The value of barrier contraception for women as well as for men in the prevention of sexually transmitted disease needs to be emphasised.
- 4 Ways of overcoming uncertainties, distaste and a lack of understanding of how to use barrier contraception need to be found.
- 5 Separate sub-programmes need to be directed to specific target groups with different needs. This can best be achieved through detailed research and consultation with groups and organisations representing their interests in the community.
- 6 Effective use of mass media campaigns should avoid arousing a combination of fear and helplessness, but should focus instead on giving unambiguous, direct information on sexual practices that confer a high or low risk of sexually transmitted disease, including AIDS and cervical cancer.
- 7 Mass media campaigns should avoid making unacceptable moral judgments, but should endeavour to create a climate in which the expression of sexuality is seen to be an integral part of an emotional relationship.
- 8 Magazines and newspapers directed at specific target audiences, including young people, young women and homosexual men, should be used to test the kinds of messages that are likely to be effective in these groups.

The communications media

- 1 Manufacturers should advertise and promote condoms as a means of protecting against pregnancy and sexually transmitted disease in as informative a manner as possible.
- 2 There should be a code of practice governing misleading TV advertising for condoms, monitored by the IBA.

LIFESTYLES FOR HEALTH—SEXUALITY

- 3 Ways should be found of maintaining the current interest and focus on informative and non-sensational coverage of AIDS and ways of reducing the risk of its spread.

Training institutions

- 1 Undergraduate, postgraduate and continuing education programmes for doctors, nurses, health educators and social workers should include adequate information about the importance of sexuality in human relationships and its possible adverse outcomes.
- 2 GPs and other primary health care staff should be trained in the communication and counselling skills necessary to deal with the diverse health problems posed by sexuality in everyday practice.
- 3 Training courses should encourage counsellors to explore their own beliefs and prejudices about sexuality.

Local authorities

- 1 The promotion of good personal relationships and the prevention of sexually transmitted disease should be a fundamental part of primary and secondary school education.
- 2 There should be a named education adviser with specific responsibility for ensuring that sex education is a part of school curricula.
- 3 Specialist or community groups whose aim is to offer advice and counselling in the prevention of sexually transmitted disease or unwanted pregnancy should be given financial support.
- 4 Local authority initiatives should be linked with those of health authorities and other community organisations so that free confidential advice is available by telephone on all questions related to sexuality, contraception and health.
- 5 Local authority premises, such as youth clubs and recreational facilities, should be used to make condoms more accessible.

Health authorities and primary care

- 1 The prevention of sexually transmitted disease and unwanted pregnancy should form part of an integrated approach to the promotion of healthy sexual relationships.
- 2 Health authorities and FHSAs (and their Scottish counterparts) should have clearly quantified objectives for the promotion of safe and effective forms of contraception, the provision of adequate day care and inpatient abortion services, together with the reduction of sexually transmitted disease, including AIDS and cervical cancer.

Family planning services

- 1 There should be a comprehensively equipped family planning, abortion and sexual counselling service in every health authority.
- 2 This service should offer both male and female sterilisation.
- 3 Pregnancy testing services should be more accessible.

TOWARDS A STRATEGY FOR THE 1990s

- 4 There should be adequate day care abortion services.
- 5 Staff in these units should be trained to be sensitive to the needs of pregnant women – especially adolescents seeking abortion.
- 6 Family planning clinic staff, and doctors and nurses in primary care, should encourage greater use of barrier contraceptive methods among people under 25.
- 7 There should be a special family planning service for adolescents.

Prevention of sexually transmitted disease

- 1 DHAs should liaise with local authorities and other community agencies in planning information and advisory services on AIDS and in initiatives to minimise the risk of its spread.
- 2 These services should be well publicised locally.
- 3 AIDS counselling services should be expanded from the hospital and clinic settings to a broader service that is directed more towards the *prevention* of AIDS, and based in more accessible parts of the community.

Prevention of cervical cancer

- 1 Sufficient funds should be allocated by RHAs and DHAs to support efforts by health education officers in the *primary* as well as secondary prevention of cervical cancer.
- 2 Information should be available to women on the primary and secondary prevention of cervical cancer through the workplace, in general practice, and at family planning and gynaecology clinics.
- 3 Every DHA should have an adequately equipped and staffed laboratory cytology service, a colposcopy service, and the full range of treatment services for the prevention, detection and treatment of all stages of cervical cancer and pre-cancer.
- 4 There should be an agreed local programme for the prevention of cervical cancer that clearly delineates responsibilities of the DHA and of medical and other practitioners.
- 5 There should be a designated manager – preferably a public health physician – whose responsibility it is to oversee and monitor the successful implementation of the programme to prevent cervical cancer.
- 6 Every health authority should provide an efficient five-yearly call/recall system for all women aged between 20 and 65.
- 7 Programmes should be organised so that joint responsibility and participation in the programme by patients and their GPs is possible.

Employers and trades unions

- 1 Employees should be informed about the value of safe and effective contraception and regular cervical screening for women.
- 2 Occupational health staff should be involved in monitoring cervical testing among female employees and in the provision of a cervical screening service, with reporting back to GPs.

LIFESTYLES FOR HEALTH—ROAD SAFETY

- 3 If there is no established cervical screening service at the workplace, the mobile screening services of the Women's National Cancer Control Campaign should be invited to visit.

Road safety

General objectives

- 1 To minimise the risk of accident and injury to pedestrians and other road users.
- 2 To provide safe and accessible forms of public transport for all sectors of the community.
- 3 To make the roads in the UK as safe for pedestrians and cyclists as for other road users.

TARGETS TO BE ACHIEVED BY THE YEAR 2000 (OR EARLIER)

- 1 To decrease the proportion of car, van, coach and lorry drivers who exceed the speed limit.
- 2 To at least maintain the current 95 per cent of front seat car and van drivers and passengers who wear seat belts.
- 3 To increase the use of rear seat belts to at least 90 per cent.
- 4 To increase the use of appropriate forms of baby restraint in rear car and van seats to at least 90 per cent.
- 5 To reduce the number of local accident black spots by at least 60 per cent.
- 6 To at least treble the number of miles of segregated inner city cycleways.
- 7 To increase the roadside testing of blood alcohol levels and reduce by at least 50 per cent the proportion of drivers with blood alcohol levels exceeding the legal limits.
- 8 To maximise public understanding of the effects of excessive speed and of drinking and driving.
- 9 To maximise public understanding of the components of road safety and the effects of excessive speed and excessive drinking on the risk of injury and premature death on the roads.

EXPECTED HEALTH OUTCOMES

Physical health

- 1 A reduction in premature death and disability due to road injuries. This will be particularly apparent in the under 25s, and among young men (Chapter 6 and 7).
- 2 A reduction in premature death and serious injuries – especially head injuries – among cyclists (Chapters 6 and 7).
- 3 A reduction in injury and death rates among back seat passengers in cars and light vans (Chapters 6 and 7).

TOWARDS A STRATEGY FOR THE 1990s

Mental and social wellbeing Possible increase in productivity due to a reduction in premature death among young people.

RECOMMENDATIONS FOR IMPLEMENTATION

- Government**
- 1 There should be clarifying legislation to allow 'random' roadside breath testing for alcohol.
 - 2 The use of rear seat belts should be mandatory in all cars and light vans (**implemented 1991**).
 - 3 Public transport should be encouraged because it is the safest form of travel.
 - 4 There should be more financial support for experimental cycleways and pedestrian precincts.
 - 5 There should be stiffer penalties for drinking and driving offences.
- The motoring industry**
- 1 Manufacturers should avoid the use of advertising which glamorises speed.
 - 2 There should be greater design emphasis on safety, including the development of standard, reinforced passenger boxes, improved bonnet design to minimise injury and improved seat belt design.
 - 3 The promotion of safety rather than speed, and the marketing of safety devices, should be given more emphasis in marketing. Manufacturers should experiment with the use of an automatic flashing lights system which helps to alert the driver to excess speed in built up areas.
- Health promotion**
- 1 The national health promotion agencies should develop a new expanded road safety public education programme.
 - 2 The programme should receive extra funding from the government.
 - 3 The programme should be coordinated with government's legislative plans on various aspects of road safety, and with local road safety initiatives.
 - 4 The aims of the new programme should include increasing public awareness of the effects of excessive speed and drinking and driving, and the needs of cyclists and pedestrians.
- The communications media** More attention should be devoted to coverage of road safety as a public health issue.
- Training institutions** Road safety education and policy should form part of the formal training for doctors, nurses and paramedical professionals, police and publicans.

LIFESTYLES FOR HEALTH—ROAD SAFETY

Local authorities

- 1 There should be adequately funded accident investigation and prevention activity in every local authority.
- 2 Road safety officers should liaise with local health education units and draw on their expertise.
- 3 There should be a mechanism for the regular review of accident black spots and of action taken to reduce road injuries at these sites.
- 4 The needs of pedestrians and cyclists should be taken into account in local planning.
- 5 Plans should be made to increase segregated cycleways and pedestrianised areas in residential parts of cities.
- 6 Road safety education should be standard practice in all primary and secondary schools.
- 7 The police should promote better enforcement of drinking and driving legislation.
- 8 Local authorities should have a plan for increasing local awareness of the problem of drinking and driving.
- 9 More efforts should be made by the police to communicate and liaise with publicans to alert people who are at risk of drinking and driving.

Health authorities

- 1 The promotion of road safety and the reduction of injury on the roads should form part of every DHA and RHA health promotion strategy.
- 2 Every DHA should have a scheme for linking the loan of secure, low priced, baby seats in cars to either antenatal or postnatal clinics.
- 3 Casualty and other hospital staff should advise drivers with blood alcohol levels over the legal limit about the dangers of drinking and driving.

Employers and trades unions

- 1 If driving forms an essential part of employment, employees should be adequately trained for driving their vehicles.
- 2 There should be a policy to ensure that all employees driving cars or light vans owned by the employer should use adequately fitted seat belts.
- 3 There should be a policy of no drinking and driving among employees where vehicles are used as part of work.

17 Preventive services for health

Procrastination is the thief of time.

EDWARD YOUNG

Introduction This chapter outlines the third and final component of the proposed strategy to promote public health in the UK. We now make recommendations in the five priority areas we have grouped together as 'preventive services for health'.

- Maternity services
- The promotion of dental health
- Immunisation
- Early cancer detection
- High blood pressure reduction

Maternity services

- General objectives**
- 1 To promote a safe and satisfying experience of pregnancy and childbirth.
 - 2 To promote an environment in which parents-to-be can participate actively during pregnancy and in the birth of their children.
 - 3 To minimise unnecessary medical intervention during pregnancy and labour.
 - 4 To maximise easy access to maternity services in all ethnic and social groups.

TARGETS TO BE ACHIEVED BY THE YEAR 2000 (OR EARLIER)

- Antenatal care**
- 1 To increase to at least 90 per cent the proportion of women making their first antenatal booking by the twelfth week of pregnancy and to decrease the social and ethnic disparity in early antenatal attendance.
 - 2 To offer all women with low risk pregnancies the possibility of antenatal care that is shared between midwives, GPs and hospital consultants.
 - 3 To increase to at least 90 per cent the proportion of pregnant women who are offered antenatal classes.
 - 4 To offer all pregnant women support and advice in their efforts to stop smoking.

- Antenatal screening**
- 1 To increase to at least 95 per cent the proportion of women over 35 who are adequately counselled and offered amniocentesis or an

PREVENTIVE SERVICES FOR HEALTH—MATERNITY

equivalent investigation.

- 2 To increase to at least 95 per cent the proportion of pregnant women who are offered antenatal screening for alphetoprotein levels.
- 3 To inform and to offer screening to all pregnant women for pre-eclampsia, iron deficiency, syphilis and HIV antibody status.
- 4 To offer all women of Cypriot, Indian and Pakistani origin screening and counselling for the detection of thalassemia major.
- 5 To offer to all those at risk of haemophilia and Huntington's chorea adequate genetic counselling services.

Labour and birth

- 1 To offer all women for whom it is appropriate, the opportunity to choose a home or hospital delivery in their second pregnancy.
- 2 To reduce the episiotomy rate to at least the level prevailing before 1960.
- 3 To ensure that every woman who has a hospital delivery can have a companion of her choice present during labour.
- 4 To restrict electronic and PH monitoring of the fetus to women in prolonged labour and at high risk of fetal distress.
- 5 To increase the proportion of mothers who are given their babies to hold immediately after birth in hospital units.
- 6 To increase the proportion of women breast feeding for six weeks to at least 75 per cent, and to reduce the social and regional disparity in breast feeding rates.

EXPECTED HEALTH OUTCOMES

Physical health

- 1 A reduction in the prevalence of babies born with neural tube defects and Down's syndrome (Chapter 11).
- 2 A possible small decrease in the proportion of low birthweight babies (Chapter 11).
- 3 A decrease in the rate of caesarean sections (Chapter 11).
- 4 A major reduction in prevalence of thalassemia major, haemophilia, and Huntington's chorea (Chapter 11).

Mental and social wellbeing

- 1 An increase in parental satisfaction and a decrease in anxiety related to the antenatal period (Chapter 11).
- 2 Reduced requirements for pain relief and a shorter labour (Chapter 11).
- 3 Better bonding between mother, father and child, and an increased likelihood of attempting breast feeding (Chapter 11).

RECOMMENDATIONS FOR IMPLEMENTATION

Government

- 1 The DoH should issue guidelines to health authorities to ensure that there is adequate provision for women who wish to have a

TOWARDS A STRATEGY FOR THE 1990s

home delivery.

- 2 The policy of closure of small GP units should be reviewed.
- 3 The Maternity Services Advisory Committee should be asked to review the extent to which its recommendations have been implemented on a national basis.
- 4 Funds should be made available to ensure that genetic counselling services are available in every region. This should be based on a proper assessment of differential regional needs.

Health promotion

- 1 Efforts to promote health and minimise all drug use during pregnancy should be sensitive to the competing demands on pregnant women and should avoid using a guilt-inducing approach.
- 2 Efforts should be made to achieve the widest possible distribution of multilingual educational material in primary care, community centres and organisations – especially those which cater for Asian women.
- 3 The information covered should explain the value and purpose of the components of antenatal care, emphasising:
 - maternity entitlement and benefits;
 - the importance of early attendance in screening for congenital abnormalities and genetic diseases;
 - the role and value of antenatal classes;
 - the tests and monitoring used during antenatal care;
 - the value of an equal partnership between the user and doctor or midwife.

Local authorities

Education about preparation for parenthood should form part of an integrated course on health education in all secondary schools.

Health authorities and primary care

- 1 A clearly defined, long-term strategy for the improvement of maternity services should form part of every district and FHSA's (and Scottish equivalents) plans.
- 2 There should be a maternity services committee in every district responsible for coordinating policy implementation.
- 3 The Maternity Services Advisory Committee's recommendations should be implemented, and there should be an explicit mechanism for monitoring implementation.
- 4 Adequate arrangements should be made to ensure that women in low risk categories are able to have a home delivery.

Employers and trades unions

- 1 Workplace policy should ensure that pregnant women are not exposed to unnecessary, potential hazards.
- 2 Efforts should be made to inform and encourage pregnant women employees about the benefits of early registration for antenatal care.

PREVENTIVE SERVICES FOR HEALTH—IMMUNISATION

- 3 Working hours and shifts should be arranged so that attendance at antenatal clinic is made easy.
- 4 Trades unions and employers should negotiate adequate pay during maternity leave.

Immunisation

General objectives

- 1 To offer an immunisation programme to protect all children from polio, diphtheria, pertussis, measles and mumps. This should form part of a child health surveillance system which promotes joint participation between parents, children and health professionals.
- 2 To ensure that all children in high risk groups are immunised against TB.
- 3 To promote a better understanding of the value of immunisation to parents and health professionals.

TARGETS TO BE ACHIEVED BY THE YEAR 2000 (OR EARLIER)

- 1 To maintain diphtheria, tetanus and polio immunisation uptake rates at 85 per cent or higher.
- 2 To increase pertussis and measles vaccine uptake to at least 90 per cent.
- 3 To immunise at least 90 per cent of all boys and girls under two against rubella.
- 4 To immunise at least 90 per cent of all under-twos with the triple measles/mumps/rubella vaccine.

EXPECTED HEALTH OUTCOMES

Physical health

- 1 A reduction to negligible levels of measles and of measles encephalitis (Chapter 12).
- 2 The virtual elimination of congenital rubella syndrome and its associated deafness, blindness and severe intellectual impairment (Chapter 12).
- 3 A major reduction in the incidence of rubella (Chapter 12).
- 4 The reduction of whooping cough incidence and its complications to negligible levels (Chapter 12).
- 5 The virtual elimination of mumps and its adverse effects on fertility (Chapter 12).

RECOMMENDATIONS FOR IMPLEMENTATION

Government

- 1 Progress towards immunisation targets in the UK should be reviewed in 1990. If uptake levels are not satisfactory, then

TOWARDS A STRATEGY FOR THE 1990s

consideration should be given to make immunisation mandatory for children without contra-indications.

- 2 The triple measles/mumps/rubella vaccine should be introduced as soon as possible as part of the immunisation programme for children under two years of age (**implemented 1988**).
- 3 Education and information campaigns should reinforce government policy in the achievement of stated targets and should aim to inform professionals and public about any changes in policy. The mass media do not always provide the best channel for communicating sensitive information intended to allay professional and parental fears about perceived hazards of immunisation.

Health authorities and primary care

- 1 Specific immunisation targets should form part of district and strategic plans.
- 2 A nominated member of the health authority staff should be given overall responsibility for overseeing and implementing the immunisation programme.
- 3 Each authority should operate a child health computing system which allows flexible call and recall of children requiring immunisation.
- 4 Authorities should offer an immunisation advisory service for parents who wish to discuss their concerns with a trained nurse or public health physician.
- 5 There needs to be an immunisation strategy within primary care.
- 6 A person in every general practice should be designated to be responsible for coordinating and ensuring accurate monitoring of immunisation plans.
- 7 Separate responsibilities for immunisation should be agreed among participating professional groups in general practice.
- 8 Accurate updated immunisation records should be kept for every child registered in a general practice.
- 9 There should be a mechanism for audit or review of progress in achieving agreed immunisation targets in individual practices.

Dental health

General objectives

- 1 To prevent dental ill health and promote dental health throughout all sectors of the community.
- 2 To help create a new generation of children free from dental decay.
- 3 To promote a better understanding of the determinants of oral and dental health among children, their parents and professionals.

PREVENTIVE SERVICES FOR HEALTH—DENTAL

TARGETS TO BE ACHIEVED BY THE YEAR 2000 (OR EARLIER)

- 1 At least 75 per cent of the community should have fluoridated water supplies.
- 2 Per capita sugar consumption should be reduced from 38 kilograms per year to 20 kilograms per year with a reduction of the consumption of sugary foods between meals (see also Strategy for Nutrition, pages 248–252). The social disparity in sugar consumption should be reduced.
- 3 At least 95 per cent of children and adults should brush their teeth regularly.
- 4 At least 95 per cent of primary and secondary school children should understand the causes of tooth decay and chronic gum disease.
- 5 All children should be encouraged to use fluoride toothpaste – especially in non-fluoridated areas.
- 6 At least 95 per cent of parents should understand the role of sugar in causing tooth decay.

EXPECTED HEALTH OUTCOMES

Physical health

- 1 An increase in the proportion of five year olds who are free from tooth decay (Chapter 12).
- 2 An increase in the proportion of twelve year olds with less than three decayed, missing or filled teeth (Chapter 12).
- 3 A decrease in the social disparity in the prevalence of tooth decay – especially in fluoridated areas (Chapter 12).
- 4 An increase in the proportion of those under 40 who retain all their own teeth (Chapter 12).
- 5 An increase in the proportion of 65–75 year olds who retain enough teeth to avoid the need for dentures (Chapters 12 and 14).
- 6 An increase in the proportion of people in all age groups – especially the over 65s – who are able to eat a wider range of foods containing complex carbohydrates, for example, fresh fruits (Chapters 3 and 12).
- 7 A decrease in the prevalence of gingivitis – the precursor to periodontal (chronic gum) disease – among young people.
- 8 A reduction in the amount of pain experienced in relation to tooth decay and its treatment in childhood and adolescence.

Mental and social wellbeing

- 1 A decrease in the proportion of people – especially the elderly – who are embarrassed by having to wear dentures.
- 2 A possible decrease in the cost to the NHS of supplying dentures.

TOWARDS A STRATEGY FOR THE 1990s

RECOMMENDATIONS FOR IMPLEMENTATION

- Government**
- 1 The government should adopt a clearly defined strategy for promoting dental health, the components of which should be linked to the promotion of a healthier diet and measures to reduce smoking and tobacco use. (See Strategies for Tobacco and Nutrition, pages 245–252).
 - 2 The health departments should take a lead in stimulating activity between health authorities and water authorities to speed up fluoridation of water supplies.
 - 3 The legislation enabling health authorities to ask water authorities to fluoridate water supplies should be extended to Northern Ireland.
 - 4 This process should be supported and coordinated with local health education drives to alert parents and children to ways in which they can contribute towards dental health.
 - 5 The dental health service should be more directly linked with primary health care services. The remuneration system should avoid payment on an exclusive fee-for-item-of-service basis (**partially implemented 1990**).
 - 6 A mechanism should be found for remunerating preventive as well as restorative care.
- Health promotion**
- 1 The programme for the promotion of dental health should be closely linked with that of promoting healthy nutrition and reducing tobacco consumption.
 - 2 The role of sugar in causing dental decay needs more emphasis in public education programmes and should be closely linked to mass media approaches designed to promote a healthier diet.
 - 3 Joint initiatives to train local teaching staff and incorporate dental health education programmes into school curricula should continue to be supported.
- Training institutions**
- 1 The prevention of dental disease and the promotion of oral health should form a major part of the teaching curriculum for dentists, dental hygienists and other auxiliary dental staff.
 - 2 Dentists and auxiliary staff should be taught to encourage and develop the necessary communication skills to teach and support patients' efforts to protect their dental health.
 - 3 The prevention of dental disease and the promotion of oral health should be formally assessed as part of dental training.
 - 4 The training curriculum for doctors and nurses should cover the promotion of dental health; the links between the promotion of good oral health and good nutrition should be clearly made.
- Local authorities**
- 1 There should be a concerted effort by environmental health departments, health liaison committees and health authorities to

PREVENTIVE SERVICES FOR HEALTH—CANCER

encourage water authorities to fluoridate local water supplies.

- 2 Local authority nutrition policy should reflect (see Strategy on Nutrition, pages 248–252) the importance of promoting the consumption of complex carbohydrates rather than sugary foods.
- 3 A local education adviser should be designated as responsible for coordinating the integration of dental health education into primary and secondary school curricula.

Health authorities

- 1 Fluoridation of the local water supply should form part of health authority strategic and district plans.
- 2 A person with sufficient expertise (usually the community dental officer) should be designated as responsible for overseeing local policy to promote dental health, in particular the fluoridation programmes.
- 3 If the local water supply is not already fluoridated, negotiations should be started with the local water authority in order to implement fluoridation.
- 4 A liaison group should be established to coordinate dental health activities between the local authority, health authority and water authority.
- 5 The school health service should be directly involved in the promotion of dental health in the schools.

Early cancer detection services

General objectives

- 1 To offer comprehensive breast (and cervical) cancer screening services (see also Strategy on Sexuality, pages 258–263) to all eligible women.
- 2 To promote public and professional understanding of the benefits of regular screening for breast (and cervical) cancer (see also Strategy on Sexuality).

TARGETS TO BE ACHIEVED BY THE YEAR 2000 (OR EARLIER)

- 1 To screen at least 60 per cent of all women aged between 50 and 64 for breast cancer.
- 2 To increase the understanding of all adult women of the need for regular breast screening.
- 3 To increase the awareness of the medical profession of the benefits of breast screening.
- 4 To provide all women who are screened with adequate counselling and advice facilities.

TOWARDS A STRATEGY FOR THE 1990s

EXPECTED HEALTH OUTCOMES

- Physical health** A reduction in mortality from breast cancer (among women aged 50–64) by up to one third (Chapters 4 and 7).
- Mental and social wellbeing** It is possible that screening could either increase or reduce anxiety related to breast cancer.

RECOMMENDATIONS FOR IMPLEMENTATION

- Government**
- 1 Sufficient central funding should be allocated to fully support health authorities in the implementation of a comprehensive breast screening service.
 - 2 The age eligibility range for breast screening should be kept under review so that if new evidence suggests that the programme can be extended either to younger or older women, this can be implemented.
 - 3 A pilot study of the effectiveness and long-term consequences of extending the upper age limit for screening from 65 to 74 should be conducted.
- Health promotion**
- 1 The gradual run-up to implementation of the current breast screening programme should be used as an opportunity to increase awareness of the purpose and advantages of the programme among women over 50.
 - 2 Funds should be specifically set aside for a new information and education programme on breast screening aimed at women over 50 and their general practitioners.
 - 3 Health promotion authorities should take a lead in assembling and disseminating examples of good organisational practice that emerge from those health authorities and general practices currently piloting the new breast screening programme. The aim should be to promote and monitor good practice elsewhere and avoid the inefficiencies of the cervical screening programme so far.
 - 4 The gradual implementation process should be used as an opportunity to identify information and counseling needs for women attending breast screening clinics, and anything that might discourage women from attending.
 - 5 Based on such findings, literature should be sensitively designed and made widely available to women through the workplace, and at primary care and gynaecology clinics. An attempt should be made to answer women's questions about breast screening and the treatment of breast cancer.
 - 6 The effectiveness of a mass media campaign designed to encourage attendance at breast screening clinics should be carefully piloted and evaluated before being launched on a national basis.

PREVENTIVE SERVICES FOR HEALTH—CANCER

Health authorities and primary care

- 1 Targets for achieving medium-term screening rates among women aged between 50 and 64 should be set.
- 2 The recommendations of the Forrest report should be adopted including:
 - the establishment nationwide of multidisciplinary screening units across approximately two DHAs (health boards) covering a population of about 50,000 women each;
 - the equipment of each unit with adequately trained staff and appropriate mammographic equipment;
 - the designation of a public health physician responsible for the implementation and monitoring of the service;
 - the compilation of an up-to-date call/recall system from FHSA registers to call women aged between 50 and 64 for screening every three years;
 - personal invitations to all eligible women to attend a screening clinic.
- 3 Information and counselling should be seen as an integral part of every district/health board screening service – although the manner in which this should be set up has yet to be established.
- 4 Every general practice should designate one person to be in charge of overseeing, monitoring and auditing breast screening in the practice.
- 5 Every practice should have a clearly established procedure through which results of breast screening are conveyed to women and should make provisions for dealing with any further queries and follow-up that might be needed.

Employers and trades unions

- 1 Efforts should be made to increase awareness among women employees of the value of breast screening for those over 50.
- 2 Occupational health staff should monitor the screening status of women staff over 50 and investigate the costs and benefits of developing on-site screening facilities.

High blood pressure reduction

General objectives

- 1 To promote regular screening for high blood pressure among all adult men and women.
- 2 To promote a better understanding among professionals and public of the factors which contribute to high blood pressure.
- 3 To promote a better understanding of the importance of blood pressure screening in the prevention of disease.

TOWARDS A STRATEGY FOR THE 1990s

TARGETS TO BE ACHIEVED BY THE YEAR 2000 (OR EARLIER)

- 1 To reduce the average blood pressure of the population.
- 2 To increase to at least two-thirds the proportion of people aged between 35 and 64 who have their blood pressure checked every five years.
- 3 To increase to at least 80 per cent the proportion of people with high blood pressure who are adequately treated and followed up.
- 4 To increase the proportion of health professionals and public who are aware that a diet high in salt, physical inactivity and obesity contribute to high blood pressure.
- 5 To reduce the average daily intake of salt (see Strategy on Nutrition, pages 248–252).

EXPECTED HEALTH OUTCOMES

- Physical health**
- 1 A reduction in the incidence and mortality from stroke (Chapters 3 and 14).
 - 2 A possible reduction in coronary heart disease incidence (Chapter 3).
 - 3 A possible reduction in disability and dependence in old age.

RECOMMENDATIONS FOR IMPLEMENTATION

- Government**
- 1 The government should take a lead in the campaign to prevent the health consequences of high blood pressure by emphasising its importance in existing programmes to reduce heart disease and in a new programme to reduce stroke.
- Health promotion**
- 1 New emphasis should be given to the control of high blood pressure in relevant existing health promotion programmes, including the prevention of heart disease and the promotion of a healthy lifestyle – especially in relation to diet and the prevention of obesity.
 - 2 A new public and professional information programme should be established with the aim of increasing awareness of the health consequences of high blood pressure. Special emphasis should be given to the less well-known risk factors for high blood pressure, such as heavy alcohol consumption, obesity, physical inactivity and a high salt diet.
 - 3 A new national plan should be established for increasing professional and public commitment to five-yearly screening for high blood pressure for all adults aged between 35 and 64 in primary care and at the workplace. Consideration should be given to the promotion of self-monitoring for high blood pressure and actively involving pharmacies in this enterprise.

PREVENTIVE SERVICES FOR HEALTH—BLOOD PRESSURE

- 4 Examples of well-organised screening and follow-up programmes, both in primary care and at the workplace, should be widely disseminated to promote effective and efficient practice throughout the country.
- 5 The value of non-pharmacological approaches to the treatment of high blood pressure should be given wider publicity.

Health authorities and primary care

- 1 Every health authority, FHSA and general practice should set clearly defined targets for both the reduction in the proportion of the population with high blood pressure and screening rates to be achieved in this population over a five year period.
- 2 A manager should be designated in every general practice with responsibility for overseeing and monitoring the efficiency of the blood pressure screening programme.
- 3 Responsibility for conducting screening in every practice should be clearly agreed between the health professionals involved.
- 4 Every practice should have a clearly defined, preferably computerised, system for recording, monitoring and following up patients who are screened and require treatment. This should include a means of regular review of treatment as well.
- 5 Doctors and nurses involved in the screening programme should not lose the opportunity of a screening session or interview to advise and monitor the primary prevention of high blood pressure and other aspects of lifestyle, including the avoidance of obesity and a high-salt diet, reduction of heavy drinking and physical inactivity. Active and informed participation by patients should be encouraged.
- 6 There should be better liaison and information exchange between primary care and specialist services concerning the initial diagnosis and subsequent treatment of high blood pressure, either in general practice or in hospital.

Employers and trades unions

- 1 Information should be made widely available to all staff of the importance of preventing high blood pressure, how this might be achieved and the contribution to be made by five-yearly blood pressure check-ups.
- 2 Occupational health staff should, in consultation with employees and health and safety representatives, establish a workplace blood pressure screening and monitoring programme for all staff.

THE UNIVERSITY OF CHICAGO

Department of Chemistry
Chicago, Illinois

Dear Sir:

I have the pleasure to inform you that your application for admission to the University of Chicago has been received and is being considered.

Your qualifications are excellent and we are confident that you will find the University of Chicago a most stimulating and rewarding environment.

We are pleased to hear that you are interested in the study of Chemistry and we are confident that you will find the University of Chicago a most stimulating and rewarding environment.

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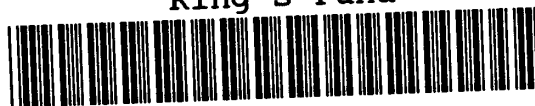
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