DEPARTMENT OF HEALTH

On the State of
THE PUBLIC HEALTH
for the year 1988

HER MAJESTY'S STATIONERY OFFICE

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On the State of
THE PUBLIC HEALTH

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THE CHIEF MEDICAL OFFICER OF
THE DEPARTMENT OF HEALTH

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CONTENTS

INTRODUCTION

To the Rt Hon Kenneth Clarke MP
Secretary of State for Health

Sir,

I have pleasure in submitting my report on the State of the Public Health for 1988, together with brief comments on some of the more important related events which occurred in the first seven months of 1989.

Judging by the reponse, the changes introduced to the form of the Report in 1987 were welcomed. The new format has therefore been retained. In Chapter 3, which deals with different aspects of health each year, the focus is upon the health of children. Likewise the chapter on outcome indicators (Chapter 4) deals this year principally with immunisation programmes and their evaluation. The appendix which is intended to include useful information not readily available elsewhere has been expanded. Sexually transmitted diseases and other communicable diseases and infections have been brought together into a single chapter (Chapter 5). Next year it is hoped to include a chapter on the acute hospital sector and the effect of selected aspects of its work on health.

The State of the Nation's Health

The long-term decline in mortality rates in England continued in 1988 partly due to a lower than expected number of deaths in the first four months of the year associated with the mild winter. In 1986 a small rise in infant mortality caused much concern. It is therefore encouraging that the lower rate in 1987 has been maintained in 1988. Within the first year of life deaths under four weeks (neonatal mortality) have fallen by 40% during the last decade although the rate of decline has diminished in recent years. Better care in the neonatal period especially in the first day of life and notably in infants of low birth weight has made a major contribution to this improvement. In contrast, post-neonatal deaths (deaths from four weeks to under one year) have declined more slowly and during the last three years have remained above the levels which occurred in 1984 and 1985.

The majority of post-neonatal deaths are due to respiratory disease and the sudden infant death syndrome (SIDS). The relevant figure (Figure 1.7) shown in Chapter 1 illustrates clearly that the rise in SIDS over the last decade has been almost exactly matched by a fall in deaths attributed to respiratory disease, suggesting that the apparent rise in SIDS is–perhaps largely–due to a change in doctors' certifying habits. Nevertheless, diminution in such deaths would have a major impact on the post-neonatal death rate. Higher post-neonatal mortality is associated with single parenthood, very young mothers and the lower income groups.

The general decline in mortality can mask trends in particular age-groups, and in Chapter 1, secular trends in specific age-groups are presented and discussed. Although some year-to-year oscillations are to be expected, particularly in age-groups where the number of deaths is relatively small, in certain of the younger age-groups there have recently been small rises in mortality or cessations in long-term falls which are noteworthy. Mortality rates among children aged 1-4 years have shown no major change during recent years and in 5-14-year-old males there has been a slight rise in mortality since 1986. This is of particular concern because many deaths in these age-groups are potentially preventable. These include deaths due to road vehicle accidents and other causes of injury and due to accidental poisoning (see Appendix Table 2).

Amongst young adult males mortality rates in 25-34-year-olds have risen slightly in recent years and the long-standing declines in 15-24-year-olds evident until 1985, and in 35-44-year-olds until 1984 have ceased. There is a strong suspicion that these changes are due at least in part to deaths associated with HIV infection. This is supported by recent rises in death rates from various conditions likely to be associated with AIDS or HIV infection; and a recent rise in all-cause mortality rates in 25-44-year-olds concentrated in deaths registered in men who had never been married[1]. There are also indications of a slowing in the decline in mortality among young adult females, particularly in the 15-24 and 35-44 year age-groups, which need further study.

In older people, 45 years-of-age and over, the mortality trends are more favourable with a consistent pattern of decline, particularly at the younger ages. A significant contributor to this has been the recent decline in coronary heart disease mortality which has been most marked in those aged under 60 years. In Chapter 2, reference is made to the interesting but unexplained peak mortality from heart disease in men born around 1925 and women born around 1930[2]. The data show that successive generations are benefitting from progressive diminutions in mortality from this condition and that in people of 45-49, for example, mortality from this cause is now 27 per cent lower than it was in this age-group 20 years ago (Figures 2.2, 2.3, 2.4, and 2.5). The reasons for this improvement are not fully understood.

The longstanding higher mortality from all causes in regions in the north and west of the country relative to those to the south and east has remained in recent years in both sexes. The relative position of the regions has changed little (Figures 1.4 and 1.5).

In Appendix Table [A3] I have presented relative mortality from various causes in a form which gives weight not only to the frequency of deaths occurring but to the age at which they occur. Cancers and circulatory disease continue to be major contributions to years of life lost between ages 15 and 64 years. But I must also draw attention to the impact of accidents.

Although the experience in England is more favourable than in many other European countries (see below), accidents account for 17% of years of life lost between ages 15 and 64 years in males and 9% in females, and a large measure of serious chronic disability in addition. The report[3] of a Royal College of Surgeons Working Party on the management of patients with major injuries published in 1988 has highlighted the importance of injury and its consequences, and has made various recommendations concerning the organisation of Accident and Emergency services which are currently under consideration by the Government (see Chapter 6).

In Chapter 7, comparisons are made between the patterns of disease, particularly in respect of mortality, in the UK and many European countries. Differences between countries in methodology, diagnostic custom and completeness of data make interpretation difficult. Nevertheless, the data show better-than-average experience for the UK for deaths due to motor vehicle accidents and all external causes of injury and accidental poisoning, but that the UK performs worse than the average European figure for certain other causes of death (eg coronary heart disease (CHD) and cancers of the lung, breast and cervix). The average life expectancy in the UK is about half a year longer than the regional average.

Data about long-standing illness collected in the General Household Survey indicates that in the last decade there has been a rise in the proportion of people who report it. This has the effect of reducing the average expectancy of life reported to be free from disability. This may simply reflect changing perceptions of illness or a greater propensity to report it, but it does emphasise the importance of considering trends not only in life expectancy but those which reflect the quality of life like the expectation of life free from disability. This topic is discussed further in Chapter 1.

Child health

Chapter 3 focuses this year on selected aspects of child health. The first section reviews congenital and genetic disorders in childhood. As other causes of illness and death have declined these have become a major cause of morbidity and mortality in childhood – congenital anomalies now cause 25% of deaths in infancy and account for almost 20% of paediatric hospital admissions, and genetic disorders also contribute to many childhood deaths and paediatric admissions. The chapter discusses the scope for prevention of such disorders including the increasing role of prenatal diagnosis.

Growth is an important indicator of the health of children, and the rate of growth is associated with several socio-economic and biological variables, including nutrition. Differences in height between children of different social classes and relatively shorter heights of inner city compared to outer city children continue to be observed. Maternal smoking during pregnancy and exposure of the infant and child to parental tobacco smoke in the home have now been shown to exert serious ill effects. They are associated not only with low birth weight with its attendant risks and lower stature in primary schoolchildren, but with an increased prevalence of respiratory complaints in childhood.

Information on the prevalence and distribution of disability in children has been much enhanced by the publication in 1989 of surveys performed by Office of Population Censuses and Surveys (OPCS). The surveys estimate that there are as many as 360,000 children with one or more disabilities in Great Britain almost all of whom are looked after in the home.

The remaining two sections of the review of child health cover dental health and cancer. Although there is now evidence that the trend has levelled out at least in younger children, there has been a substantial decline in dental caries in children since the early 1970s – the percentage of five-year-old children with filled or decayed teeth fell by a third between 1973 and 1983, and the average number of filled or decayed teeth per child halved. The most likely reason for the decline is the exposure of children to fluoride in various forms and especially the widespread use of fluoride-containing tooth pastes. The final section of Chapter 3 reviews the treatment of childhood cancer which is now the third commonest cause of death in children. It is gratifying that for many types of cancer including leukaemia in children, substantial improvements in survival have occurred in recent years. The best results are usually to be obtained in the main specialist centres.

The National Health Service Review

The Review '*Working for Patients*' which was published as a White Paper on 31 January 1989, sets out proposals for the most far reaching changes in the Health Service since the establishment of the NHS over 40 years ago yet still retains the essential principles of the NHS, namely that health care will continue to be provided for all, regardless of income and will be financed mainly out of general taxation.

The two key but inter-related proposals of the White Paper are the separation of the buyers of health services from the providers and the principle of further delegation of responsibility as far as possible to local level. An important change is also proposed in the way hospital and community health services are funded. Funding will in future be provided to regional health authorities (RHAs) and eventually to district health authorities (DHAs) on a capitation basis weighted to reflect morbidity, age distributions and relative costs of providing services. Extension of the resource management initiative will increase the involvement of doctors and other professional people in decisions about the use of these resources and thereby it is hoped to improve cost effectiveness.

As a further extension of the principle of delegation it is proposed that subject to the approval of the Secretary of State, hospitals and other units will in future be able to elect to become self-governing run by NHS Hospital Trusts. These trusts will have a range of freedoms not usually available to health authority managed hospitals. Nevertheless all hospitals and units, both directly managed and self-governing, will receive their funding through a system of contracts which will cover all aspects of health care, whether community or acute. The source of these funds will be the DHAs.

Under the new arrangements[4] the districts will have a number of crucial tasks. These will include, assessing the state of health of their resident population; making sure that the health needs of this population are met; providing services for the prevention and control of diseases and the promotion of health; and ensuring the population has access to a comprehensive range of good quality health services. These tasks will require public health advice to be strengthened at district level and better measures of the outcome of services to be evolved.

In the operation of such an internal market emphasis will be placed on the quality of service provided. The Government's aim is that in future all hospital doctors and general practitioners should participate in medical audit and this proposal has won widespread support among the medical profession. As medical audit can only be carried out by doctors themselves audit will need a significant investment of time by medical staff and adequate support.

Implementation of 'Public Health in England'

Last year's report gave a full account of the findings and recommendations of the public health enquiry, published in January 1988 under the title '*Public Health in England*'. In July 1988, the Government accepted the main principles put forward in the report and thereafter, as set out in more detail in Chapter 2, work has proceeded steadily on several fronts to give effect to many of its recommendations. This programme of work now forms an essential plank of the Government's overall health policy. Others include its policies for primary care, deriving from the White Paper, '*Promoting Better Health*' and those set out in '*Working for Patients*' and mentioned above.

As the Minister, Mr David Mellor, pointed out in a written Parliamentary Answer dated 3 February 1989: "The White Paper (Working for Patients) concentrates on the organisation and management of services to patients. Health authorities and general practitioners will continue to have a central role in health promotion and the prevention of ill health, in particular by encouraging people to help themselves by adopting a healthier lifestyle. The Government's recent circular[4] announcing its acceptance of the Chief Medical Officer's report 'Public Health in England' makes clear its policy on public health."

Effective co-ordination of policies remains an overriding theme. It is envisaged that in future, DHAs and family practitioner committees (FPCs) will collaborate closely to provide a full range of preventive and therapeutic services, to meet the health needs of their populations. In doing this, and in enabling health authorities to act effectively as purchasers of health care, they will need to draw upon the epidemiological expertise of Directors of Public Health many of whom have already been appointed. The annual reports (called for in one of the key recommendations in Public Health in England), are already beginning to play a significant part in helping to assess the state of health of local populations and identify the problems needing to be addressed.

Within the Department of Health the establishment of the Central Health Monitoring Unit (CHMU) has given effect to another of the recommendations of the public health inquiry, namely the setting up of such a unit to contribute to the epidemiological analysis on which central policy decisions across a broad range of health issues should be based. The CHMU is examining options for a new programme of health surveys and has asked OPCS to study the feasibility of various forms of national health survey.

Chapter 8 of '*Public Health in England*' dealt with some of the problems facing those concerned with education and training of public health personnel. Amongst other recommendations it called on "the relevant training institutions and professional bodies [to] discuss how best to achieve multi-disciplinary awareness and collaboration in the training of public health practitioners including the possibility of establishing a school or schools of public health". Both in London and elsewhere, several universities and polytechnics have responded actively to this challenge. This is greatly to be welcomed and provided suitable staff can be found will form a promising basis for the further development of public health into the coming decade.

Prevention and health promotion

Smoking

Cigarette smoking continues to be by far the most important single cause of ill health and premature death, and hence of expenditure on health services. It is responsible for some 100,000 deaths a year, and the direct treatment costs to the NHS alone are estimated at £500 million annually (see Chapter 2).

Although the prevalence of cigarette smoking diminished steadily in all socio-economic groups during the 1970s and early 1980s (from 46% of the population to 33% in the years 1972-1986), progress has slowed in recent years. A worrying feature is that amongst young adults the decline in prevalence has come virtually to a standstill. However decline in smoking prevalence among school boys, first indicated in the 1986 Survey[5] has been confirmed by the 1988 study[6] and, there is strong evidence to suggest that prevalence of smoking might also have fallen among girls. The risks of smoking during pregnancy to the unborn child and later to the infant and child have already been referred to and are also set out in Chapter 3.

Among older smokers there is a growing awareness of the dangers of passive smoking and non-smokers are becoming more active in their demands for smoking restrictions in public places. In response to this pressure there has been a welcome increase in the number of restaurants and places of entertainment to have introduced smoking restrictions or even outright bans and important changes are also taking place in this direction in the workplace.

However, greater efforts need to be made to help schoolchildren, teenagers and young adults avoid the dangers of smoking. As it is rare for smoking to be taken up as a habit in adult life, the influence of the behaviour and attitudes of parents and teachers, as well as of market pressures upon children and adolescents, are crucial. One in four of those who take up smoking cigarettes have their lives shortened by it and many others also damage their health. It is therefore particularly to be deplored that illegal sales of cigarettes to schoolchildren continue on a considerable scale and that a recent survey has shown that only 1 in 4 children who tried to purchase cigarettes had been refused during the previous year.

Changes in cigarettes themselves, whereby untipped cigarettes have virtually disappeared, and the sales weighted average tar yield has fallen from 21mg in 1972 to about 13mg now, are welcome. However, this only has relevance to the carcinogenic properties of the tobacco smoke. It is important that the public should recognise that reductions in tar do not influence the incidence of other tobacco-related diseases such as coronary heart disease or disease of the peripheral blood vessels.

Alcohol misuse

Unlike smoking, the use of alcohol in moderation does not injure health. Nevertheless, the fact that national per capita consumption of alcohol in 1988 continued the rising trend noticed since 1982 and now approaches that of the most recent peak year 1979 gives cause for concern (see Chapter 2). I draw attention to the close statistical relationship between the affordability of alcohol, alcohol consumption, and the prevalence of alcohol-related ill-health. In addition to the long-recognised role of alcohol misuse as a cause of chronic liver disease and mental illness, a recent report from the World Health Organization[7] points out that alcohol is causally related to cancers of the oropharynx, larynx, oesophagus and liver, conditions which between them accounted for over 7,000 deaths in England and Wales in 1987. Smoking is also an important synergistic factor in the causation of these cancers.

In its first full year of existence, the Ministerial Group on Alcohol Misuse has taken forward important initiatives in the areas of drinking and driving, public disorder related to alcohol, advertising of alcohol, under-age drinking and workplace policies on alcohol.

Drug misuse

The misuse of drugs, particularly by injection, continues to pose a major threat to public health (see Chapter 2). Injecting drug misusers risk transmitting HIV infection among themselves through the use of shared injecting equipment and are the most important channel through which the infection may be transmitted by sexual contact into the heterosexual population. Results from the experimental needle exchange schemes give grounds for cautious optimism.

Although evaluation shows that some injecting drug misusers who have made no previous contact with services come to the exchange schemes and modify their injecting behaviour, exchange schemes must be considered as part of a larger package of services including education about safer sex and where indicated treatment with substitutes.

There was evidence during 1988 of an increase in the misuse of cocaine but no sign as yet of widespread availability of freebase cocaine or 'crack' which has assumed epidemic proportions in the USA. Of greater immediate concern is the widespread misuse of amphetamine sulphate, often by injection. Many of these young occasional misusers do not acknowledge the potential risks they run and are less likely to approach services. The need to give greater attention to this group in both preventive and treatment approaches is essential. Although solvent abuse among younger adolescents also continues predominantly to be a short-term activity, it also has serious risks. Seventy-six deaths, mostly in young people are known to have occurred due to solvent abuse in 1988. The apparent increase in misuse of aerosols and butane gas emphasises the need for parents and retailers to remain aware and vigilant.

Throughout the year, there has been an expansion and diversification of drug misuse services to address these new needs. But much remains to be done. The upward trends in drug misuse, and the potential increase in the number of drug misusers who are at risk of HIV infection, points to the need for strengthening secondary back-up services including in-patient provision and increased medical input.

Coronary heart disease

Prevention

It has already been emphasised that in spite of the recent reductions in mortality, CHD in England remains a more serious public health problem than in most other countries. During 1988 some progress was made toward reducing this unnecessary toll through the 'Look after your Heart!' Campaign (LAYH) that was launched jointly by the DHSS and the Health Education Authority (HEA) in 1987 (see Chapter 2). However the pace and success of the campaign has been criticised in a recent report on coronary heart disease by the Public Accounts Committee. While welcoming LAYH, the Committee was concerned at the difficulties the campaign had encountered during its first year, and criticised the commitment of some health authorities to the campaign. In this context, it is a matter of concern that a survey of health authorities carried out by the Faculty of Community Medicine in 1988 indicated that only a third of authorities were implementing formally structured CHD prevention programmes.

While LAYH has made undoubted progress in raising public awareness of the major CHD risk factors, much remains to be done before the public at large accept and adopt the important changes in smoking, eating habits, and physical exercise which are necessary.

The immediate objective must be the development and implementation of heart disease prevention programmes by all health authorities. In these, not only do health professionals have an essential part to play but so too have employer and employee organisations and the food industry and caterers. Their support can do much to reduce CHD risk factors through the adoption of smoke-free policies and the provision of facilities for recreation in workplaces and by offering a wider range of labelled foodstuffs and healthier menus in canteens and restaurants.

The treatment of acute myocardial infarction (AMI)

1988 saw the widespread adoption of a treatment for AMI which if it realises its full promise should have a noticeable effect on mortality rates. In 1986 and 1987, two important Italian studies on the benefits of intravenous streptokinase as a thrombolytic agent in AMI were published[8,9]. A further report in 1988[10] confirmed that there was a substantial beneficial effect with a thrombolytic agent alone but also an enhanced benefit when this treatment was combined with aspirin.

It is essential if thrombolytic treatment is to be exploited to the full that it should be administered as soon as possible after the onset of symptoms. As there are risks associated with treatment, and also some contraindications, treatment must be in hospital. This faces the NHS as a whole (general practitioner, ambulance service and hospital doctor alike and indeed patients and their relatives also) with a major challenge. If we are to see the full potential reduction of fatality rates of 20-30% both the 'onset of pain-to-hospital-door interval' and the 'door-to-needle interval' must be reduced to a minimum.

Communicable disease

Food and waterborne illness

Foodborne illness has continued to attract a great deal of public attention. *Salmonella enteritidis* in eggs dominated the scene in 1988 and the first part of 1989. More recently, public concern has focussed on *Listeria monocytogenes* (Lm) in soft cheese and other foods and the issue of the extent of the relationship of listeriosis to food contamination.

Salmonella enteritidis has been, since 1988, the most commonly isolated salmonella serotype, having overtaken and by far exceeded the annual numbers of isolates of *S.typhimurium*. The increase in *S.enteritidis* isolates was largely due to one particular phage type: PT4.

By the summer of 1988, evidence had accumulated to implicate *S.enteritidis PT4* as the cause of outbreaks of salmonellosis associated with the consumption of raw eggs or dishes containing uncooked eggs such as mayonnaise. In August 1988, I issued advice warning consumers, particularly those who are more vulnerable, to avoid eating raw eggs or uncooked foods made from them. Subsequent studies indicated that sporadic cases of salmonellosis due to *S.enteritidis PT4* had been associated with the consumption of both raw and lightly cooked egg dishes. In December 1988, I therefore extended my advice to warn vulnerable groups (the elderly, the sick, babies and pregnant women) that they should eat only eggs which had been cooked until the whites and the yolks were solid. The healthy population was reminded that they should avoid raw egg dishes. Full page advertisements were taken in the national press to ensure that this message reached as wide an audience as possible. Despite this, outbreaks continue to be reported which are associated with raw egg dishes such as home-made mayonnaise and mousses.

As *S.enteritidis PT4* is an invasive organism which can infect the inside of the egg while it is still within the oviduct, the veterinary control of the organism in laying birds is fraught with difficulty. The Ministry of Agriculture, Fisheries and Food (MAFF) has instituted an extensive series of statutory and other measures to eradicate this infection from the national laying flock. These measures are amongst the most extensive in the world, but the difficulties of eliminating the organism from the farm environment should not be underestimated.

Listeriosis is a rare but serious condition (291 cases, including 52 deaths, were reported in 1988) the incidence of which has increased in recent years. As well as causing disease in persons whose immune systems are comprised, Lm has the capacity to cross the placental barrier and damage the fetus, thereby causing abortion, stillbirth or serious illness in the newborn child. The risk of listeriosis in the general population is substantially less than in the above groups. Although the increasing recognition of the occurrence of Lm in foods and its capability to grow at very low temperatures have recently properly caused concern it is still not clear what proportion of cases of listeriosis are caused by the ingestion of infected food. An expert review conducted under the auspices of WHO which was published in April 1988 concluded that food was perhaps the primary source of infection.

In 1988, two cases of proven foodborne listeriosis in England were reported, one associated with vegetable rennet, the other with a retail cooked and chilled chicken.* At the beginning of 1989 the results of a national survey by the Public Health Laboratory Service (PHLS) for the presence of Lm showed that some 12% of pre-cooked ready-to-eat poultry and 18% of cooked and chilled meals for retail sale were contaminated with this organism. At about the same time there was news that the soft cheese, Vacherin Mont d'Or, which had been reintroduced to the Swiss market after causing 122 cases of listeriosis in that country between 1983 and 1987, was once again associated with cases of listeriosis in Switzerland. In February 1989, I issued advice to vulnerable groups (pregnant women and those with impaired resistance to infection) to avoid eating certain types of soft cheese and to reheat all ready-to-eat poultry and cooked and chilled meals until they were piping hot throughout. I also gave general advice on hygienic measures to reduce the chance of eating food contaminated with Lm.

Between 1922 and 1988, there were 26 reported cases of botulism in this country, with 14 deaths. In 1989, there was an outbreak of botulism which affected 27 people, with one death. The source of the botulism toxin (type B) was an incorrectly processed canned hazelnut conserve which had been used as an ingredient in a

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* As noted previously the first proven English foodborne case was reported in 1987 (a case of meningitis in a woman who consumed infected cheese).

particular brand of hazelnut yoghurt. The speed and effectiveness with which this outbreak was brought under control reflects great credit on all those involved. Only the exercise of clinical, epidemiological, microbiological and environmental health skills of the highest order, coupled with the unstinting co-operation of the food industry, prevented many more cases occurring and, very probably, many more deaths. This provides an excellent example of the need to establish a firm scientific base for action, including advice to the public on food-borne threats to health.

An outbreak of cryptosporidiosis in January 1989 in the Oxford and Swindon areas was traced to drinking water supplies from the Farmoor reservoir. Public health officials in the locality advised that drinking water should be boiled for children up to 2-years-of-age and for the immunosuppressed. Cryptosporidia oocysts were detected by the water authority in the mains water supply, using a prototype test still under development. Cryptosporidia are widely distributed in the environment and the significance of this finding was not known. Therefore, the Secretary of State for the Environment, in conjunction with the Secretary of State for Health, asked Sir John Badenoch to chair a group of experts to advise on the significance for health of the presence of cryptosporidia in drinking water supplies. An interim report has already been presented and a final report is expected later this year. Much remains to be learnt about this organism, which is probably present from time to time in small numbers in all surface waters, but the role of which as a human pathogen has been recognised only since the 1970s.

Bovine Spongiform Encephalopathy (BSE)

BSE is a progressive disease of the central nervous system in cattle which results from infection with an unconventional viral agent. It was first identified as an entity by MAFF's Central Veterinary Laboratory at Weybridge in November 1986. It is one of a family of spongiform encephalopathies which includes scrapie in sheep and kuru and Creutzfeldt Jakob disease (CJD) in man. The evidence strongly suggests that it was introduced into cattle by feeding concentrate derived partly from meat and bone meal of ovine origin. Scrapie, which has been endemic in sheep in the United Kingdom for at least two centuries, may be the source of the condition but the reasons why transmission of the agent to cattle did not take place until sometime in the latter half of the last decade (the incubation period is believed to be about five years) is not fully understood.

In May 1988, a working party under the chairmanship of Sir Richard Southwood FRS was established to examine the implications of BSE in relation not only to animal health but to any possible human hazard. The Southwood Committee concluded that from the present evidence it is likely that cattle will prove to be a 'dead-end host' and most unlikely that BSE will have any implication for human health. Nevertheless, the Committee recommended that to prevent further infection in cattle, the use of ruminant-based protein in cattle feed should be banned indefinitely, and in order to deal with the remote chance that the infection might be transmitted orally to man, proposed the destruction of carcasses of cattle with suspected BSE and the prohibition of the use of milk from such cows for humans. Subsequently it was decided in addition to ban the use of bovine brain for human consumption. The Southwood Committee also drew the attention of the licensing authority to the potential of transfer of BSE agent in human and veterinary medicinal products, and pointed out to the Health and Safety Executive the possible exposure of various occupational groups to the agent.

Measles, Mumps and Rubella (MMR) combined vaccine

Measles, Mumps, Rubella (MMR) combined vaccine was introduced in October 1988 with the objective of the elimination of measles, mumps and rubella including the congenital rubella syndrome. High uptake of vaccine in infancy will need to be achieved to interrupt viral transmission. The main theme of the campaign has been to stress the seriousness of the three diseases and the fact that they can be prevented. The next phase is timed for the autumn of 1989. This takes account of consumer research on the uptake of vaccine in the first phase and will be targeted at social class D and E families and those parts of the country where vaccine acceptance has been lowest. Early indications from DHAs where MMR uptake has been subject to quarterly monitoring suggest that a 10% increase has occurred in children under the age of five as compared with the previous uptake of single antigen measles vaccine (see Chapter 5).

It is most encouraging to note that notifications for measles during the first six months of 1989 have remained at exceptionally low levels. In 1990, measles notifications are predicted to increase again, but if the present enthusiastic use of MMR vaccine is maintained, there is a reasonable chance that the cyclical series of epidemics of measles, with all their attendant misery which have occurred in this country since time immemorial, will cease.

HIV, AIDS and sexually transmitted diseases

The work which has continued within the UK to contain the HIV epidemic, and the characteristics of this epidemic, are discussed in detail in Chapter 5. Three major developments which have taken place during 1988 are appropriately considered here.

In my last report, I referred to the passing of the AIDS (Control) Act 1987. During 1988, all district and regional health authorities have submitted, and published, reports as required by the terms of this Act. These reports have two main parts. *A statistical section* which shows the number of people with AIDS reported to be resident in that health authority, and the number of these people known to have died, both for the year covered by the current report, and cumulatively. This section also includes tables showing the distribution by transmission category of the people with AIDS, and with HIV antibody positive test results. And *a narrative section* which contains information on facilities and services provided and planned for testing for HIV infection; for treating, counselling, and caring for infected people; and for preventing the spread of infection. The group of experts which I set up under the chairmanship of Dr J W G Smith, Director of the PHLS, to advise me on improvements which might be made in the monitoring of AIDS and HIV infection in the UK, published their report in April 1988[11] with a number of important recommendations.

Progress in predicting the course of the UK, HIV epidemic has also been made. During 1988 I set up an expert group under the chairmanship of Sir David Cox FRS to advise on the incidence and prevalence of cases of AIDS, of other HIV-associated conditions, and on the overall numbers of HIV-infected individuals, during the next 2-5 years. Their report was published in November

1988[12]. The group concluded that between 10,000 and 30,000 cases of AIDS would have been diagnosed by the end of 1992 in England and Wales, and that over the next 10-15 years, at least 16,000 to 40,000 cases of AIDS must be expected among people already infected with HIV. They emphasised that groups other than the homosexual men who have so far been the principal sufferers must be expected to be increasingly involved, with a possible 1,000 cases of AIDS in injecting drug misusers accruing in the next 4-5 years, and a considerable potential for heterosexual spread from the 6,000 to 17,000 heterosexuals whom they estimated were already infected.

The numbers of new AIDS cases per month are increasing less rapidly than in the earlier stages of the epidemic. Past behavioural changes in the homosexual community, and current effects of therapeutic advances, are both probably contributing to this welcome development. However, it would be a gross error to allow this change to engender complacency: unless homosexual men maintain, and drug misusers and other heterosexuals adopt and maintain safer behaviours, the improvement will be temporary.

An important indication of changes in sexual behaviour is provided by trends in sexually transmitted diseases. In 1987, for the first time since 1962, the genito-urinary medicine clinics reported a reduction in the number of new cases seen compared to the previous year, the fall being more marked in males than in females. Of particular note is the decline in post-pubertal gonorrhoea rates evident in 1987. Although a reduction in gonorrhoea incidence rates has been present in most age-groups since the early 1980s, in 1987 the decline became steeper in both sexes and all age-groups. Trends in gonorrhoea and other forms of sexually transmitted diseases are discussed further in Chapter 5. The recent trends described are consistent with the conclusion that public education aimed at minimising the spread of HIV infection has encouraged a switch to safer sexual practices and lower rates of partner change.

The chemical safety of drinking water

1988 saw a surge of public interest in the safety of drinking water. Much of the comment in the media shows how little is generally known of the substantial studies which have been carried out on the chemical composition of drinking water, or of the assessments which the Department's committees of independent experts have regularly made of these issues. Some of the effort has been directed at the many chemicals present in trace amounts, to determine their nature and whether they could have any effects on health when considered as a group. The very fact that the results of this work and of many assessments of individual substances have been reassuring, may explain why this activity is so little known. There are, however, a few substances widely present in drinking water at concentrations which have caused some concern, leading to research, regular reviews by the advisory committees, and decisive action when necessary (see Chapter 5).

Lead has undoubtedly been the major issue in the safety of chemicals in drinking water, and has been considered in detail in past reports. A major programme to correct the tendency of some waters to dissolve the metal from old lead plumbing has been an important element in the national programme to reduce exposures to lead from all sources. In 1988, nitrate was once again the subject of advice following the acceptance of an EEC standard of 50mg/litre in any sample. As this standard cannot immediately be met in every water supply, it is important to consider the extent of the safety margin which is really necessary given the nature of infant methaemoglobinemia (the effect expected) and the evidence on its threshold. Following a careful search for any evidence that water which is correctly treated to avoid microbiological contamination but contains nitrate in the range 50-100mg/litre, has caused harm, the expert committee advised that, pending the actions to be taken by the industry, water with nitrate in that range is acceptable for use for public consumption including infant feeding.

The expert committees are sometimes asked to respond to evidence suggesting the possibility of harm from exposures which have long been accepted as non-toxic. In such cases there is a need to contain public concern while adequate research is conducted. An example is the hypothesis that sustained exposure to aluminium could play a part in the causation of Alzheimer's disease[13]. The expert committee has concluded that the evidence is too tentative to justify changes in water industry practice, although further research is needed[14].

Incidents of gross contamination of the water supply are fortunately extremely uncommon. The body of the report describes the incident in July 1988 which caused pollution of the Lowermoor supply by concentrated aluminium sulphate and the later establishment of an advisory group chaired by Dame Barbara Clayton. The group's report was published in June 1989. After a review of evidence concerning all possible effects, including the results of studies of aluminium uptake specially undertaken by one of the group, it concluded that "it is not possible to attribute the very real current health complaints to the toxic effects of the incident, except insofar as they are the consequence of the sustained anxiety naturally felt by many people". The group made some frank comments on the part that inadequate information from the Water Authority and unfounded statements from unofficial sources had in its opinion played in engendering such anxiety. The Department has accepted the recommendations of the group, in particular that there should be means for the prompt provision of authoritative medical advice in the event of any such incidents in the future.

Mental illness

People severely disabled by mental illness present a special challenge to mental health services (see Chapter 6). Outside hospital, there is a real risk that they may slip through the network of supporting services and become lost to care. The extent of this risk is emphasised by the recent finding that 40% of health authorities have no service in the community dedicated to long-term care and a majority (54%) have no formal way of monitoring the provision of long-term care[15].

In July 1989, as part of the Government's response to Sir Roy Griffith's report on Community Care, a series of initiatives were announced to improve the provision of services for mentally ill people. New planning guidance to health authorities now requires them, by 1 April 1991, to establish a system of 'care programmes' for people with long-term mental illness which will include a register of those at risk and regular reviews of their needs for treatment and care.

Finance from mental hospital sites provides valuable capital for replacement facilities, but these facilities are needed before hospitals can be vacated. Existing arrangements offer one way of addressing this problem – with regions lending each other capital to match the timing of planned new developments. Another possible solution is for authorities to enter into agreements with developers to upgrade, purchase and build community facilities for the mentally ill, in return for which they would receive all or part of the vacated site. Health authorities will be invited to identify sites where this approach would be suitable.

The Department will also be looking at ways of increasing general practitioners' awareness of mental illness and how it can be treated in primary care, and examining what can be done to meet the needs of those homeless people who suffer from mental illness.

The main body of the Government's response to the Griffith's report established a new earmarked grant to local authorities specifically to develop social care services for people with serious mental illness

Child abuse

The final results of the first national survey of Child Protection Registers was published in May 1989, following an interim report in November 1988. The survey showed that there were an estimated 39,200 children and young people on child protection registers in England at 31 March 1988 of whom one seventh were registered as having been subject to sexual abuse. This represents 3.6 children per 1,000 population under the age of 18 years. These figures are broadly in line with, but slightly lower than those published by the National Society for the Prevention of Cruelty to Children in 1987.

The Report of the Cleveland Enquiry by Lord Justice Butler-Sloss made clear that any estimate of the incidence or prevalence of child sexual abuse, should be approached with great care. Officials from the Department have met with interested research workers to discuss the feasibility of undertaking a prevalence study, bearing in mind the difficulties arising from problems of definition and of sampling. Whether or not it is due to a real rise in the occurrence of sexual abuse, the rapid increase in *reported* cases is leading to an escalation of the workload. It is therefore important to concentrate resources on improving our knowledge and techniques for managing this problem and I am glad to report that professional organisations including the Royal College of Physicians, the British Paediatric Association and the British Association of Police Surgeons are playing a major part in this.

Recent concern about the prevalence of child abuse of all kinds underlines the importance of the Children Bill which began its passage through Parliament in November 1988. It seeks to provide an integrated framework of law covering the care and upbringing of children in both the private and public domains to ensure that children receive care and protection. Parliament has been anxious not only to protect the child and the rights of the parents, but also to respect the responsibilities of local authorities (see Chapter 2).

Acknowledgements

I wish in closing to acknowledge the support given me by numerous colleagues and associates in the Department of Health and Office of Population Censuses and Surveys who helped compile this year's report. Its contents reflect examples of their many contributions to health in this country. Special mention is also due on this occasion to the staff at Her Majesty's Stationery Office, Norwich who supervised the printing.

I am, Sir
Your obedient servant
E D Acheson
September 1989

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1. VITAL STATISTICS

(a) Population size

The estimated resident population of England at 30 June 1988 was 47,536,000 persons. The increase of 130,000 (0.3%) compared with 1987 continued the recent trend in annual changes. Most of this increase (115,000) arose from natural change (births minus deaths), and the remainder from net inward migration.

(b) Age and sex structure of the resident population

Table A.1 in the Appendix (Chapter 8) shows how the size of the population in various age/sex groups has changed over recent years. Between mid 1987 and mid 1988 there was a rise in the number of children aged under one year and the number of children aged 1-4 years increased slightly for a third consecutive year.

The population of school age (5-15 years) continued to fall and there was no change in the size of the population aged 16-29. However, the overall number of adults of working age (16-64 years for men, and 16-59 years for women) rose as a result of increases in the population aged over 30 years. The population of younger pensionable age (60/65 to 75) fell slightly but the population aged over 75, again increased substantially between 1987 and 1988. The increases in the very elderly are partly linked to the mild winters of 1986/1987 and 1987/1988. Since 1981, the number of people aged 75-84 years and 85 years and over has increased by 14% and 33% respectively. Women continue to account for about two thirds of all people over retirement age.

(c) Fertility statistics – aspects of relevance for health care

(i) Total births

Table 1.1 shows that there were 654,363 live births in England during 1988, an increase of 11,000 (2%) compared with 1987. The annual number of births has increased each year since 1982 and the 1988 figure was the highest annual total since 1972. After allowing for changes in the size and age structure of the female population of childbearing age, the total period fertility rate (the average number of children which would be born per woman if the age-specific fertility rates of the year in question persisted) for 1988 was 1.83. This compared with a total period fertility rate (TPFR) of 1.87 at the most recent peak, in 1980. The TPFR for England has been below 2.1 (the level leading to the long term 'natural' replacement of the population) since 1972.

Table 1.1 *Numbers of live births, crude birth rate, general and total period fertility rates for England 1978, 1987 and 1988*

Year of birth	Live births	Crude birth rate (births per 1,000 population of all ages)	General fertility rate (births per 1,000 women aged 15-44)	Total period fertility rate (TPFR)
1978	567,380	12.2	60.5	1.74
1987	643,330	13.6	62.0	1.81
1988	654,363	13.8	62.9	1.83

Table 1.2 *Teenage conceptions: Numbers and rates 1977, 1986 and 1987, England*

Age at conception		Conceptions outside marriage Maternities outside marriage*					Conceptions inside marriage		
Year of conception	All conceptions	Total	Sole registrations	Joint registrations	Maternities+ inside marriage	Abortions under the 1967 Act	Total	Maternities	Abortions under the 1967 Act
(a) Numbers (thousands)									
Under 16 years									
1977	8.5	8.5	2.2	1.0	0.7	4.5	.0	.0	.0
1986	8.7	8.7	2.1	1.7	0.2	4.7	.0	.0	.0
1987°	8.6	8.6	2.0	1.7	0.2	4.7	.0	.0	.0
Under 20 years									
1977	101.0	71.0	13.9	10.0	19.2	27.9	30.0	29.1	0.9
1986	111.4	96.1	19.3	29.5	10.3	37.0	15.3	14.7	0.7
1987	115.6	101.3	19.5	32.8	9.2	39.8	14.2	13.6	0.7
(b) rates per 1,000 girls									
Under 16 years									
1977	7.6	7.6	2.0	0.9	0.6	4.0	.0	.0	.0
1986	8.8	8.8	2.1	1.7	0.2	4.8	.0	.0	.0
1987	9.3	9.3	2.2	1.8	0.2	5.1	.0	.0	.0
Under 20 years									
1977	57.7	43.3	8.5	6.1	11.7	17.0	270.7	262.2	8.5
1986	62.0	54.9	11.0	16.9	5.9	21.2	329.6	315.4	14.2
1987	65.7	59.3	11.4	19.2	5.4	23.3	292.2	278.0	14.2

Notes

Rates for the under-16 and under-20 age-group are based upon the populations of girls aged 13-15 and 15-19 years respectively.

* Births outside marriage may be registered by the mother alone (sole) or by mother and father (joint).
+ Births within marriage occurring less than 8 months after marriage.
° All data for 1987 are estimated.
Source: OPCS.

(ii) Teenage conceptions

Data on conceptions to women resident in England cover pregnancies which led to a maternity or to a legal termination under the 1967 Abortion Act, but do not include those leading to spontaneous abortion. In Table 1.2 the numbers and rates of girls becoming pregnant at ages under 16 years and under 20-years are compared for the years 1977, 1986 and 1987. For under -16s the conception rate in 1987 was 9.3 per 1,000 female population, a slight increase in comparison with 1986. The proportion of conceptions terminated by abortion in this age-group remained unchanged.

The continued prevalence of conception and abortion in very young girls underlines both the importance of sex education and the ethical problems which face those who may be in a position to offer contraceptive advice to this group.

The overall teenage conception rate rose from 62.0 per 1,000 female population in 1986 to 65.7 per 1,000 in 1987 and the proportion of all conceptions to under-20s terminated by abortion rose slightly from 34% in 1986 to 35% in 1987. The proportion of teenage conceptions occurring outside marriage which led to a maternity within marriage fell to 9% in 1987 compared with 11% in 1986 and 27% in 1977. However, the proportion leading to maternities outside marriage which were jointly registered by both parents continued to rise: 32% in 1987 compared to 31% in 1986 and 14% in 1977.

(iii) First births within marriage to women aged 30 years and over

First births to women aged 30 years and over are of medical interest in view of the greater likelihood of obstetric problems with a first pregnancy at this age. Table 1.3 shows that first births to married women of this age-group increased by 4% between 1987 and 1988. Such births accounted for 21% of all first births within marriage in 1988 compared to 20% in 1987 and 14% in 1978.

Table 1.3 *First births within marriage to women aged 30 and over: 1978, 1987 and 1988, England*

Age of mother	Number of births (thousands)		
	1978	1987	1988
All ages 30 and over	30.0	40.3	41.9
30-34	25.1	31.8	32.9
35-39	4.3	7.5	7.9
40-44	0.6	1.0	1.1
45 and over	0.0	0.0	0.0

Table 1.4 *Mean age of women at first live birth within marriage, according to social class of husband: 1978, 1987 and 1988, England*

Social class of husband	Mean age of woman at first birth within marriage		
	1978	1987	1988
All social classes	25.2	26.5	26.7
I and II	27.4	28.4	28.4
III Non-manual	26.2	27.0	27.2
III Manual	24.4	25.8	25.9
IV and V	23.3	24.5	24.8

(iv) Average age of mother at first birth within marriage

Table 1.4 shows that between 1978 and 1988 the average age at first birth within marriage increased from 25.2 years to 26.7 years, this pattern being evident in all social classes.

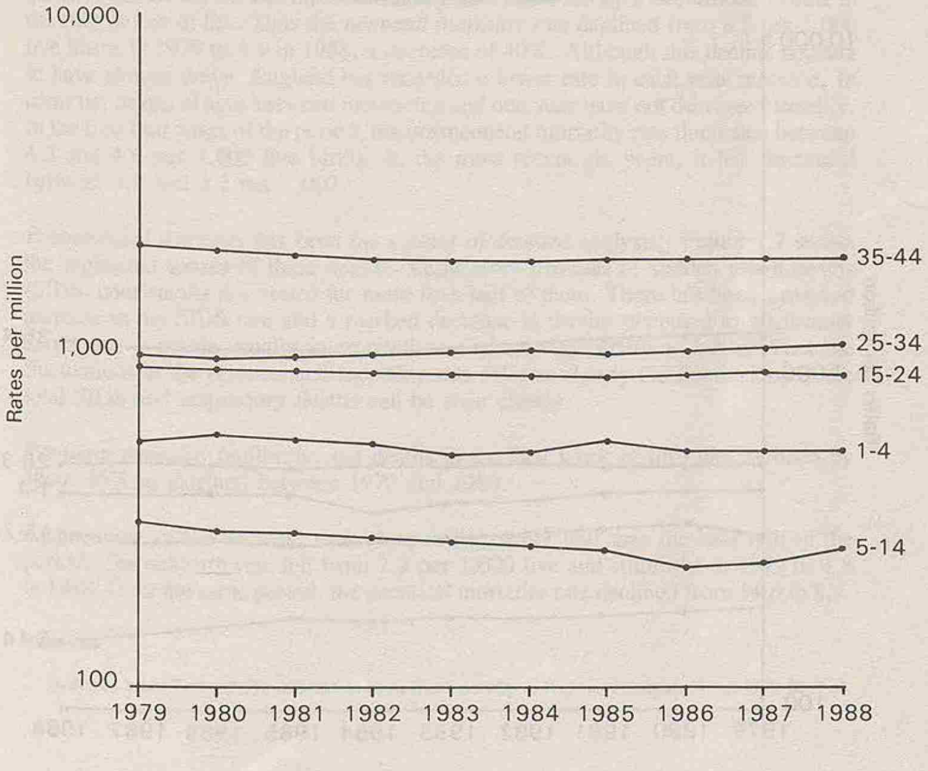
(v) Sex ratio of births

There were 104.8 male births per 100 female births in England in 1988, the lowest recorded sex ratio since 1938. [For a fuller discussion of this subject see 'The Sex Ratio at Birth in England and Wales', Population Trends 57 (HMSO, Autumn 1989)].

(d) Mortality

The number of deaths registered in England rose from 531,150 in 1987 to 535,553 in 1988, an increase of 0.8%. This resulted in a small increase in the crude mortality rate from 11.2 per 1,000 population in 1987 to 11.3 in 1988. Change in the number of deaths and crude mortality rate from year to year reflect changes in the size and age structure of the population and fluctuation in age-specific death rates. If the size and age structure of the population had not changed between 1987 and 1988 then we would have seen a fall in the total number of deaths to 528,448 and a fall in the crude death rate to 11.1, suggesting that the rises noted this year are a consequence of the changes in the age structure.

Figure 1.1: *Male death rates, England and Wales, 1979-88*

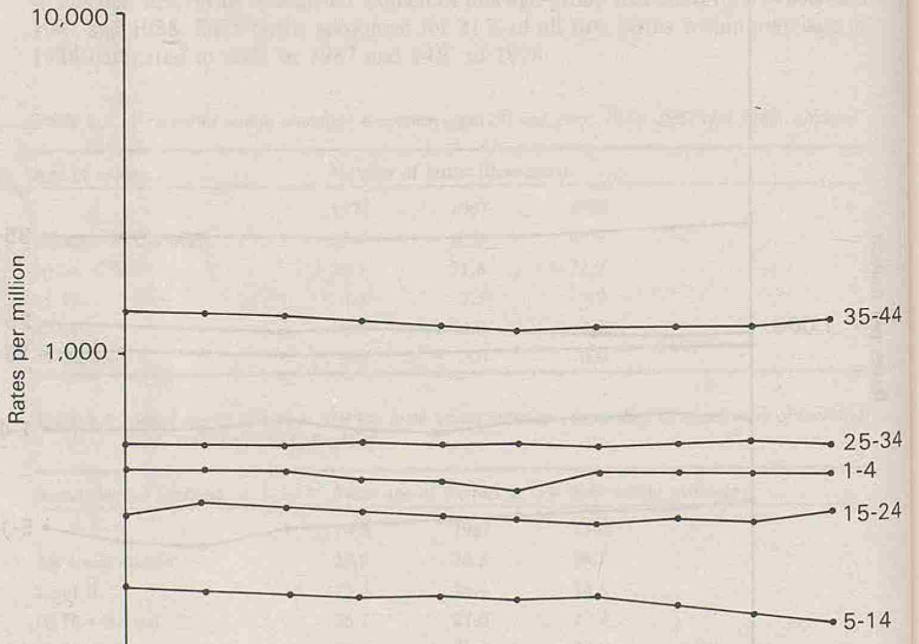


Although there have been fluctuations from year-to-year, age-specific mortality rates have been declining over a long period. For example, as noted last year, standardised mortality ratios (SMRs) which take account of the changing population structure show that mortality is now less than three quarters of that recorded in the early 1950s. Last years' report suggested that the reduction in mortality which has been a feature for all age-groups appeared to have arrested since 1986 for men and women aged 15-44. Figures 1.1 and 1.2 investigate this further by showing mortality rates for defined age-groups for the ten years since the introduction of the ninth revision of the International Classification of Diseases.

Figure 1.1 for males – using a logarithmic scale to facilitate comparision of the rate of change of death rates within each age-group and between different age-groups – shows that for men aged 35-44, the mortality rate has levelled off and has not changed during the last three years. That for men aged 25-34 has however, increased in each subsequent year since 1985, whilst that for men aged 15-24 rose in 1986 and 1987, but fell in 1988 to the 1986 level. These increases may be associated with deaths from causes connected with HIV infection (see Chapter 5).

For women, the picture is somewhat different (Figure 1.2). Those aged 25-34 have had lower mortality in the years 1985-88 than they did in 1983 and 1984. The younger and older women 15-24 and 35-44 both had mortality rates in 1988 that were very similiar to that recorded in 1983.

Figure 1.2: *Female death rates, England and Wales, 1979-88*



The graphs also show a levelling in mortality rates for boys aged 1-4 years and an increase in rates for boys 5-14 since 1986. The levelling of rates also occurred for girls aged 1-4 but the rate for girls 5-14 continued to decline.

Figure 1.3 shows, for 10-year age-groups, the mortality rates for men and women aged 45 or more on a logarithmic scale. For each group, mortality continued to decline throughout the last ten years. The percentage decrease in rates between 1979 and 1988 was greatest for the 45-54 year olds – about 25%. For the older age-groups the decreases were between 9 and 18%.

Figure 1.4 shows for males, differences in mortality between the standard regions of England. The graphs plot SMRs for various time periods since 1959-63 using 1979-83 England and Wales rates as the standard. (The logarithmic scale allows the slopes of the lines to be compared directly.) The higher relative mortality in regions to the north and west of the country has persisted throughout the period and the relative positions of the regions have not changed much. East Anglia has remained as the region with the lowest mortality. Either the North West or North Region has had an SMR of about 25% greater than East Anglia in each of the periods plotted. Figure 1.5 shows a similar pattern for females, although the differences between regions are not so marked.

(e) Stillbirth and infant mortality in England

Figure 1.6 looks at the same 10-year period, 1979-88, as that considered in the previous section. Mortality in the first year of life fell between 1979 and 1988 by 29%, from 12.8 to 9.1 deaths per 1,000 live births. Much of the decrease was in the first half of the decade and was mainly accounted for by a decrease in deaths in the first month of life. Thus the *neonatal mortality* rate declined from 8.2 per 1,000 live births in 1979 to 4.9 in 1988, a decrease of 40%. Although this decline appears to have slowed down, England has recorded a lower rate in each year reported. In contrast, deaths at ages between one month and one year have not decreased steadily. In the first four years of the period, the postneonatal mortality rate fluctuated between 4.3 and 4.6 per 1,000 live births. In the most recent six years, it has fluctuated between 3.9 and 4.2 per 1,000.

Postneonatal mortality has been the subject of detailed analysis[1]. Figure 1.7 shows the registered causes of these deaths. Respiratory diseases or sudden infant deaths (SIDS) consistently accounted for more than half of them. There has been a marked increase in the SIDS rate and a marked decrease in deaths attributed to respiratory conditions – trends usually interpreted as a change in certifying habits. That the fluctuations in the postneonatal mortality rate follows closely the fluctuations in the total SIDS and respiratory deaths can be seen clearly.

Perinatal mortality (stillbirths and deaths in the first week of life) has declined by about 40% in England between 1979 and 1988.

Again, more of the decrease took place in the earlier half than the later half of the period. The stillbirth rate fell from 7.9 per 1,000 live and stillbirths in 1979 to 4.8 in 1988. Over the same period, the perinatal mortality rate declined from 14.6 to 8.7.

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Figure 1.3: *Male and female death rates, England and Wales, 1979-88*

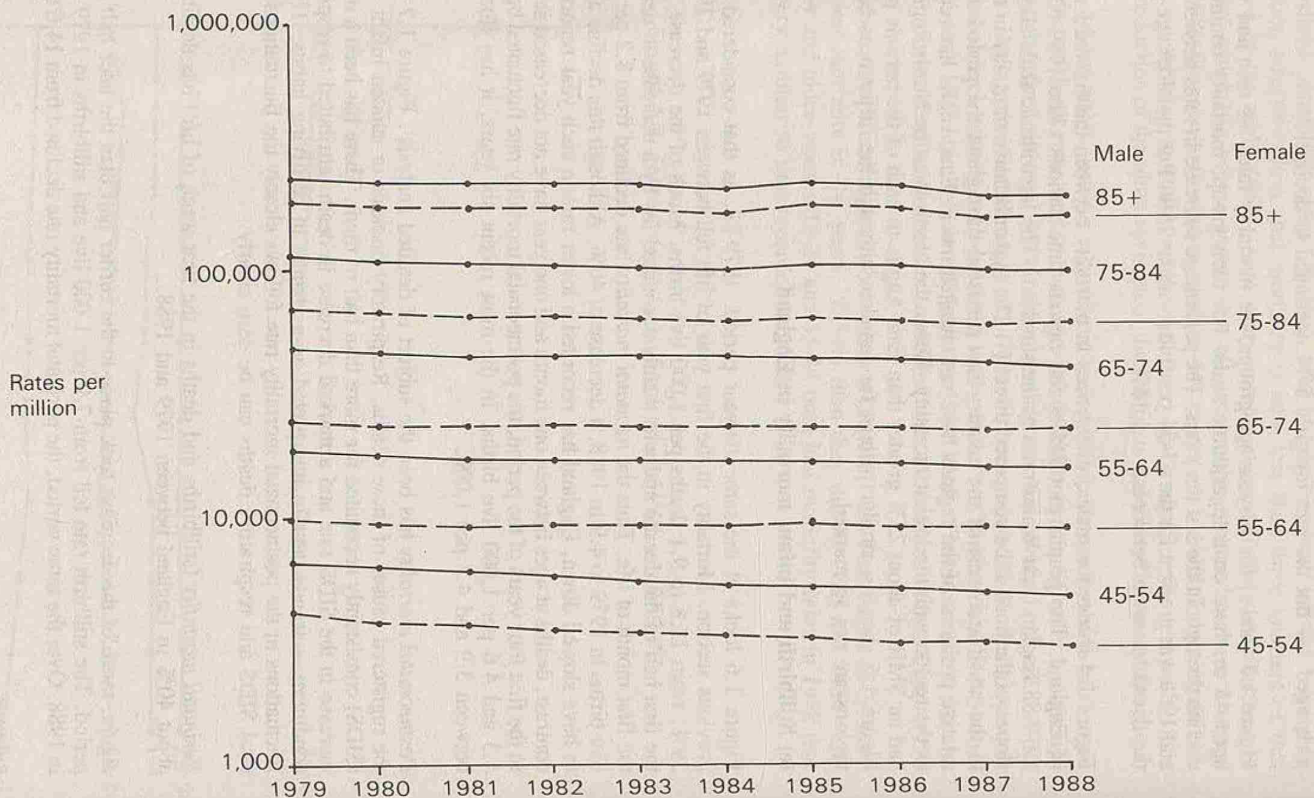
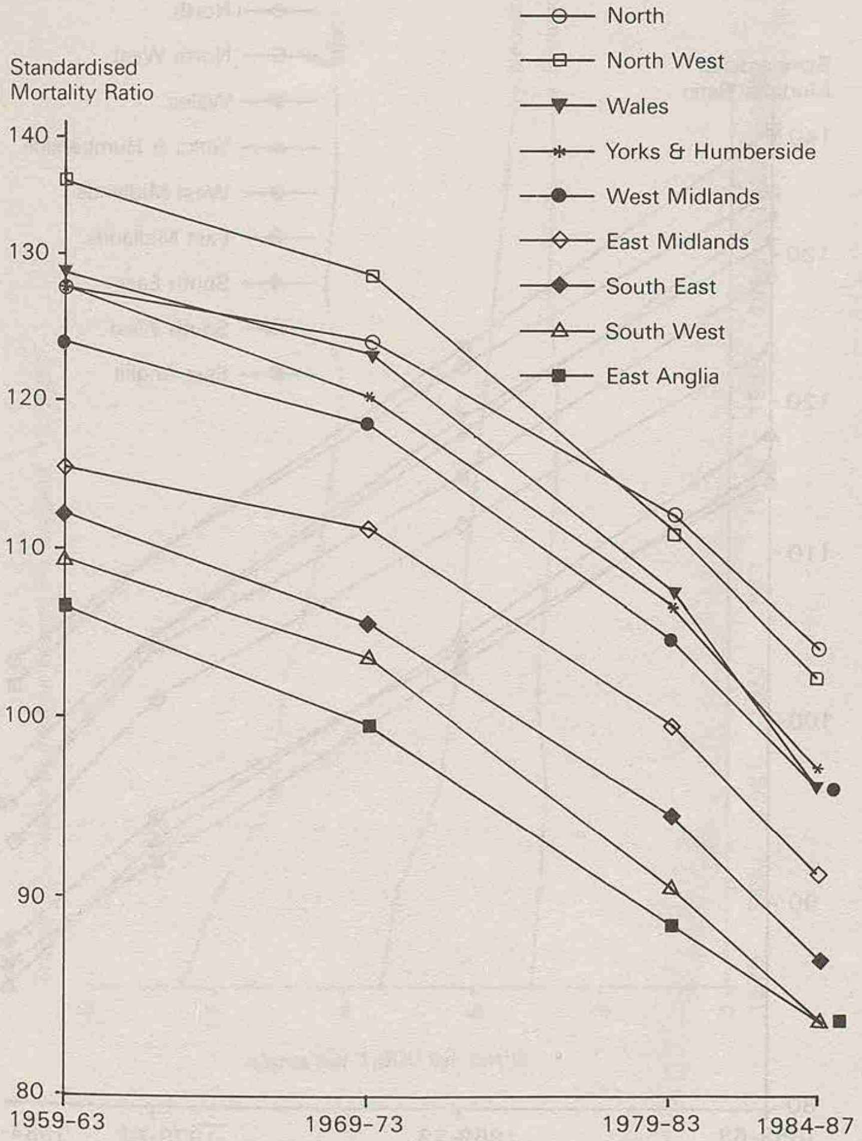
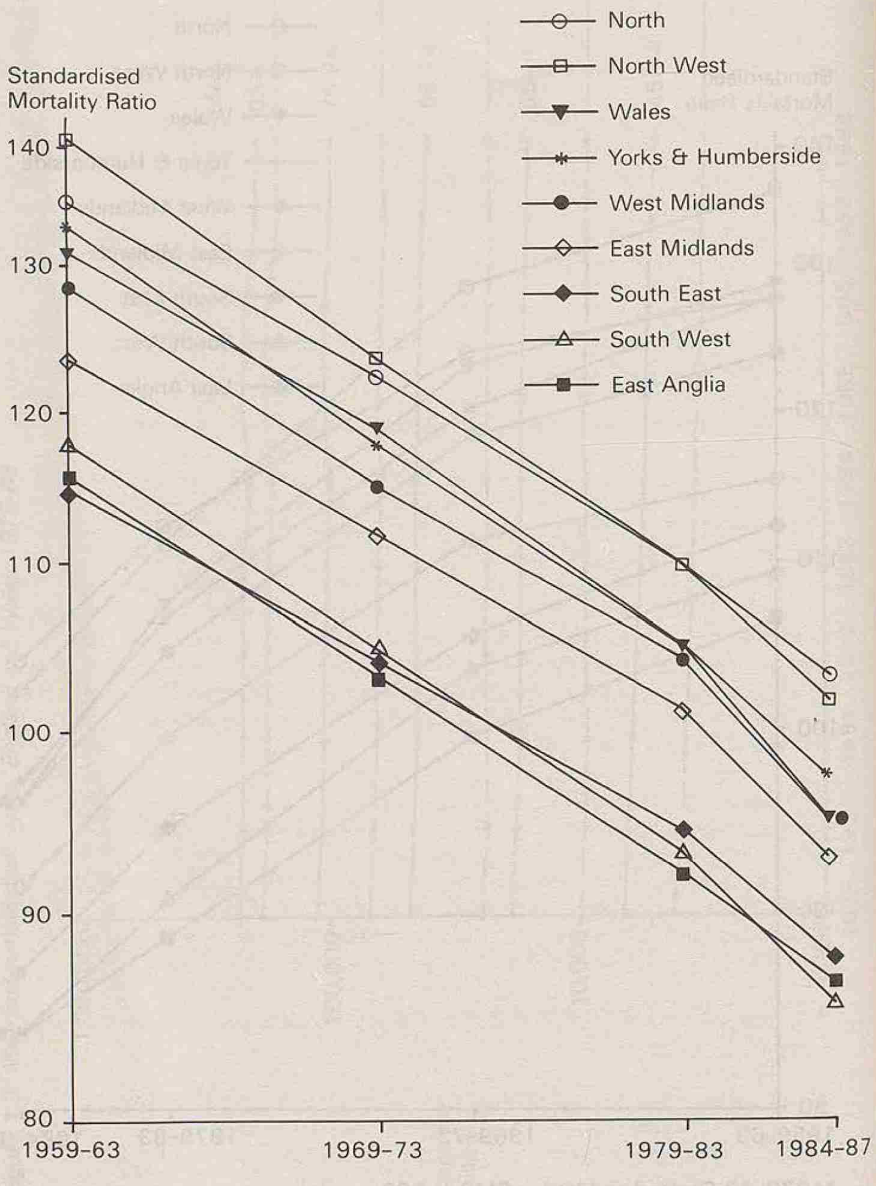


Figure 1.4: *Standardised mortality ratios of males by standard region 1959-63, 69-73, 79-83 and 84-87**



*1979-83 England and Wales SMR = 100

Figure 1.5: *Standardised mortality ratios of females by standard region 1959-63, 69-73, 79-83* and 84-87*



*1979-83 England and Wales SMR = 100

Figure 1.6: *Deaths in the first year of life, England, 1979-88*

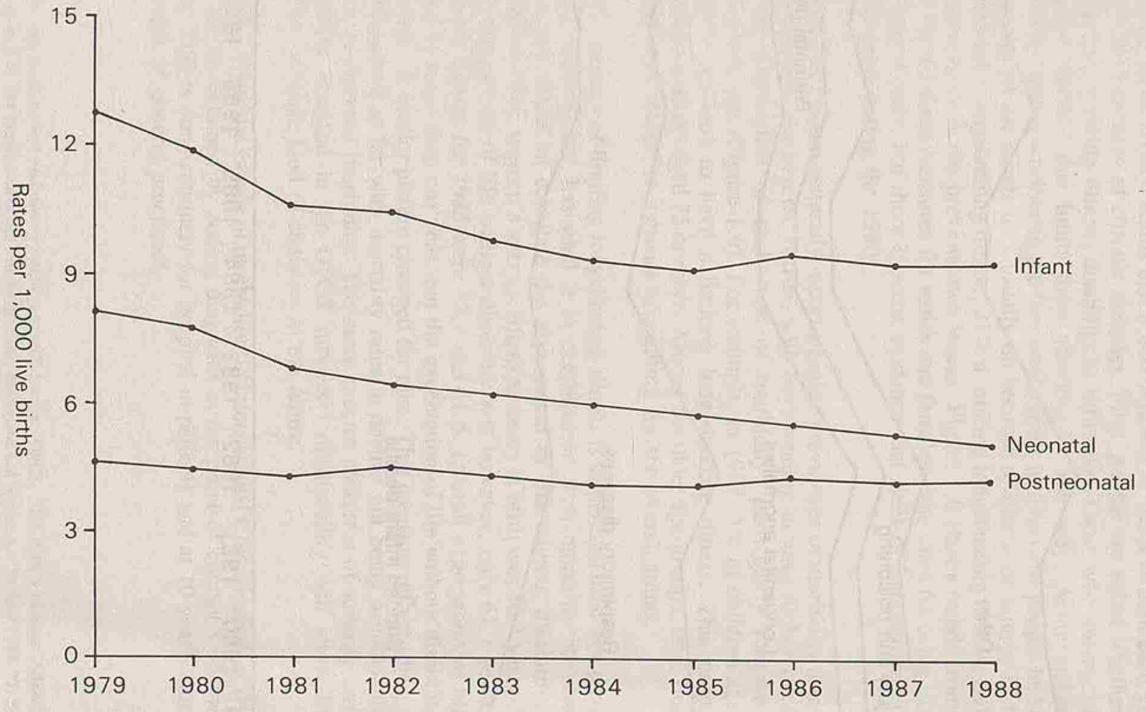
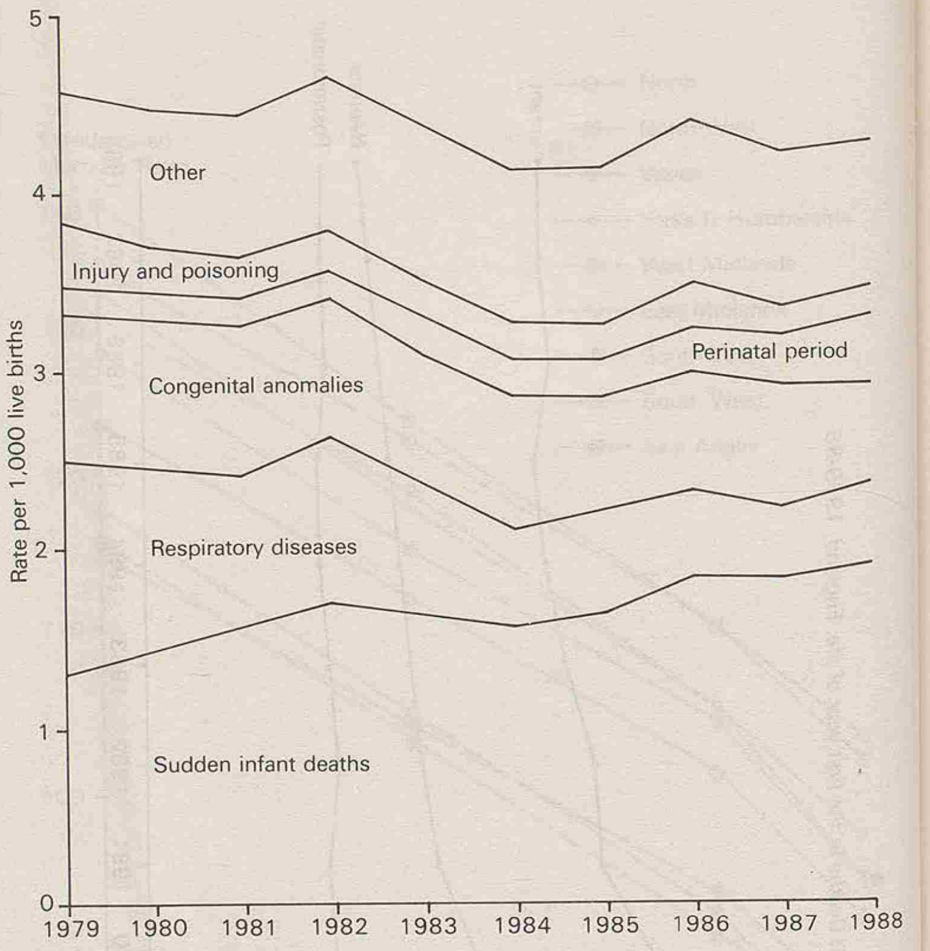


Figure 1.7: *Cumulative postneonatal deaths by selected causes, England, 1979-88*



(f) Morbidity

The General Household Survey (GHS) is a continuous survey collecting information about 20,000 adults and 5,000 children in Great Britain each year. It provides two measures of chronic sickness. First, people are asked whether they have any long-standing illness, disability or infirmity. Those who answer yes are then asked whether this limits their activities in any way. Acute sickness is measured by asking whether in the two weeks prior to interview people had to cut down on any of the things they usually do because of illness or injury. In 1987[1], 33% reported a longstanding illness; 21% a limiting longstanding illness; and 14% restricted activity in the previous two weeks. Figure 1.8 shows trends from 1979 to 1987 for the three measures for males and females. The rates for acute sickness have changed little, but there is some evidence that rates of longstanding illness have increased during the 1980s.

Among adults, women generally report a higher prevalence of morbidity than men. Among children, the reverse is true, with boys tending to have higher rates than girls. The prevalence of each type of morbidity, particularly longstanding, increased with age (Figure 1.9). For example, in 1987, 3% of children aged 0-4 years were reported to have a limiting long-standing illness. This proportion rose to 58% of adults aged 75 or more. Among the older age-groups, rates fluctuate more and have tended to increase accounting for the overall trend.

The GHS measure of limiting longstanding illness is sometimes used as a proxy for disability. Bebbington[2] has used it in combination with mortality statistics for England and Wales to calculate the expectation of life without disability. This shows that in 1976, women's average life expectancy at birth was 76.1 years. Their average expectation of life without disability was however, only 61.7 years. The comparable figures for 1985 were 77.7 and 61.5. Overall expectation of life had increased by more than one year, but the expectation of life without disability had not changed. A similar picture emerged for men. This measure reflects the general trends discussed so far with mortality rates in decline not being accompanied by a decline in reported morbidity. The more precise measures of severity and type of disability obtained in the OPCS surveys[3,4] of disability will allow further refinement of these kind of statistics in the future.

More detail about the causes of morbidity (in International Classification of Disease terms) can be obtained by coding diagnosis at the point of contact with medical services. This is done routinely for hospital in-patients and at 10-yearly intervals in a sample of general practices[5].

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Figure 1.8: *Three measures of morbidity from the General Household Survey, males and females: Great Britain, 1979-87*

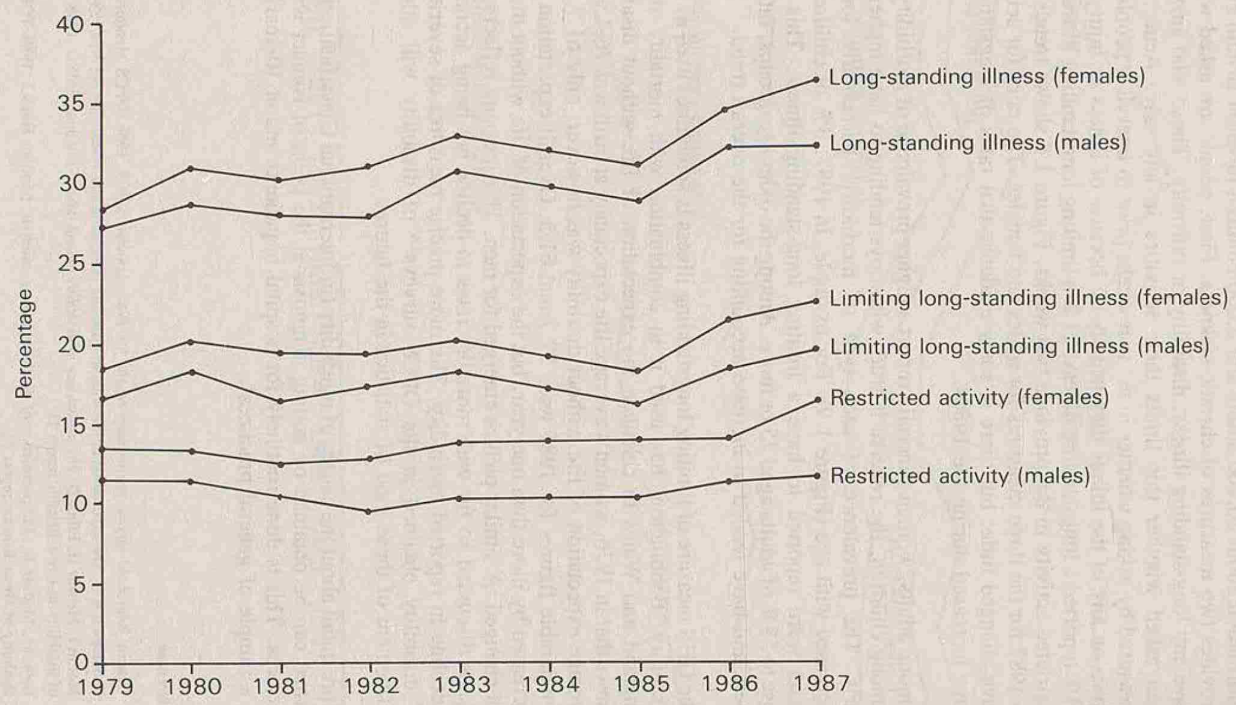


Figure 1.9: *Reports of long-standing illness by age: Great Britain, 1979-87*

(g) Termination of pregnancy

More than 90% of abortions carried out in England and Wales during 1988 were for resident women. They had a total of 168,298 terminations under the 1967 Abortion Act, an increase of 8% when compared with 1987. One quarter of abortions in 1988 were carried out for women aged under 20-years. The number of these increased by 8% from 1987. 3,568 resident women aged under 16 had abortions. Although this is a decrease of 5% compared with 1987, the 1988 figure is the highest abortion *rate* recorded in this age-group since implementation of the Abortion Act. The rates of abortion for women aged 15-44, resident in England and Wales from 1968-1988 are shown in Figure 1.10.

(h) Appendix tables and their content (Chapter 8)

Appendix Table 1: Population age and sex structure, 1988 and changes by age, England, 1981-88.

This table is described on the first page of this chapter.

Appendix Table 2: Five main causes of death for males and females at different ages, England 1988.

This table contrasts the major causes of mortality in different age-groups. It should be noted that the rankings are dependent on the particular groupings of disease chosen. Above age 35 years the major burden of mortality derives from circulatory disease and malignant neoplasms. At ages 15-34, road vehicle accidents, other causes of injury, and poisoning and suicide are major contributors to death, particularly in males. These causes of death – other than suicide – are also important in childhood, although congenital anomalies also rank highly.

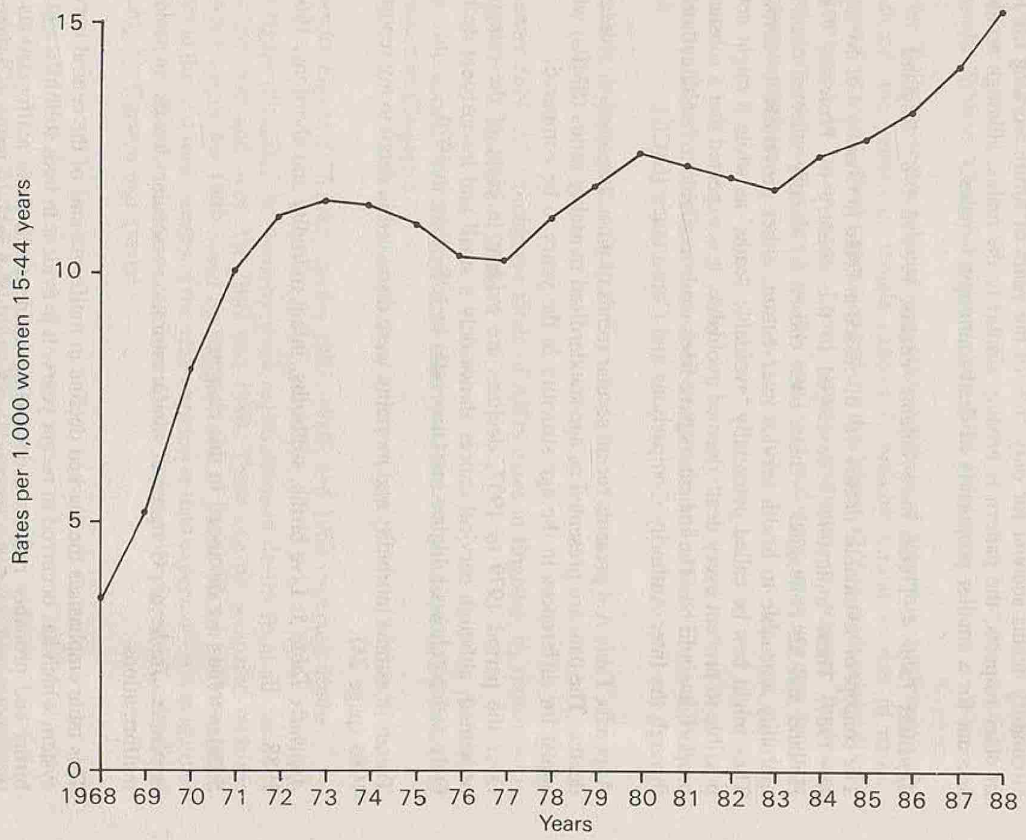
Appendix Table 3: Relative mortality from various conditions when ranked by numbers of deaths and future years of 'working life' lost.

Data presented include the total number of deaths at all ages attributed to selected causes. The percentage distribution of numbers of deaths demonstrates the major impact of circulatory disease and cancer in both sexes. About three-quarters of deaths occur over the age of 65 years.

Data are also presented for years of 'working life' lost between 15 and 64 years in order to indicate the impact of the various causes of death occurring at younger ages. For this tabulation, a death occurring under the age of 15 years accounts for the loss of the full 50-year period between 15 and 64 years, whereas death at age 60 years contributes a loss of only five years of 'working life'. Thus weight is given to the age at death as well as the number of deaths, and emphasis is given to the burden of deaths occurring at younger ages.

In males, although circulatory disease and cancer still contribute substantially to loss of working life, other causes become more prominent. These include accidents – mainly motor vehicle – and suicide, and also those deaths occurring early in life – perinatal and infant deaths – although because of recent changes in registration procedure these are not included in the table.

Figure 1.10 *Rate of abortions, women aged 15-44 years, resident in England and Wales, 1968-88*



In females, the total years of future working life lost from all causes combined is much less than in males, reflecting the considerably lower death rates in females. Cancer – particularly of breast, cervix, uterus and ovary – is a major contributor to loss of life in females under 65 years-of-age. In 1986, cancer accounted for 23% of all female deaths, but accounted for 38% of working years of life lost. By contrast, although accounting for almost 50% of the total number of deaths, circulatory deaths account for only 16% of the years of future working life lost. In other respects, the pattern is broadly similar to the males, although accidents account for a smaller proportion of deaths amongst females.

Appendix Table 4: Trends in 'avoidable' deaths, 1979 to 1987, England.

The concept of 'avoidable' deaths was discussed in detail in Chapter 4 of my report for 1987. These indicators – developed in this country by Professor Walter Holland and his colleagues[1] – have been chosen to identify selected causes of mortality amenable to health service intervention, either preventive or curative. They might best be called potentially 'avoidable deaths' as while it might not be possible to prevent every death deemed avoidable, it is expected that a substantial proportion could be. The indicators have been made available to health authorities through the Inter-Authority Comparisons and Consultancy (IACC).

Appendix Table A.4 presents recent secular trends of nine categories of 'avoidable' deaths. The data are presented as age-standardised mortality ratios (SMRs) which adjust for differences in the age structure in the years to be compared.

Over the period 1979 to 1987, declines are evident in eight of the categories presented, although cervical cancer shows only a small and inconsistent decline. Only asthma shows a higher mortality ratio in 1987 than in 1979.

Trends in asthma morbidity and mortality were discussed in detail in my report for 1986 (page 24).

Appendix Table 5: Live births, stillbirths, infant mortality and abortions, 1960 to 1988.

Secular trends are discussed in this chapter.

Appendix Table 6: Congenital malformations – secular trends in selected malformations.

This table emphasises the marked decline in malformations of the central nervous system which has occurred in recent years. It is evident in both stillbirths and live births and probably reflects a decreasing incidence in these malformations. As discussed in my report for 1985 (page 22) elective abortion following screening is not the major explanation for the decline. Progress in the detection and management of genetic disorders are discussed in Chapter 3.

Appendix Table 7: Cancer registrations in 1984 (males).

This table remains unchanged as figures for 1985 were not available at the time of going to press. The table indicates the distribution of cancer registrations in men at different ages. At all ages combined, cancers of the lung, large intestine (including rectum) and skin account for about half of the registrations. In childhood, a high proportion of cancers are attributable to leukaemias, lymphomas, tumours of the central nervous system and embryonic tumours such as neuroblastomas and retinoblastomas. At older ages, cancer of the lung is the major cause registered. In the oldest age-group presented (85 years and over), prostate cancer accounts for almost as many registrations as lung cancer.

Appendix Table 8: Cancer registrations in 1984 (females).

As for Table A.7, this table also remains unchanged from my 1987 report. In childhood, the pattern of female cancers is broadly similar to that in males. However, at ages 25-44 years cancers of the breast (34%), and cervix (19%) predominate. At older ages, breast cancer continues to account for many registrations, although cancers of the lung, skin and large intestine also occur in substantial numbers.

Appendix Table 9: Vaccination in children aged 16 and under, England 1976 to 1988.

This table is discussed in Chapter 5.

Appendix Table 10: Cumulative totals of AIDS cases in England, by transmission category to 31 December 1988.

This table appears for the first time this year. Recent trends in AIDS cases are discussed in Chapter 5.

Appendix Figure 1: Weekly deaths 1987, 1988, and 1988 expected deaths.

This figure illustrates the week-by-week registrations of deaths from all causes at ages one year and over, for 1987 and 1988. These can be compared with the expected values for 1988 based on the previous 10 years. As in 1987, in 1988, deaths in the first four months of the year were lower than expected – it was another mild winter. The issue of excess winter deaths has been explored in more detail recently by Curwen and Devis[2].

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2. PREVENTION AND HEALTH PROMOTION

(a) Public health in England

Implementation and implications of the Acheson Report

The approach to public health adopted by the committee of inquiry[1], reflected in the WHO definition ''the science and art of preventing disease, prolonging life and promoting health through organised efforts of society'', incorporated three notable features. Firstly, by including within its scope the provision of medical services it emphasised that no conflict exists between preventive and curative medicine. Secondly, it gave as much weight, in the promotion of health, to lifestyle issues as to environmental hygiene. Thirdly it emphasised the need for collective – so called 'intersectoral' – action as well as personal initiative.

In this country, nothing has done more to foster interest in the concept of the new public health than the developing awareness of striking differences in health experience which depend not only upon the availability of safe water, clean air and good housing, but also upon personal behaviour and the social environment. As is well-known, lung cancer is almost exclusively a disease of cigarette smokers: it is very rare indeed amongst those not exposed to tobacco smoke. The British Regional Heart Study has estimated the prevalence of ischaemic heart disease among middle-aged men in 24 towns in Great Britain (not a random selection) and found wide geographical divergencies, the prevalence in Lowerstoft for example, being only 57% of that in Newcastle-under-Lyme, although reasons for these differences are still uncertain. Fatal childhood accidents are consistently around 2½ times commoner in children of social classes IV and V than in those of classes of I and II. International differences too have attracted attention. Deaths from ischaemic heart disease (and other causes) in the UK in 1985 are compared with figures compiled by the WHO Regional Office for Europe in Chapter 7 of this report.

Data of this kind have served to stimulate much epidemiological research in order to identify causative factors and the findings which are steadily emerging suggest very strongly that the health of the population can be improved by intelligently directed action of many diverse kinds – personal, environmental, social and medical. Growing appreciation of this fact was among the factors leading to the setting up in 1986 of the Public Health Inquiry, the findings and recommendations of which were reported in full in my report for 1987[2] (see pages 26-28). In July 1988, in a written Parliamentary Answer, the then Secretary of State accepted the main principles underlying the recommendations and work began on a programme of implementation which extended into 1989 and still continues.

Development of the public health role of the health authorities

December 1988 saw the issue of Health Circular HC(88)64, *Health of the Population: Responsibilities of Health Authorities*[3]. The title itself is worth noting, since few of the guidance documents issued to the NHS make specific reference to the health of the population and its improvement, although this is of course, the fundamental objective of the NHS.

The circular called upon health authorities to appoint a Director of Public Health

(DPH) to advise them on the discharge of their responsibilities in this field. It is anticipated that the existing District Medical Officer will usually assume this role and at the time of writing, several health authorities has already taken this step.

A key feature of the circular is its requirement for health authorities to commission an annual report from their DPH. Several have already been published and it is apparent that many public health doctors welcome this apportunity to report on their local population and its health needs. Health authority members and local people are also finding them useful and informative. The idea of the *evaluation of care* as a contributory element in policy choices and decisions on investment priorities is central to the *new public health* and the need for a more objective approach to evaluation lies behind the proposal for annual health reports at the local level, just as it has inspired the establishment centrally of the Central Health Monitoring Unit.

Central Health Monitoring Unit

Following the recommendation in *Public Health in England*, the Secretary of State's July statement promised that a small multi-disciplinary unit would be set up within the Department of Health to monitor and analyse information about the health of the population and to improve the epidemiological input to policy. This unit, to be called '*The Central Health Monitoring Unit*' is now in being. Its terms of reference are:

to monitor trends relevant to the health of the population of England;

to analyse, interpret and report on such trends;

to make recommendations from time to time about the development of indicators of health, including indicators of outcome of health services and to monitor changes in them.

An expert steering committee, including some distinguished academic epidemiologists, as well as the Director of the Communicable Disease Surveillance Centre (CDSC) and the Chief Medical Statistician of the Offices of Population Censuses and Surveys (OPCS), has been set up to guide its work. The new unit, under its Director, Dr Hugh Markowe, will develop its work programmme during the course of the year.

The medical role in the new public health

The new public health with its wider perspective on the determinants of the health of the population, calls more than ever for multi-disciplinary collaboration. Public health doctors however, have a vital part to play exercising leadership at many levels and contributing their special epidemiological and other skills at many points.

Following the suggestion in *Public Health in England* that the term 'community medicine' was a source of much confusion and misunderstanding, the Board of the Faculty has agreed that its name should be changed to the *Faculty of Public Health Medicine*. Agreement of the three parent Royal Colleges is being sought, and it is hoped to formalise the change of title in the autumn of 1989. At the same time, the Faculty has reviewed the syllabus and regulations for the examinations leading to admissions to membership.

Public Health in England drew attention to the shortfall in the number of public health doctors and made recommendations aimed at correcting the situation. Following its publication, the issue of Circular HC(88)64 called upon RHAs to review their manpower and training needs in this field. The outcome of those reviews will become known towards the end of 1989. In the meantime, and in the context of the work required to implement the White Paper *Working for Patients*[4], the Department was able, in June 1989, to provide funding for an additional 40 training posts in public health medicine[5]. The Faculty reports no shortage of good quality candidates for training posts and this, coupled with an expansion in training opportunities, holds promise of restoring the strength of the specialty and enabling it to play its full part in the development of public health in the coming decade.

Surveillance, prevention and control of communicable disease

Public Health in England considered the problems presented by infection and communicable disease, not just as one item in the public health function which had been specifically identified in the committee's terms of reference, but against a long background of recurrent difficulties. Newly recognised infectious diseases, such as AIDS and Legionnaires disease, are a serious cause for concern. The upward curve of salmonellosis and other microbial food poisoning (see Chapter 5) seems increasingly difficult to reverse. Superimposed on these problems is the fact that several decades of use of antibiotics has led to the emergence of resistant organisms. Furthermore, advances in treatment and the ageing of the population have led to a substantial increase in the number of people whose resistance to infection is compromised.

Public concern was aroused by the finding that, in some instances, the procedures for dealing with outbreaks – thought by many to have become entirely routine – appeared, when put to the test, to be ineffective. For this reason, formal public inquiries were set up by the Government, first into the 1984 food poisoning outbreak at Stanley Royd Hospital[6] , and next into the Legionnaires disease outbreak in Stafford in 1985[7]. Their findings led to a widespread recognition of the need for change.

The Stanley Royd Inquiry[6] declared (paragraph 115): "A number of witnesses who appeared before us expressed concern, which we regard as well founded and which we share, that, as the more senior former medical officers of health retire from public services, expertise in environmental health and in the investigation and control of communicable disease will be lost and will not necessarily be replaced by community physicians or experts in the more diverse field of community medicine". Their recommendation number 16 stated that: "proper officers should have received training and be experienced in the control of communicable diseases and in epidemiological investigations . . . proper officers should not see their role as simply that of returning officers, but should accept responsibility for seeing that proper epidemiological investigations are conducted".

The Stafford Inquiry also commented on the same theme. Its report stated at paragraph 139: "evidence we heard and submissions made to us led us to believe that the responsibilities and authority of the MOEH need to be reviewed. We also believe that there is legitimate concern that the present training and experience given MOsEH is less effective than that formerly provided to fit them to undertake reponsibilities for the inquiries referred with approval to the specialised support which had been provided by Public Health Laboratory Services (PHLS) and through CDSC, and commented that they would have taken an even more serious view of the situation had it not been for the availability of these national centres.

Circular HC(88)64[3] began the process of clarifying and tightening up the management arrangements for communicable disease control. Regions were asked to review their exisiting provisions and to put forward proposals for further development with a view to bringing about improved effectiveness. *Notes for Guidance,* to assist in the conduct of these reviews, were issued in February 1989 in the form of an Executive Letter[8].

To help health authorities improve their performance in this field, they are being invited to establish a new post of consultant with special responsibility for communicable disease control (CCDC). This consultant may be drawn from a background in community medicine, medical microbiology or clinical infectious diseases and will be accountable to the health authority for the establishment of effective and workable arrangements for the surveillance, prevention, treatment and control of communicable diseases. A model job description for the post has been agreed between the Faculty of Community Medicine and the Royal College of Pathologists. The Department of Health has appointed a consultant to advise on the training requirements for the post and how they might be best met. It is anticipated that 1989 will see substantial progress towards putting the new arrangements in place.

Review of legislation

Recommendation 29 of *Public Health in England* recommended that the Public Health (Control of Disease) Act 1984 should be revised ''with a view to producing a more up to date and relevant legislative backing to control of communicable disease and infection''. This review is now underway. As a first step, a consultation paper is being prepared which, it is hoped, will be issued shortly to a wide range of interested organisations, seeking views on options and recommendations for change.

Co-ordination of policy to serve the health of the population

Co-ordination of health care at the level of service delivery was a basic aim of the process of NHS reorganisation which took place in 1974. The hopes entertained at that time are far from having been realised, but the aim of co-ordination remains entirely valid and more than ever necessary in the interests of patients. Now, a decade and a half later, there is some evidence of a coming together of health authorities and FPCs in their efforts to provide integrated primary health care.

Last year's report referred at page 90 to the enhanced management role of FPCs following the White Paper on Primary Care, *Promoting Better Health*[9], and FPCs and DHAs are now collaborating more closely in the planning of services (see Chapter 6). An essential underpinning to collaboration of this kind is a common appreciation of health needs based on an epidemiological appraisal of population health status. The major means for achieving this common understanding will be the production and widespread dissemination of the annual report of the DPH.

Similar considerations will apply as implications of the the NHS White Paper, *Working for Patients* begin to be worked out and as health authorities move away from their present role as direct providers of services, towards contractual agreements with hospitals and units to provide those specified services for which a need exists. There is therefore an urgent and growing requirement for DHA members and general managers to ensure that, by adequate staffing and resourcing of their departments of public health medicine, and by commissioning regular reports from their DsPH, they are able to discharge their wider responsibilities for the health of the populations they serve.

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(b) Smoking and health

Introduction

Smoking remains the largest preventable cause of disease and premature death in the United Kingdom. For the third of the adult population who are cigarette smokers, giving up is the single most important step they could take to improve their health.

In their 1971 report[1], the Royal College of Physicians (RCP) provided estimates of the degree in which certain diseases could be related to smoking, and went on to consider the relationship between those diseases and premature deaths. The estimates were refined in the follow up reports in 1977[2] and 1983[3]. The figures in this report have been calculated by reference to the RCP estimates and by applying the latest available mortality statistics[4]. They show that smoking leads to the deaths of over 100,000 people every year and is responsible for one third of deaths in middle age. Annual costs to the NHS exceed £500 million, and absences from work as a result of smoking-related illnesses exceed 30 million days each year.

Prevalence

Cigarette smoking fell steadily in England and Wales during 1970 and the early 1980s, but in recent years, the rate of decline has decreased, and in younger adults is now barely perceptible.

Table 2.1: *Prevalence of Smoking in adults (aged 16 years and over) for England and Wales, 1974-86*

	Men	Women	Total
	%	%	%
1974	51	41	45
1978	45	37	40
1984	36	32	34
1986	35	31	33

Source: OPCS

A clear relationship exists between price and consumption and, a further reason probably lies in the reduced financial deterrent presented by the slowing in 'real' price increases.

Table 2.2 shows the percentage of children admitting to smoking regularly (at least one cigarette a week). A further 5% of both sexes admits to occasional smoking, and prevalence increases rapidly with children's age. In 1988, 17% of 15-and 16-year-old, fifth-year school boys, and 22% of the girls smoked regularly.

Table 2.2: *Children aged 11-15 years (in England and Wales) who smoked at least one cigarette a week, 1982-88*

	Boys	Girls	Total
	%	%	%
1982	11	11	11
1984	13	13	13
1986	7	12	10
1988	7	9	8

Source: OPCS

These figures, although they suggest some improvement, are still highly unsatisfactory. A comprehensive review of recent research into teenage smoking habits, particularly among girls, has been carried out and will form the basis of a five-year national programme (campaign) designed to further reduce the prevalence of smoking in this important group (see below).

Deaths

As previously stated, the Royal College of Physicians (RCP) has estimated that at least 100,000 deaths per year in the United Kingdom are attributable to smoking. In the College's view, smoking can also be held responsible for 90% of the 41,000 lung cancer deaths each year; 20% of the 187,000 heart disease deaths; and 90% of the 31,000 deaths from bronchitis, chronic obstructive airways disease and related illness.

Pregnancy

In my report for 1987 (see pages 34-35), I outlined the main findings reported in March 1988 by the Independent Scientific Committee on Smoking and Health (ISCSH)[5] in relation to the effects of smoking in pregnancy. These – a mean reduction in birthweight of between 150g and 250g; an increase in perinatal mortality of about 28%; and a relationship between passive smoking and a reduction in birthweight – all emphasise the need to ensure that women of childbearing age are made aware of the dangers of smoking themselves, or of being regularly exposed to exhaled tobacco smoke during pregnancy. Such advice and relevant support (eg in attempts to stop smoking) should be an integral part of preparation-for-parenthood courses and early prenatal care.

Passive smoking

The ISCSH report highlighted the dangers of inhaling tobacco smoke exhaled by other people (passive smoking). The Committee drew attention to studies of the role of environmental tobacco smoke (ETS) in respiratory illnesses in children, and they concluded that ETS increases the frequency and/or severity of childhood respiratory illnesses, and could contribute to respiratory disease in adult life among non-smokers. Its conclusion that adult non-smokers exposed to passive smoking have a 10-30% increased risk of lung cancer – which could account for several hundred deaths from lung cancer each year, – has provided a powerful stimulus for health in the workplace initiatives (see below).

Smoking policies restricting smoking in public places, including offices and shops, are being introduced as a result of pressure from customers and the workers themselves. Large organisations such as Volvo and the British Broadcasting Corporation are leading the way, and addressing problems of passive smoking, ensuring improvements in the health and comfort of many thousands of employees. The *Health in the Workplace* segment of Look after your Heart! (LAYH) is providing further impetus for introducing smoking policies (see below).

National Health Service

Within the NHS, a recent study revealed wide variation in the provision of smoking restrictions[6,7]. While the agreed aim is to provide a smoke-free environment for those patients and staff who do not smoke, it is clear that not all health authorities have yet achieved this important target.

Campaigns

(i) *Teenage smoking*

Most smokers take up regular smoking before the age of 18. To reduce the smoking prevalence overall, it is essential to help children and young people resist the social pressure from peers and other sources, including advertisements, which lead to smoking. A five-year national '*Teenage Smoking Campaign*' to be launched late in 1989, is planned to tackle this problem. The Departments of Health, and Education and Science, and the Health Education Authority (HEA) will collaborate with education, health and statutory authorities, the school medical service, Action on Smoking and Health (ASH), The Advisory Council on Alcohol and Drugs Education (TACADE), major health charities and other voluntary bodies. The HEA will have a co-ordinating role.

The programme will first concentrate on children in the 11-13-year age-group, but ages 9-10 years and 14-19 years will be included at a later stage. Reseach designed to assist the planning and monitoring of progress will be undertaken.

(ii) *Lifestyle programmes*

The HEA continues to produce and distribute anti-smoking material, often as an integral part of lifestyle programmes such as LAYH. In this way, the general population is constantly reminded of the dangers for the smoker, and for people in his or her immediate environment, of taking up or continuing the habit.

Legislation

A large proportion of the cigarettes smoked by children are bought openly in shops, and consideration is being given to ways of improving the effectiveness of the Protection of Children (Tobacco) Act, 1986. Under this Act, the supply of any tobacco product to a child under 16 is illegal.

Because of continuing concern about the extent of illegal sales, questions were included in the 1988 survey of schoolchildren's smoking habits[8].

The results showed that, on the whole, the pupils interviewed were successful in buying cigarettes. Only 27% of those who tried had been refused during the previous year. Shopkeepers were more likely to refuse younger pupils, – about two-fifths of 11-to 12-year-olds who tried to buy cigarettes were refused, but only about a fifth of 15-year-olds (Table 2.3).

Table 2.3: *Cigarette purchase in the last year, by age, in England, 1986 and 1988.*

		11 years	12 years	13 years	14 years	15 years	Total
Tried to buy cigarettes	1986	16	15	21	30	45	27
	1988	10	13	21	31	46	26
Was refused at least once: as % of those who tried to buy them	1986	41	47	39	30	22	31
	1988	(47)	38	34	29	19	27
as % of all pupils	1986	7	7	8	9	10	8
	1988	5	5	7	9	9	7
Bases							
Those who tried to buy cigarettes	1986	74	96	128	198	369	865
	1988	47	77	131	196	335	786
All pupils	1986	446	628	610	654	818	3,157
	1988	455	595	613	626	727	3,016

Source: OPCS, Smoking among secondary school children in England in 1988, HMSO 1989.

Alternative products

As smoking has become less common and less socially acceptable, alternative ways of delivering nicotine have been introduced to satisfy the need for the drug in smokers who have given up. Oral tobacco products, smokeless cigarettes and various lozenges and tablets are already available. Although none of these alternative nicotine delivery systems is likely to be as dangerous or as popular as cigarettes, none will be without health hazards or the risk of causing habituation to nicotine and tobacco smoking. The replacement of one dangerous habit with another is not a solution.

Snuff dipping

I am extremely concerned about the possible spread of the habit of 'snuff dipping'. This practice, in which a small quantity of tobacco, sometimes contained in a sachet, is held between the gum and the cheek, is causally associated with oral cancer[9-13]. Snuff dipping can also give rise to nicotine addiction and has become popular with young people in the USA and other countries including Sweden.

The Government has announced its intention to introduce Safety Regulations under the Consumer Protection Act 1987, which would ban products used for snuff dipping and has notified its proposals to the European Community (EC) and to the General Agreement on Tariff and Trade (GATT) Secretariat. The Government is awaiting the views of EC member states on its proposals before making a final decision on whether to proceed to a ban.

Conclusion

Smoking is a particularly noxious practice because it not only affects the user, but also puts at risk adults and children exposed to the exhaled smoke, and even unborn children. Its cost in human and economic terms is unacceptable.

Our best hope of progress against the damage smoking causes is, as with other forms of drug misuse and addiction, to stem the flow of new recruits – most of whom are under 18 years-of-age. The proposed Teenage Campaign highlights the need to target children and young people, and the many Government and other organisations involved in this project demonstrate the need for all sections of the community, official and 'voluntary', to take part. Children and adults must have easy access to information about smoking, and practical, non-judgemental support if trying to resist or give up the habit.

Non-smokers, long in the majority, and now increasingly aware of the adverse effects of passive smoking, are demanding greater consideration – especially in public situations and the workplace. Employers are responding to this pressure and the adoption of smoke-free areas in public transport, offices and restaurants for example, is encouraging. But there is no reason for complacency.

Accidents involving unexpected and avoidable loss of life arouse public sympathy, and concern that steps should be taken to prevent a recurrence. In the UK, smoking, with its death toll of 300 people a day, causes such a disaster every day.

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(c) Alcohol misuse

Indicators of alcohol-related harm

Provisional figures for 1988 estimate alcohol consumption at 9.2 litres of alcohol per head of the population aged 15 years and over. This figure continues the rising trend in alcohol consumption since 1982. Deaths from chronic liver disease and cirrhosis have been increasing steadily since 1965. Figure 2.1 shows how closely deaths from liver disease reflect *per capita* alcohol consumption over a period of years and how closely both of these indices reflect the price of alcohol in relation to personal disposable income.*

We still lack good indicators of the harm arising from the *acute* misuse of alcohol (intoxication). This is particularly relevant to the drinking habits of young people. Statistics, based on convictions for drink-driving offences or arrests for public drunkenness, are subject to severe distortion by changes in police practice. This important gap in our information presents a challenge to the newly appointed Directors of Public Health and others with an interest in the whole range of effects of alcohol on the health of the population. Clinicians and workers at local level are best placed to identify the particular pattern of alcohol-related harm most relevant to their community and to ensure that appropriate information is collected and monitored.

Ministerial Group on Alcohol Misuse

Since its establishment in 1987, the group has addressed a wide range of issues and taken a number of positive steps in some key areas. Among its main achievements have been strengthening the law on under-age drinking; improvements in the Codes of Practice governing the advertising of alcohol; tougher measures against drivers who drink; action to stimulate the wider adoption of alcohol policies in the workplace[1]; action to tackle public disorder; and the issue of central guidance to promote co-operation at local level on alcohol misuse[2]. An underlying principle of the group's activities is the concept that partnership between government, local agencies and industry is essential if progress is to be made towards a problem as complex as alcohol misuse. The group, which has a wide-ranging programme of activities for its second year, will review the services available for the treatment of problem drinkers and the training of professionals who work with them.

Survey of drinking in England and Wales 1987

The Office of Population Censuses and Surveys (OPCS) published a comprehensive survey of drinking habits in England and Wales[3] commissioned by the Home Office to serve as a benchmark of drinking habits before the recent changes in Liquor Licensing Laws. The findings naturally invite comparison with the results of the previous OPCS survey carried out in 1978. Compared to 1978, average *per capita* consumption of alcohol in 1987 was almost exactly the same, although it

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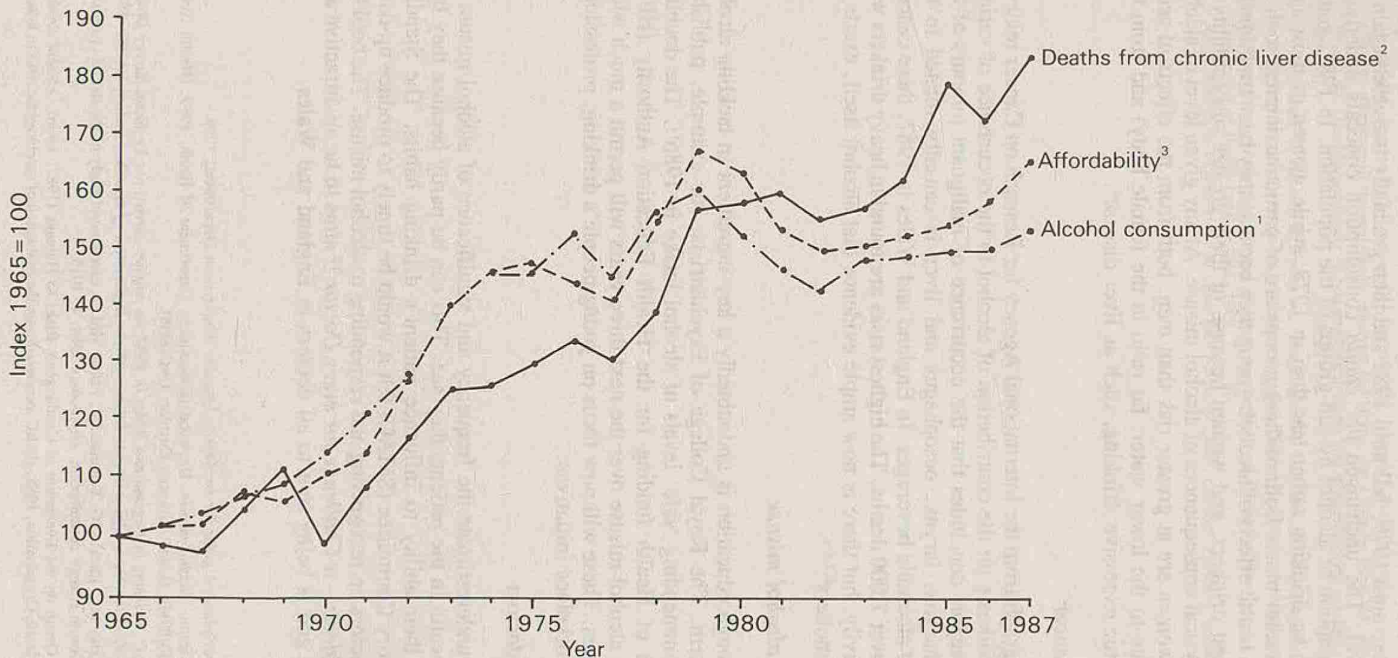
* For ease of comparison the price of alcohol is shown in Figure 2 as 'affordability' which is an index calculated as:

$$\text{Affordability} = \frac{\textit{personal disposable income}}{\text{price of alcohol}}$$

Figure 2.1: *Alcohol consumption, deaths and affordability, 1965-87*



a. New Revisions of the International Classification of Diseases were introduced in 1968 and 1979. As a result there appears to be a discontinuity between 1978 and 1979 in the statistics of deaths and discharges from non-psychiatric hospitals with a main diagnosis of ICD 571 and the statistics of death may also be affected.

b. Affordability = $\frac{\text{personal disposable income}}{\text{price of alcohol}}$

Sources: [1]Customs and Excise, [2]Office of Population, Censuses and Surveys, [3]*Economic Adviser's Office* should be noted that Customs and Excise figures show that, between those years, consumption rose until 1979, fell until 1982 and then gradually increased again to the present level. The unchanged *per capita* consumption conceals underlying trends in consumption of alcohol by sub-groups of the population. In 1987, young men seemed to be drinking rather less than in 1978, while women of most ages were drinking rather more. Both of these groups are of particular interest to those concerned with health effects of alcohol: young men because they have traditionally been the heaviest drinkers, and women because of their greater susceptibility to some of the physical consequences of alcohol misuse. At any given level of alcohol consumption, women are at greater risk than men, both from the effects of acute intoxication (due to the lower water: fat ratio in the female body) and from the effects of chronic excessive drinking, such as liver disease[4].

Alcohol and cancer

A recent monograph from the International Agency for Reseach on Cancer reviews critically the evidence on the contribution of alcohol to the occurrence of various cancers[5]. The report concludes that the occurrence of malignant tumours of the oral cavity, pharynx, larynx, oesophagus and liver is causally related to the consumption of alcoholic beverages. In England and Wales in 1987, these cancers accounted for over 7,000 deaths. The highest risks are found in heavy drinkers who also smoke heavily, but there is now ample evidence that alcohol itself, exerts an effect in non-smokers[6,7,8,9].

Prevention of alcohol misuse

Prevention through education is undoubtedly a key ingredient in tackling alcohol misuse long term. The Royal College of Psychiatrists, for example, published guidelines recommending 'safe' levels of alcohol intake in 1986[11]. The doubling of Department of Health funding for the Health Education Authority (HEA) programme on alcohol misuse over the next three years will permit a much wider range of activities. These will now focus on young people's drinking, professional training and workplace initiatives.

Guidance for doctors

Many doctors underestimate the frequency and significance of alcohol misuse as a cause of ill-health in the patients they see. This can be partly because they lack confidence in their ability to influence patient's drinking habits. The Standing Medical Advisory Committee (SMAC) felt it would be timely to produce up-dated advice to all doctors on recognising and responding to alcohol misuse. The booklet, '*Drinking Problems – a Challenge for every Doctor*'[10] aims to be an attractive and readable guide and is being sent to all doctors in England and Wales.

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(d) Nutrition

January 1988 saw the publication of *Present day practice in infant feeding: Third report*[1], the third in a series of scientific reviews by the Committee on Medical Aspects of Food Policy (COMA) Panel on Child Nutrition in which all aspects of infant feeding – from the neonatal period to the introduction of a mixed diet – were considered. At the same time, the Department of Health and the HEA collaborated in the publication of a booklet based on the report[2]. This was designed to highlight information of practical use to health care personnel advising parents on how to feed their babies.

The report of a national survey of infant feeding, done in 1985/86, was published in July 1988[3]. This dealt with all aspects of infant feeding to the age of nine months. It showed that the encouraging increase in breastfeeding rates between 1975 (24% at six weeks) and 1980 (42%) had not continued to 1985, when the figure was only 40% at six weeks. Since these data became known, the government has stimulated the establishment of a *National Breastfeeding Initiative* which seeks to draw together both volunteers and professionals working to encourage and support women who wish to breastfeed. An inaugural conference at the King's Fund Centre on 18 October commended the Initiative to health authorities[4].

The COMA Sub-committee on Nutritional Surveillance published its third report, covering the period 1981-1985 together with an Executive Summary[5]. This report drew attention to the relationship of social class to growth, detectable from the age of two years, and in particular, to detrimental effects of maternal smoking on the later growth of their children (see Chapter 3).

A steering group of this subcommittee jointly with the Ministry of Agriculture, Fisheries and Food (MAFF) is overseeing the analysis of the *Dietary and Nutritional Survey of British Adults* carried out by OPCS on behalf of the two Departments. It is expected to report to COMA on the survey during 1989.

Work on the major review of Recommended Daily Amounts of Food, Energy and Nutrients (RDA) has continued apace, as has the Panel on Dietary Sugars, and the Ongoing Review Group on Diet and Cardiovascular Disease. The *Panel on Novel Foods* was convened in April to consider nutritional implications of a new class of fat substitutes, sucrose polyesters. In addition, the Nutrition Unit of the Department of Health established a *joint forum* with MAFF to discuss and co-ordinate issues of mutual interest.

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(e) Look after your Heart!

Coronary heart disease (CHD) remains England and Wales' number one killer, accounting for some 143,000 deaths in 1988. Someone dies from a fatal heart attack every three to four minutes in the UK and, in addition, the lives of hundreds of thousands of people are affected, either through disabling symptoms of heart attack or angina to themselves, or through the loss of an immediate member of the family.

CHD mortality data

The UK has not yet achieved the considerable general decline in CHD which North America, Australia and some European countries have seen in recent years. However, the accompanying figures (Figures 2.2. and 2.3) do indicate that, since the mid-to-late 1970s, there has been a clear decline in mortality from CHD in both men and women in their 30's, 40's and 50's.

A different form of presentation of mortality data, in terms of year of birth rather than year of death[1], has indicated that men born around the mid-1920s have experienced peak coronary heart disease mortality at all ages so far attained (Figure 2.4)

The pattern in females differs from males (Figure 2.5), but at least at younger ages, indicates that the generation born around 1930 experienced a peak in mortality. Thus generations born after 1925 in men, and 1930 in women, have experienced lower levels of heart disease, although the exact reasons are not known.

Higher death rates from coronary heart disease are associated with manual and lower-paid social groups, and the national *Look after you Heart!* campaign[2] has targeted these groups which, traditionally, have been the least influenced by lifestyle messages.

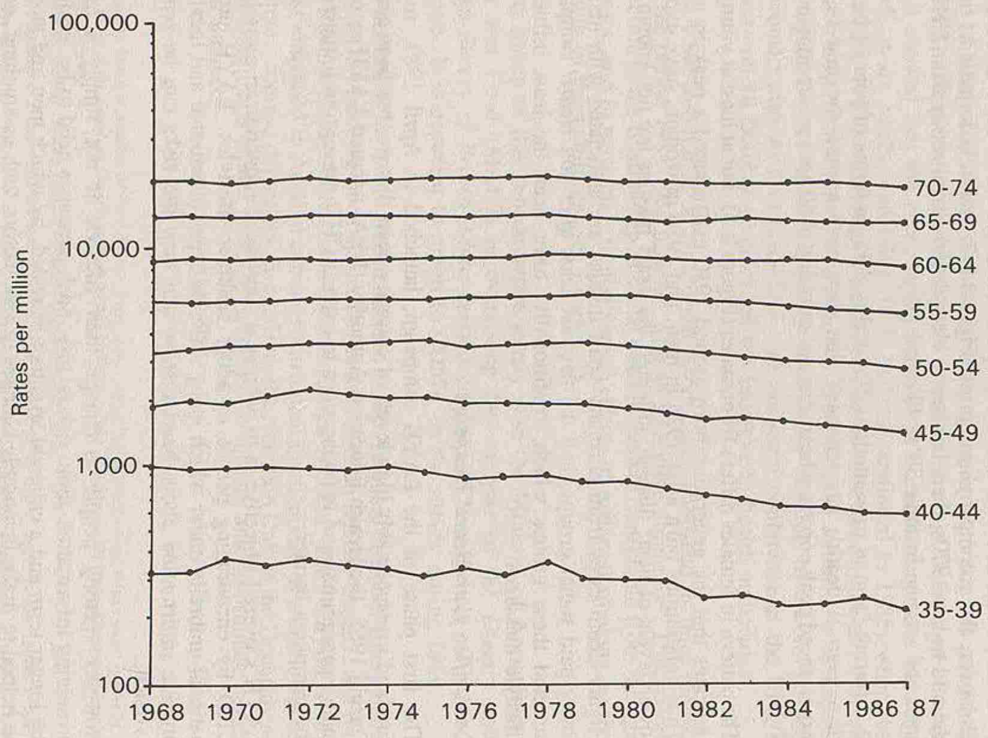
Look after your Heart! campaign

The first phase of the LAYH campaign, launched in April 1987, to combat England's unacceptably high levels of coronary heart disease, has been completed. During 1988, the Health Education Authority (HEA) adopted LAYH as one of its main programmes and is taking steps to expand CHD prevention initiatives under the campaign banner.

LAYH's overall objective is to achieve a substantial reduction in mortality from CHD by encouraging people to adopt healthier lifestyles. LAYH provides a national umbrella under which many different types of national and local activity provide information about heart disease and how the risks can be reduced or avoided.

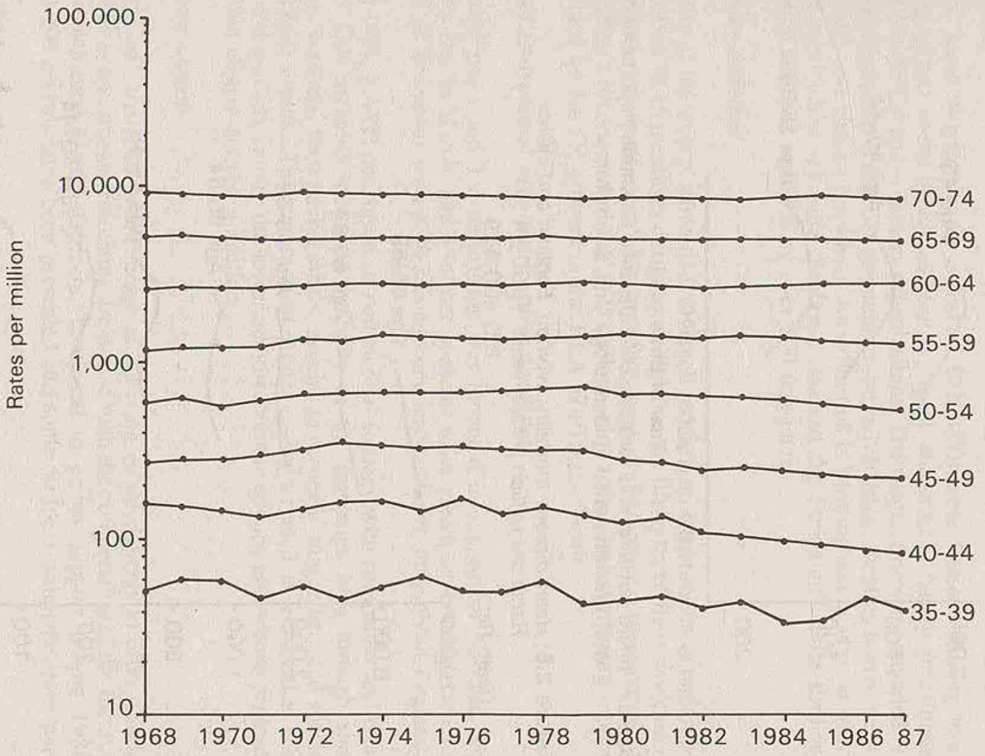
However, getting people to change their lifestyle is not simply a matter of presenting information about risk factors. Such messages need to be reinforced in the longer term and a coherent structure provided, by which men and women can be helped to make favourable changes to risk factors such as smoking, excessive fat intake and lack of exercise. Although, in the period immediately following its launch, LAYH was designed to raise public awareness of the main risk factors (particularly among the lower socio-economic groups), it was recognised that firm reinforcement was needed through initiatives involving local statutory bodies, the workplace (employers and employees) and voluntary groups.

Figure 2.2: *Mortality surveillance. Ischaemic heart disease in males, rates per million, England and Wales, 1968-87*



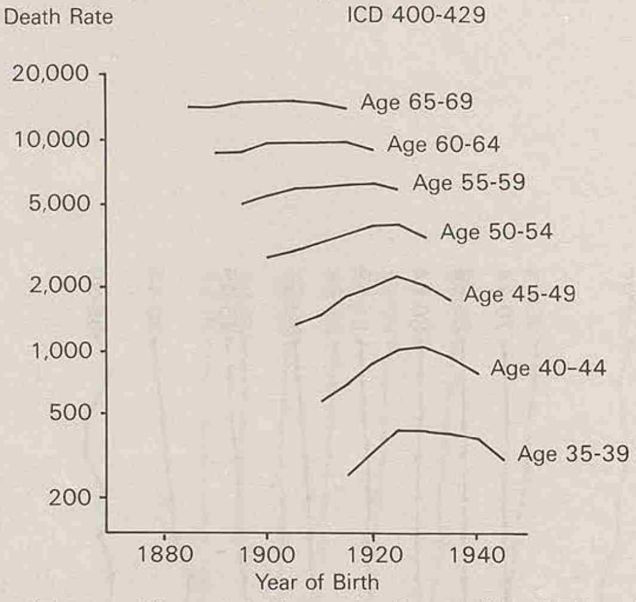
Source: OPCS

Figure 2.3: *Mortality surveillance. Ischaemic heart disease in females, rates per million, England and Wales, 1968-87*



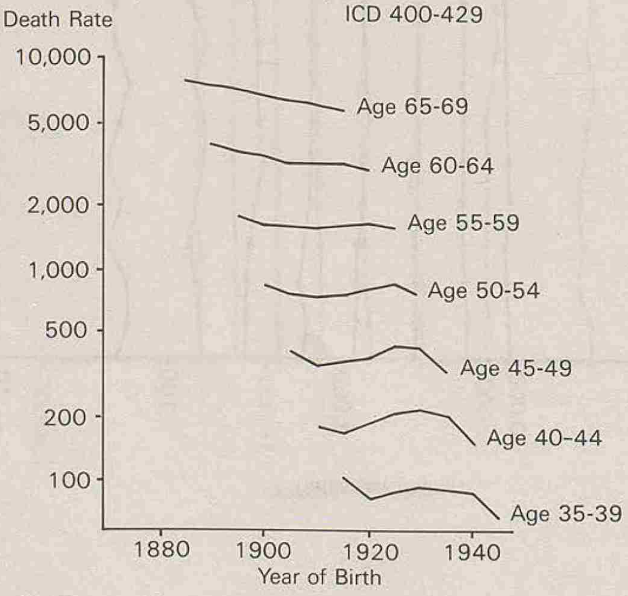
Source: OPCS

Figure 2.4: *Heart disease mortality, men, England and Wales*
Rates per million person-years, 1950-84



Source: Infant nutrition and cardiovascular disease: Scientific Report No. 8 1987
MRC Environmental Epidemiology Unit, Southampton

Figure 2.5: *Heart disease mortality, women, England and Wales*
Rates per million person-years, 1950-84



Source: Infant nutrition and cardiovascular disease: Scientific Report No. 8 1987
MRC Environmental Epidemiology Unit, Southampton

In 1988, the campaign developed on four main fronts:

development of community initiatives, involving health authorities, statutory local authorities and voluntary groups;

action through the workplace, supported by employers and trade unions;

national promotional activities to raise awareness;

the *Heartbeat Award* scheme for restaurants and other eating establishments.

Local projects

In 1988, some 94 projects (at a cost of £220,000) were funded. Among those receiving grants were health authorities, local authorities, family practitioner committees (FPCs) and voluntary organisations. The range of projects included fun runs, free newspapers, school competitions, bus advertising, 'healthy hearts' weeks and primary care check-up systems. An exhibition in Birmingham in May, at which over 70 local initiatives were displayed, marked the campaign's First Birthday celebration and was attended by over 200 delegates[3].

Workplace activities

Popularity of the workplace initiative, which requires an organisation to undertake at least three of 10 measures designed to improve the lifestyles of their workforce, has exceeded all expectations[4]. During 1988, some 217 employers were recruited, representing a total workforce of 2.25 million. Monitoring and continuing support is provided by LAYH officers in the HEA Workplace Team.

National promotional activities to raise awareness

Substantial press and TV advertising was mounted in support of National No-Smoking Day in March, and a further phase of mass media advertising started at the end of December with a 50-second commercial shown throughout England.

During 1988, LAYH developed its commercial strategy with companies and retail outlets. This included increased visibility of the campaign logo through shop displays, booklets, food packet labels, articles in company magazines, and special promotional events. The commerical strategy was targeted at companies with substantial markets among the lower socio-economic groups and whose products fell within clearly defined guidelines.

Heartbeat awards

This scheme[5], designed to encourage all catering establishments to offer healthy meal choices and smoke-free eating areas, and with the co-operation of the Institute of Environmental Health Officers, continued to gather support during 1988. Almost 500 awards have been presented and some 50 local authorities take part.

Evaluation

Evaluation of the campaign has shown that during 1988, knowledge of risk factors grew, particularly among the lower socio-economic groups, and there has also been considerable growth in awareness of publicity in the workplace. This has provided a firm foundation on which to base a long-term strategy.

Despite its undoubted progress, the campaign has been criticised for a number of reasons – including lack of funds and failure to involve the primary health care sector (see Introduction). Looking at LAYH funding in isolation discounts spending on other preventive initiatives which have a clear link with CHD, such as smoking and healthy eating, as well as the heart/health activity being undertaken by health authorities. Proposals for the next phase of the campaign include specific primary care elements.

The next phase

Wide-ranging consultation took place with the NHS and others on the development of the campaign, both into its second phase from the autumn of 1988, and the longer-term development of a five-year programme. Successes with industry and in promoting local community action are being expanded with new media and promotional activities. Professional support for CHD prevention is growing through development of the role of the primary health care team.

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(f) Drug misuse

Drug misuse remains a serious problem, both on its own account and because of the additional problem of HIV infection. In 1988, notifications to the Home Office Index which relate only to opiate and cocaine addiction rose to 8,800[1] and 212 deaths were reported to have been associated with drug dependence in England and Wales[2]. Figure 2.6 outlines the numbers of new and former addicts notified to the Home Office Index, 1977-88.

Drugs most commonly misued

The main drug of addiction was *diamorphine (heroin)*. There was also a slight increase, of 30 (to 460) in the number of people reported addicted to *cocaine*. The latter reflects the overall increase in seizures of illicit cocaine during the year, and reinforces anecdotal information from drug agencies of its increased misuse, often in association with other drugs. As yet, there is no evidence of widespread availability or misuse of cocaine free base, '*crack*', which has assumed epidemic proportions in some parts of the United States. The misuse of illicitly produced *amphetamine sulphate*, which is not a notifiable drug, is known to be widespread, but reliable figures cannot be determined. The misuse of pharmaceutical *minor opioids* is increasing, particularly in the north of England, and they are now a commonly sought alternative to diamorphine. Often obtained through prescription, doctors should be alert to the possibility of their misuse, particularly if approached by unknown or temporary patients.

Solvent misuse

Solvent misuse continues to cause concern. The results of a three-year study[3], funded by the Department and received in early 1989, found that 3.6% of over 4,000 schoolchildren acknowledged having ever abused solvents. In the majority, misuse was experimental and limited. No significant evidence of neuropsychological sequelae was found in the study population. Nevertheless, the mortality associated with solvent misuse cannot be dismissed.

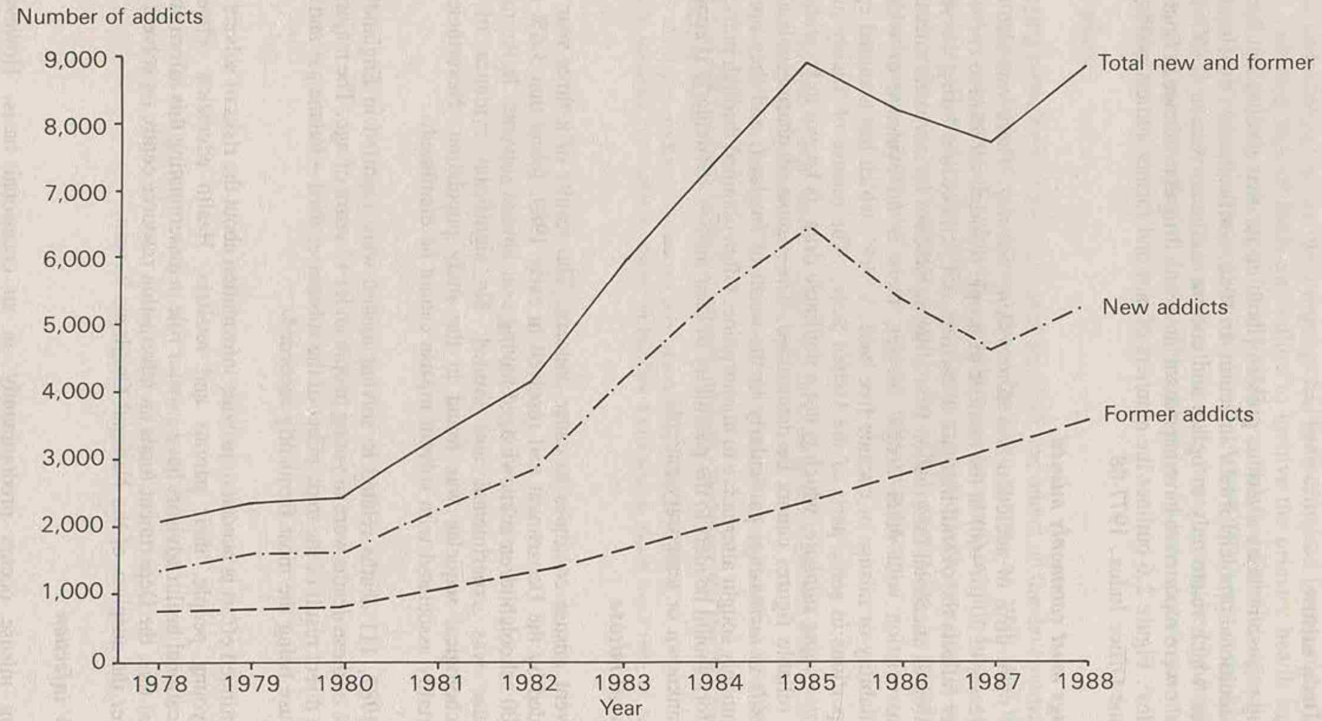
In 1987, 111 deaths related to solvent misuse were reported in England[4]. Over 40% of these deaths were in young people under 17 years-of-age. The majority died as a direct result of the toxic effect of the substances used – butane gas and aerosol misuse being the most frequently recorded.

Continued effort is needed to provide information about the risks of solvent misuse to young people, their parents and retailers. Health education officers and educational health advisors have a major role in disseminating this information. To assist this, the Department funds an information resource centre on solvent misuse under the auspices of the National Childrens Bureau.

HIV infection

Drug misuse occurs predominantly on an occasional basis. However, the 'occasional' injection of illicit drugs carries the same, if not an increased risk of HIV infection. Six hundred and fifty-two (7.9%) of the reported HIV antibody-positive cases, in England, to December 1988, were associated with injecting drug misuse: 223 were women[5]. Occasional misusers are less likely to appreciate the

Figure 2.6: *New and former addicts notified to the Home Office, United Kingdom, 1977-88*



Source: Home Office Statistical Bulletin 13/89 risks of sharing injecting equipment, and are less likely to have their own. The transmission of HIV infection through the sharing of infected needles, syringes and other drug paraphernalia poses a major health risk to drug misusers, their families, and other members of the public. Indeed, within the United Kingdom, injecting drug misusers are the most important source from whom the infection can be transmitted by sexual contact into the general heterosexual population. The need for continued efforts to improve and expand drug misuse services is thus essential.

Action: campaigns and services

The anti-injecting message was highlighted in the fourth stage of the *national drug prevention campaign*, lauched in November 1988. It built on the successful 1987 AIDS-related message, to include the risk of HIV transmission and other sequelae of injection. Complementing the national campaign, three regional health authorities, funded by the Department, were invited to mount their own campaigns, addressing particular local problems. These included targeted messages on the misuse of benzodiazepines, cocaine, and anabolic steroids; and dissemination of information about local drug agencies.

Following publication, in January 1988, of the *Advisory Council on the Misuse of Drugs' first report on AIDS and Drug Misuse*[6], a further £3 million 'earmarked' funding was made available to regional health authorities in September 1988. This was added to the £6 million provided in the year, to expand and enhance drug misuse services.

In December 1988, the final evaluation of 14 experimental *needle exchange schemes*[7] gave rise to cautious optimism. It suggested that this type of service can attract drug misusers who have hitherto made no contact with helping agencies, and that the majority of drug misusers who maintain contact with the service have modified and reduced their injecting risk behaviour. In the light of these findings, the Department issued advice to health authorities who, taking account of local circumstances, wished to set up their own schemes. At least 100 are now established.

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(g) Child abuse

In my Annual Report for 1987 I discussed in some detail the high priority given by the Department of Health to the prevention of child abuse (pages 3-4 and 37-40). 1988 has been a year for building on the developments which were initiated then and has seen the publication of a considerable body of guidance on the subject.

Guidance on child protection

As reported last year, the findings of the inquiry held by Lord Justice Butler Sloss into child sexual abuse in Cleveland in 1987 were published in July 1988[1]. DHSS independently issued a circular and guidance on child abuse procedures '*Working Together*'[2] which was well received. At the same time, the Home Office and the Department of Education and Science, issued circulars on child abuse[3,4]. '*Working Together*' consolidated and updated existing guidance on inter-agency work in child protection. It set this work in the context of the wider statutory duties of authorities for the health and welfare of children in their areas and the responsibilities of the other agencies concerned. It outlined the requirements agencies should aim to meet and recommended administrative arrangements and training and other arrangements to that end. It underlined the need for a balanced assessment of different strands of evidence, and for action to be assessed in the light of all the circumstances of the family as a whole. The need for parents and children to be kept informed and be consulted whenever possible was re-emphasised.

In addition, advice was issued to the individual professions on their work with children and families. The guidance for doctors on the clinical diagnosis of child sexual abuse prepared by the Standing Medical Advisory Committee (SMAC) was well received by the profession[5]. Together with practice guidelines for nurses[6] and social workers[7], also issued in 1988, these documents represent an important body of guidance for all people working in the field of child abuse prevention.

The DH training initiative on child abuse prevention continues to be active in Phases I and II, with a third phase under consideration for further central funding.

Phase I:

i. *In depth treatment training at the Department of Psychological Medicine, The Hospital for Sick Children, Great Ormond Street.*

The first year has been successfully completed, with the trainees (doctors and social workers) now returning to full time work in their home agencies. Evaluation of the first year of the project is under way. A new intake of trainees has begun the next course.

ii. *Training Advisory Resource.*

The Training Advisory Group on the Sexual Abuse of Children (TAGOSAC) has now established a broad data base of training packs and materials at the National Children's Bureau and is undertaking evaluation of key items. The data base is being increasingly used by professionals with an interest in training. Materials are being developed on the legal issues in training in child sexual abuse and on training the trainers. A 'Conference for Chairmen and Training Officers of Area Child Protection Committees' is planned for 1989.

Phase II:

i. *Training for child abuse consultants.*

This project, which is being undertaken by the National Society for the Prevention of Cruelty to Children (NSPCC) is progressing as planned. Senior managers in social services departments and health authorities with responsibility for child protection have been identified and work is proceeding on defining their training needs. Training materials designed to meet those needs will be devised.

ii. *Training for doctors in child sexual abuse.*

The Royal Society of Medicine's training video with accompanying booklet for doctors was completed and launched in July 1988[8]. Support for this venture came from the DHSS, NSPCC and the King's Fund.

The Department has distributed free copies for training purposes to regional advisers in general practice and the package is selling well.

The British Paediatric Association is currently looking at some of the suggestions for training highlighted by the Butler Sloss Report and by the Standing Medical Advisory Committee's guidance to Doctors, both issued in 1988, (see above). Further guidance is being planned on training issues in collaboration with the Police Surgeons' Association, and the Royal College of General Practitioners.

iii. *Training to improve awareness of child abuse.*

Work by the Open University continued in 1988 on a basic course for people, including health professionals, police, teachers and workers in voluntary agencies with little or no training in the prevention of child abuse and neglect. This course has been commissioned by the Department, and will be ready early in 1989[9].

iv. *Training to improve inter-professional co-ordination.*

This project is under preparation at the Department of Social Administration and Social Work at Nottingham University. It will provide a report and training materials for the use of relevant agencies, including health authorities, with a view to strengthening inter-professional work in child protection. It is intended that the report will comprise two documents: the first dealing with the process of inter-professional training, the second dealing with the content.

Research

Child abuse was one of the Department's research priority themes in 1988/89. A feasibility study, undertaken by Jane Gibbons at the National Institute of Social Work, and guided by a steering group chaired by Professor Michael Rutter, was commissioned to look at the possibility of tracing a group of children on NSPCC registers in 1981, to examine current outcomes. It is due to report in November 1989.

A literature review of child abuse intervention by Drs F A Boddy and colleagues at Glasgow University was completed in October 1988[10]. Pre-publication copies are available from Research Management Division (RMD) in the Department.

The Great Ormond Street study on the efficacy of treatment of abused children and their families, although proceeding well, might need to be extended to acquire sufficient numbers for reliable conclusions to be reached.

Another study at the Institute of Child Health, on normal sexual knowledge in children will investigate whether children who have been sexually abused can be identified on the basis of their sexual knowledge and behaviour.

Statistics

Following considerable work during 1987, the provisional feedback of the results of a pilot statistical return on child protection registers was published in the autumn of 1988 by the Chief Statistician as an interim report, for use of directors of social services[11]. A new statistical return has been devised based on this experience, so that from 1989, there will be a clearer national picture of the numbers and categories of children recorded on child protection registers.

Work in hand

Legislation: The Children Bill is proceeding through Parliament. The legislation will assist local authorities to provide better help to children in need, including those with disabilities. It will improve the powers available to the courts for the protection of children from abuse or neglect and will provide a better balance between parents' and children's rights. The Bill will enable the more difficult cases to be heard in the higher, instead of the magistrates', court.

A single regimen will reform the current fragmented, overlapping and obscure provisions relating to children under the private law. This part of the Bill is based largely on the *Law Commission's Report on Child Law Guardianship and Custody* (Law Commission No 172). With the public law reforms this will give a unified and consistent code in respect of the care and upbringing of children.

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(h) Initiative on ethnic minorities

Introduction

Britain has a number of ethnic minority groups of diverse origin and language: including people from the Indian sub-continent, China, South East Asia, Afro-Caribbean countries, Greece and Turkey. Health services for these groups require a sensitive understanding of the various cultures from which these people come and different approaches to those provided for the indigenous population. The Department has been pursuing progressive initiatives for some years aimed at encouraging health authorities (HAs) to provide services which are accessible and acceptable to people from ethnic minority groups. This involves positive action to take account of differences in language, religion and culture (see also Chapter 5).

The Department, with the Save the Children Fund, started a *Stop Rickets campaign*[1] in 1981 to explain the nature of the disease, and to raise awareness about it among health professionals and the Asian community. Following this, the Department supported the *Asian Mother and Baby Campaign* which began in 1984. A Departmental Adviser on Ethnic Minority Health, who directed both these campaigns, was appointed in 1982.

Departmental commitment to equal opportunity policy

The Department is unequivocally committed to promoting equal access to health services and equal opportunities for employment with the NHS. Every opportunity has been taken to remind health authorities of their responsibilities under the Race Relations Acts, and they have been urged to implement the codes of practice of the Commission for Racial Equality.

NHS management initiatives

A seminar was held in November 1987, for chairmen and general managers of health authorities with substantial ethnic minority populations. The seminar was chaired by Mr Tony Newton, the then Minister for Health, and a report[2] was published in February 1988. The aim of the seminar was to provide a forum for health authority managers to exchange ideas and experience on meeting the health needs of ethnic minority communities. Publication of the report enabled the views expressed to be communicated to a wide spectrum of health care professionals.

During 1988, scrutiny of the handling of the needs of ethnic minority groups has been included in the annual review process for regional health authorities (RHAs) and family practitioner committees (FPCs).

Asian mother and baby campaign: evaluation

This campaign, which began in 1984, was aimed at overcoming barriers of language and culture between patients and health professionals by employing link-workers. These are local women, fluent in English and at least one Asian language, who were employed initially by 16 HAs with funding from the Department. A report of the campaign[3] was issued in October 1987 and the campaign itself has been evaluated by a team from the University of Leicester. Their findings are due to be published later in 1989. Although central funding ended in April 1988, employment of linkworkers by HAs has continued and is now spreading to specialities besides maternity and related services, and to other communities with language difficulties.

Chinese community

Under the '*Helping the Community Care*' initiative, the Department has funded several projects aimed at the Chinese community, either by employing linkworkers or providing information about health services. Several Chinese organisations and some HAs and FPCs have been involved.

'Action not Words'

The National Association of Health Authorities (NAHA) launched its report '*Action not Words*[4] in November 1988. The Department funded the working party which produced this report, of which is aimed at ensuring that NHS care is available to all groups in society. The Department welcomed the report, seeing it as an extension of the initiatives which it has been pursuing. The report stressed the importance of sensitivity within the NHS to various needs of black and other ethnic minority groups, and identified gaps in present service delivery.

Information on health services in ethnic minority languages

The Department is providing £1 million over three years from 1988 for the production of health information material in various ethnic minority languages. By involving existing national voluntary organisations in the first years and then extending projects to local community groups, the Department hopes to overcome barriers to effective health service delivery. Leaflets, booklets and videos have been commissioned on a wide range of subjects including primary care for the elderly, patients' rights, mental health care, sickle cell disease, thalassaemia and the gynaecological examination.

Development of ethnic minority services

The Department is committed to pursuing and encouraging good practice in service delivery to ethnic minorities. During 1989, the Department hopes to set up a new broadly based advisory panel on which ethnic minority organisations are represented, together with individuals with experience of health care problems. Plans are also in hand for the creation of a database on ethnic minority health information.

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(i) Health education in schools

Introduction

The importance of health education in schools is widely acknowledged. Youth is a period when people are usually healthy and attitudes and behaviour formed at this time are likely to influence future lifestyles. There is increasing evidence that many behaviours responsible for unnecessary illness and premature death are established during childhood and adolescence. These include smoking, the consumption of an unbalanced diet and taking insufficient exercise.

Health education has been part of the school curriculum for many years and there has recently been an increase in the proportion of schools which make provision for it. A recent Her Majesty's Inspectorate (HMI) report based on the inspection of 185 schools in England between 1982 and 1986 found that ''appropriate treatment of aspects of health education featured in the work of all pupils at some stage in 66 percent of the schools inspected in 1982-83 but in 92 percent of those inspected in 1985-86''[1]. This is most gratifying.

Organisation and delivery

The precise organisation and delivery of school health education varies according to the policy and practice of different local education authorities and schools. Few schools teach it as a separately timetabled subject in its own right. Many primary schools teach it as part of their 'project work', usually in the form of a separate theme, often at a particular age or stage or time of year.

Most secondary schools currently include aspects of health education in subjects such as biology, home economics and physical education. These make a major contribution, but health education is known to be more effective when it is taught as an integral part of personal and social education (PSE)[2]. This is because the PSE context enables pupils to consider the ultimate personal and social aspects of their health-related behaviour. Health education taught within PSE can build upon and enrich the health-related information pupils acquire elsewhere in their studies and can enable them to develop the skills necessary to make informed, responsible decisions about their health. Although not named as a separate foundation subject in the National Curriculum, health education is expected to be taught as one of the major cross-curricular themes.

The National Curriculum

The National Curriculum Council, through its Interim Whole Curriculum Committee, has recommended that schools need to consider a range of cross-curricular issues which permeate the whole curriculum. These are necessary in addition to the foundation subjects of the National Curriculum and religious education if schools are to provide a broad and balanced curriculum for all pupils. Such issues include cross-curricular *dimensions* such as personal and social education and cross-curricular *themes* such as health education which play an important part in integrating the whole curriculum.

Within the National Curriculum, health education will be best delivered through a carefully planned programme spanning all the stages of pupils' education. Health education can be expected to include the following topics:

Use and misuse of substances
Relationships and sexuality
Family life education
Safety
Health-related exercise
Nutrition
Personal hygiene
Environmental aspects of health education
Psychological aspects of health education

Detailed guidance is expected to be published by the National Curriculum Council early in 1990. Although precise delivery arrangements will be decided by individual schools, it is known that *co-ordination* across the curriculum is most important. Co-ordination ensures that gaps in provision are avoided and that unnecessary repetition is minimised, whilst ensuring that productive use is made of overlapping concerns which arise in different parts of the curriculum.

Health education in schools is most effective when the learning derived from the curriculum is supported by other experience within the whole school environment. This requires consideration of such factors as the appropriate involvement of parents and families, the nutritional balance of school meals and active involvement of the wider community.

Professional development of teachers is of great importance. Little health education is currently provided in the pre-service training of teachers, but the Health Education Authority (HEA) has for many years supported in-service training in personal, social and health education. The future of health education in schools depends upon the continuation of such curriculum and staff development. The inclusion of health education in the initial training of all teachers is becoming increasingly important as is the training of school governors who now have responsibility for aspects of health education.

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3. HEALTH OF THE POPULATION: CHILDREN

(a) Introduction

With the successful control of many of the common causes of childhood mortality and morbidity that dominated the past – infectious diseases and malnutrition – it is inevitable that those that persist have become correspondingly more significant. Among them are a number of genetic and congenital disorders including cerebral palsy and other motor, sensory or mental disorders, the sequelae of low birthweight and prematurity, infant deaths of unknown cause, and childhood cancers. These categories are not, of course, mutually exclusive. This group of illnesses once seemed unyielding to intervention, but sustained progress during the past 10-20 years has shown new ways towards prevention and treatment in some of them and, in a few instances, cure.

In the field of dentistry there have also been improvements in the health of children. These demonstrate the importance of carefully evaluated public health interventions such as water fluoridation, together with the benefits of health education.

Epidemiological data

Sound epidemiological data are necessary for surveillance, to support research, and for rational service planning[1]. Unfortunately however, the collection of data, whether on prevalence or incidence of specific disorders, or of impairments and disabilities in childhood is, with important exceptions, fragmentary.

The value of data collected as part of the statutory notification of birth and death has been amply demonstrated. The national registers of childhood cancer, of phenylketonuria and congenital hypothyroidism have all been of much value in research and surveillance, including monitoring of outcomes.

Although regular notification of congenital malformations identified during the perinatal period was designed as a means of detecting changes in prevalence, the present system of notification does not provide a reliable means of ascertainment, except in respect of obvious abnormalities present at birth.

Few genetic disorders are ascertained, except as a consequence of local services. The data requirements for effective surveillance and management of genetic disorders extend beyond the affected subject, and for disorders of X-linked or dominant inheritance, must include those kindred at risk of being carriers. *Genetic registers* set up on this basis, with liaison through regional centres, are beginning to provide an effective means of identifying families at risk of these disorders who may then be offered appropriate genetic counselling.

Cerebral palsy is a major cause of childhood disability. Moreover, it has become more common as the survival of infants of low birthweight has improved. The systematic collection of epidemiological data is limited to a few centres. Similarly limited is the collection of data on specific sensory impairments and mental retardation.

Recently, the Government has asked the NHS Management Executive to ensure that by 1991, regions set up epidemiological surveys into stillbirths and infant deaths[2]. It sees these as not only important in surveillance and a guide to where action, including research, is needed, but also an essential precursor to introducing systematic, confidential enquiries into particular categories of stillbirths and neonatal deaths, with the aim of reducing the risks of death. These steps affirm recognition of the importance of carefully monitoring health outcomes.

The sections that follow deal briefly with selected aspects of the changing pattern of threats to the health of children, and the scientific, medical and public health responses that are being made.

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(b) Congenital and genetic disorders

Introduction

As has been pointed out, congenital and genetic disorders are assuming greater importance as illnesses and deaths in infancy and childhood become less frequent[1]. Such disorders may arise as a consequence of events that occur before birth – at fertilisation or during prenatal life. They are sometimes detected before birth, but on other occasions become evident at or soon after birth, or later during infancy and childhood. Among them are important causes of long-term illness and disability in the affected child – with serious implications for the family, and premature death.

Nature of genetic disorders

The influences of both inborn and external factors are, to varying degrees, present in all human disorders. Whether or not a given disorder is described as genetic may therefore be a matter of judgement. In a minority of disorders, the predominant influence is the consequence of changes (mutations) in heritable material (DNA) occurring at fertilisation. This is seen typically in single-gene disorders whose heritability follows Mendelian rules. But it is becoming clear that similar, often multiple changes, which lead to interactions with environmental factors, also underlie many other disorders. They include certain congenital disorders and many of the important disorders common in later life. These disorders are called multifactorial. It is clear too that the genetic endowment of an individual can be expressed through chromosomal anomalies, whether or not the anomalies are heritable. These simple concepts provide an aetiological basis for the classification of such disorders.

Congenital and genetic disorders in childhood

Most genetic disorders are not evident at birth, or even during childhood or early adult life. Many autosomal dominant disorders especially, are expressed later in life, as are most multifactorial disorders. On the other hand, infant who suffer from some lethal disorders, succumb early in childhood. Therefore comparisons between the prevalence or incidence of a disorder in different populations are valid only if they take age into account.

Figures based on lifetime ascertainment are higher than those based on clinical findings in early life, and estimates based on gene frequency are higher still. Multiple source ascertainment and ascertainment by specific studies give higher rates than do routinely collected statistics. In addition, there are obvious genetic differences between populations and between groups of mixed populations. Lastly, agreement is not always to be found on the genetic status of multifactorial disorders. Apparent discrepancies between quoted figures arise when these points are not taken into account.

A particularly valuable source of information has been the British Columbia Health Surveillance Register (BCHSR)[2]. This is a population-based register with multiple sources of ascertainment and uses record linkage techniques. Figures for childhood are not available, but the BCHSR data show that by the age of 25 years, 5.3% of liveborn infants exhibited a genetic disorder, and in 84% it was multifactorial. There are no comparable data for the United Kingdom, but corresponding figures are likely to be similar. Estimates of the incidence and burden of common single-gene disorders in the UK have been published[3] and the contribution of the cerebral palsies is considered below.

Congenital malformations are often included as a category of genetic disorder. But the term congenital (present at birth) must not be taken to imply that the condition, eg. congenital rubella syndrome, is necessarily genetic in origin. In presentation of the BCHSR data they are classified, where appropriate, as multifactorial; but for comparative purposes they are given separately.

The cerebral palsies are the most important and common causes of childhood impairment. Usually the aetiology is not known, but there is now much evidence to suggest that many cases arise during prenatal life[4,5]. However, they are not generally included as congenital disorders nor, except in rare instances, is their genetic status considered. Abnormal prenatal cerebral development, in which genetic influences will have some, and perhaps a crucial part, might well play a role in the underlying process. It seems justifiable to regard cerebral palsies of prenatal origin, at least tentatively, as a category of multifactorial genetic disorders. Birthweight-specific prevalence figures from a study of the 1958 British Perinatal Mortality Survey and the 1970 British Births Survey[6] are given in Table 3.1. Cerebral palsies might thus contribute a further 2.5 per 1,000 live births.

Table 3.1. *Prevalence of cerebral palsy by birthweight.* 1958 and 1970.

Birthweight (g)	Prevalence of cerebral palsy/1,000 survivors at 28 days	
	1958	1970
< 1,500	117.6 (2)	18.9 (1)
1,500-1,999	10.5 (1)	21.1 (4)
2,000-2,499	6.0 (4)	12.5 (10)
2,500-2,999	4.1 (12)	2.3 (7)
3,000-3,499	1.3 (8)	1.4 (9)
⩾ 3,500	2.1 (13)	1.4 (8)
Total < 2,500	9.0 (7)	14.4 (15)
Total ⩾ 2,500	2.2 (33)	1.6 (24)
Total including those of unknown birthweight	2.4 (40)	2.5 (41)

Figures in brackets are the number of cases.

Burden of congenital and genetic disorders

These disorders create a heavy burden of illness and premature death in children, and much unhappiness within families. A congenital anomaly is present in about 3% of newborn babies[7]. Congenital anomalies are the cause of 25% of deaths in infancy[8] and account for 18% of paediatric hospital admissions. Genetic disorders are an important factor in 50% of deaths in childhood and account for 11-27% of paediatric admissions[9]; 70% of multiple admissions are of children with congenital or genetic disorders. One to two per cent of children are severely handicapped and about 0.3% have severe mental retardation[9], most of which has a genetic basis[3]. The BCHSR data mentioned previously must also be considered here.

Prevention of congenital and genetic disorders

The natural mechanisms for transmitting genetic disorders preclude the inborn endowment of an individual being known before fertilisation. Excepting those instances where an environmental factor is the cause, primary prevention of fetal abnormality or subsequent genetic disorder therefore depends on recognising the risk to a woman and her partner before she conceives. The only certain means of *primary prevention* open to them is to forgo natural parenthood. When the risk of a serious fetal abnormality or later disorder is unacceptably high, that may be their choice. Primary prevention also includes timely immunisation against rubella, protection against rhesus haemolytic disease, avoiding known or possible teratogens, and misuse of drugs and alcohol. It may also take account of the risks of consanguinity.

If there is a prospect of prenatal diagnosis, with the possibility of influencing the outcome of pregnancy, including termination, this may be the course chosen. It is sometimed called *secondary prevention*, but the term 'avoidance' may be preferred.

The nature of genetic risk, now a major element in the consideration of risk in pregnancy, is treated in a comprehensive review by Donnai[10].

Tertiary prevention of congenital and genetic disorders, to ameliorate impairment and subsequent disability, is possible on rare occasions during fetal life. During the neonatal period and childhood and later life it is a major purpose of surveillance. Table 3.2 outlines the possible range of a programme of surveillance which emphasises the genetic contribution to human disorders.

Prenatal diagnosis

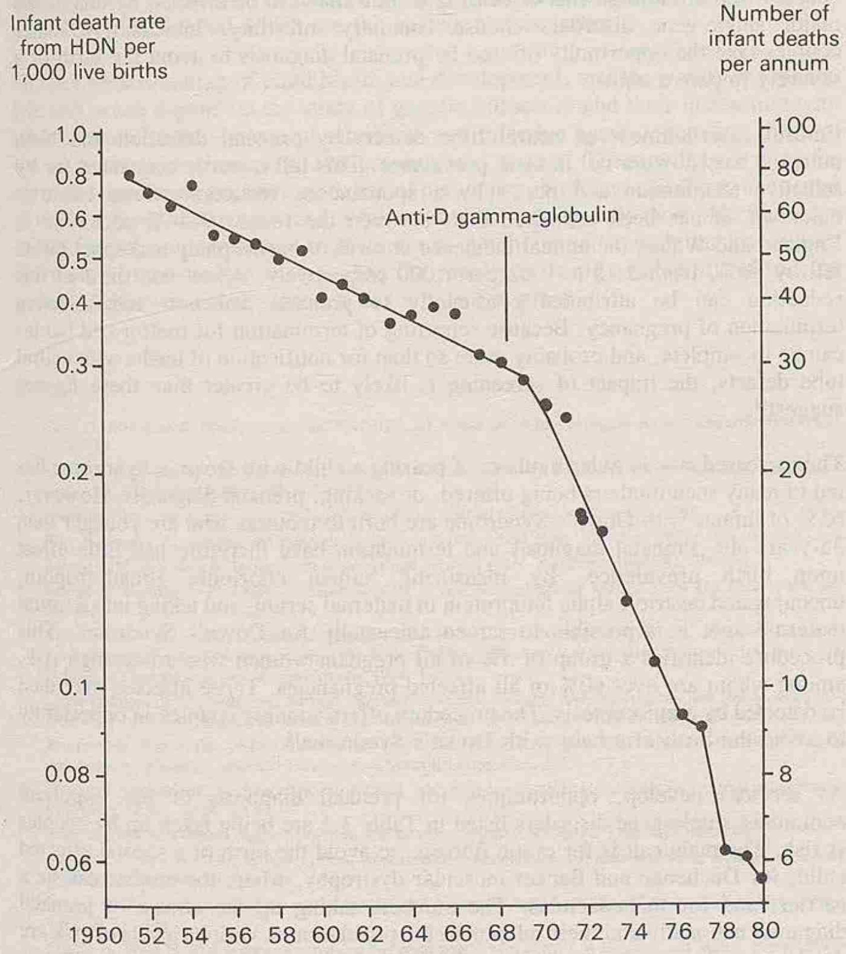
Prenatal (or fetal) diagnosis is now possible for a large number of life-limiting congenital and genetic defects, including most of the known inborn errors of metabolism. For an indication of the range and methods, a useful review is that by Crawford[11]. Fortunately, after screening and diagnosis only, the small minority of couples whose babies are affected are brought to the painful choice either of giving birth to a child with risk of major impairment, and the disability and handicap it confers, or of terminating the pregnancy. It should also be that for most women, prenatal diagnosis, by excluding certain risks, also brings profound relief. The time at which prenatal diagnosis can be made is extremely important to a pregnant woman. It determines the earliest time at which the pregnancy may be terminated. The introduction of chorionic villus sampling, which allows diagnosis of an increasing number of single-gene and chromosome defects at 8-10 weeks of pregnancy, has been of great significance. Unfortunately, the technique is not applicable to diagnosis of the most common anatomical defects, including those of the neural tube and many other congenital malformations. Most cannot be detected before 12-weeks gestation, some only by ultrasound screening at about 20 weeks, and others, later or not before birth[12]. For an excellent and thoughtful account of management of the patient having prenatal diagnosis, the reader is referred to a paper by Donnai[13]. This brings out clearly the vital non-technical aspects of management.

Table 3.2 *Prevention, avoidance and amelioration of congenital and genetic disorder*
Important and common disorders for which presymptomatic screening, diagnosis, and assessment of genetic risk are or might soon be possible in the UK

Target	Disorders to which applicable	Interventions available
TOTAL POPULATON Screen all or groups at risk	a *Single gene*: Sickle cell disease, thalassaemia, Tay-Sachs disease, cystic fibrosis, X-linked mental retardation (fra (X)), etc. b *Chromosome abnormality* X-linked mental retardation (fra (X)). c *Congenital malformation/dysmorphic syndrome*: Rubella immunity before pregnancy. d *Multifactorial*: Hypertension, hypercholesterolaemia, etc.	Inform, counsel, plan treatment and care, including pregnancy.
FAMILY Identify/screen following diagnosis in a relative	a *Single gene*: Adult polycystic kidney disease, cystic fibrosis, Duchenne muscular dystrophy, haemophilia, Huntington's chorea, retinoblastoma, sickle cell disease, thalassaemia, phenylketonuria, Tay-Sachs disease, X-linked mental retardation (fra(X)), etc. b *Chromosome abnormality*: Down's syndrome, X-linked mental retardation (fra(X)). c *Congenital malformation/dysmorphic syndrome*: congenital heart disease, etc. d *Multifactorial*: Cardiovascular disease, diabetes, manic-depressive illness, schizophrenia, certain cancers, glaucoma, asthma, hypercholesterolaemia, etc.	Inform, counsel, plan treatment and care, including pregnancy.
FETUS Screen all pregnancies or those at risk	a *Single gene*: Rhesus incompatibility. b *Chromosome abnormality*: Down's syndrome, X-linked mental retardation (fra(X)). c *Congenital malformation/dysmorphic syndrome*: Neural tube defect, congenital heart disease, renal, skeletal, body wall defects, etc.	Inform, counsel parents, plan treatment and care, including the possibility of termination of pregnancy.
Prenatal diagnosis in those at risk or incidentally	As for FAMILY in respect of a, b, c. Diagnostic procedures, eg ultrasound, chorion villus sampling, may be applicable to screening.	
NEONATE Screen during routine examination	a *Single gene*: Phenylketonuria, cystic fibrosis, etc. b *Chromosome abnormality*: Suspected at routine examination. c *Congenital maformation/dysmorphic syndrome*: Cleft lip/palate, neural tube defect, congenital heart disease, congenital dislocation of the hip, etc. d *Multifactorial*: Congenital hypothyroidism, some cases of cerebral palsy, some types of mental handicap, neuroblastoma.	Inform, counsel parents, plan treatment and care.
Diagnose	As given for FAMILY in respect of a, b, c when there is a clinical indication.	
INFANT, CHILD Screen during surveillance	a *Single gene*: Defects of vision (some forms), hearing (some forms), etc. b *Chromosome abnormality*: Suspected during surveillance. c *Congenital malformation/dysmorphic syndrome*: Cleft palate, congenital heart disease, congenital dislocation of the hip, undescended testis, etc. d *Multifactorial*: Defects of vision, hearing, speech, language, and development, cerebral palsy, intellectual impairment, etc.	Inform, counsel parents, plan treatment and care.
Diagnose during surveillance	As given for FAMILY, when there is a clinical indication.	

Includes identification of the carrier state in single-gene disorders and in balanced chromosomal translocations; and of prior risks or asymptomatic states for chromosome abnormalities, congenital malformations and multifactorial disorders.

Figure 3.1:*Accelerated decline in deaths in England and Wales from Haemolytic disease of the newborn (HDN) since the introduction of prophylactic anti-D gamma globulin*



Note:
Figures on the right are deaths from HDN per 100,000 live births – multiplying these figures by six gives the approximate number of actual deaths per annum in Britain. (Data supplied by Office of Population, Censuses and Surveys; graph supplied by courtesy of Sir Cyril Clarke)
Source: Reproduced by kind permission of Oxford University Press

Trends

Primary prevention of rhesus haemolytic disease of the newborn has almost eliminated this congenital disorder (Figure 3.1). Similarly, effective rubella immunisation should soon make rubella embryopathy a thing of the past. Some couples who are at high risk of bearing a child likely to be affected by one of the major single-gene disorders choose voluntary infertility. Increasingly, other couples take the opportunity offered by prenatal diagnosis to avoid the birth of a severely impaired child.

Careful ascertainment of neural tube defects by prenatal detection and birth outcome has shown a fall in birth prevalance. This fall is partly accounted for by selective termination and partly by a spontaneous reduction whose cause is unknown. It has been estimated that, between the years 1964-72 and 1985 in England and Wales, the annual incidence at birth of anencephaly and spina bifida fell by 80%, from 3.15 to 0.62 per 1,000 respectively. About one third of this reduction can be attributed confidently to prenatal detection and selective termination of pregnancy. Because reporting of termination for malformed babies can be incomplete, and probably more so than for notification of births with neural tube defects, the impact of screening is likely to be greater than these figures suggest[14].

The increased risk in older mothers of bearing a child with Down's Syndrome has led to many such mothers being offered, or seeking, prenatal diagnosis. However, 65% of infants with Down's Syndrome are born to mothers who are younger than 35-years-old. Prenatal diagnosis and termination have therefore had little effect upon birth prevalence. By measuring human chorionic gonadotrophin, unconjugated oestriol, alpha fetoprotein in maternal serum, and taking into account maternal age, it is possible to screen antenatally for Down's Syndrome. This procedure identifies a group of 5% of all pregnant women who are at high risk, among whom are over 60% of all affected pregnancies. Those affected may then be detected by amniocentesis. The procedure offers younger couples an opportunity to avoid the birth of a baby with Down's Syndrome[15].

As services develop, opportunities for prenatal diagnosis of the important commoner single-gene disorders listed in Table 3.2 are being taken up by couples at risk. The main call is for cystic fibrosis, to avoid the birth of a second affected child; for Duchenne and Becker muscular dystrophy, where the mother can be a carrier; and for thalassaemias. The numbers taking up the choice of prenatal diagnosis nationally and their relation to the population at various levels of risk are not known. The ready availability of carrier detection for thalassaemia permits identification before the first pregnancy of couples who are at risk. Requests for prenatal diagnosis of thalassaemia have now reached about 200 a year.

Prospects

A most immediate and important prospect is the development of a test for detecting carriers of cystic fibrosis, who make up approximately 1 in 20 of the population. This has implications for services and their organisation.

Better understanding of the genetics of Fragile X syndrome of mental retardation and the development of precise markers will be of comparable importance. After

Down's Syndrome, this disorder can be the most common cause of severe mental handicap and has been estimated to affect 1 in 1,000 of the general population[16,17].

It is anticipated that continuing advances in genetics will in time have a substantial impact upon the common, multifactorial conditions. These include chronic mental and physical disorders, degenerative disorders, neoplasia, and the congenital disorders of childhood which are the subject of this section[3].

Greater understanding of child health and development, and the events of prenatal life will much depend on the study of genetic influences and their interaction with environmental ones – physical, chemical and infective agents, including those of the intrauterine environment, and psychosocial factors. There will be a need for carefully conducted population studies of pregnancy, birth and childhood to attempt to unravel these and interactions. Without such knowledge, the most effective ways of intervening to prevent and treat illness in childhood will remain unclear. Given the tools of multivariate analysis and the rapidly growing availability of specific genetic markers, a new approach lies within our grasp.

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(c) Children's growth and nutrition

The health of the nation's children provides the foundation for health in the next generation of adults. Among the possible measures of health in children, growth is perhaps the most important, and it is associated with several socio-economic and biological variables, one of which is nutrition.

The Committee on Medical Aspects of Food Policy (COMA) has a brief to assess the medical and scientific aspects of policy in relation to nutrition. The COMA Sub-committee on Nutritional Surveillance published its Third Report in 1988[1]. This gives detailed accounts of four studies which address the determinants of growth.

National trends in children's height

The National Study of Health and Growth (NSHG) has surveyed primary schoolchildren (4.5 to 11.5 years) in England and Scotland since 1972[1]. About 8,000 children from schools representative of the population in England and Scotland have been included. Before the start of NSHG, data on children's growth came only from the continuing examinations of the cohorts of children first enrolled at birth in 1946, 1958 and 1970. At the age of seven years, the children in the 1958 cohort had shown a mean difference of 3.3 cm between social classes I and II and social class V[2]. NSHG, reporting on surveys from 1972 to 1982, also found an association between social class and mean height and this was maintained in the latest (1986) survey. The major socio-economic influences associated with short stature were large family size and father's unemployment[3].

The mean heights and weights of children in England have consistently been above those in Scotland although these differences have tended to reduce over time. Initially, the mean weight for height was less for Scottish than English children, but more recently, this relationship has reversed[4]. The surveys from 1972 to 1979 showed positive national trends towards taller children, but from 1979 to 1986, this ceased[5] (Table 3.3).

Table 3.3: *National Study of Health and Growth: mean increase in children's height in cm in two successive 7-year periods (Standard error)*

		1972-1979	1979-1986
English	Boys	0.51(0.16)	0.23(0.17)
	Girls	0.52(0.17)	−0.12(0.18)
Scottish	Boys	1.11(0.36)	0.12(0.37)
	Girls	0.94(0.35)	−0.08(0.38)

In a separate study done during 1987 and 1988, 3,693 children, 5.0-7.5 years-of-age, were surveyed in nine British towns. There was a consistent trend for short stature to be associated with lower social class. The overall difference between social classes I and V was 2.0 cm[6].

The heights of children from at-risk subgroups of the population

The NSHG in its representative sample had not, because of small numbers, allowed a separate analysis of children from subgroups in the population which it was thought might be disadvantaged. In 1983, a separate sample of English primary schoolchildren was added to enable children from ethnic minorities and from inner city areas to be reviewed separately[1]. Of the seven groups studied (Caucasian, Afro-Caribbean, Urdu, Gujarati, Punjabi, other Asians, others) all were more socially deprived than the representative sample of children surveyed in 1982. As a group, the ethnic minority children were more likely to come from families where the father was unemployed and the mother was less educated. There was more household overcrowding in all Asian groups. The Afro-Caribbean children were more likely to live in one-parent families and to receive free school meals.

Both the boys and the girls from the Afro-Carribean group tended to be significantly taller compared with all other groups, including the 1982 representative sample. The other groups from the 1983 survey, including inner city Caucasian children, were shorter on average than the 1982 representative sample. Of the three groups divided by which Asian language was spoken at home, the Gujarati group was, on average, consistently shorter than the Urdu and Punjabi groups who were themselves below the 50th centile of the 1982 representative sample. (Fig. 3.2.)

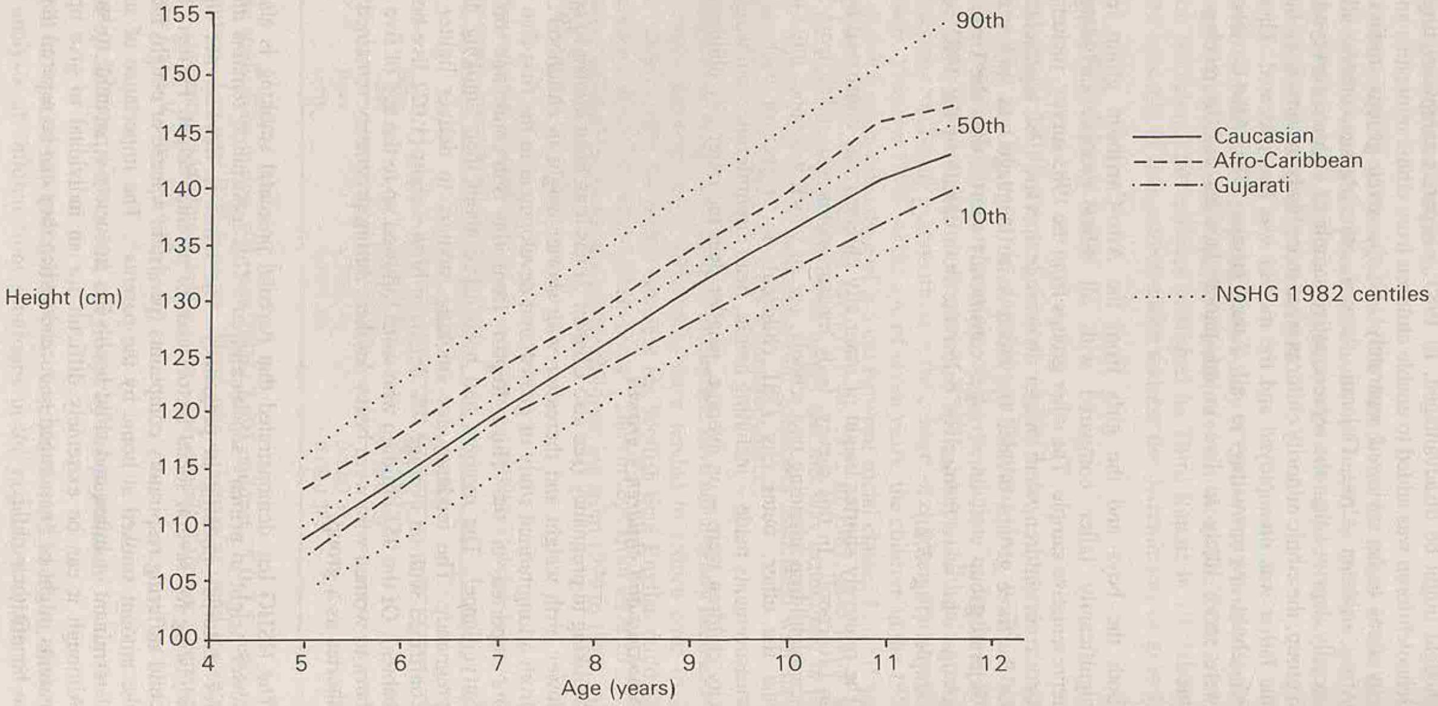
The relatively shorter height of inner city children was confirmed by Hall *et al.* in Liverpool[7]. In this survey, body measurements were taken from 523 primary schoolchildren attending two schools, one of which was inner city (142 children) and the other, outer city (381 children). In respect of each of the twelve measurements made – including height, head circumference and weight, the inner city children were – on average, smaller than the outer city children.

Smoking and children's growth

Smoking in pregnancy (see also Chapter 2) has long been known to correlate with lower birth weight and thereafter with shorter height in childhood[8]. The results from a longitudinal study of growth and development in the first five years of life are reported in the Third Report from the Sub-committee on Nutritional Surveillance[1]. The mothers had been asked about their smoking habits during pregnancy. The tendency for smoking mothers to deliver lighter babies was confirmed with an average 9% deficit in birth weight (1,022 live-born singleton babies). Of the 951 children who were followed up to the age of five years, those born to women who were heavy smokers during pregnancy remained consistently shorter as a group.

The NSHG has demonstrated that parental postnatal smoking is also related to lower height in primary schoolchildren[9]. This association remains *after* allowing for maternal smoking in pregnancy. The effect is likewise not eliminated by adjusting for several social factors and for parental height. Further, the risk of a child suffering respiratory complaints (persistent wheeze or cough) increased with the amount smoked at home by the parents[10]. The importance of smoking as a determinant of infant and child health lies in society's potential to stop smoking. Although it can be extremely difficult for an individual to give up cigarettes, parents might be encouraged to succeed when they can be assured that it is likely to benefit their child.

Figure 3.2: *National Study of Health and Growth. Height by age for Afro-Caribbean Gujarati and inner city Caucasian boys against 1982* NSHG *nationally representative survey.*



Infant feeding practices in 1985

Good infant feeding practices lay the foundation for a healthy child population. A national survey, based on questionnaires, of how infants were being fed during the first nine months of life, was commissioned by DHSS and conducted in 1985/6[11]. The results can be compared with those from earlier surveys in 1975 and 1980. These surveys have not included any body measurements and the results do not, therefore, include the children's lengths. However, insofar as breastfeeding is generally considered the best possible nutritional start, it is valuable to examine which social and economic factors are associated with it.

All three surveys have shown that earlier birth order, education of the mother beyond the age of 18-years, high social class, living in London and the South East, being a mother of 25-years-of-age or over and being a non-smoker are factors associated with the highest incidences of breastfeeding. Expert advice is that there are advantages if breastfeeding can continue throughout the first year of life. The surveys have shown that the same factors associated with early breastfeeding are independently associated with a longer duration of breastfeeding. (Fig. 3.3)[12].

The surveys of infant feeding practices were first set up in response to concern about the low level of breastfeeding which, in 1975, amounted to only 51% at birth. In 1980, the percentage who breastfed at all rose to 67% and a further improvement in 1985 would have been welcome. The figure of 65% initially breastfeeding in 1985 was disappointing (Fig 3.4). During the past year, the Department of Health has supported a National Breastfeeding Initiative which aims to improve the support and encouragement provided to mothers who wish to breastfeed (see Chapter 2).

A dietary survey of British schoolchildren

The Department of Health and Social Security commissioned the Office of Population Censuses and Surveys (OPCS) to do a nationally representative dietary survey of British schoolchildren aged 10.5 to 11.5 years (10-11) and 14.5 to 15.5 years (14-15) in the first half of 1983. A preliminary report of the findings was issued in 1986[13] and the fuller results were published in 1989[14].

From the national sample, there were 3,296 successful records which were re-weighted before analysis to be representative of the population of Great Britain. The results were examined in four groups (girls, boys, 10-11, 14-15 years) and only some of the findings in relation to the heights of the children and to intakes of certain nutrients and foods can be presented here.

Heights

The heights of the children were compared with the most recent standard heights for Britain[15]. In 1983, the mean heights were at or above the standard heights in all four groups (Table 3.4). Trends to lower average heights were found in children from families where the father had a manual occupation (except for 10-11-year-old girls) or where the father was unemployed. The children also tended to be shorter where the family was receiving supplementary benefit and where the child received free school meals. These trends did not achieve statistical significance in all groups.

Figure 3.3: *1985 survey of infant feeding practices. Relationship between maternal smoking and duration of breastfeeding: proportion stopping breastfeeding.*

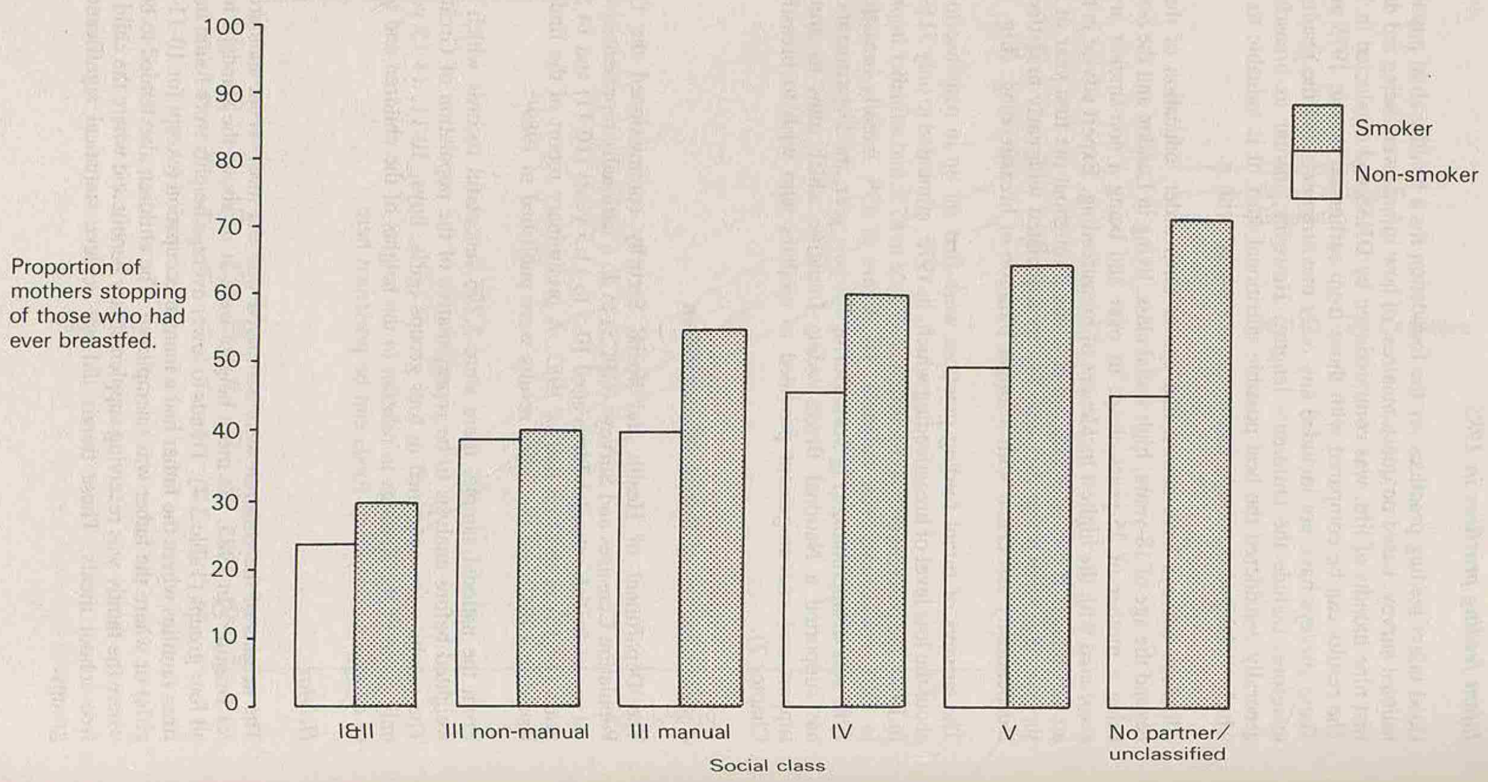
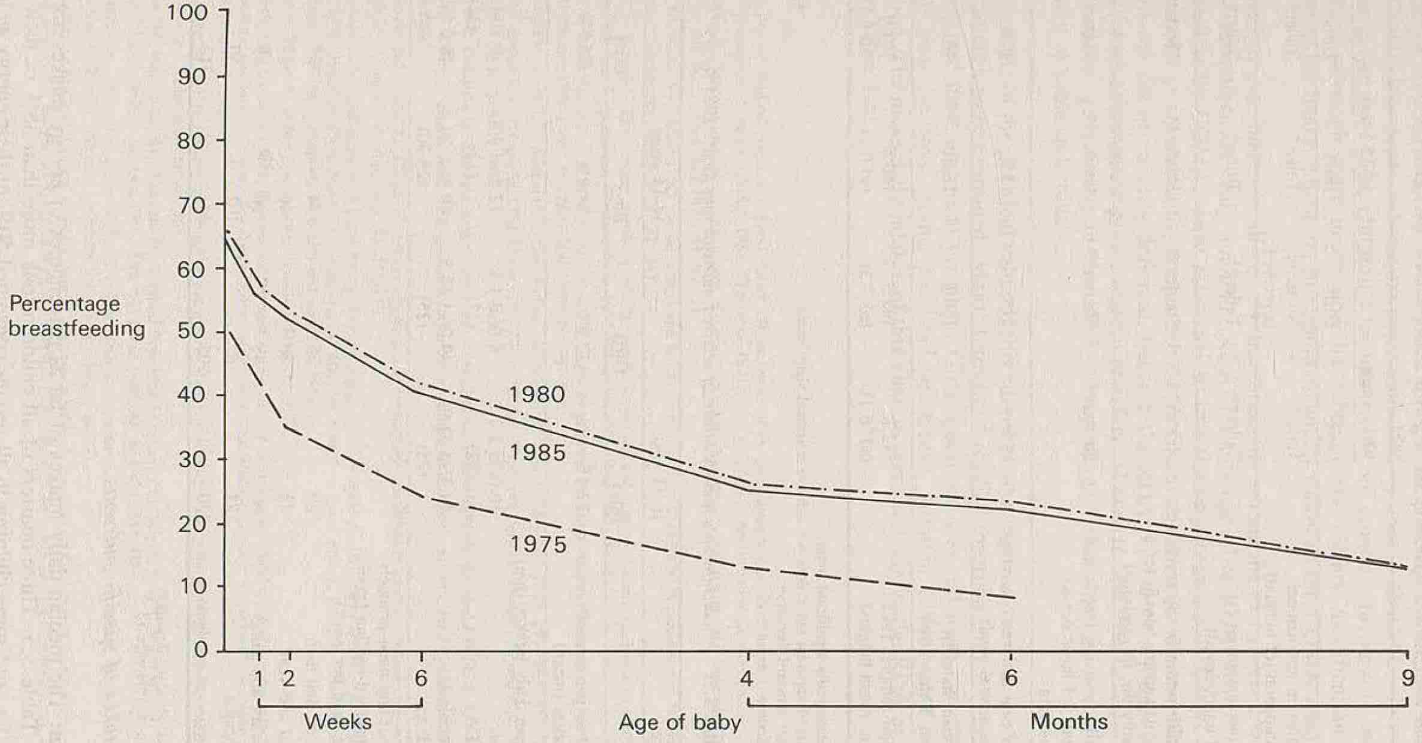


Figure 3.4: *Surveys of infant feeding practices (England and Wales): Proportions of infants being breastfed in the first 9 months*



Source: Report on Health and Social Subjects No. 32 (HMSO)

Table 3.4: *Factors influencing the heights of schoolchildren: 1983 survey*

Age	10-11 years		14-15 years	
	Boys	Girls	Boys	Girls
Father in non-manual occupation (cf manual)	Taller**	No trend perceived	Taller*	Taller*
Father employed (cf unemployed)	Taller**	Taller**	Taller*	Taller*
Child from a family receiving supplementary benefit (cf a family not so receiving)	Shorter**	Shorter**	Shorter**	Shorter**
Child receiving free school meals (cf those not so receiving)	Shorter**	Shorter**	Shorter**	Shorter**
Per cent children receiving free school meals	19%	21%	15%	12%
British Standard (cm: 50th centile)[15]	139.3	139.5	164.0	161.1
Total sample: 1983 (cm: mean heights)	142.8 (sd⁺6.1)	142.9 (sd 7.3)	166.8 (sd 8.2)	161.0 (sd 6.1)

**statistically significant trend
* trend apparent but it does not achieve statistical significance
\+ sd: standard deviation
Source: reference 13

Table 3.5: *Schoolchildren's dietary intake of selected nutrients and foods: 1983 survey*

Age	10-11 years		14-15 years	
	Boys	Girls	Boys	Girls
Fat as per cent of energy intakes (mean)	37.4%	37.9%	37.9%	38.7%
Mean daily intakes (mg)				
Iron (RDA)	10.0(sd 2.3)* (12)	8.6(sd 1.9) (12)	12.2(sd 3.3) (12)	9.3(sd 2.5) (12)
Vitamin C (RDA)	49.3(sd 32.9) (25)	49.0(sd 37.5) (25)	49.3(sd 29.4) (25-30)	48.0 (sd 27.7) (25-30)
Meat and meat products consumed-median (grams per head per week)				
bacon and ham	29	35	44	39
beef and veal	42	40	48	23
poultry and game	60	48	90	65
sausages	88	67	102	50
other meat products	320	295	401	312

* sd: standard deviation
Source: reference 13

Intakes of specific nutrients

Fat: The median daily intakes of fat as percentages of energy intakes are shown in Table 3.5. Three-quarters of all children took more than 35% of their energy as fat, and some children in all groups consumed 50% of their energy as fat. The single major sources of fat in the diets of most children were chips and milk. In 1984, COMA recommended that no more than 35% of energy should be derived from fat in the diet[16]. The children's fat intakes do not compare favourably with this figure, although there might now have been some dietary modification in response to the health education programmes which followed the COMA report.

Iron: Median iron intakes in all groups, but especially among the girls, were lower than the recommended daily amounts (RDA) for this age. The RDA, which are under review by COMA, were estimated so that the requirements of almost all members of a group of healthy people are met[17]. Children with iron intakes below the RDA are not necessarily deficient, because the RDA represents a judgement of the average requirement plus a margin of safety. However, the iron intakes for post-menarchal girls found in the 1983 survey suggest that there is a risk of deficiency in some individuals.

As an example of the practical value of this survey, two aspects of the iron intakes of the children were examined. Major sources of readily absorbed iron are meat, especially red meat and meat products. Girls consumed less red meat and meat products than the boys (grams per head per week). Vitamin C facilitates iron absorption. The mean daily intakes of this vitamin were well above the RDA in all groups (Table 3.5).

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(d) Dental health

In common with many other industrialised countries, a substantial improvement in dental health has taken place in the United Kingdom in recent years. This has been manifested particularly in children, where a marked decline in dental caries has occurred since the early 1970s.

This section reviews current caries experience in children, the secular changes which have determined current levels and some demographic variations that are apparent in the present distribution of the disease. The probable reasons for the decline in caries are briefly referred to and some comparisons are made with levels in other countries of Western Europe. In conclusion, the prospects for further improvements in child dental health are considered.

Dental caries experience is cumulative and is customarily measured by the decayed, missing and filled primary teeth (dmft) or decayed, missing and filled permanent teeth (DMFT) indices. Group means are derived from individual index scores. Another, though less discriminating, measure of child dental health is the percentage of children in a population free from signs of caries (dmft or DMFT = 0). Secular changes in caries experience between two cross-sectional sets of observations are usually recorded as percentage reductions (or increases) in mean dmft or DMFT for the age band in question. However, an age-specific decline, for example, might not be linear over time and, for this reason, is often expressed as an annual compound reduction rate, the preferred procedure for normalising the data.

The World Health Organization (WHO) has determined two *Oral Health Global Indicators* for the year 2000 for children, These are 50% of 5-6-year-olds free from caries and a DMFT no greater than 3 at 12 years. Most of the data in this review refer to 5- or 12-year-olds. All data presented were collected in cross-sectional surveys conducted by trained and standardised examiners using standard examination methods and comparable clinical diagnostic criteria.

Changes in dental decay experience and current levels

National surveys of children's dental health carried out under the direction of the OPCS[1] showed that dental caries experience in England and Wales fell by 50% in 5-year-olds, 40% in 12-year-olds and by about one third in 15-year-olds between 1973 and 1983. The decrease was such that by 1983, over half the 5-year-olds had no experience of decay, while the average DMFT for 12-year-olds of 2.9 was already below the WHO *Oral Health Global Indicator* for the year 2000 for that age-group[2]. Further changes in caries experience since 1983 are considered in the concluding section.

Demographic variations

National data summarising age-specific caries levels conceal often large differences when broken down according to particular demographic variables. Some of the most notable differences are those found both within and between different regions of the country and those associated with varying uptake of dental services. They probably reflect in the main social, behavioural, cultural and economic characteristics of the population groups concerned. In examining demographic variations in caries experience it is also useful to consider the separate components of DMFT, for it is among these that the largest differences tend to be found.

Table 3.6 presents mean DMFT and its components for 12-year-olds in 1983 in the United Kingdom (UK) overall, in the four territorial regions of the country, and in the two areas of England where the most marked differences in caries experience were observed. The table also shows the variation found in caries experience according to regularity in attendance at the dentist.

Table 3.6: *Dental caries experience at 12 years in the United Kingdom in 1983 according to selected demographic variable*

Variable	DMFT (mean)	Decayed teeth (DT) (mean)	Missing teeth (MT) (mean)	Filled teeth (FT) (mean)
United Kingdom	3.1	0.6	0.3	2.1
England	2.9	0.6	0.3	2.0
Mersey and North Western	3.9	1.1	0.5	2.3
Trent and East Anglia	2.4	0.4	0.2	1.8
Wales	3.3	0.7	0.3	2.3
Scotland	4.5	1.1	0.6	2.9
Northern Ireland	4.8	1.5	0.7	2.6
Regular attenders	3.0	0.4	0.2	2.4
Occasional attenders	2.8	0.8	0.3	1.7
Only with trouble	3.4	1.1	0.4	1.9

DMFT; decayed, missing and filled permanent teeth

With regard to geographic variation, Table 3.6 shows that at the extremes of the range, caries experience at 12 years was over 50% higher in Northern Ireland than in England. An examination of the components of DMFT indicates that children in Northern Ireland (compared with English children) had particularly high mean values for decayed teeth and teeth missing due to caries. Regional comparision also demonstrates the gradient in caries severity which exists from the south to the north of Great Britain with the lowest values for DMFT and its components occurring in the East Midlands and the highest values in Scotland. Analysis of caries experience according to attendance pattern shows that children who visited the dentist only when having trouble, comprising 24% of UK 12-year-olds, had the higher DMFT and nearly three times the mean number of decayed teeth of regular attenders. Those who claimed to attend the dentist regularly on the other hand, and who constituted 64% of children, not unexpectedly had the highest mean number of filled teeth.

Reasons for the decline in caries

The most likely reason for the decline in caries is the exposure of children to fluoride in various forms and especially the widespread use of fluoride-containing toothpastes. Other possible factors are a change in the pattern of sugar consumption, a change in public attitude towards the value of maintaining a healthy, natural dentition, and an increasing emphasis by the dental profession on disease prevention. Caries reductions per annum demonstrated in controlled clinical trials of fluoride dentifrices are consistent with compound annual reduction rates reported in many industrialised countries. While fluoride dentifrices have not necessarily been wholly responsible for the disease in caries, it seems likely that the sudden surge of improvement during the 1970s can be ascribed to the marked increase in their use[3].

International comparisions

Table 3.7 presents caries experience at 12 years in the countries of Western Europe. Except where indicated, all data were obtained from the Global Oral Data Bank of the World Health Organization[4].

Table 3.7: *DMFT* at 12 years in countries of Western Europe, with dates in parentheses*

Scandinavia and the British Isles		Central Europe		Southern Europe	
Denmark	3.0 (1986)	Austria	4.0 (1983)	France	4.2 (1987)
Finland	1.7 (1987)	Belgium	3.1 (1988)	Greece	4.4 (1985)
Norway	3.7 (1984)	German Fed. Rep.	6.3 (1983)	Italy	3.0 (1985)
Sweden	2.6 (1988)	Netherlands	2.5 (1988)	Malta	1.6 (1986)
Ireland	3.0 (1984)	Switzerland	3.0 (1985)	Portugal	3.8 (1984)
UK	3.1 (1985)			Spain	4.2 (1985)

*DMFT: decayed, missing and filled permanent teeth

It can be seen that, in the Nordic countries[5], the UK, the Republic of Ireland, and central Europe, Mean DMFT values tended to cluster around three, the WHO Global Indicator for 2000. However, Finland which has had intensive public preventive programmes for a number of years reported an exceptionally low value of 1.7. The rather high DMFT for West Germany referred to a small, non-representative sample from the city of Hamburg. In the countries of southern Europe, caries experience tended to be somewhat higher than in northern and central Europe, with mean DMFT values around 4. The exceptions were Italy and more particularly Malta which reported a very low caries prevalence. In most countries of southern Europe[6], the availability and use of fluoride toothpaste has been less extensive than in many of the more northerly countries.

Future prospects

The question of whether dental caries will continue to decline is one that is of interest to the clinician and health service planner alike. Two recently published, nationally based surveys, one covering 5-year-olds[7] and one, 14-year-olds[8], provided some information on changes in caries experience in England and Wales since 1983.

Table 3.8 shows caries experience recorded in these latest surveys and in the OPCS national surveys of 1973 and 1983[1]. It is apparent that while caries experience in 5-year-olds fell by 7.7% a year between 1973 and 1983, no further change occurred nationally between 1983 and 1985/1986, although there was a further small increase in the proportion of children free from caries (51-54%)[9]. It is reasonable to suppose that saturation of the fluoride dentifrice market leading to a plateau in retail sales and no further reduction in sugar consumption would eventually cause caries levels to stabilise.

Table 3.8 *Secular changes in dental caries experience of 5- and 14-year-olds in England and Wales and annual compound reduction rates between observations*

Date	5-year-olds dmft (mean)	Annual compound reduction (%)	14-year-olds DMFT (mean)	Annual compound reduction (%)
1973	4.0		7.4	
		7.7		4.6
1983	1.8		4.7	
		0.0		
1985/86	1.8		—	9.7
1986/87	—		3.4	

dmft: decayed, missing and filled primary teeth
DMFT: decayed, missing and filled permanent teeth

In 14-year-olds, on the other hand, Table 3.8 shows that the rate of decline in caries accelerated after 1983 from 4.6% per annum to an impressive 9.7%. This was partly the effect of cohorts of young children with reduced levels of caries maturing into adolescence. Such a cohort effect has been postulated by a number of authorities and should lead during the next few years to substantially reduced caries levels, first in young adults and then eventually in older people.

In the 1987 report of the Department Review Group on Dental manpower[10] further reductions in caries were predicted, although it was recognised that a levelling off or even an upturn in disease levels could not be ruled out. The expectation of a continuing reduction was governed in part by the anticipation of new initiatives which were predicted to have beneficial consequences on future dental diseases levels. These included the introduction of a capitation system of remuneration for the treatment of children in the General Dental Service, extension of water fluoridation, dissemination of more information to guide the public on dental care, including the labelling of food products to show their sugar content, and changes in clinical dental practice arising from a more preventively orientated professional education and the adoption of improved methods of treating caries that are less destructive of sound tooth tissue.

Further reductions in caries are undoubtedly achievable and the disease is capable of virtual eradication in young children. However, in order to realise further improvements, sustained efforts to promote new initiatives in disease prevention such as those above are called for. It is especially important that the introduction of new fluoridation schemes is facilitated. Recent studies have shown that fluoridation has continued to produce important additional benefits over and above the general decline in caries that has occurred[9]. Moreover, these benefits accrue particularly to populations in large industrial conurbations and to those in the less privileged social classes where the highest caries experience tends to be found.

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(e) Cancer

There is roughly one new case of childhood cancer in every 10,000 children each year. The highest incidence is in the pre-school children aged one- to four-years. This is followed by the first year of life, then in the age-group five- to nine-years and the lowest incidence is found in children aged 10- to 14-years. Cancer is third only to accidents and congenital malformations in the league table of causes of death in childhood. The commonest malignant conditions registered are leukaemia (35% of the total) and tumours of the central nervous system (CNS). Carcinomas, the commonest malignant neoplasms in adulthood, are very rare in children, accounting for only 2% of childhood cancers.

Comprehensive information about childhood cancer is available because the Childhood Cancer Research Group in Oxford maintains the *National Registry of Childhood Cancers for England, Scotland and Wales.* Although the principal source of ascertainment is the National Cancer Registration Scheme, the Childhood Cancer Research Group obtains valuable additional information, including confirmation of the diagnosis from the medical records, together with a summary of the treatment and prognosis.

In 1988, the World Health Organisation (WHO) published a comparison of the international incidence of childhood cancer[1]; Table 3.9 shows a selection of those data.

Survival

Table 3.10 shows the five-year survival rate as a percentage for three different time periods in the 1970s and for the different types of childhood cancer in England and Wales.

The remarkable increase in survival rates for acute lymphoblastic leukaemia (ALL) in children may be attributed to the fact that by the latter part of the decade, virtually all children with ALL were treated according to standard protocols for chemotherapy and prophylactic CNS irradiation, many of them at major centres where large numbers of patients are seen each year. Although, for acute non-lymphoblastic leukaemia, the survival rate was still low in 1977-79, there had been a significant improvement which may tentatively be ascribed to developments in chemotherapy for this disease.

Survival rates for children with Hodgkin's disease were already high by 1970, but a significant further increase occurred during 1971-79. This was also true for survival rates for non-Hodgkin lymphoma. Results from the United Kingdom Children's Cancer Study Group (UKCCSG) suggest that, with modern combination chemotherapy and radiotherapy, long-term survival rates in excess of 50% can now be expected.

The survival rate shown for neuroblastoma understates the real improvement, since more recent experience includes a lower proportion of very young patients (for whom the prognosis has always been better) because of changes in the age distribution of the population. There was a steady improvement in survival rates for Wilm's tumour during the 1970s and it is now suggested that, for children

Table 3.9 *International incidence of childhood cancer: age – standardised incidence rates per million per annum*

	England[1] & Wales		Denmark[2]		USA – SEER[3] Whites		USA – SEER[3] Blacks	
	M	F	M	F	M	F	M	F
Acute lymphoblastic leukaemia	33.7	25.5	33.9	26.0	35.9	29.7	14.4	15.3
Acute non lymphoblastic leukaemia	6.1	5.7	7.1	4.1	5.6	6.5	4.3	6.2
Chronic myeloid leukaemia	1.0	0.6	0.9	1.2	0.7	0.4	1.0	1.2
Hodgkin's disease	5.6	2.4	4.3	3.7	6.5	5.9	7.5	1.9
Non-Hodgkin lymphoma	7.9	3.4	4.1	1.5	6.9	2.8	3.9	1.5
CNS tumours	26.4	22.4	33.9	27.7	26.4	23.3	21.0	23.0
Medulloblastoma	6.1	3.6	6.0	2.6	6.9	4.4	5.3	4.6
Neuroblastoma	7.8	6.1	9.2	9.9	12.6	12.3	9.6	10.8
Retinoblastoma	3.4	3.6	2.4	2.0	3.7	4.4	4.8	5.5
Wilm's tumour	6.9	7.5	6.8	7.8	7.8	10.0	9.9	12.3
Osteosarcoma	2.6	2.4	1.5	2.1	2.3	2.7	3.0	3.8
Ewing's tumour	1.9	1.5	2.4	4.0	2.5	2.4	0.3	0.4
Rhabdomyosarcoma	5.1	3.5	7.2	0.9	5.0	4.4	5.2	1.7
Gonadal and germ cell tumours	2.5	2.6	1.7	2.5	4.3	4.1	3.2	5.2
All Cancer	119.6[4]	96.8	143.5	110.6	143.9	126.9	107.2	107.9

[1] England & Wales: National Registry of Childhood Tumours, 1971-1980

[2] Denmark: The Danish Cancer Registry, 1978-1982

[3] USA – SEER: The Surveillance, Epidemiology and End Results programme of the USA, 1973-1982

[4] Other cancers not included

Source: WHO

with early stage tumours, a long-term survival rate of 90% is possible. The improved prospects for both neuroblastoma and Wilm's tumour patients are, once again, almost certainly due to the use of more effective chemotherapy regimens. There was no significant trend in the survival rates for retinoblastoma, which were already high at the beginning of the period. A significant improvement in the survival rates for children with medulloblastoma is attributed to a reduction in operative mortality and the more general use of a higher dose radiotherapy. There was no evidence of a change in survival rates for any other category of CNS tumour.

Table 3.10 *Survival rates for childhood cancer registered in England and Wales, 1971-79*

	Five year survival rate (%) for year of diagnosis			Significance of trend
	1971-73	1974-76	1977-79	
Acute lymphoblastic leukaemia	36	47	52	s
Acute non lymphoblastic leukaemia	4	5	15	s
Hodgkin's disease	76	83	89	s
Non-Hodgkin lymphoma	21	28	39	s
Neuroblastoma	16	20	27	s
Wilm's tumour	58	64	77	s
Retinoblastoma	88	87	88	ns
Medulloblastoma	23	30	35	s
Osteosarcoma	17	24	27	s
Ewing's tumour	34	36	32	ns
Rhabdomyosarcoma*	26	41	46	s
Malignant gonadal germ cell (male)	57	65	69	ns
Malignant gonadal germ (female)	43	48	77	s

* includes embryonal sarcoma
s significant. $p<0.05$
ns no significant trend

Survival rates for osteosarcoma were very low in the early 1970s. A marked improvement occurred during the period under review but, even in respect of cases diagnosed in 1977-79, fewer than a third of patients will be long-term survivors. There was no evidence of increased survival rates for Ewing's tumour, the other principal bone tumour of childhood. However, the advent of limb-sparing surgery does offer improved quality of life for those with bone tumours.

There was a substantial increase in survival rates for children with rhabdomyosarcoma, with the greater part of the improvement being between 1971-73 and 1974-76. This has been due to the combined use of effective radiotherapy and chemotherapy.

Once again, the dramatic improvement in the survival rate for girls with malignant ovarian germ-cell tumours during the late 1970s is largely attributable to effective chemotherapy.

Treatment in specialist centres

In 1977, UKCCSG was formed by consultants specialising in paediatric oncology. UKCCSG members are now responsible for managing approximately two-thirds of new cases of cancers in children, Table 3.11 shows how the percentages of children with cancer initially referred to paediatric oncology centres changed over the years 1977-84. The reason for the low proportion of patients with retinoblastoma included is that many of them were treated at two London hospitals, and until recently, these patients were not notified to the UKCCSG.

Table 3.11 *Percentages of children with malignant neoplasms initially referred to paediatric oncology centres 1977-84*

Diagnostic group	Years of diagnosis	
	1977-80	1981-84
Acute lymphoblastic leukaemia	64	78
Acute non lymphoblastic leukaemia	62	77
Other leukaemia	49	54
Hodgkin's disease	60	67
Non-Hodgkin lymphoma	67	77
Neuroblastoma	73	86
Wilm's tumour	69	88
Retinoblastoma	11	27
Medulloblastoma	45	56
Other central nervous system	28	31
Osteosarcoma	36	52
Ewing's tumour	56	73
Rhabdomyosarcoma	68	90
Malignant germ cell tumour	53	62
Other malignant disease	43	44
Age in years		
0-4	58	72
5-9	58	67
10-14	42	53
TOTAL	53	65

Table 3.12 shows the three-year survival for children in diagnostic groups, categorised by year of diagnosis and treatment centre. The results show that children with acute non-lymphoblastic leukaemia, with non-Hodgkin lymphoma, with Ewing's tumour and with rhabdomyosarcoma, fared better when treated in paediatric oncology centres than when treated at other centres. The results for neuroblastoma are misleading because the paediatric oncology centres had a considerably higher proportion of Stage III and IV patients, who have a worse prognosis, than other hospitals. In fact, the three-year survival for the Stage III patients increased from 33% to 61% at the paediatric oncology centres, and for Stage IV patients, from 11% to 21%.

Conclusion

There have been considerable improvements in recent years in the survival for several types of childhood cancer and the results obtained at specialist paediatric oncology centres have tended to be better than those achieved elsewhere.

References

[1] World Health Organisation. International Agency for Research on Cancer. *International incidence on childhood cancer*. Lyon: International Agency for Research on Cancer, 1988. (IARC Scientific Publications; No. 87).

Table 3.12 *Actuarial three-year percentage survival rates for children at each type of treatment centre with results of log rank tests for heterogeneity of survival curves among types of treatment centre allowing for age and year of diagnosis*

Diagnostic group	*Treatment centre and years of diagnosis*						p value significance
	Paediatric oncology centre		*Other (teaching)*		*Other (non-teaching)*		
	1977-80	1981-84	1977-80	1981-84	1977-80	1981-84	
Acute non-lymphoblastic leukaemia	28	32	23	(21)	9	(6)	†
Hodgkin's disease	90	98	91	85	88	100	NS
Non-Hodgkin lymphoma	56	70	32	(56)	43	(58)	†
Neuroblastoma	32	49	52	(54)	(25)	*	NS
Wilm's tumour	83	80	81	(77)	81	*	NS
Osteosarcoma	39	54	32	24	38	37	NS
Ewing's tumour	46	50	24	(33)	(43)	(45)	†
Rhabdomyosarcoma	63	63	25	(36)	46	*	†

Figures in parentheses are percentages of fewer than 20 patients: * = fewer than 10 patients in the group.
NS: not significant
†: $p < 0.05$

(f) The prevalence of disability

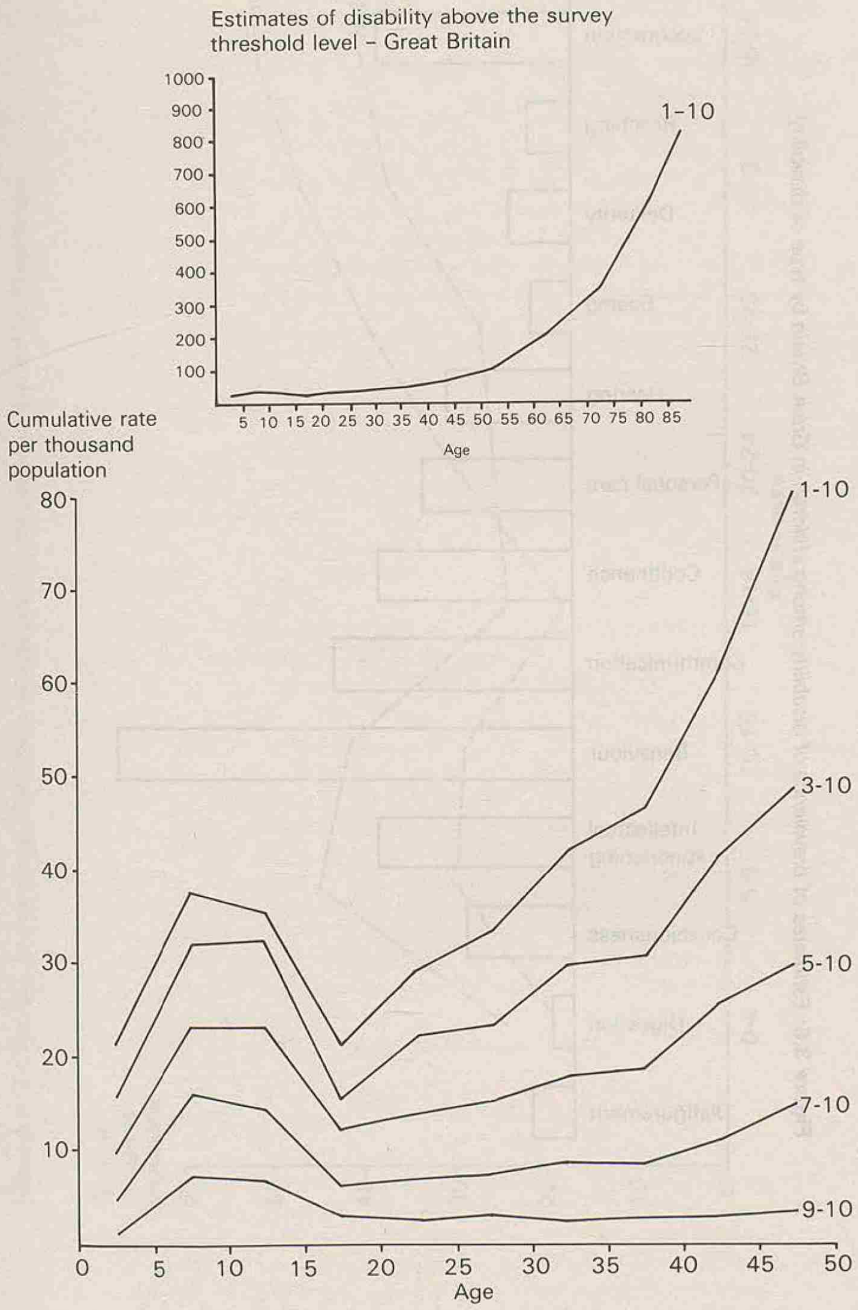
The first results of two surveys of disability among children have been published[1]. They are among four surveys on the subject of disability carried out by OPCS for the DHSS which together cover both adults and children in communal establishments as well as in private households. The main objective of the research was to provide estimates of the number of disabled people in Great Britain with different levels of severity. The surveys focus on disability, which is defined as "a restriction or lack of ability to perform normal activities, which has resulted from the impairment of a structure or function of the body or mind". The surveys asked questions about all types of disability, whatever their origin. The data have been organised in two main ways. First, a single scale of severity has been developed. All people – children as well as adults – above a relatively low threshold can be placed on it regardless of the type or number of different disabilities they have. Second, the surveys distinguish 13 different types of disability based on those identified in the International Classification of Impairments, Disabilities and Handicaps[2].

The survey estimates that there are about 360,000 children with one or more disabilities in Great Britain, of whom around 5,600 (3%) live in some kind of communal establishment. The figure of 360,000 represents 3.2% of the 11.3 million children aged under 16-years in 1985, the year of the survey of children in private households.

Approximately equal numbers of children were found in each category of severity. An example of a child in the lowest severity group (Category 1) was a girl of two years suffering from Pierre Robin Syndrome, a disorder involving a small lower jaw. She had difficulty eating and drinking which severely affected her ability to lead a normal life. Almost half way up the scale (Category 5) was a boy of six years, described as 'hyperactive'. He was bad-tempered and destructive at least once a week (in addition to having other behaviour problems). At the most severely disabled end of the scale (Category 10) was a child of 10 years with cerebral palsy. She found it impossible to understand anything her family said; was violent and destructive; screamed or shouted every day; could not feed herself or walk up a single step unaided; could not recognise her own name when written; had a fit during the last year, with loss of consciousness; and was incontinent of urine.

The surveys of disabled adults showed that the prevalence of disability increases with age from the late teens onwards. If the relationship is represented by a curve which slopes upwards as age increases, prevalence among children forms a small undulation at the bottom of the curve (see inset diagram, Figure 3.5). In children, prevalence increases from the pre-school years to ages 5-9, falls amongst those aged 10-15 and then declines more steeply in the 16-18 year age-group before resuming its upward trend. This is most clearly seen in the main diagram in Figure 3.5 which magnifies the lower part of the inset. The steeper decline in prevalence occurs between 10- to 15-year-olds, the oldest group covered by the children's surveys, and 16- to 18-year-olds, the youngest group in the adult surveys. Evidence from the surveys suggests that part of the decline in prevalence as children grow up occurs because some disabilities diminish or disappear around adolescence. However, a further reason might reflect differences in some of the questions asked of adults and children. Although the surveys were intended to produce equivalent measures of disability in children and adults, the fact that children's abilities normally develop with age, compelled some difference of approach.

Figure 3.5: *Estimates of prevalence of disability in Great Britain by age and category of severity showing how prevalence among children relates to prevalence among adults*



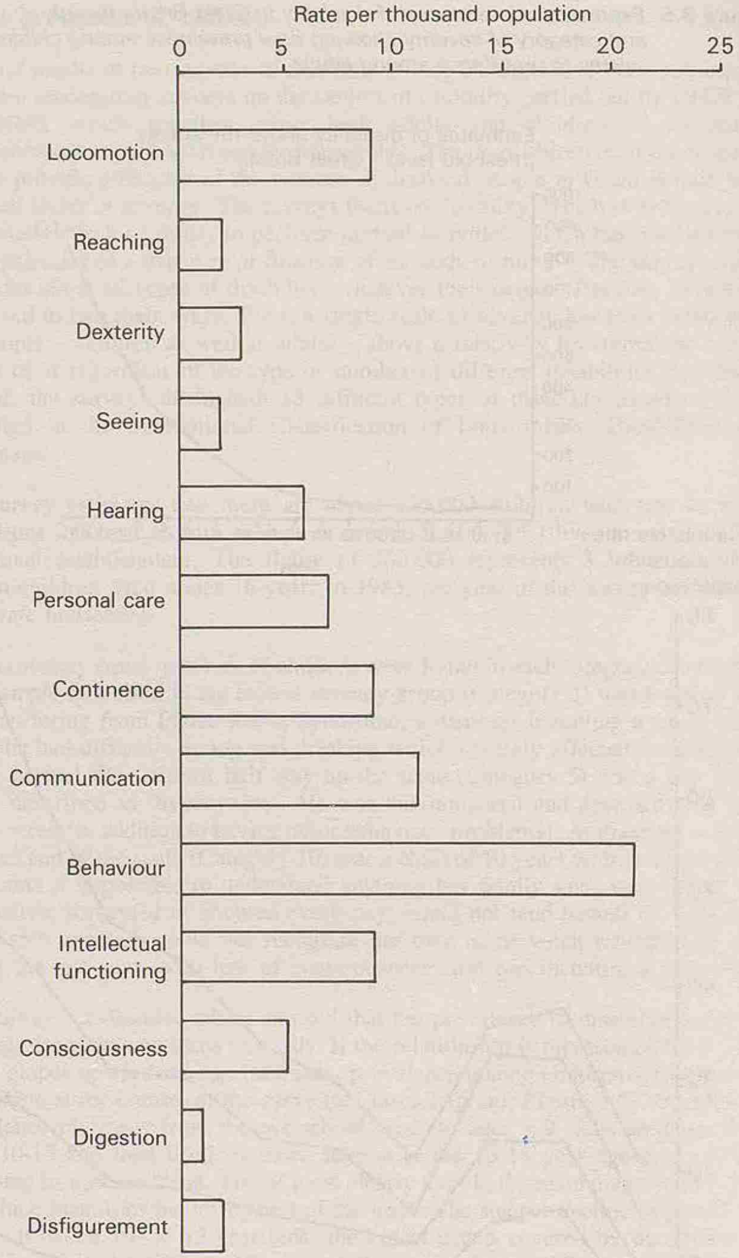
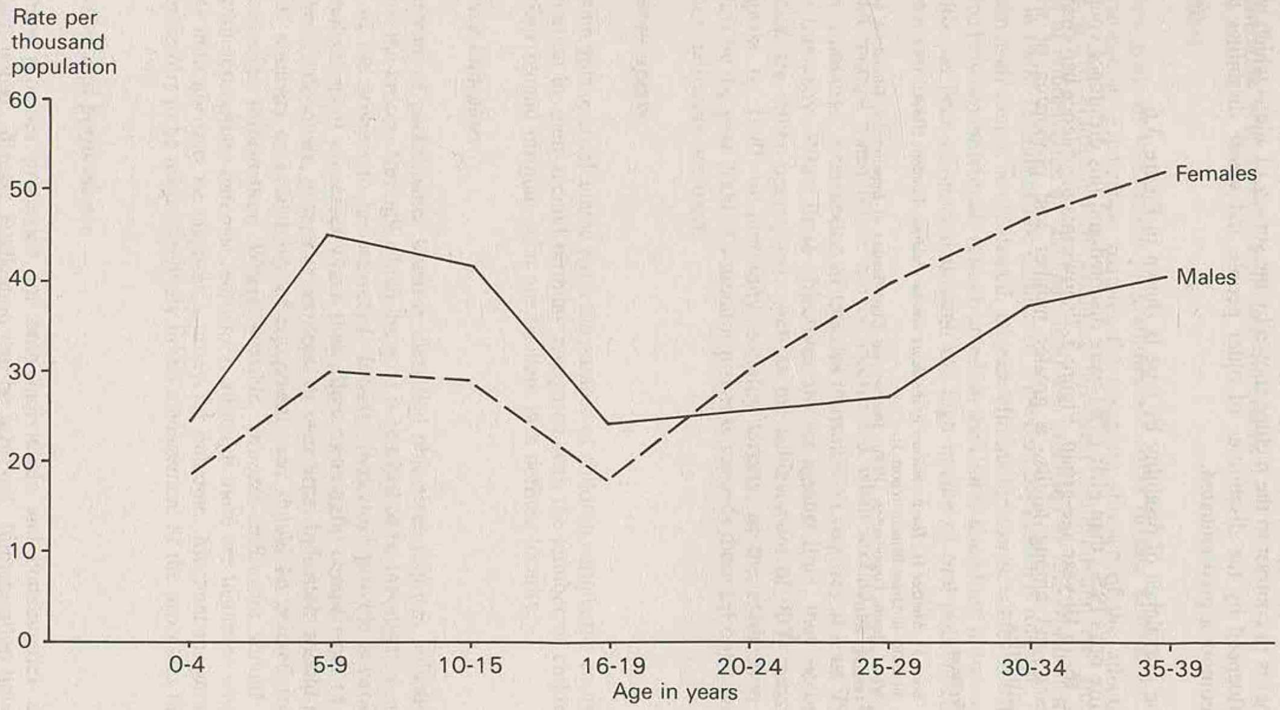


Figure 3.6: *Estimates of prevalence of disability among children in Great Britain by type of disability*

Figure 3.7: *Estimates of prevalence of disability by age and sex for people under 40 in Great Britain*



The majority of disabled children, particularly the more severely disabled, had more than one type of disability. The most common type was to do with behaviour. That is in contrast to the picture shown by the survey of adults which was heavily influenced by the disabilities of older people and where disabilites to do with locomotion predominated.

The prevalence of disability by type is shown in Figure 3.6.

More boys (9%) than girls (3%) were disabled and this difference continued into the 16- to 19-year age-group. Figure 3.7 shows this prevalence had changed by 20 years, and among adults, a greater number and proportion of women had disabilities.

References

[1] Bone M, Meltzer H. *The prevalence of disability among children*. London: HMSO, 1989. (OPCS surveys of disability in Great Britain; report 3).

[2] World Health Organisation (1980). International Classification of Impairments, Disabilities and Handicaps, Geneva: WHO.

4. OUTCOME INDICATORS

(b) Immunisation programmes and their outcomes

The objectives

The ultimate goals of vaccination programmes are either disease elimination or disease eradication. Eradication requires the complete absence of the infective agent: the global eradication of smallpox has been achieved and the global eradication of poliomyelitis by the year 2000 was endorsed by the World Health Assembly in 1988. Tetanus can be eliminated if a whole population is immune, but the organism itself cannot be eradicated. Disease elimination can be achieved when transmission between individuals is interrupted; in the United Kingdom, indigenous poliomyelitis has been eliminated through the high uptake of oral poliomyelitis vaccine.

Rubella and mumps transmission can be interrupted when around 90% of the population is immune; interruption of measles transmission requires at least 95% population immunity. When these objectives are set against time, they become targets which are either operational, such as the achievement of 90% measles vaccine uptake by 1990, or morbidity/mortality targets, as the eradication of poliomyelitis by the year 2000. To monitor progress towards these set objectives, performance indicators are used.

Immunisation uptake

Immunisation uptake is calculated from the number of children completing courses of immunisation by their second birthday compared with the number of children reaching their second birthday who are resident in a defined locality.

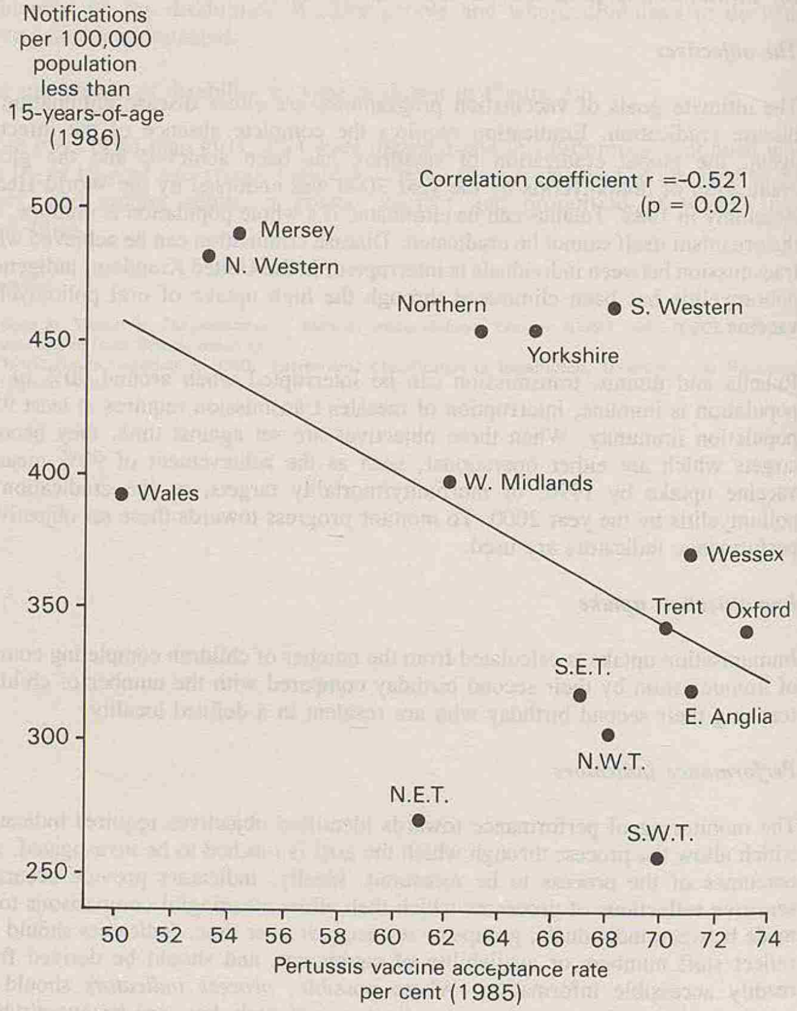
Performance indicators

The monitoring of performance towards identified objectives requires indicators which allow the process through which the goal is reached to be investigated, and outcomes of the process to be measured. Ideally, indicators provide accurate, sensitive reflections of processes which then allow meaningful comparisons to be made between individuals, groups or services, or over time. Indicators should not reflect staff numbers or availability of equipment, and should be derived from readily accessible information. Where possible, *process indicators* should be matched with appropriate *outcome indicators*, although there are instances where the process indicator may be taken as a proxy for outcome. Mechanisms should exist for indicators to be used effectively in the management of the processes they measure.

Immunisation and performance

Immunisation provides protection for both individuals and communities and through high uptake, disease eradication can be achieved. Immunisation uptake figures therefore can be considered as process indicators, and surveillance of the incidence of the disease in the community can be used as an outcome indicator. As immunisation uptake rises towards very high levels, accurate surveillance of disease incidence becomes increasingly important so that the ultimate goal of the

Figure 4.1: *Whooping cough: notifications and vaccine acceptance in regions of England and Wales, 1986*



Source: Community Medicine (1987) Vol. 9/No. 2

complete and confident absence of disease can be ensured. For management purposes, interim immunisation uptake targets can be used to monitor progress. However, outcome indicators are less suitable for management purposes because of the delay before impact can be assessed. For example, efforts which increase measles vaccine uptake, the *process* indicator, will lead to reductions in the number of cases of measles which represent the *outcome* indicator. Whilst cases of measles continue to be so common, the accuracy of disease surveillance is less critical. For polio, in comparison, uptake of vaccine is already high enough to have eliminated indigenous disease, and continuing surveillance is crucial to ensure that all cases that occur are fully investigated and accurately categorised according to their origin, ie whether imported or vaccine-associated. Any single indigenous case would have major implications and consequences. Sometimes there can be problems with establishing the correct incidence of disease; many cases, for example, of whooping cough, might not be notified, and cases caused by different respiratory pathogens can be misdiagnosed. Nevertheless, an inverse statistical correlation can be shown between vaccine uptake and notification rates on a regional basis[1]. These are compared in Figure 4.1 and there is, thus, a direct association between the process indicator and the outcome indicator.

The immunisation service

Although herd immunity can be reached without every susceptible individual being protected, there is effectively no alternative to the objective of the immunisation of *every* child who does not have valid contra-indications. In some health authorities, all childhood immunisation is carried out by family practitioners. In other districts, immunisation is provided mostly by health authority medical staff, with a smaller contribution from family practitioners. In general, higher uptakes are achieved where there is higher participation by family practitioners, but, in fairness, these districts are often also those with more stable and less deprived populations. Health authority clinics make their returns of immunised children directly, family practitioners either inform the Family Practitioner Committee (FPC), which in turn makes returns to the health authority, or vice versa. Annual statistics are prepared by DHAs which are now required to calculate immunisation uptakes using the resident child population as the denominator. These uptake figures form the basis of the immunisation performance indicators for health promotion and disease prevention, and represent an activity shared between health authorities and family practitioners. Separate performance indicators are prepared by FPCs using the number of claims for payment for immunisation services per 10,000 residents.

The reliability of the immunisation performance indicators depends on the speedy return of accurate information. When there are many families moving in and out of districts, difficulties can arise in recording the denominator on which uptake calculations are based. At national level, these local moves balance out. Under-recording of immunisation will falsely depress uptake figures; as only given vaccines are recorded, over-estimation is unlikely.

Indicators at national level

National uptake figures provide material for monitoring overall trends which are important when planning further promotional efforts. For example, during 1987/88 the greatest improvement could be seen in whooping cough uptake (see Chapter 5, and Appendix Table 9); it is likely that measles vaccine uptake will have accelerated over the period 1988/89, reflecting the campaign against measles in the early summer of 1988 and the campaign to launch MMR vaccine, which commenced in October 1988 (see Chapter 5).

When making comparisons against uptake figures from other countries, it should be appreciated that other less precise assessments of uptake are often used for national statistics. Examples include small sample surveys which are then extrapolated up to national figures, or national purchases of vaccines, although vaccine wastage can be very variable. The most accurate uptake figures are calculated when the total recorded completed courses of vaccines in individual children are set against an age-appropriate resident child population as denominator.

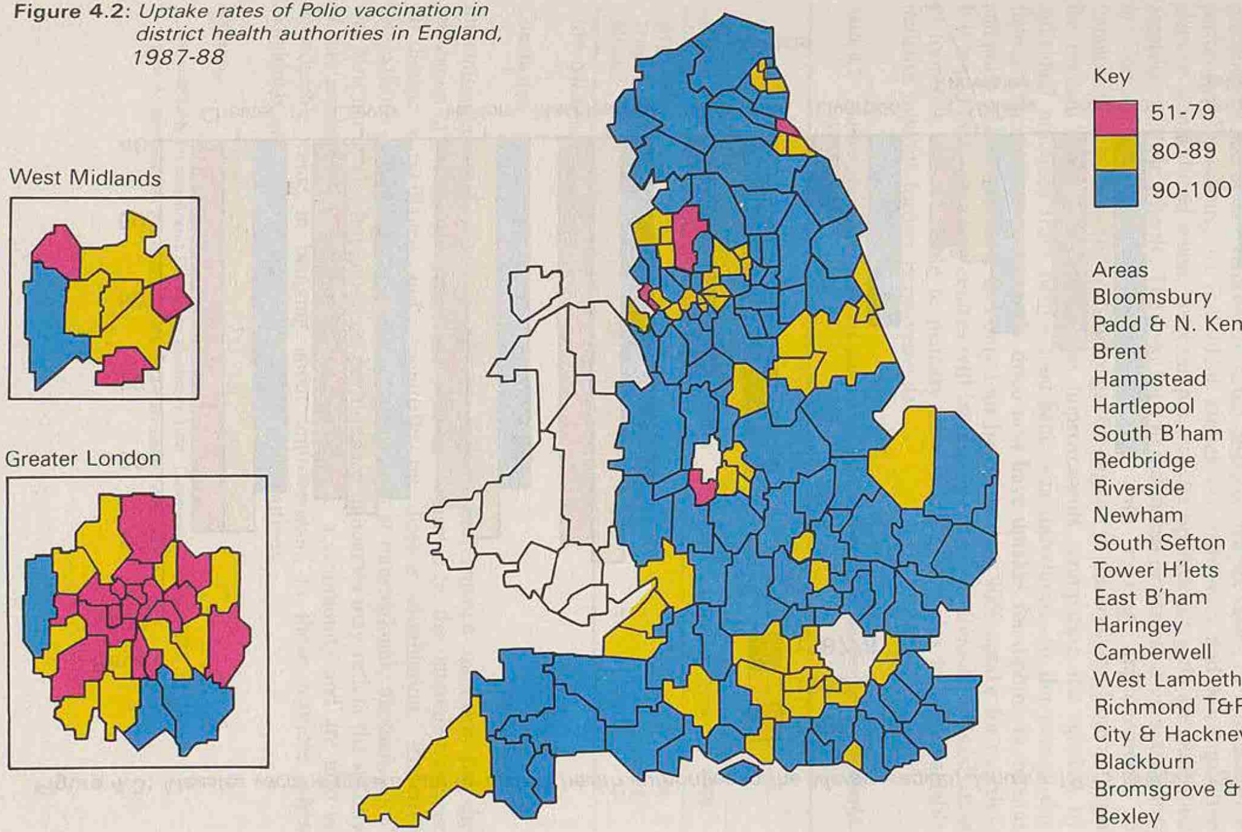
Indicators at district level

Whilst overall improvements in national immunisation uptake can be seen, it is important to appreciate that marked local variations occur, ranging from almost 100% uptake in some districts to very low uptakes in others. Figure 4.2 shows a map of uptake of polio vaccine by individual DHAs where 96 out of 190 (shown in blue) have already reached or exceeded 90% uptake. The districts with the lowest uptakes, shown in red, are generally those with high population densities and mobilities. They are also the places where outbreaks of indigenous poliomyelitis would be most dangerous. As there are numerically exceptionally few children for whom polio vaccine is contra-indicated, these low uptakes reflect service provision which is less effective than in high uptake areas. The deficit between 100% and the measured polio uptake can be taken to represent the extent of failure to provide an effective immunisation service to known children who have been included in the resident child population – the denominator. Adverse social circumstances make the achievement of high uptake harder, but there are areas, such as Central Manchester, where polio uptake equals the national average, yet deprivation, reflected in the Jarman Score, is close to the worst in England. Other areas, such as Rochdale, with high ethnic minority communities, achieve uptakes higher than the national average. This demonstrates that high uptakes are attainable in such areas if the immunisation service is well organised and enthusiastically supported.

Immunisation and management of the NHS

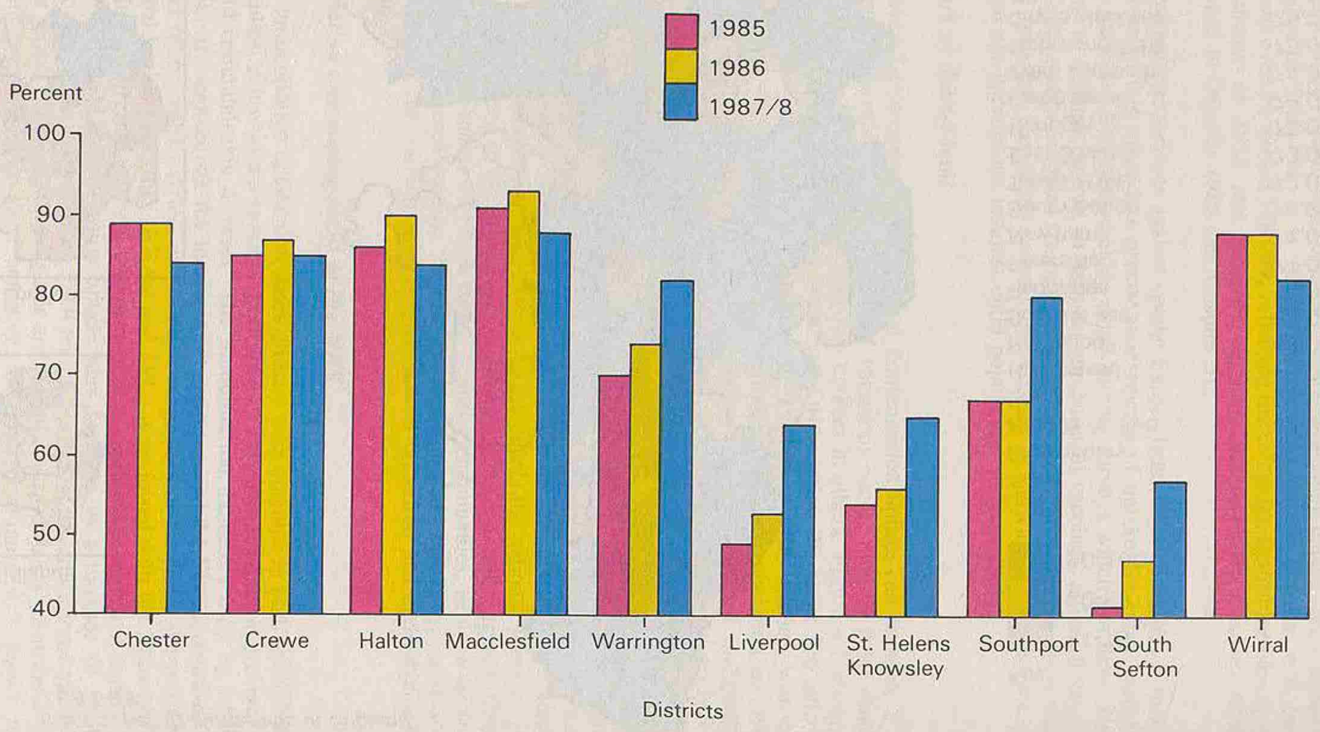
Because immunisation uptake correlates directly with outcome in both individuals and localities, it provides a sensitive performance indicator for disease prevention of certain communicable diseases. The immunisation indicators used by health authorities are appropriate for management purposes, whilst FPC immunisation indicators reflect work carried out. In the management of the NHS, the progress of regional health authorities (RHAs) and FPCs is reviewed with the Department of Health. Measureable markers of performance are selected to represent important areas of work and immunisation uptake may be used as a monitor of health promotion and disease prevention. Each region's progress towards agreed national targets is noted, but as regional figures are composites of districts' contributions, these latter provide the most sensitive information. Figure 4.3 shows the performance for Mersey Regional Health Authority for measles vaccine uptake. Although the regional performance compares unfavourably with many other regions, it is most encouraging to see that the greatest improvements are being made by the previously lowest achieving districts.

Figure 4.2: *Uptake rates of Polio vaccination in district health authorities in England, 1987-88*



Areas	
Bloomsbury	51.0
Padd & N. Ken	62.0
Brent	67.0
Hampstead	68.0
Hartlepool	68.0
South B'ham	68.0
Redbridge	70.0
Riverside	71.0
Newham	71.0
South Sefton	71.0
Tower H'lets	72.0
East B'ham	73.0
Haringey	73.0
Camberwell	73.0
West Lambeth	74.0
Richmond T&R	75.0
City & Hackney	75.0
Blackburn	75.0
Bromsgrove & R	76.0
Bexley	77.0

Figure 4.3: *Measles vaccine uptake rate by district health authorities in the Mersey region, January 1985 to April 1988*



Immunisation and personal performance

Now that virtually all immunisation services are computerised at either region or district level, considerable opportunities exist to use immunisation data to enable further improvements in uptake to be achieved. Details of children who have failed to respond to invitations for immunisation can be made available to clinics, family practitioners and health visitors. In some districts, league tables of immunisation performance according to individual clinics are published and a competitive element is introduced when, for example, rubella uptakes for girls are published according to their schools. The feed-back to individual practices of uptake figures in Northumberland[2] has been associated with striking improvements in immunisation uptake – to levels amongst the highest in the country, from amongst the lowest. Table 4.1 shows these improvements, comparing the uptakes by individual practices from before feed-back was introduced, to the present-day figures. Out of 57 practices, only three now have uptakes for diphtheria, tetanus and polio of less than 90% and only four have less than 90% uptake for measles. It is hoped that computing centres will increasingly make individual immunisation performance data available to primary care teams and clinics as an invaluable initiative towards further improvements.

Table 4.1: *Number of practices achieving stated immunisation cover in Northumberland health district, 1984 and 1989*

	Cover					
	<80%		80-89%		90-100%	
Immunisation	1984	1989	1984	1989	1984	1989
DTP*	16	0	19	3	22	54
Pertussis	47	10	8	19	2	28
Measles	42	1	12	3	3	53

* DTP: Diphtheria, tetanus, pertussis

Conclusion

Immunisation uptake can provide a sensitive performance indicator for the prevention of certain communicable diseases confirmed by the outcome indicator of disease surveillance and, eventually by disease elimination. Effective comparisons can be made between performances at international, national, local and personal levels. Immunisation performance indicators may reflect the quality of one aspect of the health services available to a community and are also of considerable value in bringing about improvements in those services when individuals are made aware of their own contributions.

References

[1] Communicable Disease Report October to December 1986. *Community Medicine* 1987; **9**: 176-181.
[2] Colver A, Immunisation and General Practice [Letter] *Lancet* 1989; i: 906.

(b) Report on Confidential Enquiries into Maternal Deaths in England and Wales 1982-1984

Introduction

The latest report in the triennial series of *Confidential Enquiries into Maternal Deaths in England and Wales*[1] covers the years 1982-84. The eleventh in the series which began in 1952, it is the last in the present form, because maternal deaths in England and Wales for the years 1985-87 will be combined with those in Scotland and Northern Ireland to produce the first United Kingdom report.

The report shows that the *number* of deaths has approximately *halved* every 10 years in the last 40 years (ie a fall of almost 80%), and the *rate* of fall over the same period, has been almost *constant* (Table 4.2).

Table 4.2: *Some statistics of maternal mortality and births 1955-84 England and Wales*

	1955-57†	1964-66‡	1973-75*	1982-84**
Number of maternal deaths:				
Total	1,480	830	323	163
of which				
Abortion	199	155	31	20
Direct Obstetric deaths	913	516	215	128
Associated Obstetric deaths	368	159	77	15
Total births	2,140,376	2,630,150	1,940,689	1,903,096
Maternal mortality rate per 100,000 total births	69.1	31.6	16.6	8.6
General fertility rate per 1000 women aged 15-44 years	78.4	92.8	67.9	60.1

† ICD 6th Revision
‡ ICD 7th Revision
* ICD 8th Revision
** ICD 9th Revision

Source:
1955-75 Mortality statistics, childhood and maternity, series DH3, No 4, Table 18.
1982-84 Mortality statistics, cause, series DH2, Table 2.
Mortality statistics, series DH1, Table 25.
1955-83 Birth statistics, series FM1, No 11, Table 1.1, 1.2.
1984 Birth statistics, series FM1, No 13, Table 1.1, 1.2.

In 1982-84, 316 maternal deaths were reported to the Enquiry. Of these, 138 were *Direct* obstetric deaths, 71 *Indirect*, 34 *Fortuitous* and 73, *Late* (see below). One death from eclampsia was reported only to the Registrar General, and one, which followed legal abortion, was reported too late to count in the tables, but has been included as an addendum. Over 98% of the known Direct obstetric deaths were included.

Method of the enquiry

District medical officers (or the equivalent doctors advising the DHAs) collected information from all the professionals concerned with each patient's care. They then sent their reports to regional assessors in obstetrics, anaesthetics and pathology for assessment. The regional assessors could make further enquiries, but finally, all cases were considered by the central assessors, the authors of the report. As in 1979-81, they sought to determine the incidence of 'substandard care', this term being used to cover not only failures in clinical care, but also factors, such as shortage of resources and back-up facilities, which might have adversely affected patient care. Strict confidentiality was observed, and the identity of the patient was not known to the central assessors, so their opinion cannot be related to a named individual.

Cases were all coded according to the 9th revision of WHO's 'International Classification of Disease (ICD), Injuries and Causes of Death'.

Terminology used

(a) Categories of maternal deaths

(i) *Direct:* Deaths resulting from obstetric complications of pregnancy, labour and the puerperium.

(ii) *Indirect:* Deaths resulting from previous existing disease, or disease which developed during pregnancy, and which, although not due to direct obstetric causes, were aggrevated by pregnancy. In the report, this definition was also interpreted as including deaths in which the presence of the existing disease resulted in significant changes in the treatment or management of the pregnancy or of the condition itself.

(iii) *Fortuitous:* Deaths considered to be unrelated to the pregnancy or delivery.

(iv) *Late:* Deaths occurring more than 42 days but less than one year after pregnancy or delivery.

(b) Pregnancies, maternities and conceptions

In the report, deaths by cause are usually related to the number of *maternities* (a count of the mothers delivered rather than the number of babies born). An alternative denominator of *pregnancies* was also used for the calculation of rates where the numerator included deaths occurring early in pregnancy, such as ectopic pregnancy. The number of pregnancies is estimated by adding the number of maternities and legal terminations (which together provide data referred to as '*conceptions*' in official statistics), to NHS hospital admissions for spontaneous abortions and ectopic pregnancies. ('Conceptions' data are adjusted to allow for the period of gestation and maternal age at conception). The total pregnancies calculated is obviously an underestimate as not all women who have spontaneous abortions are admitted to hospital.

Findings

General fertility rate

There were fewer births in the 1982-84 triennium (Table 4.3) and the general fertility rate returned to the 1976-78 level of 60.1 per 1,000 women aged 15-44.

Table 4.3: *Total number of births (live and still) 1952-84, England and Wales*

Year of occurrence	Total births	General fertility rate per 1,000 women aged 15-44 years
1952-1954	2,079,275	74.4
1955-1957	2,140,376	78.4
1958-1960	2,322,229	85.7
1961-1963	2,550,252	92.1
1964-1966	2,630,150	92.8
1967-1969	2,484,004	88.0
1970-1972	2,322,124	82.3
1973-1975	1,940,689	67.9
1976-1978	1,766,169	60.1
1979-1981	1,942,859	63.4
1982-1984	1,903,096	60.1

Source: Birth statistics, Series FM1 No 11 table 3, 2
FM1 No 13 Table 1.1, 1.2

Maternal mortality rates

The Direct obstetric mortality rate (including abortion) for 1976-84 was 9.4 per 100,000 total births (Table 4.4). The wide regional variation (6.1 – 12.7 per 100,000 births) was however, smaller than for 1976-81 (5.5 – 16.1 per 100,000 births).

Table 4.4: *Reported direct and indirect maternal mortality by regional health authority of residence 1976-84*

Regional Health Authority	Reported			Direct obstetric mortality rate**
	Total births	Direct deaths*	Indirect deaths	
Northern	354,326	43	17	12.1
Yorkshire	410,541	36	26	8.8
Trent	511,908	52	23	10.2
East Anglian	208,780	25	9	12.0
North West Thames	408,329	36	12	8.8
North East Thames	442,293	55	7	12.4
South East Thames	392,622	31	9	7.9
South West Thames	304,857	19	11	9.5
Wessex	293,272	20	11	6.8
Oxford	278,521	20	10	7.2
South Western	328,257	20	17	6.1
West Midlands	604,229	66	24	10.9
Mersey	281,491	28	19	9.9
North Western	470,946	49	24	10.4
Wales	317,323	23	20	7.2
England and Wales***	5,612,124	533	239	9.5

* Includes abortion
** Per 100,000 total births
*** Includes women normally resident outside England and Wales

Direct maternal deaths

Pulmonary embolism, hypertensive diseases of pregnancy, deaths associated with anaesthesia, and deaths from amniotic fluid embolism were the four most frequent

Table 4.5: *Direct maternal deaths by cause; numbers, rates per million pregnancies 1970-84*

Cause of Direct maternal death	1970-72 No	1970-72 (rate)	1973-75 No	1973-75 (rate)	1976-78 No	1976-78 (rate)	1979-81* No	1979-81* (rate)	1982-84 No	1982-84 (rate)
Pulmonary embolism	51	(17.6)	33	(12.8)	43	(18.5)	23	(9.0)	25	(10.0)
Hypertensive diseases of pregnancy	43	(14.9)	34	(13.2)	29	(12.5)	36	(14.2)	25	(10.0)
Anaesthesia	37	(12.8)	27	(10.5)	27	(11.6)	22	(8.7)	18	(7.2)
Amniotic fluid embolism	14	(4.8)	14	(5.4)	11	(4.7)	18	(7.1)	14	(5.6)
Abortion	73	(25.3)	27	(10.5)	14	(6.0)	14	(5.5)	11	(4.4)
Ectopic pregnancy	34	(11.5)	19	(7.4)	21	(9.0)	20	(7.9)	10	(4.0)
Haemorrhage	30	(10.4)	21	(8.1)	24	(10.3)	14	(5.5)	9	(3.6)
Sepsis, excluding abortion	30	(10.4)	19	(7.4)	15	(6.5)	8	(3.1)	2	(1.0)
Ruptured uterus	11	(3.8)	11	(4.3)	14	(6.0)	4	(1.6)	3	(1.2)
Other Direct causes	20	(6.9)	22	(8.5)	19	(8.2)	19	(7.5)	21	(8.4)
All deaths	343	(118.7)	227	(88.0)	217	(93.4)	178*	(70.0*)	138	(55.0)

* Includes two other Direct deaths omitted in the last report.

causes of maternal death (Table 4.5). With the exception of pulmonary embolism, all single causes have fallen compared with the previous triennia.

The numbers and rates of cases by cause of death for 1970-72 and 1973-75 are different from those quoted in the 1979-81 report. They have been revised in line with the classification used for 1982-84.

(i) *Pulmonary embolism:* Nine of the 25 deaths reported occurred in pregnancy and 16, after delivery. Of the latter, 12 followed Caesarean section and four, vaginal delivery. The deaths in pregnancy were mainly sudden and unexpected, but several women had a history of symptoms which should have alerted their attendants to the possibility of thrombo-embolism. Three other Direct deaths, primarily due to cerebral venous thrombosis, also had evidence of pulmonary embolism and pelvic or calf vein thrombosis, illustrating that thrombo-embolism associated with pregnancy is often found at several sites in the same patient.

(ii) *Hypertensive diseases of pregnancy:* The welcome reduction in deaths from hypertensive diseases of pregnancy (to 25 from a peak of 36 in 1979-81) and lower mortality rate (13.3 per million maternities) was offset by the increased number of cerebrovascular deaths in this condition. These indicated that severe hypertension had not been effectively controlled. Only earlier treatment with hypotensive agents and, if necessary, early delivery are likely to decrease deaths from intracranial haemorrhage. Care of the patient was considered to be substandard in 18 (72%) of the deaths, 12 of which were associated with eclampsia and six with pre-eclampsia. In several women, the epigastric pain and vomiting which warn of impending eclampsia were disregarded, while others who developed significant proteinuria and hypertension were not immediately admitted for investigation.

(iii) *Anaesthesia:* The number of anaesthetic deaths fell (from 22 to 18) despite the increased number of anaesthetics given. However, in many instances, patient care was considered to have been substandard, and sometimes due to a shortage of well trained anaesthetists and assistants, facilities and equipment in the maternity services. Earlier consultation between the obstetric and anaesthetic team could also improve the management of women suspected to be at special risk.

(iv) *Amniotic fluid embolism:* There were 14 deaths, compared to 18 in 1979-81, and the death rate per million maternities fell from 9.4 to 7.4. There appeared to be some increased risk when prostaglandin pessaries and intravenous syntocinon were used together to induce labour, and continuous monitoring of uterine contractions is recommended in these cases to detect hyperstimulation. The treatment of the associated coagulopathy is still controversial. No major advance has been made in the prevention or treatment of this condition, but unusually, one patient survived for eight days under intensive treatment, which might be a hopeful indicator for the future.

(v) *Ectopic pregnancy:* Despite an increased incidence of ectopic pregnancy, the 10 deaths recorded (plus three others related to anaesthetic complications during management of the condition) were the least number reported in any triennium. The death rates almost halved from 1979-81 (7.9 to 4.0 per million estimated pregnancies) and where the patient had reached hospital, this improvement was thought to be due to more accurate diagnosis by laparoscopy, in combination with ultrasound examination and ß-hCG assay. Three women died suddenly at home; one, most unusually, from an unsuspected tubal pregnancy, a few weeks after a hysterectomy.

Table 4.6: *Estimated number of Caesarean sections performed, and estimated fatality rate† per thousand Caesarean sections within 42 days in NHS hospitals in England and Wales for each triennium 1970-84*

	1970-72	1973-75	1976-78	1979-81	1982-84	Total
Total maternities in NHS hospitals	2,000,612	1,799,980	1,689,670*	1,876,570*	1,840,970	9,270,802
Estimated number of Caesarean sections	103,310	101,410	120,570	167,020	185,820	678,130
Percentage of maternities by Caesarean sections in NHS hospitals	5.2	5.6	7.1*	8.9*	10.1	7.3
Deaths after Caesarean sections (Direct maternal and ''Associated'' deaths from enquiry series)	102	77	80	87	69	415
Estimated fatality rate per thousand Caesarean sections	0.99	0.76	0.66	0.52	0.37	0.61

* Revised figures for those previously published; corrected for error in calculation of total maternities in NHS hospitals.

† Fatality rate for all deaths after Caesarean section, Direct and 'Associated' (after 1976 Indirect and Fortuitous).

(vi) *Abortion:* For the first time in the Confidential Enquiry there were *no* recorded deaths from criminal abortion. This is in contrast to the 75 to 80 such deaths recorded for similar periods before the Abortion Act came into force in April 1968. Of the 11 deaths in this category, four were due to spontaneous abortion, and seven to legal abortion.

(vii) *Haemorrhage:* Only nine deaths were attributed directly to haemorrhage, but excessive bleeding remained a significant factor in maternal mortality: 15 deaths from other causes and several of the 10 from ectopic pregnancy were complicated by haemorrhage. Substandard care was found in six of the nine Direct deaths, but two of these were due to self-neglect by patients who ignored advice. The report again recommended that every obstetric unit should have an agreed procedure for the management of massive haemorrhage and included suggested guidelines.

(viii) *Other Direct causes:* Only two deaths were directly attributable to genital sepsis in the puerperium or following surgery, and three to sepsis following spontaneous abortion counted under that cause. Rupture of the uterus caused three deaths, the lowest number ever recorded, but in each case, some aspect of the care was substandard. There were also 21 Direct deaths from miscellaneous causes including liver disorders. In eight of these (four in pregnancy and four in the puerperium), no cause for the sudden and unexpected death could be established, despite a high standard of autopsy. The precise cause of death still cannot be identified in 3–5% of all Direct maternal deaths and this must be accepted in the light of present knowledge.

(ix) *Deaths connected with Caesarean section:* The death *rate* from Caesarean section in NHS hospitals (0.52 per 1,000 operations in 1979-81 to 0.37 in 1982-84) and the *number* of Direct deaths (44) both *fell,* despite a national increase in the number of Caesarean sections performed. (See also Indirect and Fortuitous deaths.)

Indirect maternal deaths

The 71 Indirect deaths reported represented 34% of all Direct and Indirect deaths combined (209). Cardiac disease (14), intracranial haemorrhage (11), neoplastic disease (11), epilepsy (7), and aortic aneurysm (3) were the most common causes reported. The Enquiry's review of the 67 deaths from arterial aneurysm between 1970 and 1984 suggested a possible relationship between pregnancy and degenerative diseases of certain arteries, as splenic aneurysms, for example, are virtually unknown outside pregnancy.

Deaths connected with cardiac disease: There were 17 deaths in this category (14 Indirect and three Fortuitous: six from congenital, and 11 from acquired, heart disease). There were none from cardiomyopathy related to pregnancy (classified as a Direct obstetric cause of death in 1979-81). The coding of deaths due to coronary insufficiency was difficult, as it could be argued that all were Fortuitous. However, the authors considered each death individually on the grounds that the physiological circulatory changes during pregnancy and after delivery might adversely affect the cardiovascular system. More women with congenital heart disease or heart disease acquired in childhood are surviving to child-bearing age and they should receive appropriate pre-pregnancy advice and treatment.

Fortuitous maternal deaths

Thirty-four deaths (including five following Caesarean section) which occurred during pregnancy or the puerperium were considered to be entirely unrelated to the pregnancy and were thus classified as Fortuitous.

Late maternal deaths

The 73 Late deaths reported would be excluded under the International Definition of maternal deaths. However, although 50 were Fortuitous, six were considered to be Direct and 17, Indirect. Of the six Direct deaths, three were due to pulmonary embolism, one to late complications of pre-eclampsia, one to hypertrophic cardiomyopathy and the sixth, to complications of aspiration pneumonia following an anaesthetic for Caesarean section.

The maternal autopsy

The overall standard of both autopsies and reports has improved. However, adequate histological reports were unavailable for many of the cases. In some, this was due to failure to take adequate specimens, or to process and examine them; in others a report had not been received by the clinician. The report therefore, described the requirements for a satisfactory autopsy in a case of maternal death.

Conclusion

The general improvement in the overall number of maternal deaths and the small decrease in the mortality rate are both pleasing. The Enquiry's findings related to incidents of substandard care provide an opportunity to identify and address their causes and so further reduce the number and rate of maternal fatalities. Close co-operation between the professional groups and management involved in the care of a pregnant woman and her safe delivery is essential. And, as highlighted by the increasing number of girls with congenital and acquired heart conditions reaching adulthood, active participation by patients in their own progress and access to professional information and discussion even before pregnancy occurs should prove beneficial.

Reference

[1] Department of Health. *Report on confidential enquiries into maternal deaths in England and Wales 1982-1984.* London: HMSO, 1989. (Report on Health and Social Subjects; no. 34).

(c) Medical audit

In this Report for 1987, I drew attention to the publication of the report of the Confidential Enquiry into Perioperative Deaths (CEPOD)[1]. During 1988, discussions took place between the Association of Surgeons, The Association of Anaesthetists, the Faculty of Anaesthetics, the Royal College of Surgeons, and the DHSS. It was agreed that the Department would fund an extension of the independent professional Enquiry to cover all 14 NHS Regions.

The National Confidential Enquiry into Perioperative Deaths (NCEPOD) was to be an independent professional review accountable to a corporate body made up of the above professional bodies. The corporate body was later expanded to include the following organisations:

Association of Anaesthetists of Great Britain and Ireland,
College of Anaesthetists,
Association of Surgeons of Great Britain and Ireland,
Faculty of Community Medicine of the Royal Colleges of Physicians of the UK,
Royal College of Surgeons of England,
Royal College of Pathologists,
Royal College of Obstetricians and Gynaecologists.

A steering group was established, under the chairmanship of Professor D Campbell, CBE, to undertake the organisation of the Enquiry, and Mr H B Devlin and Dr J N Lunn were appointed clinical co-ordinators. A full-time administrator and secretarial staff were appointed to support the clinical co-ordinators and handle the day-to-day administration.

The steering group first addressed the problems of the collection of data on such a large scale, the appropriate sample size and clinical condition etc., for an effective enquiry. Several practical problems were encountered, such as local difficulties with the definition of an operation; where the service data were computerised and these data were either inaccessible to the clinicians or incomplete; where a patient had been transferred to another district or region; and where a patient had undergone more than one operation before death.

Throughout 1988, the clinical co-ordinators and the administrator held discussions with clinicians, health authority chairpersons, NHS general managers, representatives of the Medical Royal Colleges in England, Scotland, and Ireland, with various medical associations and societies, the Kings Fund, members of parliament, Ministry of Defence, and the British United Provident Association (BUPA). The outcome of the discussions was the welcome extension of the Enquiry to cover all NHS hospitals in England, Wales, and Northern Ireland, public hospitals in Guernsey, Jersey and the Isle of Man, and hospitals managed by the Ministry of Defence and by BUPA.

Over a five-year period it is intended that data will be collected and a sample of deaths investigated in detail each year so that by the end of the period, some 30,000 deaths will have been investigated. The steering group decided that the first annual sample to be investigated would be all deaths in children aged 10-years and under following a surgical operation. The NCEPOD will publish a report annually setting out the results of each sample analysis.

The first report of the NCEPOD, published in February 1989, set out the work undertaken and agreements reached with the various organisations. The first report containing an analysis of deaths will appear in the Spring of 1990. I look forward with interest to receiving the findings of this major initiative in medical-audit.

Reference

[1] Buck N, Devlin HB, Lunn JN. *The report of a confidential enquiry into perioperative deaths.* London: Nuffield Provincial Hospitals Trust, 1987.

5. COMMUNICABLE DISEASES

(a) AIDS and HIV infection

Intense public interest in the HIV epidemic continued throughout 1988. In February 1989, the Social Services Select Committee held a further hearing on AIDS, and reviewed action which had been taken since the Department's first presentation to that Committee in January 1988. 1988 also saw the publication of two important reports[1,2], the conclusions and recommendations of which have respectively improved the system of surveillance and clarified the probable evolution of the epidemic in the immediate future.

The AIDS (Control) Act (1987) also came into effect during 1988. This act requires each health authority to publish a report annually giving the numbers of people known to have AIDS, and of people known to be seropositive, and information on the services and facilities provided within its district or region. Each health authority is also required to give information on particular HIV-related service provision, including local community-based HIV prevention initiatives, genito-urinary medicine and drug misuse services, as well as treatment and care services for people who have the virus. Each district health authority (DHA) was required to publish its report by the end of July 1988, and each regional health authority (RHA) by the end of August.

Surveillance of HIV infection and AIDS cases

My report last year included a description of the voluntary confidential reporting system for people infected with the Human Immunodeficiency Virus (HIV) and for AIDS cases. The basic features of this system remain unchanged, though some improvements and additions have been made and are described below. The opportunity for some of these developments has become apparent in the course of routine surveillance work. Others, relating to routine surveillance and to research work, have been introduced as a result of the reports respectively of the Committees chaired by Dr J Smith, Director of the Public Health Laboratory Service (PHLS) and Sir David Cox FRS, which have been referred to above.

The essential nature of the system, which is voluntary and confidential, is unaltered. There is no evidence that making AIDS and HIV infection notifiable in the UK, with a statutory requirement to report, would help to limit the spread of infection or to increase the completeness of case surveillance. It might well be counter-productive, for under such a system, people might be concerned about confidentiality and could be deterred from presenting for testing or even for medical care.

HIV infection

Laboratories in the PHLS, the National Blood Transfusion Service (NBTS), the NHS, and all but a few of the relevant private laboratories report positive results to the Communicable Disease Surveillance Centre (CDSC).

An increased number of PHLS laboratories is now participating in a collaborative study in which they notify CDSC of both positive and negative test results, and also provide some exposure category data[3]. Although some duplication occurs amongst these results (internal evidence suggests the proportion is no more than 5%), this study is providing improved estimates of the proportion, by transmission category, of people presenting for testing who are found to be HIV positive. Eighteen laboratories will be involved in the study by mid-1989. Private laboratories not yet involved in the routine reporting system are being urged to participate.

AIDS cases

Clinicians report cases of AIDS in confidence, to CDSC. In many districts, following individual health authority agreement, cases are also reported confidentially to the physician nominated to co-ordinate local AIDS/HIV data. Co-operation between the Office of Population Censuses and Surveys (OPCS) and CDSC ensures that deaths ascribed on the death certificate to AIDS or to certain associated conditions are also notified to CDSC.

CDSC has taken active steps during the year to improve the completeness of reporting. In April 1988, the Centre circulated a summary sheet describing the clinician's role in AIDS surveillance to regional medical officers, and local co-ordinators. My letter of September 1988[4] to all doctors in England was also intended to encourage further reporting.

A valuable insight into the completeness of the reporting system for AIDS cases is gained from study of mortality statistics. In a detailed investigation of this issue, McCormick[5] has shown that the standardised mortality ratio for never-married men aged 15-54 years rose between 1984 and 1987, differing markedly from the pattern in ever-married men and in all women in this age-group where the ratios remained approximately constant. McCormick found that the increase in the standardised mortality ratio in never-married men was largely accounted for by an increase in certain causes likely to be related to HIV infection. These causes included opportunistic infections, some cancers, immune deficiency, pneumonias, tuberculosis and other infections leading to, for instance, meningitis, encephalitis and intracranial abscesses. Approximately half of these deaths had not been attributed to AIDS on the death certificate suggesting that some AIDS deaths might be diagnosed but not reported, some might not be diagnosed, and that some HIV-associated deaths are occurring where the criteria for AIDS are not met. A further study of deaths due to causes which can be HIV-related is in progress.

The international definition of AIDS, for epidemiological purposes, was revised in 1987. All subsequent UK reports have been assessed against these new criteria regardless of the date of diagnosis, and some earlier reports have been accepted if they satisfied the new criteria.

The present state of the epidemic

HIV seropositive people in England: At the end of 1988, the cumulative total of reports of HIV-infected people in England was 8,156. In 1988, 1,630 new reports were received, considerably fewer than in 1987. It would be rash to assume from this evidence alone that the incidence of new infections is falling. However, as far as homosexual men are concerned, there is evidence that the incidence of *new* infections has declined – at least in men who attend genito-urinary medicine (GUM) clinics. Trends in rates of sexually transmitted diseases also suggest that there has continued to be a change in sexual behaviour amongst homosexual men in England. It is now considered possible that this behavioural change began as early as 1984, with a reduction in the number of partners and the adoption of safer sexual behaviour. The change was sustained throughout 1986 and 1987 and probably explains the decline in the number of new reports of seropositive people in 1988 compared with 1987. There is little available evidence about the trend of new infections in drug misusers and in non-drug misusing heterosexual men and women. By far the greater part of those men and women infected through heterosexual intercourse have partners who engage in risky behaviour (for instance, injecting drug misuse; see Chapter 2) or have been infected in countries abroad with a high prevalence of HIV.

Table 5.1: *Cumulative totals of HIV antibody positive people in England by transmission category to 31 December 1988*

	Number of cases				
Transmission category	Male	Female	NK	Total	%[4]
Homosexual/bisexual male	4,283	0	0	4,283	53
Injecting drug misuser	424	223	5	652	8
Homosexual/bisexual male and injecting drug misuser	69	0	0	69	1
Haemophiliac	960	4	1	965	12
Recipient of blood	41	37	1	79	1
Heterosexual contact:					
partner with above risk factors	8	70	0	78	1
others[1]					
possibly infected abroad[2]	142	91	6	239	3
no evidence of exposure abroad	16	13	2	31	<1
undetermined	40	35	0	75	1
Child of at risk/infected parent	22	13	3	38	<1
Multiple risks	8	0	0	8	<1
Other/undetermined[3]	1,446	94	99	1,639	20
Total	7,459	580	117	8,156	100

[1] partner(s) not known to have above risk factor(s).

[2] includes persons, without other identified risks, from countries where heterosexual transmission is common.

[3] made up largely of reports received during the earlier stages of the reporting system. The great majority are probably for homosexual/bisexual men.

[4] total does not add up to 100 because of rounding.

The distribution of known seropositive people by risk group (Table 5.1) has changed very little with time. Just over half (53%) are homosexual and bisexual men, and the great majority of the reports in the 'other/undetermined' category are also probably for homosexual men, giving an overall total of about 70% for this group. The remaining seropositive people are virtually all heterosexual, and whether or not they acquired their infection by heterosexual intercourse, they represent a reservoir from which spread into the general population can occur. The size of this group is unknown, but the Cox Committee calculated that, of an estimated total of between 20,000 and 50,000 seropositive men and women in England at the end of 1987, perhaps between 6,000 and 17,000 were heterosexuals.

About half the people infected through heterosexual intercourse are women, as are about one third of the infected injecting drug misusers. The serious involvement of women in the epidemic is therefore already clear, and with it, the special tragedy of perinatal transmission to babies. As there should be no more new infections in haemophiliacs and very few, among recipients of blood transfusions performed in England, the percentage of people in these categories will continue to fall.

Table 5.2 shows the distribution of HIV-positive people by the region of the reporting laboratory. There has been little change in the pattern between 1987 and 1988. In 1988, 66% of all reports for England were received from the four Thames Regions, compared with 67% in 1987. The percentage distribution among other regions is also almost unchanged.

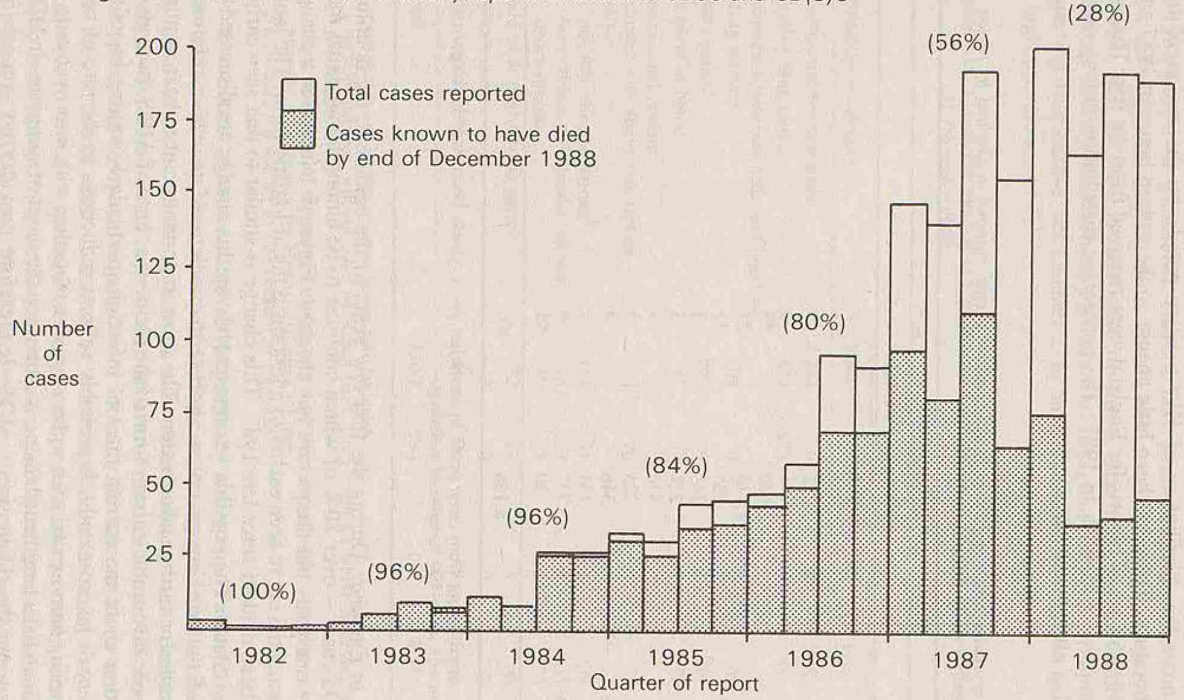
Table 5.2: *Cumulative totals of HIV-antibody - positive people reported in England by region of reporter to 31 December 1988*

Region	Number of[1] cases	% [2]
Northern	284	3
Yorkshire	313	4
Trent	237	3
East Anglia	161	2
N.W. Thames	2,680	33
N.E. Thames	1,715	21
S.E. Thames	885	11
S.W. Thames	248	3
Wessex	227	3
Oxford	330	4
South Western	225	3
West Midlands	346	4
Mersey	154	2
North Western	331	4
Channel Isles	20	<1
Total	8,156	100

[1] These figures are different from those given in an earlier press release because of backlog.
[2] Total does not add up to 100 because of rounding.

AIDS cases in England: During the first few years of the epidemic, the doubling time of AIDS cases – over 80% of which continue to be among homosexual men – was under one year, but the picture has changed. Figure 5.1 indicates a change from an exponential curve seen earlier to a less steep linear logistic form. The latter pattern has been evident since late 1987. This change is similar to that seen earlier in the United States. The possible reasons underlying this change are discussed in the report of the working group on short-term predictions[2] to which reference should be made for further information. The most important point to bear in mind is that the more favourable current form of the incidence curve of AIDS cases gives no information about the current rates of infection, particularly among injecting drug misusers or heterosexuals. It probably reflects reductions in the rate of new infections among homosexual men some years ago, together with improvements in treatment which have lengthened the period between the onset of symptoms in HIV-infected men and the diagnosis of AIDS. It therefore provides no grounds for complacency.

Figure 5.1: *AIDS in the UK: Quarterly reports of cases to CDSC and CD(S)U*



(Percent) of total cases reported each year known to have died by the end Dec. 1988

Source: Gill ON, Anonymous unlinked HIV-serosurveillance: experience in European countries. Presented at: European meeting on HIV-seropositivity and AIDS Prevention and Control. WHO. Moscow 1989.

Table 5.3 shows data for deaths. Overall 54% of the AIDS patients reported from sources in England have died. This figure is slightly lower than that in my report for 1987, but several factors, including the revised case definition, the pattern of presentation for medical care, and the effect of treatment, could be contributing to this small change. It is too early to distinguish these individual effects.

Table 5.3: *AIDS cases reported from England to 31 December 1988, and known deaths. Both sexes together*

Transmission category	Number of cases	Deaths	
		Number	%
Homosexual/bisexual male	1,565	832	53
Injecting drug abuser	27	17	63
Homosexual/bisexual male and injecting drug abuser	30	14	47
Haemophiliac	113	71	63
Recipient of blood	30	21	70
Heterosexual	62	24	39
Child	17	9	53
Other/undetermined	20	13	65
Total	1,864	1,001	54

International situation: As in my last report, the international situation is dominated by the USA, which by the end of 1988 had reported 80,538 cases to WHO, compared to 20,778 cases from Africa, and 16,960 from Europe (such comparisons are only tentative because of the marked differences between reporting systems (see Chapter 7).

Table 5.4 shows totals from the 12 EC countries, with approximate cumulative incidence rates of AIDS per million population. The UK ranking at the end of 1988 was 8th among the 12 as opposed to 6th in 1987. Spain and Italy, in both of which HIV infection among drug misusers is a serious problem, have moved up the ranking.

Table 5.4: *AIDS cases reported to WHO by various European countries: cumulative totals at 31 December 1988 (USA figures shown for comparison)*

Country	No of cases	Population (millions)	Cumulative cases/million population
France	4,874	55	89
Denmark	345	5	69
Spain	1,850	39	47
Italy	2,556	58	44
Netherlands	676	15	45
West Germany	2,580	60	43
Belgium	408	10	41
UK	1,982	57	35
Luxembourg	13	<1	33
Ireland	64	4	16
Portugal	181	11	16
Greece	151	10	15
USA	80,538	230	350

HIV and blood donations

During 1988, the incidence of HIV-1 seropositive donations in England continued to be very low. Thus only 22 donors positive to HIV-1 were reported out of a total of 2,635,246 donations (0.0008%) including seven in 371,511 new donors (0.002%). These figures compare favourably with those obtained among blood donors in other countries. Of the total of 113 seropositive donors reported since testing started in October 1985, almost all had engaged in high risk behaviour and the majority were homosexual or bisexual men. The figures support the view that HIV infection has not spread rapidly within the heterosexual population.

HIV-2 infection

I referred in my last report to a decision to send sera from four English transfusion centres to the Virus Reference Laboratory (VRL) for HIV-2 testing if the prospective donor had visited Africa since 1977. This was modified to include only people who had visited West Africa. In the spring of 1988, it was decided that *all* centres in the English transfusion service should refer specimens from such donors and that the donations concerned should not be released for transfusion until they had been found negative. Between June and December 1988, 5,126 specimens were tested for HIV-2 at the VRL. No HIV-2-positive donations were found, so there is as yet no clear evidence of indigenous infection with HIV-2 in England[6].

Combined anti-HIV 1/anti-HIV 2 assays are expected to come into use once they have been evaluated.

Public education

The Government continues to view public education as the key to the prevention of the spread of HIV infection.

In October 1987, the HEA took over responsibility for the development of the UK-wide AIDS public education campaign. An initial allocation of £1 million was increased by a grant of £8.7 million for 1988/89. During 1988, the HEA ran campaigns using television, the press, radio and posters, aimed at young sexually active adults and at those travelling at home or abroad on business or on holiday. The campaigns warned of the risks of unprotected casual sex, and encouraged people to adopt a responsible attitude to sexual relationships. A press campaign launched on World AIDS Day, 1 December 1988, aimed to provide the general public with information which explained the differences between asymptomatic HIV infection and AIDS, and to help people make informed decisions about sexual behaviour. This campaign continued in the early part of 1989.

As with previous campaigns, effectiveness has been assessed by independent market research[7] which has shown that levels of knowledge and awareness have increased but that there has been *no* evidence of a general change of behaviour in heterosexuals. However, responses suggest increased condom use and fewer sexual partners by people admitting to multiple sexual partners.

Mass media work was supported by the issue of five new educational leaflets[8-12], and by the National AIDS Helpline. The latter provides a free, confidential, 24-hour service and was funded at a cost of £1.4 million to continue its service during 1988/89.

Information for specific groups:

(i) *Women:* In March 1988, a campaign aimed at young, sexually active women was launched in women's magazines, to encourage readers thinking of embarking on a new sexual relationship to consider the issues carefully, including condom use.

(ii) *Homosexual men:* The Health Education Authority (HEA), with advice from a consultative group of voluntary agencies, developed advertising material aimed at homosexual men. This sought to encourage and sustain the changes that many homosexual men have made to their sexual lifestyle. The advertising appeared in the 'gay' press and was supported by posters for display in 'gay' pubs and clubs.

(iii) *Young people:* The HEA, in association with the Family Planning Association, prepared a pack of materials, 'Teaching About HIV and AIDS'[13], to help secondary school teachers inform pupils effectively.

(iv) *Ethnic minority groups:* The Department of Health has continued to support a telephone information and advice service for people from ethnic minority communities as an adjunct to the National AIDS Helpline. On World AIDS Day, a new service for the Arab community was introduced, together with a tape-recorded message in simple English for people with reading and learning difficulties, and for those whose first language is not English. The HEA, together with the Community Projects Foundation and Bradford Health Authority, has set up a pilot programme centred on Bradford's Asian population to develop methods of health education sensitive to cultural needs (see Chapter 2).

(v) *People in custody:* In March 1988, the Home Office launched a video resource package for use with people in prison. The video and supporting leaflet inform prison inmates about the risks of HIV infection in prison and on release, and how to protect themselves and others.

(vi) *Drug misusers:* The fourth stage of the Government's anti-drugs campaign, which had been developed in collaboration with the HEA, was launched in November 1988 (see also Chapter 2). This campaign warned of the danger of injecting and emphasised the risk of acquiring or transmitting HIV through the use of contaminated equipment. The Government has been advised by the Advisory Council on the Misuse of Drugs[14] that drug misusers should be encouraged to establish contact with an agency which can help them stop dangerous practices. Guidance based on this advice has been issued to health authorities, urging expansion and development of community-based services to be backed up by specialist services (HC 88/53 Expansion of community based services).

Discussions are in progress to determine how best to co-ordinate the national campaign, with targeted work, including that mounted locally, aimed at particular groups whose behaviour can put them at risk of infection. The importance of local targeted prevention initiatives in complementing the national campaign and in effecting individual behavioural changes was stressed in the Department of Health Planning Guidelines to health authorities for the next three years[15]. The Department is working closely with statutory and voluntary health agencies and the HEA to encourage and promote these community-based health educational initiatives, and will be issuing further guidance soon. Earmarked funding has been agreed for RHAs to meet the costs of such measures.

Other measures include the continuing screening of all donated blood, and donors of tissues, organs, semen and breastmilk. '*Guidance on HIV infection, breast feeding and human milk banking*' was issued in April 1988[16] and revised in June 1989. A report of the recommendations of the Expert Advisory Group on AIDS '*AIDS: HIV-Infected Health Care Workers*' was issued in March 1988[17].

Research

During 1988 there was a further major expansion of Government funded AIDS research. By December, over 300 projects were in progress.

The Medical Research Council (MRC) is responsible for co-ordinating research into epidemiological, clinical, and basic scientific aspects of AIDS, at home and abroad. MRC support is provided in two ways: (i) through the programme of directed research on vaccines and antiviral drugs; and (ii) studies within the Strategic Programme funded through special project grants awarded by the Systems Board and the Tropical Medicine Research Board.

(i) *Directed programme:* In February 1987, the Government accepted the proposals put forward by the MRC for a programme of directed research to develop a vaccine to prevent infection, and anti-viral drugs to treat people already infected with the AIDS virus. A total of £31 million has been awarded for the financial years 1987/88 to 1991/92. The Directed Programme is co-ordinated by a steering committee which advised by specialist working groups, reports direct to the Council Committee on AIDS. Over 100 projects and programmes had been funded by March 1989.

(ii) *Strategic programme:* By March 1989, over 70 projects were being funded. The total cost in 1988-89 was £1.5 million of which the health departments made available £745,000 for AIDS epidemiology research.

(iii) *Collaboration between the MRC and INSERM (France):* INSERM is a French Government-funded research agency. INSERM and MRC have recently collaborated on the project 'Concorde I', a randomised controlled double-blind clinical trial of Zidovudine (AZT) versus placebo in HIV positive people who have not yet developed symptoms. The aim is to find out whether Zidovudine can slow progression of disease and/or affect survival rates.

Two national (UK and French) working parties report to the joint MRC/INSERM Co-ordinating Committee. There is also a joint (and independent) UK/French Data and Safety Monitoring Committee. Enrolment into the trial in the UK began in October 1988. The trial is expected to run until 1992.

(iv) *Studies to monitor the spread of HIV infection:* On 23 November 1988, the Secretary of State for Health, Mr Kenneth Clarke, announced that the Government saw no legal obstacle and, from the layman's point of view, no ethical objection, to anonymous testing for HIV infection. The MRC was invited to prepare proposals on anonymous testing and to extend named testing. Their proposals, submitted in March 1989, are under consideration.

(v) *Health departments' research:* The health departments are responsible for funding research related to health care services, including the personal social services. By the end of 1988, DHSS had directly funded 27 projects worth over £1 million: The programme has focussed on needs of people with HIV infection; costs and provision of services for people with AIDS; drug misuse and AIDS; its prevention and service requirements; sterilisation of NHS equipment; and screening of blood for transfusion services.

(vi) *Social and behavioural research:* The Economic and Social Research Council (ESRC) takes the lead here and has set aside £1.6 million to be spent over the three years 1987-89. By the end of 1988, 14 projects had been funded, covering a range of topics including studies of sexual attitudes and behaviour among young people.

The importance of obtaining information about social and behaviour patterns in the general population and groups at high risk of HIV infection is recognised for the purpose of:

a. making the AIDS health education campaign more effective.

b. providing data which will allow more accurate predictions of the extent of the spread of HIV infection.

The ways in which this information can be obtained are being explored by the ESRC and HEA.

(vii) *Other research:* The Chief Scientist's AIDS Research Committee has continued to take an overview of the Government-funded research within the UK, to identify gaps in the programme.

AIDS research in Europe was given a high priority within the fourth Framework Programme for Medical and Health Research which the EC agreed during the year.

Health and other services for care and treatment

(i) *Health and local authorities:* Funds for AIDS and HIV-related services are directed to those RHAs most affected, and within the allocations it is for health and local authorities to decide how best to spend their resources. In particular, they consider their current patterns of referral of patients to hospital facilities, provision and resources for care in the community, and future plans. When appropriate, they consult with district health authorities.

For hospital and community health services in England, the Department earmarked £58.6 million to be spent by health authorities in 1988/89[18]. This included £2 million joint finance was also provided in 1988/89 to support expenditure on services for people with AIDS in particular local authorities[19], where the immediate need is greatest.

(ii) *Nurse training:* Support for nurse training continues. Video training packs, on the general approach to nursing HIV sero positive people, and community care, have been distributed by the Department to all health authorities. Two more packs, one on midwifery and one on child care, have been commissioned.

Regional workshops for senior community nurses were completed in April. A report on their evaluation has been published[20]. The report notes many interesting initiatives in service provision and in education, but points out that certain health authorities have as yet made little preparation for dealing with cases of HIV infection.

Reports on the nursing fellowships were completed in September[21]. The reports include ideas on service provision gleaned from a number of overseas sources.

(iii) *Voluntary bodies:* The Government has provided organisations in the voluntary sector with almost £1.2 million[22]. This reflects the continued commitment to encouraging the voluntary sector to work in close co-operation with health and local authorities in the planning and provision of HIV-related prevention and support services.

UK role in international activities

Following the success of the London Summit of January 1988, mentioned in my previous report, the UK has continued to play a major role in the international effort against AIDS. The UK co-sponsored a resolution on AIDS at the United Nations in October and the Secretary of State addressed the General Assembly.

The Government also contributed £4.5 million to WHO's *Global Programme on AIDS* in 1988, from the overseas Aid Budget, and many supported activities were organised to mark *World AIDS Day* on 1 December.

Finally, we have continued to co-operate with colleagues in the EC in developing a range of measures in response to AIDS, including research projects and the exchange of information and experience.

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(b) Sexually transmitted diseases

In 1987, genito-urinary (GUM) clinics in England reported 620,266 new cases (328,467 in men and 291,799 in women) a *fall* of 4.2% below the total for 1986, but the fall did not affect all regions. This is the first year a fall has been reported since 1962 and it was more marked in men (5.9%) than in women (2.1%). Forty-seven per cent of the total number of cases in 1987 were in women. Syphilis and gonorrhoea fell more than other diagnostic categories. Conditions continuing to show an upward trend were non-specific genital infection with arthritis, genital warts, molluscum contagiosum, 'other conditions not requiring treatment', and 'other conditions referred elsewhere'. Among the RHAs, the greatest fall (11.3%) was reported by Mersey. Trent, Wessex and West Midlands reported increases varying from 1.3% to 4.2%. In the Thames Regions, which accounted for 47% of all cases, falls varied from 8% in South East Thames to 4.5% in South West Thames.

(i) Gonorrhoea

The reported incidence of gonorrhoea *continued to fall* in 1987 (by 38% to 25,254). In contrast to 1986, when the fall was more marked in males than females, in 1987, the fall was similar for males (39%) and for females (36%). The total was less than half that reported five years before and only 11 cases were reported in pre-pubertal children.

Age-specific data (Table 5.5) show most cases to be in the age-group 20-24 years (10,519). In 1987, the greatest fall in numbers (47% to 1,371) was in the age-group 35-to 44-years.

Table 5.5: *Cases of syphilis and gonorrhoea reported by NHS GUM clinics in England for the year ended 31 December 1987 with the figures for the year ended 31 December 1986 in parentheses*

	Total		Male		Female	
Syphilis						
Early	589	(887)	429	(696)	160	(191)
Primary and secondary only	321	(519)	241	(428)	80	(91)
Late	903	(981)	577	(665)	326	(316)
Congenital	46	(64)	23	(26)	23	(38)
Gonorrhoea						
All forms	25,265	(40,705)	14,888	(24,450)	10,377	(16,255)
Post-pubertal gonorrhoea						
All ages	25,254	(40,685)	14,885	(24,441)	10,369	(16,244)
Under 16 years	252	(310)	69	(83)	183	(227)
16-19 years	5,649	(8,963)	2,274	(3,714)	3,375	(5,249)
20-24 years	10,519	(16,581)	6,407	(10,065)	4,112	(6,516)
25-34 years	6,953	(11,351)	4,708	(7,919)	2,245	(3,432)
35-44 years	1,371	(2,596)	1,013	(1,931)	358	(665)
45 years and over	509	(884)	413	(729)	96	(155)

Table 5.6: *Other sexually transmitted diseases reported by NHS GUM clinics in England in the year ended 31 December 1987 with the figures for the year ended 31 December 1986 in parentheses*

	Total		Male		Female	
Chancroid	39	(47)	29	(38)	10	(9)
Lymphogranuloma venereum	15	(42)	10	(35)	5	(7)
Granuloma inguinale	27	(20)	17	(14)	10	(6)
Non-specific genital infection (NSGI)	131,383	(157,792)	86,835	(106,291)	44,548	(51,501)
NSGI with arthritis	533	(504)	491	(460)	42	(44)
Trichomoniasis	10,658	(14,041)	804	(923)	9,854	(13,118)
Candidiasis	59,768	(63,108)	10,535	(11,535)	49,233	(51,573)
Scabies	1,365	(1,742)	1,087	(1,452)	278	(290)
Pediculosis pubis	6,920	(9,333)	4,729	(6,508)	2,191	(2,825)
Genital herpes	16,699	(18,800)	8,656	(9,983)	8,043	(8,817)
Genital warts	74,542	(67,068)	44,355	(40,253)	30,187	(26,815)
Genital molluscum	3,228	(2,820)	1,995	(1,798)	1,233	(1,022)
Other treponemal diseases	532	(526)	321	(353)	211	(173)
Other conditions requiring treatment in a centre	111,667	(119,460)	50,778	(53,354)	60,889	(66,106)
Other conditions not requiring treatment in a centre	168,556	(143,092)	98,573	(87,281)	69,983	(55,811)
Other conditions referred elsewhere	7,531	(6,327)	3,335	(3,075)	4,196	(3,252)
Overall Total°	620,266	(647,359)	328,467	(349,190)	291,799	(298,169)

° Overall total comprises: all forms of syphilis and gonorrhoea plus all categories listed in Table 5.6.

Recent trends in age-specific data are presented in Figures 5.2 and 5.3. The decline in incidence rate apparent in recent years continued during 1987, and indeed there was a marked increase in the rate of decline apparent in both sexes and all age-groups. Patients under 16 years showed the least fall (14%), but there were only 252 reported cases. Gonorrhoea rates are one indication of current patterns of sexual behaviour and the trends described suggest an acceleration of recent favourable changes extending to women as well as men. Considering both sexes together on a regional basis, the greatest fall in the number of cases was in Mersey (54%), while the least was in East Anglia (24%). Declines in the Thames Regions varied from 25% (South West Thames) to 42% (North West Thames); these regions accounted for 37% of all reported gonorrhoea.

Reported isolations of Beta lactamase–producing totally penicillin-resistant *Neisseria gonorrhoeae* yet again fell, in contrast to the pattern in many other countries. Reports of other forms of antibiotic-resistant isolates are rare.

(iii) Syphilis

A further *fall* of 20% (to 1,538) occurred in the total number of reported *new cases* of syphilis. The decline was more marked in men (26%) than in women (7%), and was mainly in 'primary and secondary' syphilis. Examination of trends in 'primary and secondary' syphilis in males (Figures 5.4) demonstrates a continuation in the marked decline evident in each age-group since 1985. The overall figures in Table 5.6 conceal a small increase in female cases aged 25-44 years.

Figure 5.2: *New female cases of post-pubertal gonorrhoea, rates per 100,000 population, England, 1977-87*

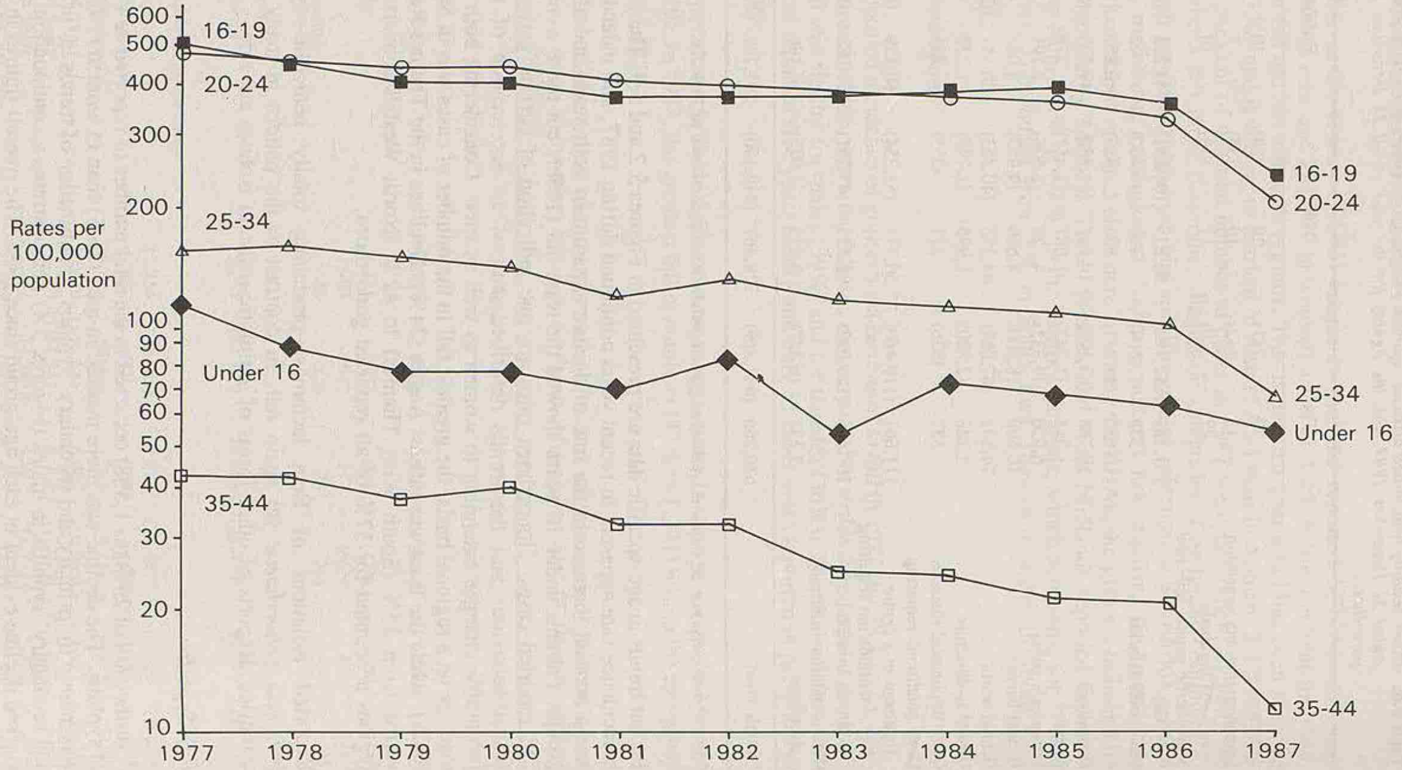


Figure 5.3: *New male cases of post-pubertal gonorrhoea, rates per 100,000 population, England 1977-87*

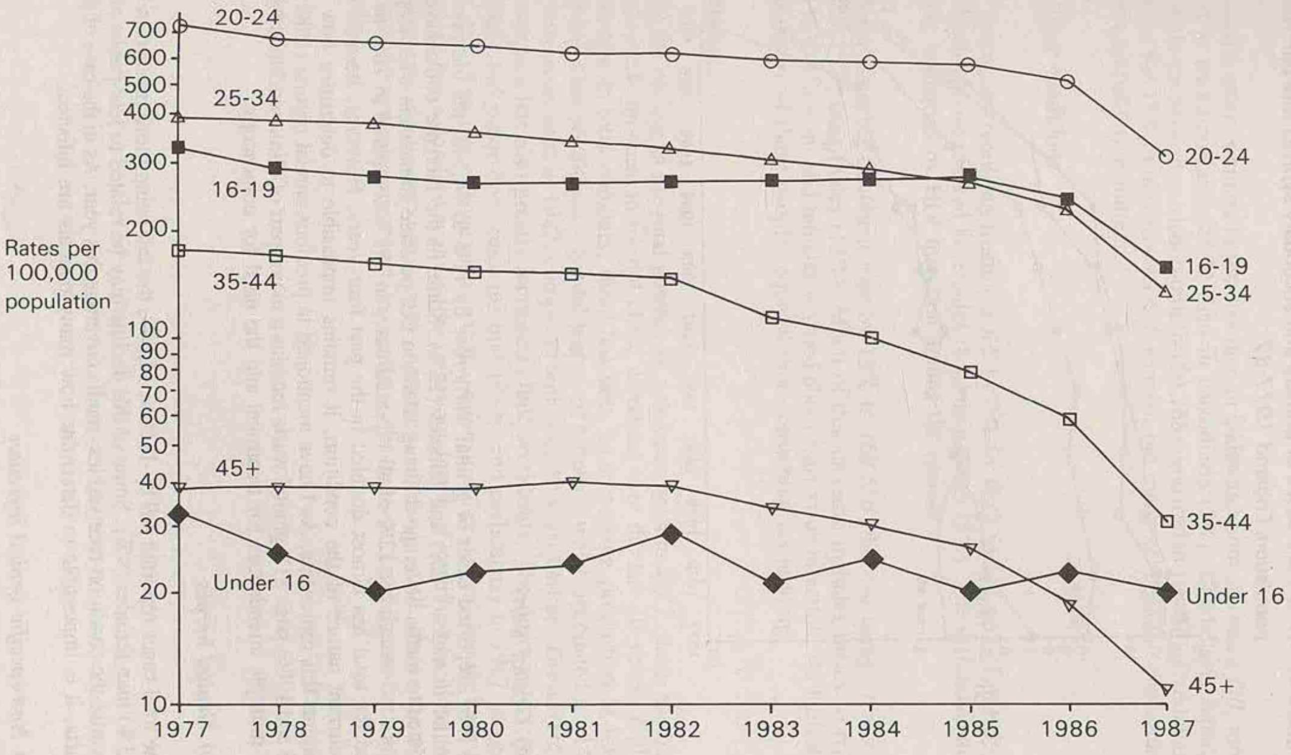
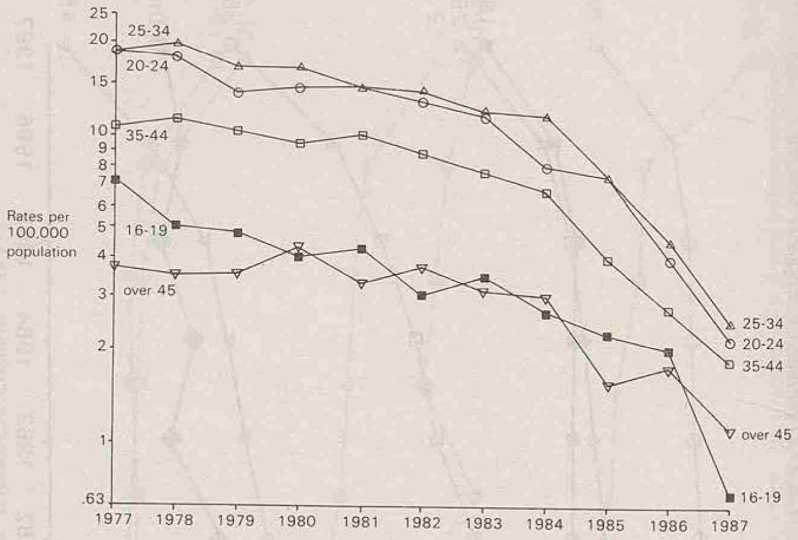


Figure 5.4: *New male cases of primary and secondary syphilis rate per 100,000 population, England 1977-87*



(iii) Genital warts

In 1987, reported cases of genital warts *rose* by 11% to 74,542, the increase being similar in males (10%) and females (13%). Some of the increase could have been related to media coverage drawing attention to a possible connection with neoplasia. Warts accounted for 12% of all reported cases in 1987, compared to 10% in 1986, and the total has almost doubled in the past four years. However, because of the recurrent nature of the condition, it remains impossible to determine how many patients this represents. As I have mentioned in previous annual reports (1985: page 60 and 1986: page 81), genital warts remains a major part of clinic workload because of multiple attendances for treatment and the need for colposcopy.

(iv) Genital herpes

The total cases reported *fell* by 11% to 16,699, the fall being more marked in males (13%) than females (9%). Some of this decline may be related to less public anxiety because the condition received less media coverage this year. As in the case of genital warts, it is impossible to determine how many patients are infected.

(v) Non-specific genital infection

A *fall* in total cases of 17% occurred – the first since separate records were kept in 1951. The drop was greater in males (18%) than in females (14%), but this ill-defined condition remains the most common diagnostic category in both sexes, accounting for 26% of cases in men and 15% in women.

(vi) Trichomoniasis and candidiasis

Both remain more common in females than in males and both showed a *fall*, more marked in trichomoniasis (24%) than in candidiasis (5%). Candidiasis remains much more common than trichomoniasis (59,768 compared to 10,658). Candidiasis accounted for 17% of all cases seen in women, but many of these infections have not been sexually transmitted.

(vii) Other conditions

Other conditions requiring treatment *fell* by 7% in 1987 to 111,667 (Table 5.6), the fall being more marked in females (8%) than males (5%). The difference may be partly explained by HIV infection among the males.

Those not requiring treatment rose by 18% to 168,556, the rise being greater in females (25%) than males (13%). Much of this increase includes males worried about HIV infection, and females worried about wart virus infection. As indicated before, many of these people required time-consuming counselling.

Conclusion

Despite the decline in the total number of new cases seen in 1987, there has been a considerable increase in overall clinic workload over the last 10 years. Within the increase in total numbers, there has been an increasing proportion of time-consuming viral conditions – genital warts and herpes – which accounted for 14% of all new cases seen in 1987, compared with 8%, 10 years earlier. The advent of HIV infection has also greatly increased clinic workloads. The downward trends in syphilis and gonorrhoea since the mid 1980s, and particularly in 1987, suggest lower rates of partner change (or a switch to safer sexual practices), but the increase in primary and secondary syphilis (the infectious forms of syphilis which can lead to further spread) in some age-groups in females, although small, shows the need to retain control measures and to continue the present careful monitoring of numbers.

(c) Foodborne diseases

(i) Food hygiene campaign

To reduce the risk of food poisoning it is necessary to have controls at all points in the food chain from the farm to the consumer. The consumer is the last link in the chain and there is a lot we can all do to keep our food safe from the time we buy it to the time we eat it.

The Department of Health and Ministry of Agriculture, Fisheries and Food have been collaborating in the preparation of a Food Safety leaflet to inform members of the public of the principles of food hygiene.

A consumer survey funded by MAFF was carried out in 1988. The report on this survey[1] provides a useful insight into consumer views and attitudes on food poisoning and food hygiene.

Some of the findings of the survey indicate:

> Consumers tend to use domestic refrigerators indiscriminately, using any free space for food storage without concern for raw food dripping on to cooked;
>
> Few respondents (6%) ever measure the temperature in their fridge and 66% never adjusted the temperature control;
>
> Only 18% appreciated the hazard of keeping food at room temperatures for prolonged periods;
>
> Only 11% regarded the home as a possible source of food poisoning;
>
> Cases are generally blamed on restaurants and take-aways;
>
> Of adults, 4% claimed to have had food poisoning in the last six months, and young men in the higher socio-economic groups living in the south appeared most susceptible;
>
> Less than one in five people claiming to have had food poisoning contacted their doctor or local environmental health department.

The Health Education Authority (HEA) was invited to assist with the campaign after the survey was completed. On their advice, it was decided to consumer-test a food hygiene leaflet produced by the working group from Department of Health (DH), MAFF, Central Office of Information (COI), Public Health Laboratory Service (PHLS) and the Institution of Environmental Health Officers. The draft of the leaflet took note of the consumer survey.

A half million copies of the leaflet – '*The recipe for Food Safety*'[2] were produced and distributed during the summer in selected outlets in five target towns in England. The leaflet advised consumers how to reduce risks of food poisoning occurring in the home from the purchase, handling, storage, temperature control and cooking of food.

A survey was then commissioned to follow up the pilot study to assess:

The design of the leaflet, its comprehensibility and coverage of perceived and real anxieties;

The impact, of the advice, did respondents change their food hygiene practices;

The efficiency of methods used to distribute the leaflet.

At the end of the year, the results of the second consumer survey were assessed. A re-designed leaflet[3] was launched nationwide with a joint DH/MAFF ministerial press conference in May 1989, following which some 15 million leaflets were distributed informing consumers about food safety and encouraging them to adopt good food hygiene practices in the home. The leaflet has been made available through supermarkets, doctors' and dentists' surgeries and pharmacists' shops, while the HEA took half a million copies to use in their work.

(ii) Hospital infection control guidance

Guidance on the control of infection in hospitals, prepared by the joint DH/PHLS Hospital Infection Working Group (HIWG), was published in June 1988[4], the first revision since 1959. Major outbreaks of infection such as salmonellosis at Stanley Royd Hospital highlighted the importance of health authorities having adequate arrangements for the prevention, detection and control of outbreaks.

The new guidance provides recommendations for management on the establishment of *Infection Control Committees* to oversee hospital infection control policies; *Infection Control Teams* to undertake day-to-day activities; and the appointment of *Infection Control Nurses*. Also included are guidelines on the control of an outbreak of infection in hospital and the hospital response to major outbreaks of infection and foodborne illness in the community.

(iii) Listeria monocytogenes and human listeriosis

Listeriosis is a rare infection caused by the cocco-bacillus *Listeria monocytogenes*. Although there are seven other species of listeria, only *Listeria monocytogenes* (Lm) is a significant human pathogen. Clinically, the infection can give rise to septicaemia and meningitis, and is of particular concern because, in the pregnant woman, it can give rise to abortion, stillbirth or neonatal disease.

Lm is widely distributed in the environment and can be found in many samples of soil, water and vegetation. Some exposure to this organism is probably unavoidable, and as many as 1 in 20 of the popoulation can carry the organism in their gut. The micro-organism is also able to multiply slowly at the low temperatures present in many refrigerators; this makes controlling its multiplication rate in contaminated foods less simple than with other pathogenic microorganisms.

There were 291 cases of listeriosis in 1988 compared with 259 in 1987 (Table 5.7). This increase was less marked than that for 1987 compared with 1986[5] when a near-doubling in numbers of cases occurred. Better diagnosis and reporting cannot entirely account for this increase, the cause of which remains unclear.

Table 5.7: *Listeriosis in England and Wales, 1983-88*

Source: Laboratory	1983	1984	1985	1986	1987	1988*
Abortions	6	7	8	5	18	11
Deaths	38	34	56	32	59	52
Total reported mortality	44	41	64	37	77	63
Total cases	115	115	149	137	259	291
Case fatality	38%	36%	43%	27%	30%	22%
OPCS:—						
Registered deaths (ICD 027.0[a], 771.2[a], 655.4[b]).	16	7	11	16	23	

a.b. Underlying cause of death but also includes from 1986 onwards deaths in infants <28 days where there is any mention of listeriosis (a) (n=9) or of maternal listeriosis (b) (n=2).

* Provisional figures only.

In February 1988, WHO convened an informal working group to consider foodborne listeriosis. In their report, published in April 1988 this group concluded that ''Lm is a widely distributed environmental contaminant, whose primary means of transmission to humans is through contamination of foodstuffs at any point in the food chain, from source to kitchen. The elimination of Lm from all food is impractical and may be impossible.... The critical issue, therefore, is not how to prevent the presence of Lm in food, but how to control its survival in order to minimise the levels in food''[6].

In my report last year, I mentioned the outbreak of listeriosis in Switzerland due to Vacherin Mont d'Or cheese,[7] which resulted in 122 cases of listeriosis between 1983-1987. The largest ever foodborne outbreak of listeriosis occurred in California between January and June 1985, affecting 142 people with 47 fatalities. This was traced to a Mexican-style soft cheese contaminated with Lm.

In England and Wales there have been four sporadic cases of listeriosis linked to a contaminated food source. In 1986, a case was linked to the consumption of an imported soft cheese[8] and in 1988 there were reports of three cases associated with the consumption of an Anari-style UK-produced goats' milk cheese,[9] a vegetable rennet[6] and a ready-to-eat chilled chicken[10]. There are a number of other reported cases where a suggestive link to a particular food item has been suggested. Linking individual cases to food is difficult because of the variable and sometimes prolonged incubation period.

In this country there have been no outbreaks of listeriosis microbiologically linked to a suspect food source, although one cluster of 11 cases in Cumbria in 1981 was linked in an epidemiological study with cream[5].

During 1988, an epidemiological report from the Centers for Disease Control in the United States[11] suggested that, in that country, a substantial proportion of sporadic cases of listeriosis might be due to the consumption of certain contaminated foods (under-cooked chicken and raw hot dogs).

In 1988, the PHLS published the results of the first of a series of surveys of levels of Lm in foods[12]. They found 60% of raw chickens (fresh and frozen) and 10% of soft cheeses were contaminated with Lm. Towards the end of 1988 at the Department's request, PHLS carried out a national survey of Lm in pre-cooked ready-to-eat poultry and cooked and chilled meals[13]. This study showed that Lm was present in 12% of samples of pre-cooked ready-to-eat poultry and 18% of cooked and chilled meals.

These accumulating results on the distribution of Lm in food on sale at retail outlets led me, in February 1989, after careful consideration, and although the evidence for the UK was still tenuous, to advise pregnant women and those with impaired immunity not to eat soft ripened cheeses (such as the brie, camembert and blue-vein types) and to ensure that cook-chill meals and pre-cooked ready-to-eat poultry were reheated until they were piping hot before consumption. At the same time, I explained that the general public should be reassured that they were not at any appreciable risk from these foods.

In addition, following the results of the PHLS cheese survey, the Department in collaboration with the Ministry of Agriculture, Fisheries and Food and PHLS began urgent discussions with the UK cheese manufacturers, cheese importers and the retail trade to produce guidance designed to eliminate the risks of listeria contamination at all stages of manufacture, importation, distribution and sale.

This resulted in the publication, in August 1988 by the Creamery Proprietors Association, of Guidelines for Good Hygienic Practice in the Manufacture of Soft and Fresh Cheeses[14].

In conclusion, therefore, illness due to Lm remains very rare; however, the number of reports of this potentially serious illness have increased in recent years. The proportion of these cases associated with food is currently unknown, but until more information is available, it is prudent to regard many of them as associated in some way with food. It is important to emphasise that, for the average healthy member of the public, the risk of becoming ill with listeriosis from eating food is very small indeed, and they can continue to eat the normal range of foods available for sale.

(iv) Salmonellosis and other causes of food poisoning

Formal notifications of food poisoning and cases ascertained by other means reported by Medical Officers for Environmental Health (MOsEH) in England and Wales are included in weekly, quarterly and annual Office of population Censuses and Surveys (OPCS) publications. Table 5.8 gives extracts relating to England only, from the OPCS collations for 1983-88 and shows a steady increase throughout the period. The provisional number of reports to OPCS for 1988 (37,754) is more than twice the number for 1983 (17,021).

Table 5.8: *Food poisoning cases in England. Corrected notifications to OPCS 1983-88*

Year	Formally notified	Ascertained by other means	Totals
1983	11,611	5,410	17,021
1984	12,417	7,308	19,725
1985	11,957	5,927	17,884
1986	15,264	7,260	22,524
1987	19,048	8,555	27,603
*1988	26,198	11,556	37,754

* Provisional.

The principal micro-organism identified as being responsible for food poisoning in England and Wales is salmonella. Data from the Communicable Disease Surveillance Centre (CDSC) for 1988 (see Table 5.9) show laboratory identifications of salmonellas from faeces to be 23,821 – a significant increase on the previous year which was 17,552.

Table 5.9: *Laboratory reports of salmonella to CDSC: England and Wales, 1962-88*

Total Reports of Faecal Isolates	
Year	Total
1962	4,282
1963	4,382
1964	5,115
1965	4,671
1966	3,898
1967	5,527
1968	5,948
1969	7,322
1970	8,089
1971	8,085
1972	5,696
1973	8,499
1974	6,928
1975	11,147
1976	9,349
1977	8,000
1978	10,545
1979	11,940
1980	10,761
1981	10,539
1982	11,987
1983	14,240
1984	14,025
1985	11,765
1986	14,800
1987	17,552
1988	23,821

Laboratory reports of campylobacter infection continue to rise. Data for 1988 indicate that there were 28,971 reports to CDSC as compared with 27,465 in 1987 (see Table 5.10). However, only a proportion of these isolates were reported to be associated with a food source.

Table 5.10: *Laboratory reports of campylobacter faecal isolates to CDSC, England, Wales and Ireland, 1978-88*

Year	Total reports
1978	6,346
1979	8,514
1980	9,477
1981	12,449
1982	12,878
1983	17,327
1984	21,122
1985	23,706
1986	24,952
1987	27,465
1988	28,971

Source: CDSC Microfiche (form 40's, and including form 20's from 1978 to 1982 where isolated from faeces; all reports on form 20's where organism isolated from blood, skin, bile, GIT or eye only are *not* included).

The marked increase in salmonella isolations during 1988 has been due principally to an increase in one particular phage type, *Salmonella enteritidis phage type 4* which is associated predominantly with poultry and eggs. Data from CDSC for 1988 show that there were 13,051 laboratory identifications of *Salmonella enteritidis* from faeces of which about 9,000 were known to be phage type 4, more than double the number found in 1987.

From Spring 1988 onwards, a marked increase in food poisoning outbreaks associated with eggs and egg products were reported by laboratories and local authorities to CDSC. As this pattern of human infection emerged from routine monitoring, the PHLS sought to establish the reason for it. They considered the possible sources of *S.enteritidis PT4* by analysis of the results of microbiological examination of foods and food animals and by epidemiological investigation of outbreaks.

Of 108 isolations of *S.enteritidis PT4* from food animals examined by the PHLS, 81% came from poultry. The PHLS also identified *S.enteritidis PT4* from 221 samples of food sent for culture; 95% were from poultry and poultry products, including raw, liquid egg. At the same time, PHLS intensified its surveillance to identify outbreaks of salmonella food poisoning and in collaboration with the State Veterinary Service, investigated potential and implicated sources of infection.

Although the first indications suggesting that there might be a problem with *S.enteritidis PT4* and eggs began to accumulate towards the end of 1987, sufficient epidemiological evidence to justify public health action did not become available until the Summer of 1988.

Once it was clear that the number of reported cases of *S.enteritidis* (particularly phage type 4) in humans was showing a further increase in 1988, and the reported incidents were food poisoning was linked to eggs had shown a marked increase, an intensive review of the evidence was carried out at joint meetings held between the Department of Health (DH), PHLS, MAFF and representatives of the egg industry. At the time, evidence suggested that the problem arose from the consumption of raw eggs or from uncooked dishes containing raw eggs – such as mayonnaise. On 29 July 1988, DH issued a letter to NHS caterers advising them not to use raw eggs in food which would not subsequently be cooked, and shortly afterwards, I issued a press statement advising consumers not to eat raw eggs or home made dishes containing uncooked egg. This advice was promptly circulated to chief environmental health officers of local authorities and to catering and hotel organisations. The chief environmental health officers were asked to give publicity to this advice.

By November 1988 when it became apparent from further epidemiological evidence that there was also a risk from the consumption of lightly cooked eggs, I advised the public accordingly (Press Release 21 November).

On 5 December 1988, I repeated my earlier advice not to eat raw eggs. Lightly cooked eggs were of little risk to a healthy individual, but it was advisable for vulnerable groups such as the elderly, the sick, babies and pregnant women to eat only eggs which had been cooked until the white and the yolk were solid.

References

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[10] Kerr KG, Dealler SF, Lacey RW. Materno-fetal listeriosis from cook-chill and refrigerated food. *Lancet 1988;* **ii**: 1133.

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[13] Gilbert RJ, Miller KL, Roberts D. Listeria monocytogenes and chilled food. *Lancet* 1989; **i**: 383-384.

[14] *Guidelines for good hygiene practice in the manufacture of soft and fresh cheeses.* London: Creamery Proprietors Association, 1988.

(d) Meningococcal meningitis

During 1988, peak numbers of weekly notifications were reached within the first two weeks of the year. Thereafter, notifications remained higher than in preceding years. The winter rise of 1988 occurred earlier and peaked in the first week of January 1989. There were 1,309 notifications in 1988 compared to 1,089 in 1987. Five-week moving averages for the period January 1984 to week 13 of 1989 are shown in Figure 5.5. It remains to be seen if 1988 was the peak of the present upsurge.

Although the total number of notifications increased, little change occurred in the prevalence of strains. The proportion of Group C infections (34%) was slightly less than in 1987 (36%). Although the prevalence of Group B P1.16 sulphonamide-resistant strains has fallen since 1987, no other single strain appears to be replacing it.

In 1988, there were fewer cases of Group A meningitis than in 1987 when the relatively high number reflected imports following the outbreak associated with the 1987 Haj pilgrimage[1]. In 1988, pilgrims on the Haj to Saudi Arabia were required to show evidence of meningococcal vaccination and this is likely to be an entry requirement in 1989. Vaccination appears to have been successful in preventing primary and secondary cases. Meningococcal septicaemia became notifiable from 1 October 1988, since which time there have been 85 notified cases of meningococcal septicaemia without meningitis.

Although meningococcal meningitis has attracted considerable attention over recent years, important changes are also occurring in *Haemophilus influenzae* infections. As can be seen from Figure 5.6 *H. influenzae* meningitis occurs most commonly in the very young in whom the rate is increasing considerably. The annual notified incidence for 1987 was 22/100,000 infants under one-year. However, as in other types of meningitis, a substantial degree of under-reporting occurs. In infants and very young pre-school children, *H. influenzae* is becoming a more common cause of meningitis than the meningococcus. However, there are interesting prospects for candidate conjugate vaccines which could be incorporated into the childhood immunisation schedule.

Reference

[1] Moore PS, Harrison LH, Telzak EE, Ajello GW, Broome CV. Group A meningococcal carriage in travellers returning from Saudi Arabia. *JAMA* 1988; **260**: 2686-2689.

Figure 5.5: *Meningococcal meningitis: 5-week moving averages of weekly notifications to OPCS, England and Wales, 1985-89*

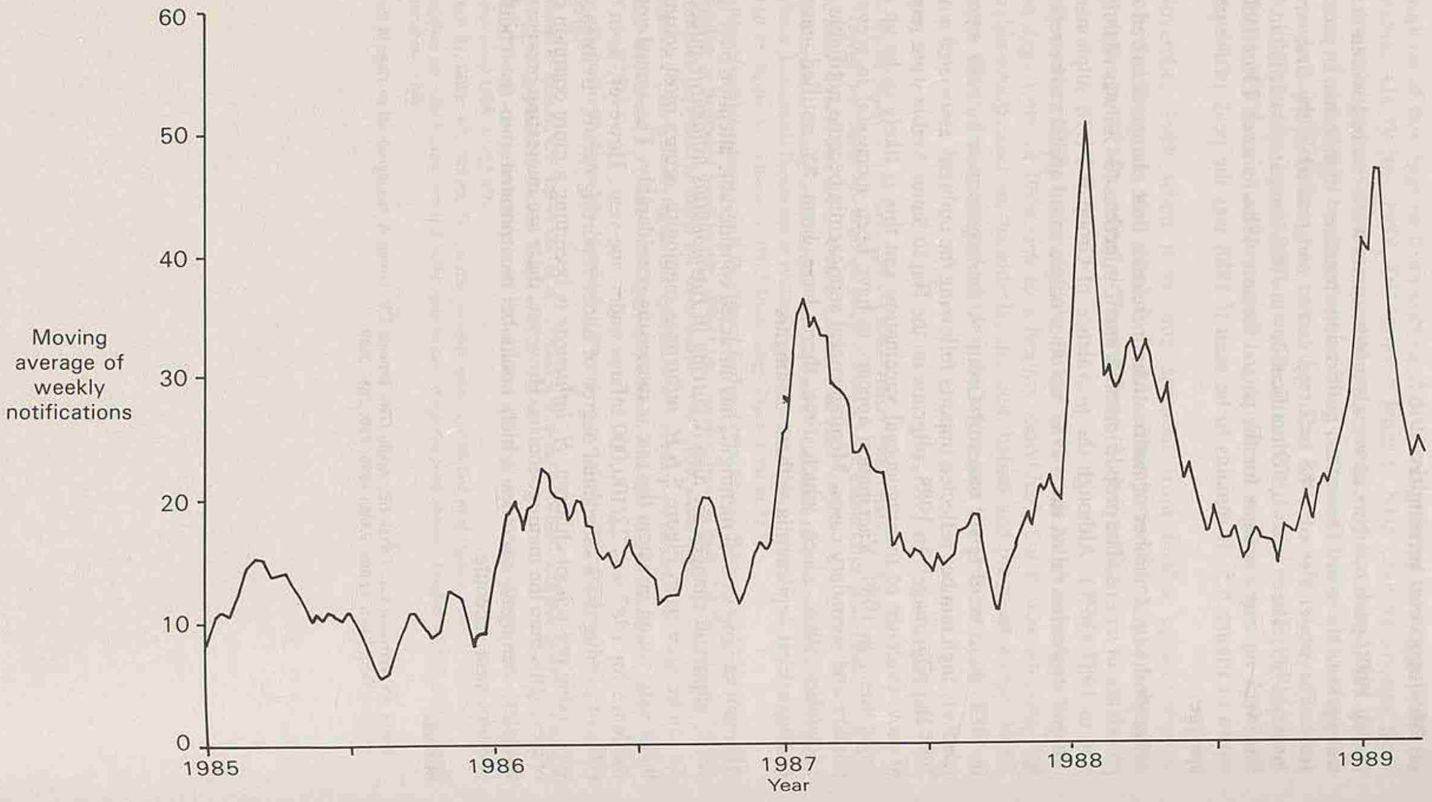
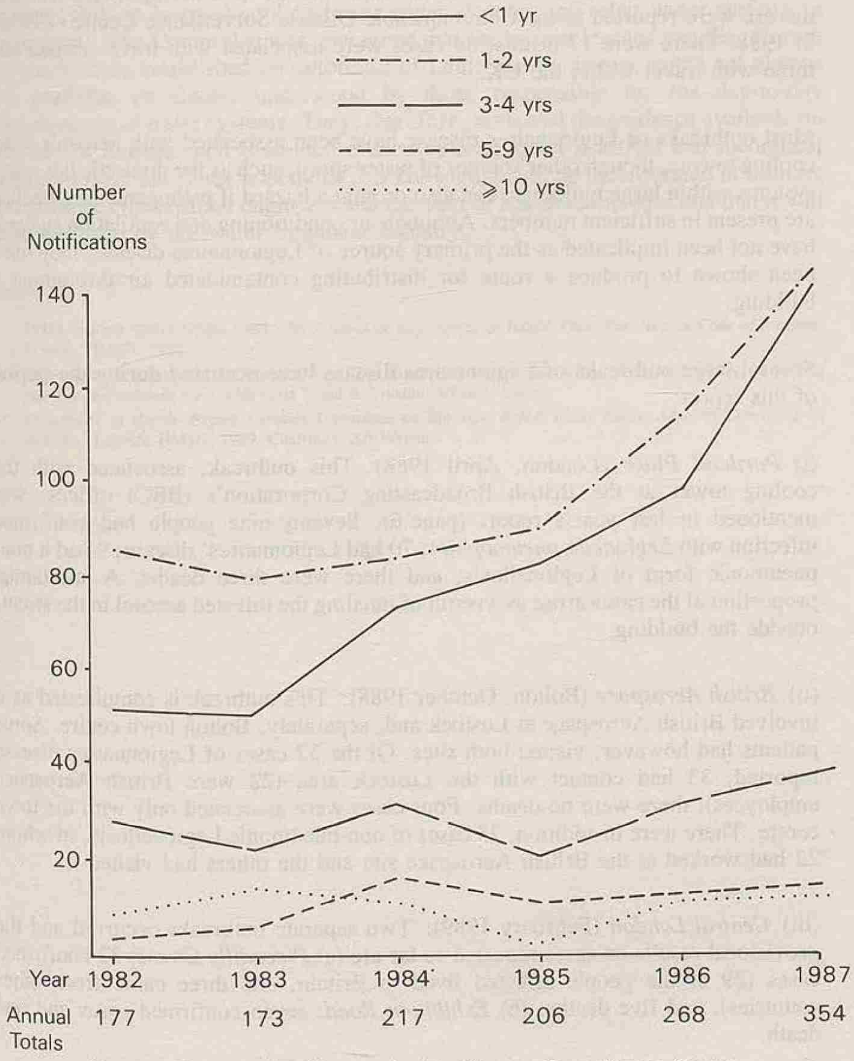


Figure 5.6: *Haemophilus influenzae meningitis: annual notifications by age-group, England and Wales , 1982-87*



Source: Prepared by Communicable Disease Surveillance Centre

(e) Legionellosis

In England and Wales, 278 cases (217 in males and 61 in females) of Legionnaires disease were reported to the Communicable Disease Surveillance Centre (CDSC) in 1988. There were 17 deaths; 84 cases were associated with travel abroad and three with travel within the UK.

Most outbreaks of Legionnaires disease have been associated with aerosols from cooling towers, though other sources of water spray, such as the domestic hot water systems within large buildings, can also present a hazard if pathogenic Legionellae are present in sufficient numbers. Although air conditioning and ventilation systems have not been implicated as the primary source of Legionnaires disease, they have been shown to produce a route for distributing contaminated air throughout a building.

Several large outbreaks of Legionnaires disease have occurred during the period of this report:

(i) *Portland Place* (London, April 1988): This outbreak, associated with the cooling tower at the British Broadcasting Corporation's (BBC) offices, was mentioned in last year's report (page 6). Seventy-nine people had confirmed infection with *Legionella pneumophila*; 70 had Legionnaires' disease; 9 had a non-pneumonic form of Legionellosis; and there were three deaths. A substantial proportion of the cases arose as a result of inhaling the infected aerosol in the streets outside the building.

(ii) *British Aerospace* (Bolton, October 1988): This outbreak is complicated as it involved British Aerospace at Lostock and, separately, Bolton town centre. Some patients had however, visited both sites. Of the 37 cases of Legionnaires disease reported, 33 had contact with the Lostock area (22 were British Aerospace employees); there were no deaths. Four cases were associated only with the town centre. There were in addition, 23 cases of non-pneumonic Legionellosis, of whom 22 had worked at the British Aerospace site and the others had visited it.

(iii) *Central London* (February 1989): Two separate outbreaks occurred and the provisional results on cases reported so far are (a) *Piccadilly Circus:* 32 confirmed cases (29 of the people affected lived in Britain, and three came from other countries), and five deaths. (b) *Exhibition Road:* seven confirmed cases and one death.

The Department of Health and the Welsh Office issued detailed guidance in 1988 in the *Control of Legionellosis in Health Care Premises*[1]. This code of practice, intended primarily for NHS staff, is in separate parts, each addressing a particular area of concern. It will facilitate amendment in a rapidly developing subject and an update has just been published[2].

The *Report of the Expert Advisory Committee on Biocides* chaired by Dr A E Wright was published in January 1989[3]. This Committee was set up following the recommendations of the Committee of Inquiry chaired by Sir John Badenoch after the outbreak of Legionnaires disease in Stafford in 1985. The Biocide Committee had the remit "to consider all aspects of the use of biocides including their efficacy and safety in minimising the risk of multiplication of Legionella pneumophila in hospital cooling tower water systems and other water systems in hospitals". The Committee was concerned that the lessons learned and the relevant scientific facts established on outbreaks of Legionnaires disease might not always be available or always understood by those responsible for the day-to-day maintenance of water systems. They, therefore, reviewed the evidence available on the use of biocides and presented a detailed account of practical and theoretical aspect of their use. They hoped that this knowledge will be incorporated in training programmes for hospital engineers and the staff of health authorities and that it will also be noted by the water treatment industry.

References

[1] DHSS and the Welsh Office 1988. *The Control of Legionellae in Health Care Premises. A Code of practice.* London: HMSO, 1988.

[2] Department of Health and the Welsh Office. *The Control of Legionellae in Health Care Premises. A code of practice.* Amendment No 1 with parts 5 and 6. London: HMSO, 1989.

[3] Department of Health. Expert Advisory Committee on Biocides. *Report of the Expert Advisory Committee on Biocides.* London: HMSO, 1989. Chairman: AE Wright.

(f) Immunisation

(i) Uptake

Immunisation figures continue to improve, with an increase in the gradient of the upward trend in the uptake of measles and whooping cough vaccines. Figure 5.7 shows the uptakes for polio (and diphtheria and tetanus), measles and whooping cough vaccines from January 1983 to April 1988. Uptake figures are now calculated over fiscal rather than calendar years, to comply with the Körner specifications for minimum data sets.

Although the national mean figures are improving, there remain considerable variations in performance at district levels. Ninety-six of 190 district health authorities (DHAs) have already reached the 1990 uptake target of 90% for polio vaccine and eight have also achieved their 90% target for measles. However, 17 of the 25 lowest-achieving DHAs are in the four Thames Regions and four of the remainder are in the West Midlands. Unless considerable improvements occur in these areas of greatest population density, the prospects for the elimination of vaccine-preventable diseases will be jeopardised by continuing virus transmission.

Regular meetings are held for district immunisation co-ordinators whose efforts have contributed significantly to these recent improvements. The guidance of the Joint Committee on Vaccination and Immunisation (JCVI) was extensively revised, with particular emphasis on reduction and clarification of contra-indications. This was sent to all doctors, health visitors and nurses involved in immunisation in July 1988.

(ii) Measles, Mumps, Rubella (MMR) vaccine

Following the recommendation of the JCVI[1], MMR vaccine replaced single antigen measles vaccine in the routine childhood vaccination schedule from 3 October 1988. The new policy recommends MMR for all children at 12-15 months-of-age and that for the next four to five years it should also be given to children attending for their pre-school diphtheria and tetanus boosters. Vaccine is also available for children of any age on request. The schoolgirl rubella programme and the vaccination of adult women will continue and will not be discontinued until rubella transmission amongst young children has been interrupted through high uptake of vaccine. Thereafter, subject to appropriate uptake levels being achieved rubella-susceptible pregnant women will not be at risk, and the congenital rubella syndrome will have been eliminated in this country.

The MMR campaign: The publicity campaign for the introduction of MMR was divided into two parts:

(a) providing the information needs of the medical profession and

(b) providing the information needs for the general public.

The latter part was developed in conjunction with the Health Education Authority (HEA) who commissioned an advertising agency, Aspect Hill Holliday, to research and develop appropriate material for a national campaign.

Figure 5.7: *Immunisation uptake rates for measles, polio and whooping cough vaccination in England, 1983-88*

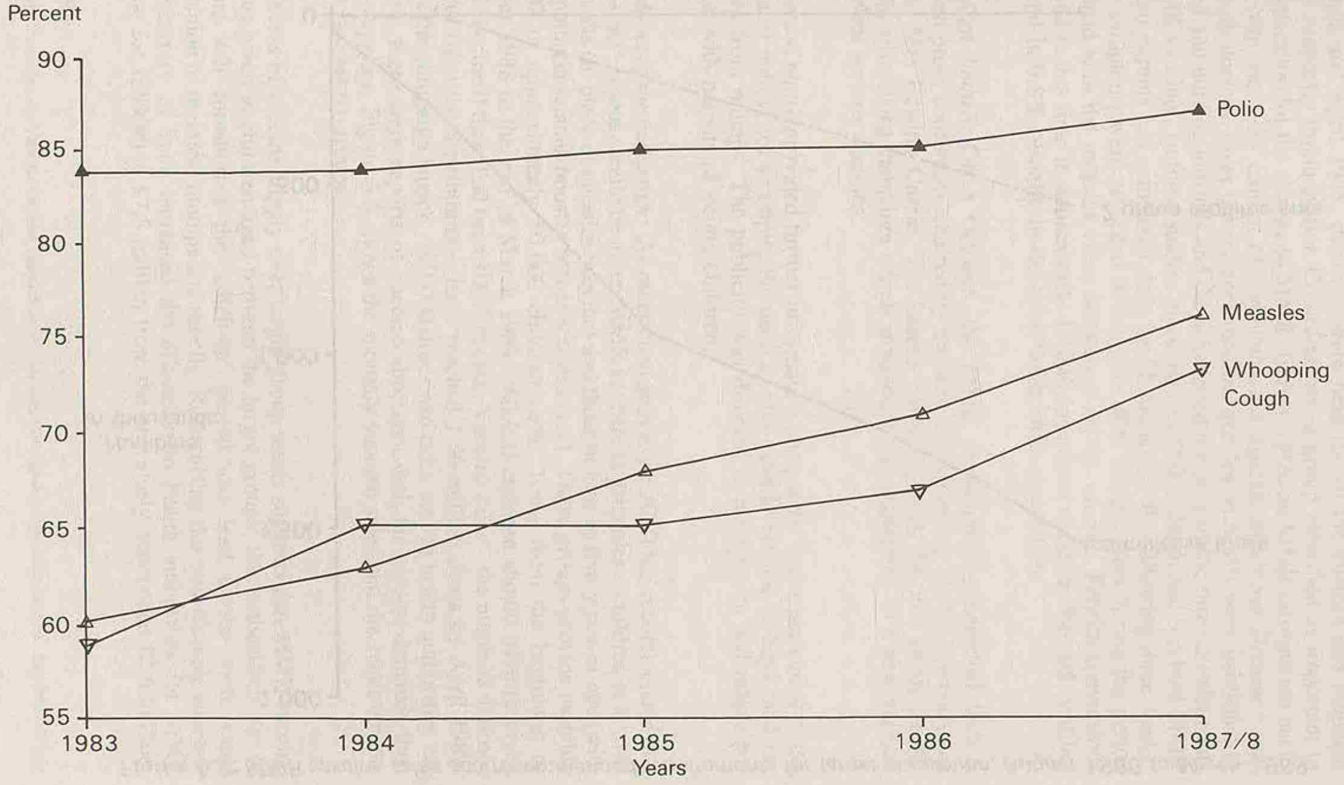
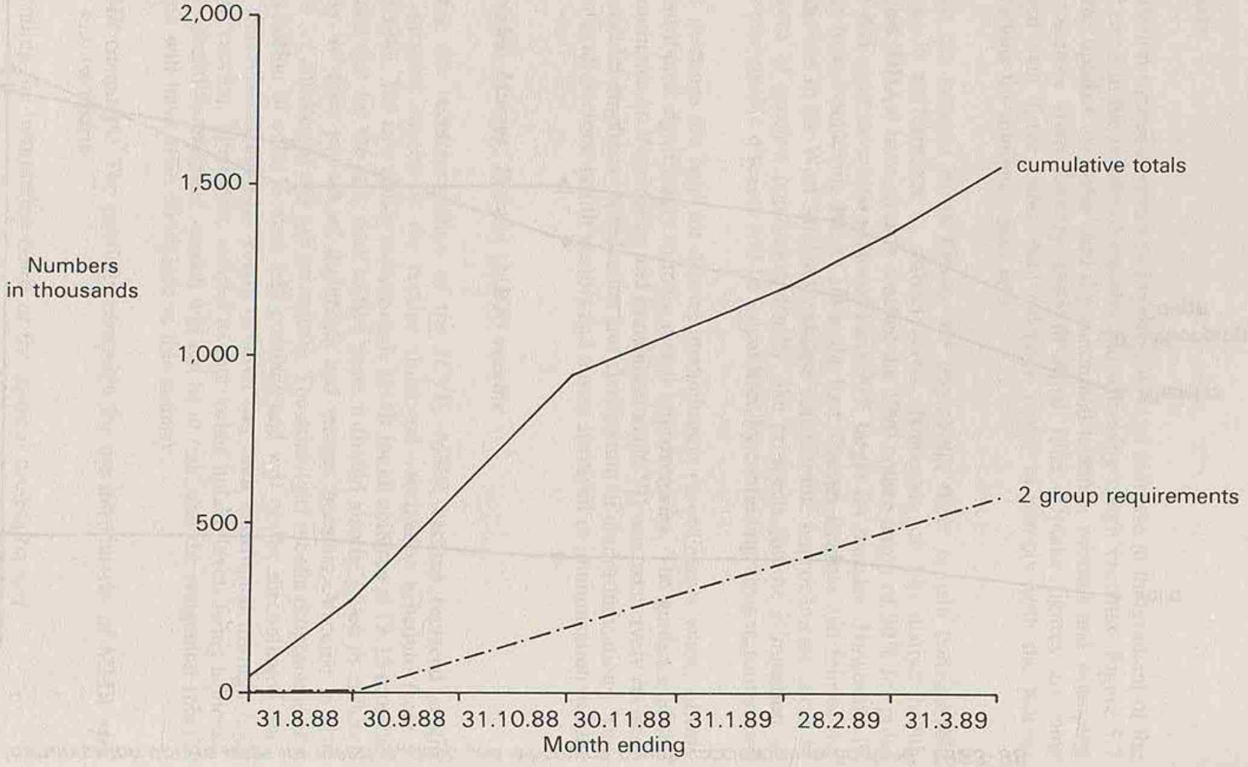


Figure 5.8: *MMR vaccine sales and recommended requirements for target population, August 1988 to March 1989*



In March and April 1988, meetings were held for all the District and Regional Health Authority Immunisation Co-ordinators, a group identified as important in the preparation for the change to MMR. In July 1988, an MMR information pack, along with the 1988 edition of '*Immunisation against Infectious Disease*'[2] was sent to all doctors. Over the summer months, articles on MMR were published in medical and nursing journals and these included a report of the three district trials of MMR vaccine[3]. In these studies more than 13,000 children had received MMR and their parents had completed daily health diaries for the following three weeks. Minor symptoms were recorded in less than 30% of recipients during the period associated with the measles virus component of the vaccine. Febrile convulsions occurred at this time in approximate 1/1000 vaccinated children. Parotid swelling occurred in 0.8%, usually in the third week after vaccination.

Campaign launch: On 3 October, the MMR campaign was launched with a televised press conference chaired by the then Parliamentary Under Secretary for Health, Mrs Edwina Currie. The launch coincided with the *first phase* of the national advertising campaign which announced the availability of a new vaccine to prevent serious diseases.

The *second phase* provided further information on specific issues pertaining to the change of policy, for example, the need to give rubella vaccine to boys, and the dangers from mumps. The publicity was directed to newspapers and magazines popular with parents of young children.

The impact of the campaign: As mentioned above, the JCVI has recommended that two 'target' groups should be given MMR vaccine as priorities – children at around 15 months (in place of measles vaccine) and those at four-to five-years-of-age (with the diphtheria-tetanus booster before school entry). These groups provide monthly cohorts of approximately 50,000 children each. Thus, from the beginning of October 1988 to the end of March 1989, 600,000 children should have received MMR vaccine if there had been 100% uptake. Vaccine sales – the numbers of doses sent out from the distributors – have reached 1.56 million doses by April 1989. Before the campaign launch, 300,000 doses had been sent to health authorities but even so, there were reports of vaccine shortages with far greater demands than initial supplies. Figure 5.8 shows the monthly vaccine sales and the requirements of the two target groups.

The excess of vaccine supply over target-group needs suggests that MMR vaccine is being given to children aged between the target groups; this enthusiastic use of vaccine will foreshorten the 'catch-up' period and lead to the more rapid elimination of measles, mumps and rubella. Recognising this considerable success, the Secretary of State increased the allocation to health authorities for MMR vaccine for 1989/90 to £7.8 million from the previously announced £2.6 million.

References

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[2] Department of Health and Social Security. *MMR: three way protection for your child: immunisation against infectious disease.* London: Department of Health and Social Security, 1988.

[3] Miller C, Miller E, Rowe K, Bowie C, Judd M, Walker D. Surveillance of symptoms following MMR vaccine in children. *Practitioner* 1989; **223**: 69-73.

(iii) Measles

In 1987 there were 42,125 notifications of measles, the lowest ever recorded. Because of the biennial pattern of measles infections, it was anticipated that notifications would be higher in 1988. Although measles immunisation uptake has been rising progressively and had reached 76% in 1987/88, low uptake in the past has left large numbers of susceptible children. Figure 5.9 shows the five-week moving averages for notifications of measles for England and Wales from 1986 to week 19 of 1989.

By early May 1988, there had already been six deaths related to measles and almost as many notifications as in the whole of 1987. The Secretary of State brought this problem to the attention of RHA chairmen and I wrote to regional medical officers (RMOs) identifying the five districts in each region with the lowest uptakes of measles vaccine. I also wrote to all doctors encouraging the immunisation of vulnerable children. In addition, the measles epidemic was given considerable media attention and the results of this campaign can be judged from Figure 5.10, the sales of measles vaccine from the suppliers.

Sales rose from approximately 50,000 doses per month to a record 170,000. The subsequent fall in vaccine sales reflects the issuing of advice to doctors and health authorities of the impending introduction of measles, mumps and rubella (MMR) vaccine. Although notifications are expected to be low in 1989, it is most encouraging to report that measles notifications for the first quarter of 1989 were at the lowest level since quarterly records began. This probably reflects the successful measles campaign of the summer of 1988 and the enthusiastic use of MMR vaccine since its launch.

(iv) Diphtheria

As in 1987, there were two notifications of diphtheria in 1988. Vaccine coverage in England (87% in 1987/88) appears to be sufficient to prevent outbreaks but, nevertheless, these do occur, even in highly immunised populations, such as in Sweden between 1984 and 1986. Serological surveys in England have shown that up to 30% of young adults and 40% of older adults are susceptible, and similar results have been found in other European countries. The JCVI will shortly be giving further consideration to the problem of diphtheria susceptibility in older age groups.

(v) Whooping cough

In 1988 there were 5,123 notifications of whooping cough in England and Wales, the lowest number since the decline in acceptance of whooping cough vaccine, because of fears over its safety, in the mid-1970s. In 1973, when vaccine acceptance was over 80%, annual notifications had fallen to around 2,400 cases. Vaccine acceptance is now 73%. The previous year comparable to 1988 was 1984 when there were 5,517 notifications. The next upsurge of whooping cough is expected in the autumn of 1989 and it remains to be seen how this will be affected by recent improvements in vaccine uptake.

Figure 5.9: *Measles 5-week moving average of weekly notifications to OPCS, England and Wales, 1986-89*

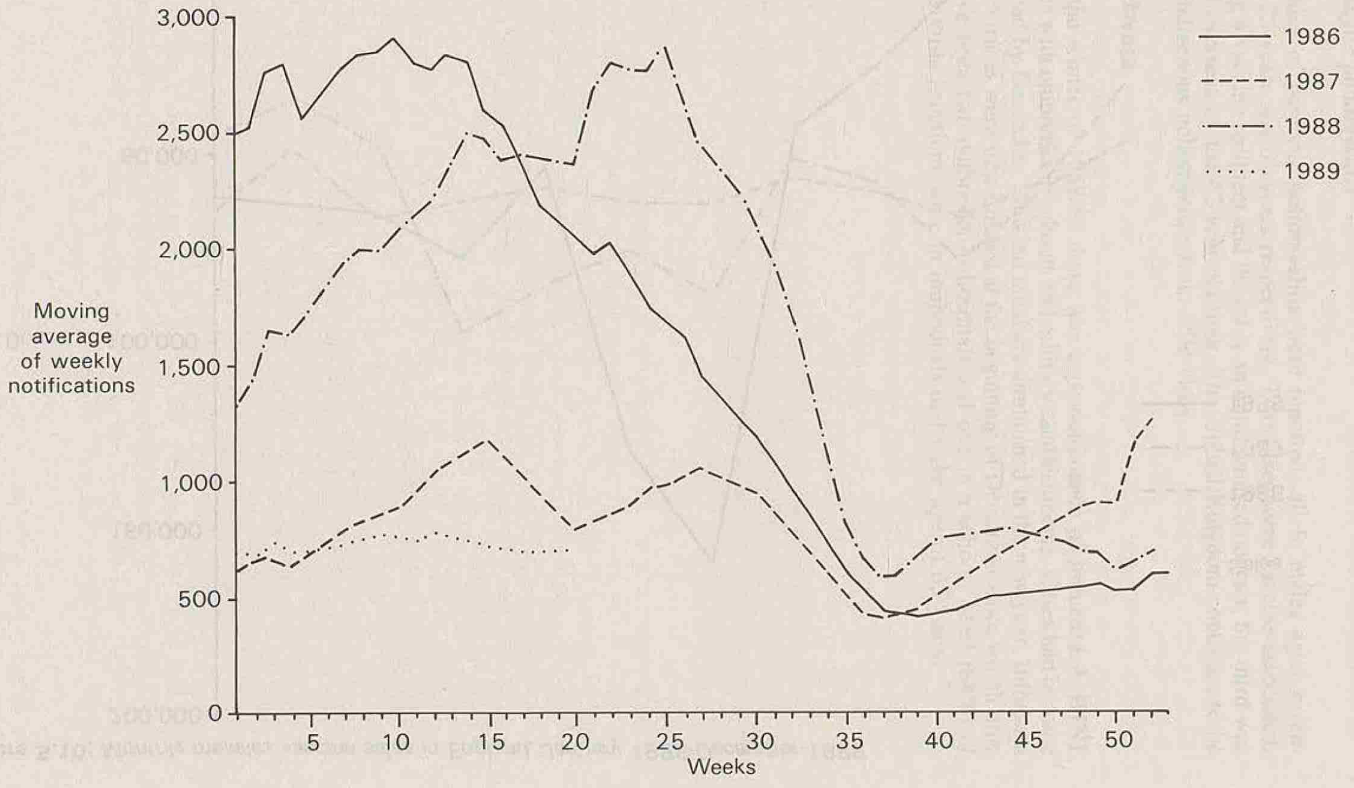
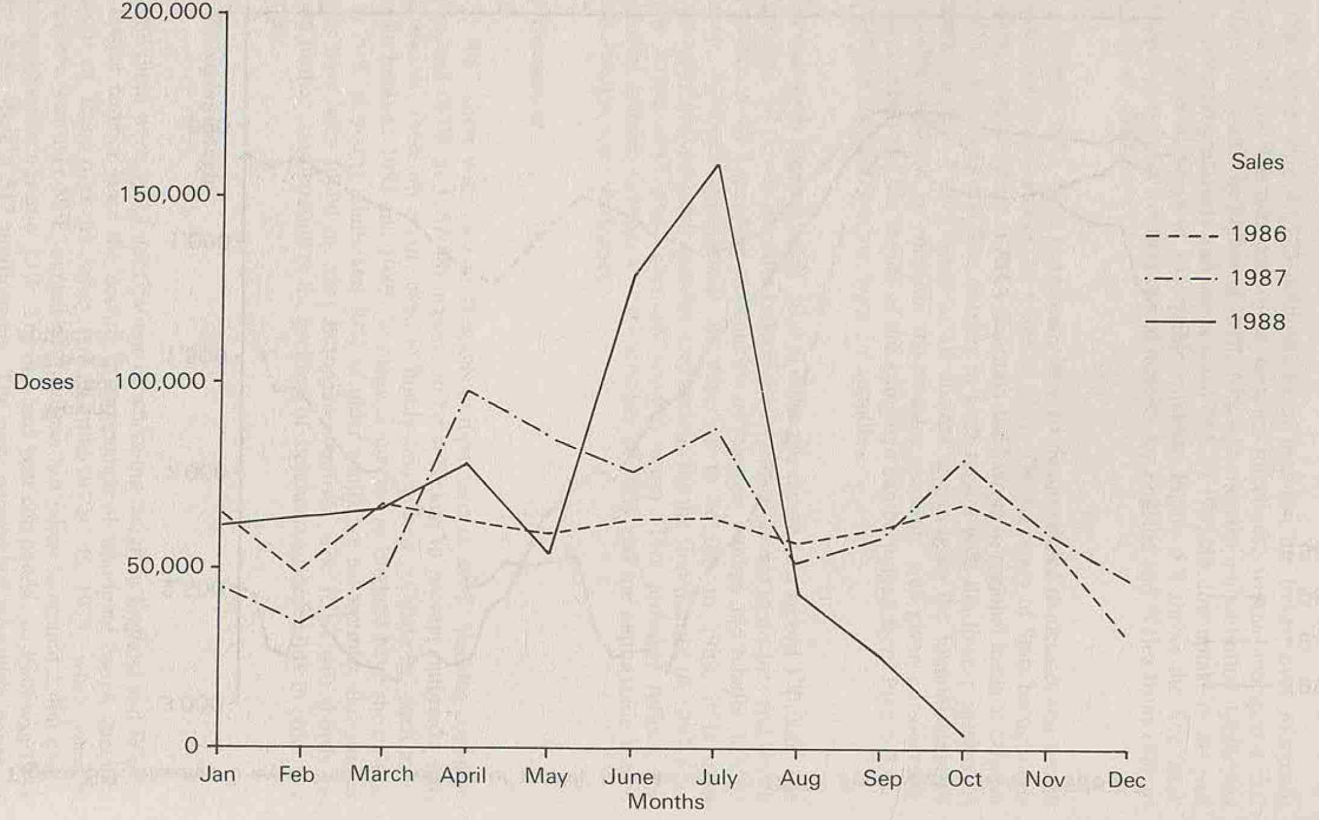


Figure 5.10: *Monthly measles vaccine sales in England, January 1986-December 1988*



(vi) Paralytic poliomyelitis

Three cases of paralytic poliomyelitis were reported, all in males aged seven-months, 25 years and 62 years respectively. Two cases were vaccine-associated. one being a vaccine recipient and the other an unimmunised contact; the third was acquired overseas by the 62-year-old man. The United Kingdom continues to be free of indigenous poliomyelitis from wild virus.

(vii) Influenza

During the winter of 1988/89 there was a predominance of influenza A H1N1 infections with outbreaks in schools and military establishments. Cases had become widespread by December 1988 but numbers diminished in the new year. Influenza A H3N2 viruses were first isolated at the beginning of December since which time there have been two outbreaks in hospitals and one in a school. Most (84%) of influenza virus isolations were in individuals under the age of 65 years.

(g) Overseas travel and health

Sources of advice

Advice on health-related matters is provided for the travelling public in the two Departmental publications forming the '*Traveller's Guide to Health*'. The main book '*Before you Go*'[1] (SA40) gives general information on the diseases that beset travellers to foreign parts, lists specific vaccination and other requirements by country, and deals with entitlement to immediate and necessary medical care in European Community and other countries.

The second, '*While you're away*'[2] (SA41), reinforces some of this medical advice, particularly that on rabies and malaria, and includes a leaflet on emergency treatment in the European Community (EC). New editions are issued every year and they are updated as necessary during the year. Copies are distributed widely and in particular to travel agents (through the Association of British Travel Agents) and general practitioners.

A similar information source is provided on PRESTEL and this is the main means of relaying urgent changes in international requirements or of giving warning of epidemics abroad. Most travel agents are able to pass these warnings to clients who book holidays through them.

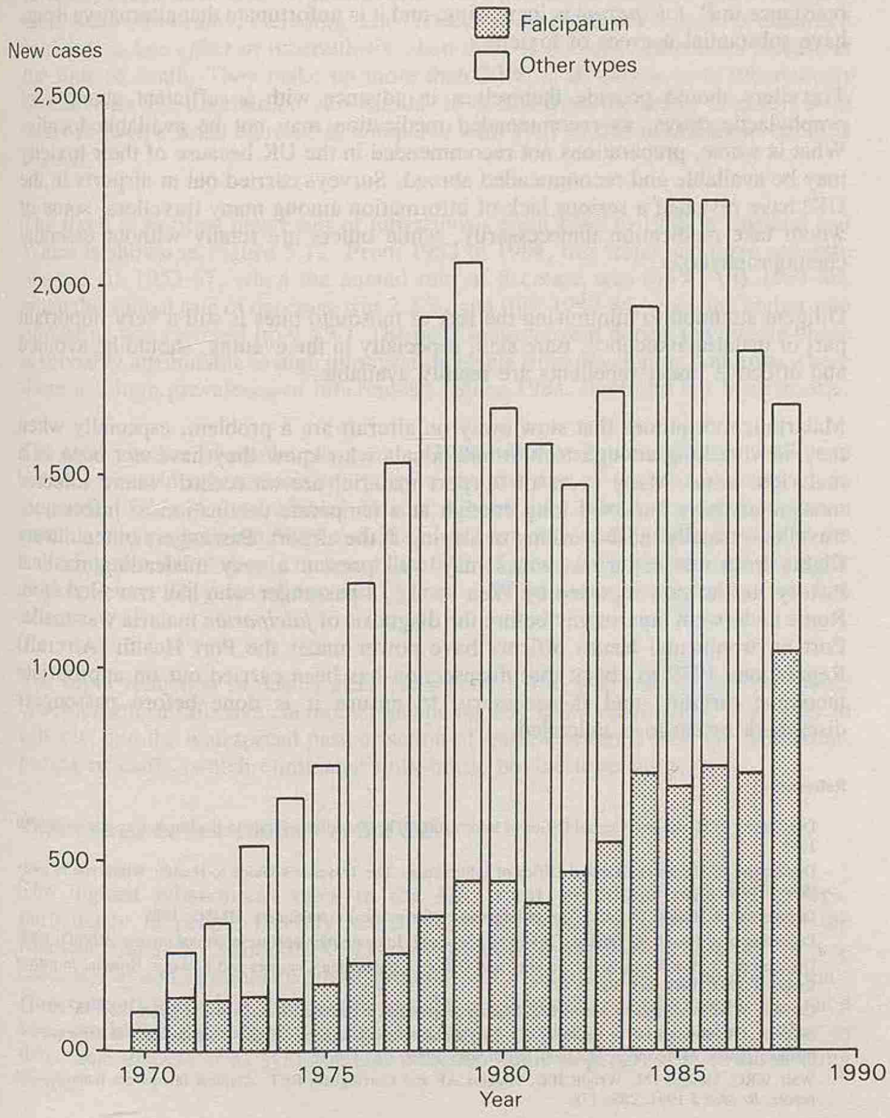
Further information is sent annually to general practitioners in a Departmental publication '*Travel information for medical practitioners*'[3] which deals with various current issues, provides a complete UK list of designated yellow fever vaccination centres, and lists telephone numbers of those providing specific advice. This document supplements the Health Departments' memorandum '*Immunisation against infectious disease*'[4] the most recent edition of which was sent to all doctors in July 1988.

Malaria – to prevent and cure

Malaria is a common imported disease, there having been 1,674 cases reported to the PHLS Malaria Reference Laboratory in 1988. This is not the highest number in recent years and Figure 5.11 shows the number of cases reported in the UK from 1970 to 1988. Initially, the number of cases increased with the popularity of foreign travel, but in the last decade, there has not been a consistent upward trend. However, the species *P. falciparum* has shown a steady increase and is the only form that gives rise to death in the UK—seven deaths in 1988 (about the average for the last decade). Hospital admissions for malaria averaged 1,450 per annum for the period 1983-1985[5] and consumed, on average about 6,500 bed-days per annum, currently valued at £750,000.

Countries where malaria is endemic are identified for the travelling public in '*Before you Go*'. Further information is sent annually to GPs in '*Travel information for medical practitioners*' and the PHLS Malaria Reference Laboratory provides pre-recorded tape messages and a telephone enquiry line.

Figure 5.11: *New cases of malaria in the UK notified to the PHLS Malaria Reference Laboratory from 1970 to 1988*



As chemoprophylaxis has to be commenced before the journey, it is important that travellers are aware of the significance of their planned itinerary and any possible last-minute variations they may be tempted (or forced) to make. Chloroquine resistance in *P. falciparum* is increasing, and it is unfortunate that alternative drugs have substantial degrees of toxicity.

Travellers should provide themselves in advance with a sufficient quantity of prophylactic drugs, as recommended medication may not be available locally. What is worse, preparations not recommended in the UK because of their toxicity may be available and recommended abroad. Surveys carried out at airports in the UK[6] have revealed a serious lack of information among many travellers, some of whom take medication unnecessarily, while others are totally without essential chemoprophylaxis.

Diligent attention to minimising the risk of mosquito bites is still a very important part of malaria avoidance. Bare skin, especially in the evening, should be avoided and effective insect repellents are readily available.

Malarious mosquitoes that stow away on aircraft are a problem, especially when they survive long enough to bite individuals who know they have *not* been in a malarious zone. Many cases of 'airport malaria' are on record[7] where infected mosquitoes have survived long enough at a temperate destination to infect non-travellers, usually those working or staying at the airport. Passengers bitten during flights from non-malarious zones may well present a very misleading medical history. In the case reported by Weir et al.[8], a passenger who had travelled from Rome underwent laparotomy before the diagnosis of *falciparum* malaria was made. Port environmental health officers have power under the Port Health (Aircraft) Regulations 1979 to check that disinsection has been carried out on appropriate incoming aircraft, and if necessary, to ensure it is done before passengers disembark or cargo is unloaded.

References

[1] Department of Health and Central Office of Information. The Traveller's Guide to Health: Before you go (SA40) 1988.

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(h) Tuberculosis

In 1988, 5,161 new cases of tuberculosis were notified in England and Wales and there were 718 deaths, including 'late' effects of the disease. (A death is classified as due to a *late effect* of tuberculosis when there is no active infectious disease at the time of death. They make up more than 30% of all deaths from tuberculosis and have an age-distribution very similar to deaths from the active disease). Both totals showed a small increase as compared with 1987 (5,085 notifications and 625 deaths).

The trend of notified new cases of tuberculosis from 1948 to 1988 in England and Wales is shown in Figure 5.12. From 1953 to 1984, this trend had three separate phases: (i) 1953-67, when the annual rate of decrease was 8.6%; (ii) 1967-80, when the annual rate of decrease was 2.8%; and (iii) 1980-84, when the higher rate of decline was restored (to 9.5%). The poor improvement during the middle phase is probably attributable to high immigration levels from developing countries where there is a high prevalence of tuberculosis. Since 1984, the trend has been erratic.

The total number of deaths per annum (1948-88) are shown in Figure 5.13, and recent trends in tuberculosis mortality under the age of 65 years are shown in Appendix Table 4 ('Avoidable' Deaths, Chapter 8). The latter indicate that a sizeable decline between 1979 and 1983 has been followed by little change in the mortality rate, but it should be noted that 60% of all deaths from tuberculosis occur in people over 65 years-of-age and figures in Table A.4 exclude deaths from late effects.

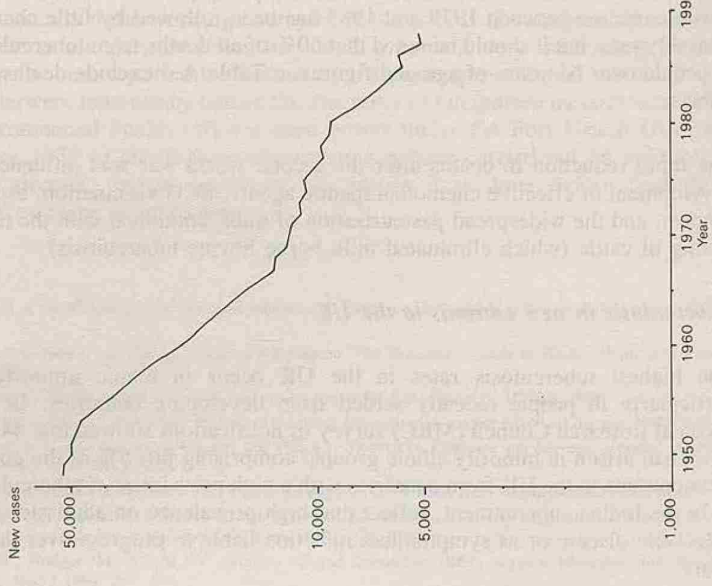
The rapid reduction in deaths after the second world war was influenced by the development of effective chemotherapeutic agents, BCG vaccination, especially in schools, and the widespread pasteurisation of milk, combined with the tuberculin-testing of cattle (which eliminated milk-borne bovine tuberculosis).

Tuberculosis in new entrants to the UK

The highest tuberculosis rates in the UK occur in ethnic minority groups, particularly in people recently settled from developing countries. In 1983 the Medical Research Council (MRC) survey of notifications showed that 44% of new cases had arisen in minority ethnic groups, comprising just 5% of the population[1]. New entrants to the UK from countries with a high prevalence of tuberculosis, such as in the Indian subcontinent, reflect that high prevalence on admission, either as detectable disease or as symptomless infection liable to progress over the ensuing years.

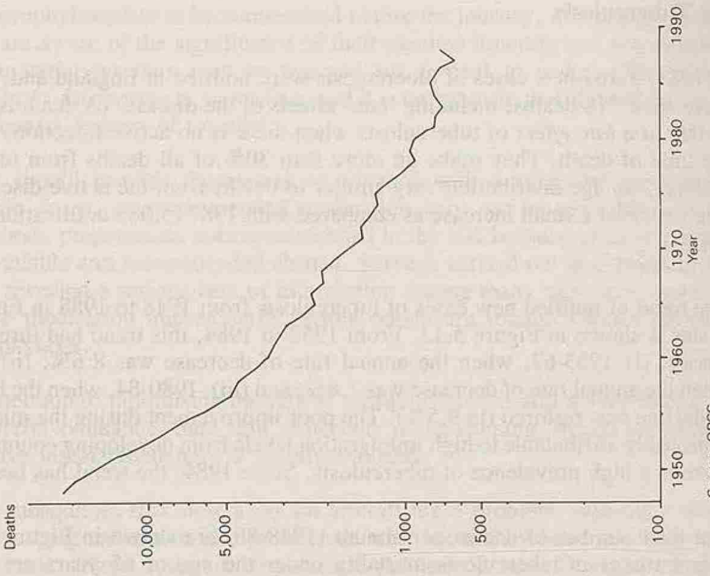
Two separate strategies are used to deal with the problem. Either the disease may be detected by medical examination and chest x-ray in the country of origin, or, on arrival at the UK port of entry. In the latter instance, the Immigration Service refers most new entrants intending to stay for more than six months to the Medical Inspector for examination under the terms of the Immigration Act 1971. People with active disease are admitted to hospital; those with symptomless infection can be detected by tuberculin skin testing, supervised by the Medical Officer for Environmental Health (MOEH) or chest physician at their destination.

Figure 5.12: *Tuberculosis, new cases per annum, England and Wales, 1948-88*



Source: OPCS

Figure 5.13: *Tuberculosis, deaths per annum, England and Wales, 1948-88*



Source: OPCS

Because of the recognised risks, entry procedures at the major airports were enhanced in 1988 and additional guidance was provided for MOsEH.

Reference

[1] MRC Tuberculosis and Chest Diseases Unit. National survey of notification of tuberculosis in England and Wales in 1983; *Br Med J* 1985; **291**: 658-661.

6. OTHER EVENTS OF INTEREST IN 1988

(a) Primary health care

1988 was a year of consolidation in the primary care services and of debate about the future. '*Promoting Better Health*'[1], which was published the previous November, was the subject of regular discussions with the profession. The Government announced the establishment of a review of the National Health Service which, in due course, will enhance the central role general practitioners (GPs) play in the provision of health services. The National Audit Office reported on the *Management of the Family Practitioner Services* (FPS)[2], with particular emphasis on whether the new FPS management arrangements were operating satisfactorily, and whether the arrangements were having a practical impact on the use of deputising services, the employment of ancillary staff, health care for the homeless and rootless, the promotion of group practice and the improvement of premises. Subsequently, the Public Accounts Committee in its 46th report[3], made a number of recommendations to which the Treasury (as is the protocol) responded positively. Sir Roy Griffiths submitted his report *'Community Care'*[4] to the Secretary of State. Finally, the Monopolies and Mergers Commission took evidence on the supply of the *services of medical practitioners* in relation to restrictions on advertising, reporting in March 1989.

Government policy continues to support primary health care as the foundation of the National Health Service. The gatekeeper role of the general practitioner in the referral of people for secondary care, as stressed by the Department in its evidence to the Monopolies and Mergers Commission[5], is important, both because it makes for the cost-effective use of the resources of the hospital service, and because it provides for continuity of care. The development of primary health care teams allows a range of skills to be brought together, often under one roof, for the benefit of the patient. The forthcoming removal of restrictions on the type of staff for whom there will be direct reimbursement will aid this[1]. Yet the nature and quality of the care people receive, varies widely. If quality services are to be available generally, it is important to know in some detail, the services which are being provided and the resources which are available for various activities in the different areas of the country. Over the last 25 years, the development in and improvement of general practice has been remarkable, but it has not been uniform. Professor N Bosanquet recently looked at general practice in different areas: urban, rural, affluent and deprived communities[6]. As markers for 'innovation' are opposed to 'traditional' styles of practice, he chose features like the presence of a trainee, participation in the cost rent scheme, and employment of a practice nurse. Practices which were 'innovative' in one sense, tended to be innovative in others. And innovative practices clustered in particular parts of the country. The older industrial areas tended to a 'traditional' style of practice and also had, on average, lower incomes than the 'innovators' who were frequently found in more rural areas, or those which were undergoing rapid economic development – like the Thames valley.

(i) Information systems

Considerable progress was made, during the year, in developing information systems which provide the data necessary to underpin future developments in primary health care. The Family Practitioner Committee (FPC) computerisation programme was completed, each FPC now possessing a compatible computer system holding a nominal register on which registration procedures are based. The register is also used for clinical activities, particularly in the field of health promotion and cervical cytology. Planning continued on the computerisation of the *NHS Central Register* which is on course for completion in 1990. This will enable quick and easier exchanges of notes when patients change their GP and will enable FPCs to keep a more accurate account of the number of patients on a GP's list. General practitioners, for their part, are increasingly equipping their practices with micro-computers which make it far easier to organise work and help ensure that patients needing care are not overlooked.

Work continued on the feasibility of electronic data transfer between GPs and FPCs, with a live pilot trial in the latter half of the year. Progress was made in planning a trial of '*Smart Cards*' to allow patients to carry summary medical records which can be assessed by GPs, pharmacists, dentists and hospital staff.

Morbidity statistics and workload

The main sources of information about what general practitioners actually do are the National Morbidity Surveys[7,8], the fourth of which is currently at the planning stage. The surveys provide an indication of consultation rates on a national basis and supplement more detailed information from a number of 'spotter' practices. It is therefore possible to analyse changes over a period of time, work largely undertaken by Crombie & Fleming[9]. Their series of analyses give a clear idea of patient movement within the NHS, how little the demands upon the system have changed over time, and provide other helpful information, for example, the tendency of individual doctors to choose 'favourite' labels from various equivalents available when classifying and coding their activities. Workload surveys supplement morbidity information. A joint workload survey was conducted by the Department of Health and the General Medical Services Committee of the British Medical Association (BMA) in 1985, and is being repeated in 1989, to determine the hours worked by GPs and how they deploy them, and to provide detailed analyses of how these relate to practices of different types. Other workers, notably at the Universities of Kent and Manchester have also explored workload. Professor Brian Williams of Sheffield reviewed some of the main findings of these studies, demonstrating a high level of consistency; for example, the average time spent on general medical services of 38 hours a week, the additional on-call time, and the relationship between list size and hours worked[10].

Information on the *distribution of general practitioners* is held by the Medical Practices Committee (MPC); the distribution in England is remarkably uniform. The work of the MPC has cumulatively evened out differentials so that the vast majority of people live in a district in which the GP-to-patient ratio lies between 1/1900-2100[11]. However, differences become more apparent when one looks at the nature of the doctors and their practices. For example, the number of women doctors varies significantly, being highest in the Southeast and Merseyside. Doctors who qualified outside the United Kingdom are to be found predominantly in the old industrial areas. Group practices are not evenly spread over the country, single-handed practices being more common in the conurbations and larger cities.

Individual groups of research workers have studied particular activities, for example, premises, prescribing, referral, immunisation levels in the various districts, the extent of involvement in child health surveillance and health promotion. Much of our information on premises comes from applications for new premises and improvements under the cost rent schemes, the reports from FPCs of their visiting programmes and data from the Department's regional medical service. Absolute standards are difficult to develop and inevitably, the quality of information is 'soft'. But there is no doubt that standards vary widely. Perhaps 14% of premises, on the basis of the National Audit Office Report[2] are poor by any benchmark, and some FPCs have particular problems. These tend to be inner city FPCs and those in areas of urban deprivation.

(ii) GP referrals to hospital services

More has been learnt about the extent to which general practitioners' decisions influence the use of the resources of secondary health care – the hospital service. Until comparatively recently, most surveys have been small in scope, localised to particular areas, and potentially biased by concentrating on volunteer practices. Increasingly, however, more widely based information is becoming available and the statistical techniques applied to it are more sophisticated. The Department of Health provided funds for work, still proceeding, in the East Anglia Regional Health Authority[12]. The pilot study showed it would be practicable, with some slight modifications, to use hospital outpatient registration information from the computerised patient administration sysem based on the Korner recommendations, to determine the numbers of patients referred by individual practices to hospitals in the region. Small samples inevitably show variations which disappear as larger groups are examined, but the range of variation in decision-making is considerable, has significant cost consequences, and is hard to explain on purely health care or rational grounds. Work is continuing on the development and specification of a regionally based information system, and an initial examination of the potential of *Ambulatory Visit Groups* is being undertaken.

(iii) Prescribing

It has long been known that the prescribing patterns and costs of individual doctors in apparently comparable practices vary widely and significant regional variations also exist, with higher costs in the North. In August 1988, the new information system for GPs, known as *Prescribing Analyses and Cost* (PACT) was introduced. The development of this information package was assisted by the collaboration of representatives of the profession, the *Prescription Pricing Authority* (PPA), and medical and administrative interests in the Department.

PACT is issued directly to general practitioners from the PPA every three months. It gives individual doctors information about their prescribing costs and frequency, comparing them to the practice as a whole, the average costs for the FPC, and the national experience. It also gives a breakdown of the cost and frequency of prescriptions in the six major cost therapeutic groups: the cardiovascular system, musculo-skeletal and joint diseases, gastro-intestinal system, central nervous system, infection, and respiratory system. There is also an indication of the percentage of items which are prescribed generically. Retained over a period of time, this will provide the doctor with a profile of prescribing habits. More detailed information is available by request and is sent automatically to those whose prescribing costs are 25% above the FPC average, or where costs in one of the six major cost therapeutic groups exceed the FPC average by 75% or more. Even more precise details of prescriptions are available on request.

General practitioners have great interest in the feed back. Department of Health regional medical officers who have the responsibility for advising general practitioners on effective prescribing also have the PACT information and assist general practitioners in the interpretation of the various levels of printout when required. It is expected that the provision of this information will have a major effect on the development of high quality and cost-effective prescribing patterns.

It is already apparent that the progress made in 1988, both in terms of developments in health care, and in the information systems which relate to this, will be of the greatest assistance in future developments of the National Health Service.

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(b) Hospital services

(i) Organ transplantation

Improving the supply of donor organs: The Government accepted the main recommendations of the Working Party of the Medical Royal Colleges[1], chaired by Sir Raymond Hoffenberg, that the supply of organs could best be improved by the introduction of a voluntary code. A Health Circular (HC(88)63) was issued in December asking health authorities to draw up procedures for the identification and referral of donors, and to carry out regular audit of intensive care units to try and assess the reasons for any shortfall in the number of donor organs.

In January 1988, BBC television broadcast a special edition of the '*That's Life*' programme devoted to the case for and against organ transplantation. In the following months, the number of organs donated increased considerably, confirming previous experience that publicity – both good and bad – has a direct effect on the number of donor organs becoming available. In March 1988, the Department launched a publicity campaign, which introduced a redesigned donor card. Press advertisements were linked to a 'Freeline' telephone service through which members of the public could order donor cards. In 1988, more than 14 million donor cards were distributed, compared with 5 million in 1987. In the financial year 1988-89, the Government allocated £250,000 from the central publicity budget for a campaign to promote transplantation, half to be directed towards the medical profession and half towards the general public.

Transplant activity: The number of solid organ transplants recorded, by the United Kingdom Transplant Service, as having been carried out in NHS facilities in the UK over the last ten years is summarised in Table 6.1.

Heart transplantation: The Secretary of State announced in the 1988 statement for supra-regional services, that a fifth centre for heart transplantation should be designated in 1990/91. The number of heart and heart/lung transplants performed in the UK in 1988 was 375 – 60 more than in 1987.

In my report for 1987, I mentioned that the Conference of Medical Royal Colleges and their Faculties in the United Kingdom had set up a working party to consider organ transplantation from and into neonates. Following receipt of the working party's report[2], I wrote, on 1 February, to all regional medical officers, (PL/CMO(88)3), drawing attention to the recommendations contained in the report; asking that cardiac surgeons and other clinicians with an interest had the report drawn to their attention; and that the moratorium mentioned in my earlier letter (CMO(78)4) was no longer necessary.

Liver transplantation: In 1988, 241 liver transplant operations were performed in the UK. This was a spectacular increase from the 21 operations carried out in 1982 when the programme began. The total number of transplants performed since then is 720.

Kidney transplantation: The number of kidney transplants continues to rise steadily. The UK total for 1988 was 1,575—90 above the 1987 figure. However, the waiting list is still unacceptably high, due primarily to a shortage of donor organs, rather than a lack of transplant facilities. The Department will be monitoring closely the effectiveness of the measures taken following the report by the Medical Royal Colleges.

Table 6.1: *Transplant operations performed in NHS hospitals in the UK 1979-88**

Year	1979	'80	'81	'82	'83	'84	'85	'86	'87	'88	Total
Kidneys†	842	988	905	1,033	1,144	1,443	1,336	1,493	1,485	1,575	12,244
Heart	3	25	24	36	53	116	137	176	243	274	1,087
Heart Lung					1	10	37	51	72	101	272
Liver				21	20	51	88	127	172	241	720

* Based on information supplied by the United Kingdom Transplant Service.
† Cadaveric.

(ii) Erythropoietin in end stage renal failure

The value of erythropoietin in end stage renal failure (ESRF) has been confirmed by several studies carried out in Europe and America[3-6]. The benefits for the patient, in terms of morbidity and quality of life, seem now to be unchallengeable. At present, erythropoietin does not have a product licence, but is available on special terms for named patients. It is anticipated that a product licence will be granted in 1989, and when this happens, there seems little doubt that this drug will be widely used for patients with ESRF complicated by anaemia.

Although erythropoietin is expensive, there will also be savings. Fewer blood transfusions will be needed, and individuals treated with erythropoietin will more often be able to return to their employment and remain productive members of society. This aspect was highlighted by a multi-centre trial which showed that erythropoietin dramatically improved patients' exercise tolerance and work capacity.

About 7,000 people are currently on different forms of dialysis. The superiority of erythropoietin over transfusion must mean that it will be the treatment of choice for anemia in these patients.

(iii) Thrombolytic therapy after myocardial infarction

Coronary heart disease is a major cause of mortality and morbidity in the UK and, in England and Wales in 1988, accounted for 96,404 certified deaths from acute myocardial infarction (see also Chapter 2) and an estimated 197,660 hospital admissions. An unknown number of patients is treated at home.

In most patients, the infarction arises as a result of the rupture of an atheromatous plaque leading to the formation of a thrombus and the occlusion of a coronary vessel, with the subsequent impairment of the blood supply to the heart muscle. It has been known for some time, that a thrombolytic agent injected directly into a coronary artery via a catheter can dissolve the thrombus and restore the blood supply, but this treatment has not become established because of the practical difficulties. Recent trials have shown that thrombolytic agents administered intravenously are effective when given soon after a heart attack. A report of an international study published in August 1988[7] showed that there was an additive effect when the use of the thrombolytic agent, streptokinase, was combined with aspirin.

The benefits of thrombolytic therapy are established[8]. The reduction in mortality of those treated in hospital within four to six hours after the attack is 20-30%. Uptake of this treatment is widespread and progressive. Although benefit can still accrue if there is a delay (of up to 12-24 hours) in starting treatment, there is a need for close co-operation between the general practitioner, the ambulance service and those at the 'front door' of the hospital to ensure that treatment is given as soon as possible.

In 1989, a trial, *ISIS 3,* will be concerned with the evaluation of streptokinase and the new thrombolytic agents. As in most areas of medical advance, cost must be taken into account when assessing and evaluating new forms of treatment. 'Cost effectiveness' assumes an important role when there are several options available to achieve the desired result.

Not all patients with an acute infarction are suitable for thrombolytic therapy and there are important contraindications, but the benefits can save thousands of lives a year. A leading article in the British Medical Journal[9], commented on the task of implementing this important advance, and gave guidance for doctors on its use. Planning more effective use of this therapy will require the combined efforts not only of cardiologists, and other hospital doctors, but of general practitioners and NHS administrators.

(iv) Royal College of Surgeons of England: Report of the Working Party on the Management of Patients with Major Injuries

In 1985, the Royal College of Surgeons of England, through its *Commission on the Provision of Surgical Services,* set up a working party chaired by Professor Miles Irving to investigate the management of patients with major injuries in the UK and to determine whether injured patients in general, and those with severe injuries in particular, were being treated as well as they could be by the emergency services. During that year, the NHS admitted about half a million patients to hospital following injury. Some died, others required prolonged treatment, and many suffered permanent disability. In 1988, 18,000 deaths (about 50 per day) were reported from accidents in the UK.

The Commission's retrospective study of 1,000 deaths from injury found that 50% of people were dead on arrival at hospital, two-thirds of them having died from injury to the central nervous system. Of the remainder who died after admission, death was judged to have been potentially preventable in about one-third. The working party's report, published in November 1988[10], made the following recommendations:

i. *Hospital care*

a. The majority of injured patients should be managed, as at present, in large district general hospitals which have a wide range of facilities and experienced staff in the accident and emergency departments, supervised by consultants in accident and emergency. There should be only one hospital accident and emergency department per district and each should set up a district trauma team. All such departments with over 50,000 patients attending per year should have two consultants and there should be more consultant posts in this specialty.

b. Patients with life-threatening injury should be treated in trauma centres established on the basis of one per two million population, or one – two per region. These centres should provide a 24-hour service by consultants in the surgical specialities, anaesthetics, emergency medicine, and radiology, together with junior medical, paramedical and nursing staff supported by diagnostic, operating theatre, and intensive care facilities.

c. Isolated communities should have a service for minor injuries run by general practitioners working to a strict protocol agreed between them and the nearest accident and emergency department.

ii. *Prehospital care*

a. This should be provided by specially trained ambulance staff who would be allocated only to emergency work, as distinct from routine transport. Trained in injury severity assessment, they would convey patients to the appropriate hospital. There should be greater involvement of specialist medical staff in the running of the emergency ambulance service and training of ambulance personnel.

b. There should be improved radio-communication between ambulances, receiving hospitals and accident sites.

c. The use of helicopters for primary evacuation and inter-hospital transfer should be explored.

iii. *Monitoring, research and training*

Standards of hospital care of the injured should be monitored through a national audit scheme, such as the *Major Trauma Outcome Study*; there should be further research into the prevention and management of injury; and problems of the management of the injured should receive more emphasis in both undergraduate and postgraduate curricula.

iv. The prevention and management of injury should receive greater attention from government, universities and research councils.

The Department circulated the report for consultation in February 1989.

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(c) Environmental health and toxicology

(i) Safety of drinking water

Nitrate: In 1985, water undertakers supplied to some 2% of the population, water which regularly exceeded the nitrate standard of 50 milligrams per litre (mg/l) set in the European Communities (EC) Directive 80/778 'relating to the quality of water intended for human consumption'. In accordance with medical advice, and with the Government's understanding of the Directive at that time, the supplies were permitted subject to the conditions that the nitrate concentrations must not exceed an average of 80 mg/l, and a maximum of 100 mg/l.

In January 1988, the Government announced that the derogations under which such supplies had been permitted were being withdrawn because of legal advice concerning the scope of the Article in the Directive allowing member states to issue derogations. The derogations were formally withdrawn in April 1988. Water undertakers have since submitted to the Department of the Environment, programmes to comply with the Directive Standard for nitrate as soon as practicable. All supplies should comply by 1995 at the latest, but in the intervening period, a decreasing number of consumers (at present about 850,000) will be served by supplies whose nitrate concentrations are regularly in the range between 50 mg/l and 100 mg/l. The Department of Health Committee on Medical Aspects of the Contamination of Air, Soil and Water was therefore asked in June 1988 to consider whether the current medical advice on nitrate in water[1] remains valid.

An excessive concentration of nitrate in water used to reconstitute infant formulae is a rare cause of methaemoglobinaemia. There were no relevant new data on *infantile methaemoglobinaemia*; since 1972 there have been no reports of cases in the United Kingdom attributed to nitrate concentrations of less than 100 mg/l in the public water supply. Nitrate has also come under suspicion as a cause of cancer of the stomach and other organs, because ingested nitrate is converted in part to N-nitroso compounds. In respect of nitrate and cancer, the Committee was aware that there is increasing information on the formation of N-nitroso compounds from ingested nitrate, and on the carcinogenicity of N-nitroso compounds in laboratory animals, but that in general, recent epidemiological studies have not demonstrated any association between nitrate exposure and cancer.

The Committee endorsed the existing medical advice – in summary: that concentrations of nitrate in the public water supply should not exceed 100 mg/litre, but that if they do so at any time, suitable low-nitrate water should be provided for infant feeding; at concentrations between 50 and 100 mg nitrate ion per litre, the health authorities and professions in the affected area should be informed so as to encourage monitoring for infantile methaemoglobinaemia; and that water undertakers should continue to make every effort to keep the concentrations below 50 mg nitrate ion per litre.

Chemical contamination – the Lowermoor incident: Our public water supply is of high quality, and we are right to assume that tap water is safe to drink. Unfortunately, the impressive record of the water undertakers was blemished on 6 July 1988 at the Lowermoor Water Treatment Works, near Camelford in North Cornwall, when 20 tonnes of concentrated *aluminium sulphate solution* were delivered to the wrong tank and entered the water supply of up to 20,000 people. Complaints from consumers led to emergency action, including flushing of the water mains, warnings to consumers, and provision of alternative supplies. Although the emergency action lessened the severity and extent of the incident, some consumers experienced unpleasant symptoms including sore mouth, nausea and vomiting.

The contamination was short-lived, but local residents remained concerned at the possibility of persistent or delayed adverse effects on health. The Department, therefore, assessed the toxicity of the substances involved (including metals released from pipework by the acidic water), and advised that there was no reason to expect long-term or delayed harm from the recorded exposures. The Cornwall and Isles of Scilly District Health Authority relayed the advice to all homes in the area, but local concern continued and was increased just before Christmas by analyses of water samples taken at the time of the incident but not previously submitted for testing. The results indicated that the greatest concentrations of aluminium and sulphate in some sections of the water supply were considerably higher than had been detected in analyses conducted in July.

In view of the increased concern, the DHA asked for the creation of an authoritative panel to give guidance as to the likelihood of long-term damage to the population. The Department responded by appointing the Lowermoor Incident Health Advisory Group, under the chairmanship of Professor Dame Barbara Clayton, 'to advise the District Health Authority on the implications for the health of the population in the Camelford area following the contamination of their drinking water in July 1988'. Its report is expected shortly.

Aluminium in drinking water: The Lowermoor incident led to short-term contamination of a water supply with very high concentrations of aluminium sulphate. More generally, questions have been raised about the safety of aluminium at the much lower concentrations which are normally accepted. Aluminium compounds have long been widely used in the preparation of drinking-water. Their function is to clarify the water, not only to improve its appearance and taste, but also to make disinfection more reliable and efficient. The traces of aluminium which normally remain in drinking-water, or which occur naturally, add very little to the intake of aluminium from the diet. Nevertheless, recent epidemiological studies from Norway[2,3] and the United Kingdom[4] suggest an association between these low concentrations and the occurrence of senile dementia – in particular, *Alzheimer's disease*. These data, together with other considerable research done over the past 25 years, were considered by the Committee on the Medical Aspects of the Contamination of Air, Soil and Water, in November 1988.

The Committee concluded that it has *not* been established that a reduction in the aluminium intake of the general population would reduce the incidence of Alzheimer's disease, and that the associations between Alzheimer's disease and aluminium concentrations in drinking-water, suggested by the recent studies were too tentative to justify changes in the use of aluminium sulphate in water treatment. The Committee stressed that further research is important, particularly on the bio-availability of aluminium from all sources. Appropriate research is in progress, and the Department will continue to keep the topic under review.

(ii) Revised guidelines for testing chemicals for mutagenicity

Awareness that some chemicals in the environment had mutagenic properties, that is, they possessed the potential to produce changes in the hereditary process, and hence affect the health of subsequent generations, led the Department to establish an independent advisory committee of specialists in this area nearly a decade ago. The remit of the Committee on Mutagenicity of Chemicals in Food, Consumer Products and the Environment (COM) is to advise government on all aspects of the mutagenicity of chemicals. The Committee published guidelines on the testing of chemicals for mutagenicity in 1981[5].

Rapid developments prompted revision of these guidelines and the COM, under the chairmanship of Professor B Bridges, therefore prepared the new version published in May 1989[6].

The genetic process and mechanisms, which provide the basis of genetic toxicology are examined closely, and the implications for carcinogenesis are considered. Increasing knowledge of the carcinogenic process, and particularly, the discovery that mutations can lead to the activation of proto-oncogenes, support the view that mutations play a key role in carcinogenesis. This provides a rationale for the use of mutagenicity studies as preliminary screens for carcinogenic potential, as well as for the ability to produce heritable effects. The incidence of those cases of genetic disease which cannot be accounted for by abnormalities in preceding generations indicates the importance of the contribution which new mutations make to the burden of human disease. A proportion of these 'spontaneous' mutations is probably induced by chemical agents, but no quantitative information is available yet. Positive results in *in vitro* mutagenicity tests provide little information about the hazards of human exposure. If positive results also occur *in vivo,* (ie in experimental animals) this increases the level of concern, although inter-species differences, including those of kinetics and metabolism, make extrapolation to man far from straightforward. To date, no compound has been shown, by epidemiological or other means, to be capable of producing heritable changes in humans.

Methods for monitoring human populations for mutagenic change, and for exposure to genotoxic agents, are also reviewed.

Strategy for mutagenicity testing

A crucial chapter in the guidelines outlines a recommended strategy for mutagenicity testing. This is based on a hierarchical three-stage approach.

Stage I involves *in vitro* screening designed to detect mutagenic potential. Tests should satisfy the best available protocols, and results should be confirmed by independent experiment. Two tests are routinely required, a bacterial assay for gene mutation, and a test for clastogenicity in mammalian cells. When human exposure is expected to be extensive or sustained and difficult to avoid, a test for gene mutation in mammalian cells is also necessary.

Stage II involves *in vivo* studies. Their use cannot be justified from general screening, and if the *in vitro* tests are negative, no further testing is normally required. However, an exception is made for substances where relatively high exposure, or moderate but prolonged exposure, is anticipated. An assay for chromosome damage in the bone marrow of rodents would then be recommended. This may be required also for substances shown to be mutagenic *in vitro*. If *in vivo* testing proves negative, further assays in a different tissue (eg liver, gut) can give the necessary reassurance (in the light of other toxicological data) that the substance is unlikely to be genotoxic to man. The most appropriate test(s) must be determined on a case-by-case basis.

Stage III in vivo tests for germ cell effect, are necessary only when a risk assessment of heritable effects is justified.

The COM guidelines do not give full details of methodology for the studies recommended, since these are adequately covered in other documents, such as the United Kingdom Environmental Mutagen Society (UKEMS) guidelines[7] and those of the Organisation for Economic Co-operation and Development (OECD)[8] discussed below.

International guidelines for testing chemicals for toxicity

International harmonisation of methods for investigating the toxicity of chemicals has been advocated for many years. This would avoid the needless repetition of very similar work done to satisfy the requirements of regulatory authorities in different countries. To avoid such wasteful duplication and unnecessary use of animals, the OECD draw up guidelines on the testing of chemicals for toxicity. The *Mutual Acceptance of Data (MAD)* agreement[9] requires all OECD member countries to accept data, provided that it conforms to the relevant OECD guideline and complies with the OECD principles of Good Laboratory Practice (GLP). Guidelines have now been published by the OECD covering the main areas of toxicity testing (acute toxicity, irritancy, sensitisation, repeated dose toxicity, mutagenicity studies, carcinogenicity and reproductive toxicity).

An updating panel regularly considers proposals from member states for improvements to the test methods. The work of this panel (which includes a member of the Department's Medical Division on Toxicology and Environmental Health (MED-TEH)) was recently enhanced by the remit given it after the Third High Level meeting of the OECD, to initiate 'itself' reviews of the guidelines, both with respect to technical advances and animal welfare considerations; as a result, a programme for reviewing all the existing guidelines over the next two to three years has been drawn up.

Countries must provide an effective framework for consultation within the relevant scientific community on proposals for revising OECD guidelines, and for considering new guidelines, so that formal comments can be made to the OECD Secretariat. In the UK, this is provided by the *OECD Shadow Group on Toxicology* which includes representatives of other government departments, relevant trade associations and individuals selected for their expertise. The Shadow Group is chaired by an expert from the Toxicology and Environmental Health Division. During the past year, this group has drawn up proposals for improving the clinical chemistry in toxicology studies using a battery of tests to screen for potential neurotoxicity. One subject of topical interest has been the progression of a UK initiative to develop an alternative to the present acute oral toxicity study that is acceptable to regulatory authorities. Currently, the test includes estimation of an LD50 value (ie the dose-level that would kill 50% of the animals tested) and this requirement is increasingly difficult to justify scientifically.

Acute toxicity studies investigate the effects of a single exposure to high levels of a chemical such as could result from accidents (eg ingestion in the home, contamination at the work-place). Information thus obtained includes the quantity of the chemical (in mg/kg body weight) which proves lethal, the signs of toxicity and any evidence for delay in onset, the duration and reversibility of toxic effects, an indication of target organs, and information on the nature of the dose-response relationship. Although it is impractical to expect that such information can be obtained from *in vitro* studies alone, the use of death as an end-point is ethically difficult to justify.

The proposals for an alternative approach emanate from a report of the *British Toxicology Society*[10] and are based on the selection from a small number of 'fixed doses', the maximum non-lethal dose-level. This obviates the need to use lethal doses and death as an end-point. However, before any new test method can be accepted internationally for regulatory purposes, several conditions must be met. It must provide the information obtained by the test it is intended to replace, and be effective with a wide range of compounds. Furthermore, it must be reliable (robust), ie produce reasonably consistent and reproducible results.

To this end, the 'fixed-dose' approach was investigated by several UK laboratories in a validation exercise in 1986. The results were encouraging, and suggested an alternative to the conventional acute toxicity test[11]. However, to obtain acceptance of the method by OECD countries, a further, and this time international, validation study was needed.

MED-TEH planned, and is now co-ordinating such a study, which is being sponsored by the Home Office and the EEC and carried out under the auspices of the OECD. Twenty compounds are being investigated and 32 laboratories from 12 different countries in Europe, Japan and North America are participating.

The compounds were sent out in November and the results, expected by September 1989, will be compared with those obtained by one UK laboratory using the 'conventional' approach. It is anticipated that the data obtained will enable the new method to be adopted by the OECD and lead to the demise of the classical LD50 test.

(iii) Health effects of 'dioxins'

One of the most notorious chemicals of modern times is the substance commonly called '*dioxin*' but more properly termed 2,3,7,8-tetrachlorodibenzo-p-dioxin or 2,3,7,8-TCDD. It gained notoriety as 'the most toxic chemical known to man' in terms of its acute effects in some laboratory animals. There was therefore great concern when 2,3,7,8-TCDD was released in the Seveso accident in Italy in 1976 and, earlier, when it was found to be present as a contaminant in the herbicide, *Agent Orange*, used as a defoliant in the Vietnam War. 2,3,7,8-TCDD is only one of a series of 75 chemicals sharing a similar structure and termed polychlorinated dibenzo-p-dioxins or PCDDs. Another structurally similar series is the group of 135 polychlorinated dibenzofurans or PCDSs. The entire group of PCDDs and PCDFs, is commonly termed 'the dioxins'. They usually occur together in mixtures of variable composition.

Until recently, the dioxins were thought to be produced only as contaminants or byproducts of certain manufactured industrial or agricultural chemicals. It was therefore assumed that only people working with these chemicals, or exposed following their accidental release, would be at risk from their potential adverse health effects. However, advances in analytical techniques mean that many chemical substances can now be detected at very much lower levels. In the case of some dioxins, a few parts per trillion (or per one million-million) can be measured, and these chemicals have now been found to be ubiquitous in the environment at extremely low levels, as contaminants of soil, some foods, and human and animal tissues. They can be generated also by a wide range of combustion processes, including the combustion of fuel, the incineration of wastes and any process involving the burning of organic material, such as forest fires. Dioxins have therefore always been present, in low concentration, as environmental contaminants.

Following public concern about emissions of dioxins from high temperature chemical waste incinerators[12,13] and municipal waste incinerators, the Department of the Environment asked for advice on what might constitute an acceptable level of exposure for dioxins from all sources. This initiated a major review of the health hazards of these chemicals by the Committee on the Toxicity of Chemical in Food, Consumer Products and the Environment (COT). The collection and critical assessment of the relevant data from the vast scientific literature on this subject proved a long and difficult task.

Assessing the hazards of low level exposure to toxic chemicals is always subject to uncertainties, but, for several reasons, these are particularly great in the case of dioxins. For example, although there are 210 different dioxins, full toxicological information is available for only 2,3,7,8-TCDD, the most toxic of all, and a detailed assessment can therefore be made of only that compound. The vast majority of the dioxins have little biological activity and give rise to no health concerns. Enough is known of the activity of the remainder, relative to 2,3,7,8-TCDD, to make a reasonable toxicological assessment of the mixtures of dioxins as they are found in practice. Considerable variation exists in the degree of susceptibility and type of reaction to 2,3,7,8-TCDD among animal species. This makes the extrapolation of results from animals to humans difficult. Another problem is the poor quality of most of the studies done on humans exposed to high levels of dioxins at work or following accidental exposure, potentially the most valuable source of information about the toxicity of chemicals.

The most common effect reported in humans following exposure to 2,3,7, 8-TCDD is *chloracne*, a disfiguring skin condition. In animals, in sufficient amount, 2,3,7,8-TCDD can cause certain types of cancer, adversely affect reproduction, and cause immune suppression. However, the COT concluded that the human studies provide no clear evidence that 2,3,7,8-TCDD can cause these effects in humans. COT also noted that, to date, no deaths have been conclusively attributed to exposure to 2,3,7,8-TCDD. By implication, since 2,3,7,8-TCDD is known to be the most potent dioxin, this gives reassurance about the human toxicity of other dioxins.

Although reassuring, the human data do not provide a suitable basis for deriving a recommended upper level of exposure to dioxin, since it has not been possible to estimate the amounts of 2,3,7,8-TCDD to which individuals were exposed in those incidents in which adverse effects occurred. For this purpose, animal data must be used. COT identified no-effect or minimal-effect levels for each of the three critical effects seen in animals – carcinogenicity, immunotoxicity and reproductive toxicity. These levels are extremely low, but each is well below the levels of dioxins to which the general population is likely to be exposed through contamination of food and the environment.

Although there is, therefore, a substantial margin of safety, it is rather less than the standard value commonly employed in regulatory toxicology, and the COT has recommended action to identify remaining major sources of dioxins and measures to reduce inputs to food and the environment. The Committee has recommended a guideline in terms of daily intake which serves as a target for the actions already in hand.

Breast-fed babies need special consideration. Dioxins tend to accumulate in human milk, as in all fatty tissues, and current estimates indicate that breast-fed babies have the highest exposures to these compounds, although still below the relevant no-effect levels. However, COT firmly advises that, because of the considerable benefits breast-feeding confers on the young infant, and because exposure to dioxins in breast-milk is for only a short time, breast-feeding should still be encouraged.

COT's complete advice was published in June 1989 as part of a report by the Department of the Environment on dioxins in the environment[14].

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(d) Mental illness and mental handicap

Mental illness and mental handicap services in England have, like those in other industrialised countries, been undergoing major changes over the last 30 years. There has been an increasing emphasis on care being given as close as possible to where the sufferer lives and in the least restrictive environment compatible with the safety of the patient and the public. The present strategy on mental health was first set out as long ago as 1961 by the then Minister for Health – Enoch Powell – and was based on an analysis of the rapid fall since the mid-1950s in numbers of patients resident in hospitals. This fall, which still continues, is due both to better treatments being available and to a realisation that better results from treatments could be achieved with less reliance on institutional care. Policy has remained essentially unchanged since then.

A preventive approach

Prevention of mental illness and mental handicap and promotion of mental health should be an integral part of our health services. Responsibility for prevention of illness and promotion of health is shared between individuals, families, informal support networks, voluntary organisations, health professionals, the National Health Service and the Government. All must work together to create a health care system which promotes the health of the nation as well as treating existing mental disorder. The prevention of mental illness is particularly important because of the very heavy burdens it imposes. These weigh not only on those suffering from mental illness, but also on the families of sufferers and on the services which offer treatment and support as outlined in my Report for 1987 (pages 69-73)[1]. Likewise, the prevention of mental handicap has recently been receiving more attention, due in part to the exciting developments in the field of genetics (see also Chapter 3).

The purpose of prevention is to promote a better quality of life and prevent illness in the first place, and to reduce disability when illness does occur[2]. A sound preventive strategy flows from a good understanding of the epidemiology of illness and handicap. The annual reports of the new Directors of Public Health give an opportunity for health authorities to establish basic information about the prevalence of mental disorder in the area for which they are responsible.

Primary prevention refers to procedures designed to avoid the occurrence of disease or impairment. Examples of primary preventive strategies are:

a. the provision of adequate preparation for adulthood and parenting in the school curriculum, to provide an understanding of the importance of good nutrition, the value of social networks, and constructive attitudes towards mental health (see Chapter 2);

b. the provision of adequate advice to parents before conception, together with education about genetic risk and environmental hazards to foetal development. Adequate nutrition, and avoidance of drugs, nicotine and alcohol during pregnancy are all important preventive strategies (see Chapters 2,3);

c. the provision of comprehensive immunisation programmes to improve the uptake of immunisation, including rubella vaccination for teenage girls. This will reduce the frequency of brain damaged, handicapped infants (see Chapters 4, 5);

d. early detection of 'at risk' groups in order to mitigate the effects of common stresses such as bereavement, redundancy and retirement[3];

f. early detection and treatment of sensory deficits, physical diseases and impaired mobility will reduce the risk of disabling depression being added to the problems of physical disability.

Secondary prevention refers to early diagnosis and treatment to shorten episodes of illness, and to limit disability arising from disease. Timely treatment of some conditions can also have primary preventive effects on other conditions. For example, prompt treatment of depression in parents can prevent cognitive and emotional problems developing in children[4]. Examples of secondary preventive strategies are:

a. the early detection and treatment of depression by the primary care team in order to avoid its distressing and costly consequences to the sufferer, the family and the wider community;

b. the early detection and treatment of psychoses in order to avoid the need for prolonged hospitalisation, and to avoid the deterioration and acquisition of handicap which follow prolonged psychotic illness[5].

Tertiary prevention refers to measures designed to limit disability and handicap due to impairment or disease which is not fully curable. In some cases, it is not so much the disease in itself, but the way the health care systems respond, which determines the extent of the patient's disability. Helping families, who have a schizophrenic member living with them, to learn better ways of coping with some of the stresses imposed by the illness has been shown to halve relapse rates in schizophrenia[6,7]. Good case management is essential to ensure that the varied services and treatments needed by people with severe mental illness living in the community are reliably delivered[8]. It is important also to make sure that patients have somewhere to live that suits their needs. A range of accommodation suitable for the severely mentally ill is likely to include long-stay hospital-hostels, fully staffed hostels, sheltered housing, and special fostering and boarding-out schemes. Having a suitable place to live, coupled with provision for continuing health and social care, is of central importance in the tertiary prevention of mental illness.

Management in primary care settings

It is now well known that general practitioners come into contact with, and are responsible for treating, the bulk of psychiatric disorder; that a relatively small proportion of the mentally ill who consult GPs reach the attention of psychiatrists; and an even smaller number are admitted to psychiatric hospitals[9]. General practice consultations for identified psychiatric disorder outnumber outpatient attendances by roughly 10:1 and psychiatric admissions by roughly 100:1. This clearly demonstrates why primary care is of central importance in the care of the mentally ill. It is at the level of primary care that detection of illness usually occurs, and it is there that preventive strategies are particularly crucial. Other key factors in considering the management of the mentally ill in primary care include:

a. very many of the mentally ill present with a physical complaint and do not consider themselves to be in need of psychiatric care;

b. physical and mental illness frequently coexist;

c. many psychiatric disorders are connected with family problems and social difficulties, and can be understood only when viewed against this background;

d. GPs are well placed to maintain long-term contact with patients.

The non-psychotic disorders, largely depression and anxiety, are extremely common in general practice attenders. My 1987 report (page 71) described the extent of depression and anxiety in general practice, the costly consequences of depression, and the major benefits to be gained by improved detection and treatment of affective disorder in primary care.

As an increasing number of people with chronic severe mental illness, such as schizophrenia, are treated mainly in the community. The GP and his primary care team are also in a key position to liaise with the secondary care community services to provide long-term support and follow up, and to help prevent patients from 'falling through the net' and losing contact with care services.

The composition and education of the primary care team are crucial. The team should be able to detect, assess and treat mental illness, when necessary, in cooperation with secondary care services. This will require the availability of skills such as supportive counselling, as well as knowledge of the best use of antidepressive and other drugs.

The team will also need to know of local suppport groups which can reinforce professional help. The GP's time is limited and expensive, and it is appropriate that much of the essential psychosocial interventions, as opposed to drug prescribing, should be delegated to other members of the primary care team such as health visitors, district nurses, practice nurses, social workers, psychologists, community psychiatric nurses and counsellors. In developing this range of skills in the primary care team, there are likely to be important training issues to address.

The need for asylum

In my 1987 report, I also referred to the vital importance of ensuring continuity of care for people with severe long-term illness (pages 69-73) and reference is made above to the very considerable benefits, in terms of relapse prevention, that come from adequate tertiary prevention strategies. However, some mental disorders are so disabling that the optimal wellbeing of the patient can be assured only if care is available which involves some refuge for the sufferer from the stresses of everyday living. In the past, such asylum was provided by the large mental hospitals, but their very size and, often, remoteness, posed significant disadvantages. In 1987, a consensus conference organised by the King's Fund produced a statement emphasising both the continued need for 'asylum' for some people, and the need to provide this in a way that, so far as possible, avoids the disadvantages of the old, large isolated mental hospital[10].

A considerable body of knowledge is now available about how asylum can be provided with out prejudicing the prospects of longer term rehabilitation. One research report identifies seven necessary levels of residential care, varying from care in the patient's own home, to hospital care in conditions of some security. There are accounts of hospital-hostels[11-14], of 'havens' for larger groups of the most severely disabled patients, and others, of care providing asylum in more domestic environments. This is an area where knowledge of what is both achievable and affordable is growing rapidly.

A common factor in all studies of long-term illness is an emphasis on the need to ensure *continuity of care*. It is therefore particularly disturbing to read recent research which, based on interviews with 52 health authorities, reports that 40% appear to have no team dedicated to long-term care, and 54% have no formal way of monitoring the provision of long-term care[15]. This emphasises the importance of the tasks given to health authorities by the current planning guidelines (HC(88)43). It is to be hoped that, in addressing the development of medical audit (see Chapter 4), both health authorities and the Royal Colleges will pay particular attention to long-term care.

The Special Hospitals: changes in management and direction.

Under the National Health Service Act 1977, Section 4, the Secretary of State for Health is charged with the duty "to provide and maintain establishments (Special Hospitals) for persons subject to detention under the Mental Health Act 1959 (subsequently the Mental Health Act 1983) who, in his opinion, require treatment under conditions of special security on account of their dangerous, violent or criminal propensities."

Four such special hospitals exist, at Broadmoor, Moss Side, Park Lane and Rampton. Together they comprise the *Special Hospitals Service*. They are not an integral part of the NHS Regional Structure, but are managed directly by the Department of Health. Within the Department, the Secretary of State's functions under the Act are executed by a *Special Hospitals Service Board*.

The total patient population of the four hospitals is just over 1,700, of whom about two-thirds are restricted patients referred to the hospitals as a result of recommendation by the Courts of Justice. The Secretary of State for the Home Department carries statutory responsibilities for such patients, who may not be transferred or discharged without his consent. The Home Office provides a member of the Special Hospitals Service Board.

The Secretary of State for Health, with the agreement of the Secretary of State for the Home Department, intends, subject to Parliamentary approval, to revise these management arrangements so that, with effect from July 1989, the Special Hospitals Service will be supervised operationally by a newly constituted *Special Health Authority* (SHA). The SHA will exercise its management responsibilities through general managers at hospital level and will be accountable to the Secretary of State.

Until recently, the custodial aspect has tended to dominate operational activity in special hospitals but, in keeping with modern concepts of psychiatric care and treatment, the service has sought ways to make appropriate therapies available to patients within the necessary constraints of maximum security. Accordingly, the

Government has outlined six specific objectives for the SHA, designed to:

1. continue protecting the public;
2. provide a high quality of treatment for the patients;
3. provide a decent environment for the patients and staff;
4. develop closer working relationships with the NHS (regional and district psychiatric facilities);
5. ensure that Special Hospitals in the future become centres of research;
6. enable the Special Hospitals to develop as centres of excellence for the training of all clinical staff in forensic psychiatry and other branches of psychiatry.

Whilst maintaining these objectives, the changes proposed will help to improve the general management of the service and also, by decreasing the present isolation of the service from the mainstream of clinical and academic psychiatry, improve the service offered to their patients.

Recent research[16] has suggested that not all patients need the level of security provided in Special Hospitals. Further studies, commissioned jointly by the Department of Health and the Home Office, will explore this possibility and their findings, together with a review of other methods of providing treatment in appropriate degrees of security, will provide valuable information for use in future planning.

Services for mentally handicapped people with disturbed behaviour

The DHSS 1984 report, *'Helping Mentally Handicapped People with Special Problems'*[17], only briefly mentioned people with a mental handicap who are also mentally ill, behaviourally disturbed or who have offended against the law. In 1986, the Department formed a working party to examine the services available for these special groups; their findings, presented in a discussion document written primarily for service providers, planners, and managers, are now due for publication.

The document will emphasise the importance of having plans for providing services for these specific groups of mentally handicapped people. Such services need to be jointly planned by the health authority, social services, education and the voluntary and private sector, and must be co-ordinated, comprehensive and flexible, to meet the individual needs identified by thorough multi-agency assessment. A comprehensive service includes prevention and early intervention. Plans must address the needs of those who require long-term care and those who need secure accommodation.

Care should, whenever possible, be provided locally, *not* in large institutions, inconvenient and distant from the homes of relatives. In-patient care when needed, can be provided either in specialist units or in small, staffed houses. Services need to be multi-professional and to meet all needs, including those of people with sensory deficits and other physical disabilities in addition to mental handicap. For those not in hospital, general medical care should be provided by the general practitioner and the primary care team. When leaving residential care, special attention is needed to ensure and monitor the provision of continuing care, including day care.

These issues apply to all age-groups. The behaviourally disturbed, mentally handicapped child or adolescent can present great difficulties in finding appropriate services. Co-operation between health, education and social services is essential. If special provisions have to be bought from the private sector, delays caused by disputes over who is responsible for funding must be avoided. Shared funding can be a solution, but care must be taken not to allow adolescents to fall between services: disputes do occur as to who is responsible between mental handicap psychiatrists, child and adolescent psychiatrists, and general psychiatrists. Careful planning should avoid these disputes.

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(e) Dental Services

(i) Dental Reference Service (DRS)

Dental officers in the Reference Service of the Department carried out 27,288 clinical examination in 1988, excluding orthodontic treatment, largely at the request of the Dental Estimates Board; these figures are similar to that of the previous year, despite a fall in dental officer numbers from 28.3 to 26.8 (whole-time equivalents). In those cases for which treatment has been completed, the assessments showed that 93% of cases were wholly or mainly satisfactory. In those cases where treatment was planned, the dental officers were broadly in agreement with 73% of treatment proposals. During the year, *The Benner Report into the Dental Reference Service* was circulated. A transfer of the DRS to the Dental Estimates Board was recommended, and implementation of the recommendations after a period of consultation is expected in 1989.

(ii) General dental services

The upward trend in the number of estimates authorised by the Dental Estimates Board and the number of dentists providing treatment under the NHS General Dental Services (GDS) continued in 1987/88. The number of estimates authorised rose to 34,200,760 (from 32,108,760) and the number of dentists rose by 289 to 15,545.

The gross fees authorised for all practitioners in the the GDS in England and Wales amounted to £830,424, 130, an increase of 10.4% over the previous year. Patients contributions accounted for 30.2% of these gross fees and the average cost per estimate was £24.28, a slight increase on the previous year.

As in previous years, almost half of the cost of the GDS was spent on conservative treatment (43.8%), periodontal treatment for adults accounted for 9.7% and the extraction of teeth for about 2.5%. Orthodontic treatment accounted for a further 3.2% of the total cost.

During the course of the year, preparations were made for the introduction of *dental practice advisors* and technical discussions with the profession took place on narrative and contractual matters.

(iii) Community dental services

In contrast to last year's report, the annual statistics for the work carried out in the Community Dental Services can be directly compared, since this is the second year in which the figures have been based on a financial year reckoning. The returns for 1987/88 show interesting trends in all of the three main groups for which the service has responsibility when compared with the figures for the year 1986/87.

The number of inspections carried out on children under five-years-of-age rose by 14%, to 223,178. The proportion of those examined who required treatment fell by 4% and the total number of primary teeth filled or extracted as a proportion of those inspected also fell by 7.8%. Inspections for school children dropped by 6.7% to 4,997,912. However, the maintained school population on the 1 January 1987 was 7.13 million, which represents a substantial reduction of 6.8% since 1986. The number of primary and permanent teeth filled fell by 11.1% and the total number of teeth extracted, by 4%. The number of school children for whom dentures were provided increased slightly to 2,108 from 1,816.

Between 1986/87 and 1987/88 the number of adult handicapped patients inspected increased by 29% to 78,747. The amount of treatment provided for this group also rose by 19.5% for teeth filled, 6.9% for teeth extracted and the number of patients for whom dentures were provided rose by 23.5% to 6,966.

(iv) Dental education

A vocational training scheme for the GDS commenced on 1 January 1988. The basis of the scheme is that it is voluntary, of one year's duration, and largely self-funding from GDS resources. The number of trainees within the scheme on 1 April 1988 was 164 divided between 19 regionally based programmes. It is planned that these numbers will expand to 294 trainees within the 26 schemes in the next year. Trainers and trainees are remunerated on a salary linked to the agreed target averaged net income for the year. Trainees work as assistants to the trainers and are required to attend regionally organised day-release courses.

Another development was the establishment of a new body entitled the *Committee for Continuing Education and Training* (COCET) to promote and monitor an expansion and development of postgraduate training, especially in the GDS. In addition to the usual courses organised by regional postgraduate deans, further courses funded by the Section 63 arrangements were undertaken in areas identified by COCET as priority subjects.

1988 also saw the introduction of central initiatives in training, notably the publication of the first training video *'From Black to White'* which was distributed to every dental practice. In February, the *Dental Review Working Party* chaired by Professor J R Moore, reported. Three main recommendations were made:

(i) the funding in respect of one dental school in England (University College London) should be withdrawn and that the intake of students in two other schools should be adjusted;

(ii) the dental undergraduate course should be extended by two terms to a total of five years by increasing the period of basic medical and dental science studies;

(iii) one year of mandatory vocational training for all categories of dental practice should be introduced, a recommendation which coincides with the intention to expand the vocational training scheme and the development of the concept of mandatory vocational training within the European Community (EC).

(v) Promoting better health

Discussions contained with representatives of the profession on implementing the proposals in the White Paper *'Promoting Better Health'*. Agreement was reached on terms for compulsory retirement of older dentists, on the scheme of dental practice, an expansion of the vocational training scheme, a health education initiative aimed at younger people, and an incentive scheme to assist with the costs of setting up practice in areas where there are fewer dentists. Preliminary discussions continue on a new contract for the GDS.

The *Health and Medicines Bill* received the Royal Assent in November. It provided for compulsory retirement, a community dental service better targeted on groups with special needs, fully proportional charges and a charge for a dental examination in the GDS, and a wider monitoring and research role for the Dental Estimates Board (to be renamed Dental Practice Board).

(vi) Dental research

The field work for the 1988 Adult Dental Health Survey took place during the year and was completed in the autumn. Evaluation of the results is expected to take place during the next year.

Research continued into the social and dental effects of malocclusions, the effect of vocational training, and the development and testing of posterior filling materials.

In July 1988, research commissioned by the Department into barriers to the receipt of dental care was completed by Shipway Bailey Nelson Ltd and the results used as a basis for planning further dental health and education initiatives.

References

[1] Department of Health and Social Security. *Promoting better health; the Government's programme for improving primary health care.* London: HMSO , 1987. (Cm. 249).

7. INTERNATIONAL HEALTH

In 1984, the 32 European member states of the World Health Organization (WHO) adopted a collective strategy for achieving *Health for All* in Europe based upon promoting healthy lifestyles, eliminating or reducing preventable disease and environmental health risks, and redirecting the focus of health care towards primary health care. Separately, a set of 38 targets[1] was formulated as objectives for achieving this strategy, and a set of indicators was designed to monitor progress and form the basis of reports at three-yearly intervals on the health situation in Europe. The first report was prepared in 1985.

The following is a summary of some of the main results of the second monitoring report[2] which was prepared by the WHO European Regional Office in 1988 on the basis of returns submitted by the various member states.

Equity in health

Equity in health is receiving greater attention throughout the region. There is evidence of increased awareness of the problems and of the willingness and intention to do something about it. Disparities between countries and between groups within countries are still increasing, but the rate of increase, as measured by some key mortality indicators, such as life expectancy at birth and standardised mortality rates, is beginning to slow down. In contrast to this general picture, the infant mortality rate shows both an overall decline, as well as a reduction in the differences between countries.

Trends in health status

Satisfactory trends in relation to life expectancy, infant mortality and maternal mortality are continuing (see Tables 7.1 and 7.2; Chapters 1, 4 and 8).

Life expectancy: The regional average for life expectancy increased by approximately 2.7 years (2.4 years in males and 3.0 years in females) during the period 1970-1985. Ten countries have already reached the regional target of 75 years. In the United Kingdom (UK) in 1985, the average was 74.6, and while both sexes have improved their life expectancy, the gap between males and females has narrowed marginally (see Chapter 1).

Infant mortality rate: Only five countries in the European region have an infant mortality rate above the regional target figure of 20 per 1,000 live births. Fourteen, including the UK, have a rate of less than 10, but the declining trend appears to be flattening in some countries.

Diseases of the circulatory system: In Europe, cardiovascular diseases (CVD) are responsible for approximately one half of all deaths and one third of deaths among those aged under 65. The contribution of these diseases to total mortality increased between 1970 and 1985. In general, however, cardiovascular disease mortality (as averaged over 27 countries) has declined for the age group 0-64 years. For this age-group, the decline in CVD mortality after 1980 was made up of approximately equal reductions in all main components (ischaemic heart disease, cerebrovascular disease, and 'other' – principally hypertensive and arteriosclerotic cardiovascular disease). The acceleration in this decline after 1980 was caused by a reversal of the trend for ischaemic heart disease.

If the 1980 figure for cardiovascular disease mortality is taken as the baseline, and if current trends continue, 20 countries out of 27, including the UK (which in 1985 ranked 19th overall), are likely to achieve the regional target of a 15% cumulative reduction by the year 2000 for the age-group 0-64 years.

Ischaemic heart disease: As indicated above, there are some grounds for optimism (see Chapter 2). The trend had been upwards during the years 1970-1980,but since 1980, this has reversed. However, not all countries have begun to show a decline, and out of the 17 with increasing trends during 1970-80, seven in south eastern Europe still show upward trends for 1980-85. From the point of view of the specific regional target for ischaemic heart disease, ie to reverse increasing and accelerate decreasing mortality trends, 20 countries out of 27, including the UK, are already satisfying the conditions.

Cancer:

(i) *Overall deaths:* Cancer is the second major cause of mortality within the region and overall deaths from cancer, except for some forms eg cervical cancer, are rising among those aged under 65 years, and at a faster rate than for the period 1970-80, with over half of the reporting countries showing increasing mortality rates (see Appendix Table 5). If the data for 1980 are taken as the baseline, and it is assumed that the trend as estimated for 1980-85 will continue, only six countries (Finland, Israel, Luxembourg, Malta, Sweden and Switzerland) are likely to reach the regional target of a 15% reduction in mortality by the year 2000. The United Kingdom is moving in the general direction of the target, and using the same projection, should achieve a 6.2% reduction by 2000.

(ii) *Lung cancer:* The main contributor to the increase in mortality is lung cancer. The increasing prevalence of smoking in women has continued and is reflected in an increase in lung cancer in women in some countries. Although, for deaths from lung cancer, the UK ranks 21st amongst the 27 reporting countries, it is one of only six that has shown a falling trend resulting from the reduced male mortality. While, in the UK, the peak in the male mortality rate seems to have passed, the rate among women continues to rise (an increase between 1979 and 1986 of 27% in women, compared with a fall of 6% in men over the same period).

(iii) *Breast cancer:* Mortality from breast cancer in women continues to increase throughout the region, although the gradient of increase is flattening. The UK, which had the highest mortality rate in women under 65 years-of-age of any reporting country in 1985, showed a small decreasing trend, along with 11 other countries, between 1980 and 1985.

(iv) *Cancer of the cervix:* Mortality from cancer of the cervix is decreasing in most countries, although six are still reporting increases. The UK currently ranks 21st, and if current trends continue, could expect a 25% reduction by the year 2000.

Sexually transmitted diseases: Decreases have recently been recorded in several countries for sexually transmitted diseases (STDs). Some of these can be attributed to the increasingly effective health education programmes concerned with the spread of AIDS (see Chapters 2, 5).

Immunisation: Despite the improvements in immunisation in the regional and country programmes, the control of the childhood diseases is not yet uniformly satisfactory. Available information shows the persistence of diphtheria in Sweden (mainly adults), Turkey and the USSR; an increase in pertussis in France, Greece, the UK and the USSR; a still-high absolute number of tetanus cases (mainly in older persons) in France, Hungary, Italy, Poland, Spain, Turkey, the USSR and Yugoslavia; and high rates of measles in most countries in the region. The recorded incidence of acute poliomyelitis is now less than 1 per million in all the member states except Turkey (2 per million). Oral polio vaccine-associated cases are occasionally reported. Six countries, including the UK, have recently introduced mumps-measles-rubella (MMR) vaccine in their immunisation programmes (see Chapters 4 and 5). The most recent position with regard to immunisation is shown in Table 7.3.

Table 7.3: *Percentage of children under five-years-of-age immunised against various diseases (around 1986)*

	Number of countries with coverage:			
Disease	<60%	60-80%	80%+	Total number of countries reporting
Diphtheria	2	4	24	30
Measles	7	4	17	28
Poliomyelitis	0	4	26	30
Tetanus	3	5	22	30
Pertussis	3	5	19	27

Source: Monitoring of the Strategy for Health for All Part I EUR/EST/89.1. WHO Regional Office for Europe, 1989

Healthy lifestyles

(i) *Smoking:* Smoking continues to be a major cause for concern (see Introduction and Chapters 2 and 3). Despite a slight overall decrease in the number of smokers, particularly in men, the prevalence of smokers in young women has increased in some countries and remains high in many others.

(ii) *Alcohol-related problems:* In many European countries, alcohol-related problems account for up to 30 to 40% of general hospital admissions for people between the ages of 25- and 65-years, and cirrhosis of the liver ranks among the leading causes of death for males in this age-group (see Introduction and Chapter 2). Alcohol-related traffic accidents account for up to 50% of all road traffic fatalities in Europe. Between 5 and 15% of road traffic accidents involved one or more people under the influence of alcohol in 11 countries. The percentage was highest in Denmark and Poland – about 20% – and lowest in the UK, Belgium, Spain and Sweden, at less than 5%.

(iii) *Accidents:* Accidents remain the third leading cause of death in the European region; children, young people and the elderly being particularly vulnerable[3,4]. The UK has the second-lowest mortality rate from motor vehicle traffic accidents and continues to show a decline, but the rate of decline at present is not sufficient to achieve a 25% reduction by the year 2,000 from the 1980 baseline (see Table 7.2).

(iv) *Suicide:* The incidence of reported suicide continues to rise slightly in more than half the European countries – and more steeply in the 15- to 24-year age-group. The UK has shown a rise in the incidence in this age group, despite a recent fall in the overall suicide rate (see Table 7.2).

(v) *Illicit drugs:* A shift in the pattern of illicit drug misuse has occurred, with an increase in southern and eastern Europe, and a slower rate of increase in the northern and western countries. Misusers are predominantly male. Heroin abuse has increased substantially and spread throughout the region (see Introduction and Chapter 2).

Environment

There is evidence of a growing emphasis on the development of a co-ordinated, multisectoral approach to environmental problems involving all branches of government. This will lead to more effective control of transfrontier environmental pollution, improved general water standards and air quality, and better and more effective control of hazardous wastes. However, although the level of public concern is high, public understanding of the nature of the hazards and the risks they impose is still incomplete (see Chapter 6).

(i) *Air:* In many countries, local pollution by sulphur dioxide and particulates has greatly diminished, with a consequent reduction in respiratory diseases. But in other heavily industrialised areas, especially where soft brown coals are used, pollution levels remain high. Photochemical smogs have become common in a number of European cities.

(ii) *Water:* All the countries in the region now report that at least 80% of the population has access to safe water, and 21 report a figure of 100%. Most urban communities now have drinking-water of a generally safe standard, but in rural areas, many communities continue to rely on small, often uncontrolled, private supplies. In many countries, gross pollution of rivers and lakes has diminished during the last 20 years, but there is increasing concern about the contamination of groundwater.

(iii) *Food safety:* The situation in most of Europe remains unsatisfactory. There has been a considerable increase in the incidence of microbiological food infections. It is estimated that only a small proportion of foodborne disease is detected and that less than 10% of the actual total is reported. In many countries, the responsibility for food safety is split between different authorities with insufficient co-ordination.

Health care systems

The creation of national systems which distribute health care efficiently and equitably remains a major challenge in many countries. Greater attention is being paid to health manpower needs and distribution, and there is an increased interest in the management of health care. Progress in securing the involvement of the people themselves in local health activities and services has been slow and there is, as yet, no evidence that a majority of countries has been able to generate much of an impetus towards this (see Chapter 6).

International data: calculation and comparison

Tables 7.1 and 7.2 present, for most European countries, data relating to mortality from selected causes, infant mortality and life expectancy at birth. The UK data used in the monitoring report refer to 1985; more up-to-date UK data are available in the World Health Statistics Annual[5] and readers should refer to relevant chapters in the report. Table 7.1 presents age-standardised death rates calculated on the basis of an artificial 'European' standard population. This enables comparison of the level of mortality between countries, as it controls for the effect of differences in age structure. It should be stressed that no method of standardisation will control for different certification practices in different countries – *comparisons* must therefore be made *with caution*. Table 7.2 presents similar data to Table 7.1, but expressed in terms of percentage annual changes between 1980 and the most recent year for which data are provided. This table therefore illustrates the direction and extent of recent changes in mortality.

References

[1] *WHO targets for health for all 2000: targets in support of the European regional strategy for health for all.* Copenhagen: WHO Regional Office, 1985.

[2] World Health Organisation. Regional Office for Europe. Monitoring of the Strategy for Health for All Part 1 EUR/HST/89. 1.

[3] *Statistics of road traffic accidents in Europe.* Vol. 32, 1985. New York: United Nations, 1987.

[4] *Statistics of road traffic accidents in Europe*. Vol. 33, 1986. New York: United Nations, 1988.

[5] World Health Organisation. World Health Statistics Annual. Geneva: 1989.

Table 7.1: *Mortality from selected causes in European countries*

Country	Last year	Life expectancy at birth	Infant mortality per 1,000 live births	Standardised mortality rates per 100,000 population for age-group 0-64 years							All external causes of injury and poisoning†	Motor vehicle traffic accidents†	Suicide†
				Diseases of circulatory system	Ischaemic heart disease	Cerebrovascular disease	All malignant neoplasms	Cancer of trachea, bronchus and lung	Cancer of the cervix	Cancer of the breast			
Austria	1986	74.60	10.27	82.48	42.22	16.09	88.48	17.32	3.65	19.48	74.04	17.27	26.71
Belgium	1984	74.30	9.77	82.04	39.49	13.99	98.33	26.17	2.82	23.68	68.25	18.72	22.65
Bulgaria	1985	71.20	15.21	146.34	52.84	51.22	86.94	19.91	3.80	15.99	62.78	11.97	15.63
CSSR	1985	71.00	14.00	150.76	82.17	33.78	119.54	30.68	5.74	17.47	82.20	10.86	19.58
GDR	1985	72.70	9.55	98.37	38.47	11.34	90.79	18.43	6.55	15.77	37.31	10.04	
Denmark	1985	74.70	7.93	83.86	57.25	13.04	104.04	25.96	6.41	25.96	70.25	13.95	
FRG	1986	75.40	8.54	78.42	41.44	12.47	88.62	17.55	3.07	20.92	48.58	12.48	17.01
Finland	1986	74.80	5.86	116.64	77.94	20.85	71.99	15.83	1.34	15.00	79.11	11.91	26.27
France	1985	75.90	8.31	53.53	21.34	12.50	99.26	17.78	1.93	17.21	79.22	17.32	21.77
Greece	1985	75.90	14.14	69.06	32.48	16.80	74.54	18.41	1.41	14.90	46.65	20.02	3.93
Hungary	1986	69.30	19.05	178.57	85.94	47.14	126.59	32.75	7.07	20.64	118.07	15.75	44.06
Iceland	1985	77.70	5.71	74.80	58.93	8.66	66.77	17.96		19.67	42.95	10.08	15.09
Ireland	1985	73.50	8.87	117.33	82.85	16.58	97.13	21.51	2.70	25.48	44.79	13.30	8.84
Israel	1985	75.30	11.79	78.48	44.36	14.11	67.60	10.37	1.53	19.69	54.98	10.68	6.86
Italy	1983	74.60	12.32	76.64	34.29	18.11	99.76	23.76	0.79	19.11	48.77	16.60	7.32
Luxembourg	1986	74.40	8.12	85.53	41.91	20.97	95.27	27.84	3.39	19.63	64.79	20.38	13.12
Malta	1986	74.60	10.10	108.95	60.76	17.11	80.38	18.41	2.87	25.43	17.88	6.16	0.25
Netherlands	1986	76.50	7.77	74.48	46.70	10.61	90.02	23.75	2.38	23.96	36.25	9.57	10.91
Norway	1985	76.00	8.49	82.70	59.95	11.35	76.59	13.32	4.29	15.45	57.51	9.67	14.22
Poland	1986	70.90	17.51	153.19	61.70	23.04	113.35	29.14	8.37	14.79	75.71	14.29	13.84
Portugal	1986	73.70	15.91	72.18	23.99	30.47	77.73	10.39	2.61	16.62	68.72	24.38	9.38
Romania	1984	69.90	23.41	146.85	47.68	39.95	87.58	18.93	10.51	13.49	69.75		
Spain	1982	76.30	11.42	67.76	24.53	17.29	77.40	13.26	1.11	14.14	39.80	12.66	5.11
Sweden	1986	77.10	5.90	70.70	48.48	10.12	67.67	10.27	2.99	16.90	52.22	9.55	17.59
Switzerland	1986	77.20	6.83	54.60	28.19	6.96	80.33	17.57	3.30	20.05	66.82	14.76	21.42
UK	1985	74.60	9.36	109.15	78.57	16.99	98.94	25.34	4.99	26.83	36.06	9.12	8.81
Yugoslavia	1983	70.00	30.69	128.51	40.63	31.26	86.77	19.14	4.59	12.89	64.70	19.96	17.61
* Europe	1985	73.98	12.85	96.88	46.38	19.89	94.03	20.73	3.86	18.58	58.47	13.37	15.47

*The European regional averages are weighted according to the population of the countries concerned and represent about 60% of the regional population. (Data for Albania, Monaco, San Marino, Turkey and the USSR are not included). For diseases in these tables, the following definitions apply in terms of categories from the ICD:
Diseases of the circulatory system ICD 390-459; ischaemic heart diseases ICD 410-414; cerebrovascular diseases ICD 430-438; all malignant neoplasms ICD 140-208; cancer of trachea, bronchus and lung ICD 162; cancer of the cervix uteri ICD180; cancer of the female breast ICD 174; external causes of injury and poisoning ICD E800-E999; motor vehicle traffic accidents ICD E810-E819; suicide ICD E950-E959. Monitoring of the strategy for health for all by the year 2000. WHO Regional Office for Europe EUR/HST/89.1 Copenhagen 1989
†Standardised mortality rates per 100,000 population for all ages

Table 7.2: *Mortality from selected causes in European countries. Percentage annual change, 1980 to last year for which data are available*

Country	Last year	Life expectancy at birth	Infant mortality per 1,000 live births	Standardised mortality rates per 100,000 population 0-64 years of age (% annual change)							All external causes of injury and poisoning†	Motor vehicle traffic accidents†	Suicide†
				Diseases of circulatory system	Ischaemic heart disease	Cerebrovascular disease	All malignant neoplasms	Cancer of trachea, bronchus and lung	Cancer of the cervix	Cancer of the breast			
Austria	1986	0.42	−4.12	−2.59	−1.87	−3.16	−0.60	1.89	−3.27	1.02	−2.30	−4.41	0.50
Belgium	1984	0.34	−4.88	−2.32	−3.35	−2.33	−0.42	−0.32	−1.33	−0.25	−3.40	−4.36	1.44
Bulgaria	1985	0.02	−5.00	3.04	2.59	0.88	2.80	4.15	4.74	5.58	0.70	−1.73	3.52
CSSR	1985	0.14	−4.22	0.57	1.66	−0.23	1.18	2.34	2.76	1.26	−0.16	−4.21	−1.61
GDR	1985	0.24	−4.74	−1.19	−0.14	1.23	0.26	2.13	−3.58	0.16	−0.04	−2.20	
Denmark	1985	0.13	−1.29	−2.21	−2.87	−0.60	0.46	3.73	−4.95	1.69	−0.25	0.81	−2.86
FRG	1986	0.44	−5.33	−2.22	−2.02	−3.80	0.16	2.45	−2.95	1.49	−4.37	−5.89	−2.32
Finland	1986	0.21	−2.50	−2.07	−2.62	−0.98	−1.44	−2.94	−6.46	0.90	0.02	−0.77	0.76
France	1985	0.29	−3.73	−2.01	−0.98	−3.33	0.09	1.24	−3.39	0.33	−1.42	−1.99	3.16
Greece	1985	0.21	−4.04	−0.65	0.76	−2.37	−0.43	2.01	1.87	−0.72	−0.30	5.61	4.74
Hungary	1986	0.01	−1.98	0.47	0.78	0.62	1.89	6.35	−1.65	1.56	0.82	0.66	−0.14
Iceland	1985	0.27	−4.00	−3.76	−2.02	−9.40	0.02	−0.55	8.45	8.59	−4.80	0.92	14.49
Ireland	1985	0.31	−3.50	−2.39	−1.50	−4.77	0.35	1.29	−4.11	−1.25	−4.21	−5.13	2.45
Israel	1985	0.36	−4.63	−5.01	−5.30	−5.57	−0.86	−0.39	35.92	−0.38	8.09	−1.25	−0.39
Italy	1983	0.12	−5.44	−2.23	−1.64	−2.82	0.88	1.97	−8.82	2.11	−2.76	−3.60	1.45
Luxembourg	1986	0.41	−6.00	−2.59	−3.68	1.24	−1.51	0.75	−1.21	−1.03	−4.63	−4.62	−1.78
Malta	1986	0.89	−5.03	−6.05	−5.66	−6.43	−1.07	2.15		−0.48	−5.48	−6.38	
Netherlands	1986	0.14	−1.22	−1.66	−2.35	−2.63	−0.09	0.06	−4.59	0.16	−2.46	−4.12	1.39
Norway	1985	0.08	1.57	−1.30	−1.02	−1.73	0.83	4.47	−5.36	−0.08	−1.09	2.44	2.74
Poland	1986	−0.01	−2.77	1.57	3.31	1.32	1.38	4.10	−0.90	−0.36	0.15		
Portugal	1986	0.55	−5.32	−3.50	−2.11	−4.21	−0.14	2.69	−0.05	1.97	−2.08	−4.37	3.83
Romania	1984	0.23	−5.62	0.72	3.65	1.14	0.20	2.05	3.38	2.10	−0.74		
Spain	1982	0.53	−3.99	−4.39	−1.33	−5.39	0.81	4.89	−7.26	1.52	−3.66	−12.24	4.54
Sweden	1986	0.27	−1.99	−2.70	−3.09	−4.05	−1.17	0.64	−3.64	−0.34	−2.16	−0.86	−0.75
Switzerland	1986	0.33	−3.36	−3.09	−3.04	−4.75	−0.92	−0.90	−4.13	−0.23	−1.18	−3.88	−1.27
UK	1985	0.30	−4.52	−2.75	−1.94	−3.16	−0.31	−1.46	−1.25	−0.16	−2.48	−1.96	−0.16
Yugoslavia	1983	−0.21	−0.86	2.87	1.16	6.28	1.12	2.29	−5.62	−0.53	−1.24	−4.37	2.25
* Europe	1985	0.21	−3.18	−0.87	−0.61	−1.25	0.37	1.52	−1.54	0.56	−1.41	−2.08	0.29

*The European regional averages are weighted according to the population of the countries concerned and represent about 60% of the regional population. (Data for Albania, Monaco, San Marino, Turkey and the USSR are not included). "% annual change 1980+" refers to percentage annual change during 1980 and the last year for which data are available based on regression analysis. For diseases in these tables, the following definitions apply in terms of categories from the ICD:

Diseases of the circulatory system ICD 390-459; ischaemic heart diseases ICD 410-414; cerebrovascular diseases ICD 430-438; all malignant neoplasms ICD 140-208; cancer of trachea, bronchus and lung ICD 162; cancer of the cervix uteri ICD180; cancer of the female breast ICD 174; external causes of injury and poisoning ICD E800-E999; motor vehicle traffic accidents ICD E810-E819; suicide ICD E950-E959. Monitoring of the stategy for health for all by the year 2000. WHO Regional Office for Europe EUR/HST/89.1 Copenhagen 1989

†Standardised mortality rates per 100,000 population for all ages (% annual change)

8. APPENDIX

Table A.1: *Population age and sex structure 1988; and changes by age, England, 1981-88*

	Resident population at mid 1988 (thousands)			Percentage change (Persons)			
Age (in years)	Persons	Males	Females	1981-88	1985-86	1986-87	1987-88
Under 1	647	331	316	8.2	0.9	1.4	3.2
1-4	2,454	1,257	1,197	9.8	1.1	1.3	1.5
5-15	6,406	3,290	3,116	−14.0	−1.4	−1.8	−1.2
16-29	10,539	5,356	5,183	6.9	0.9	0.7	0.0
30-44	9,856	4,945	4,911	7.4	1.5	1.2	0.8
45-64/59*	8,901	5,030	3,871	−2.2	−1.0	−0.5	−0.4
65/60-74**	5,480	1,874	3,606	−2.9	0.2	−0.2	−0.5
75-84	2,575	939	1,636	14.5	1.2	1.6	1.3
85 and over	678	168	511	32.7	3.8	7.4	4.7
All ages	47,536	23,190	24,347	1.5	0.3	0.3	0.3

* 45-64 for males and 45-59 for females.
** 65-74 for males and 60-74 for females.
Source of data: OPCS

Table A.2: *Five main causes of death for males and females at different ages (and percentages of all causes of death), England, 1988*

RANK	All ages 1 year and over		1-14		15-34		35-54		55-74		75 and over	
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
1	Ischaemic heart disease	Ischaemic heart disease	Road vehicle accidents	Congenital anomalies	Road vehicle accidents	Road vehicle accidents	Ischaemic heart disease	MN of bone, connective tissue, skin and breast	Ischaemic heart disease	Ischaemic heart disease	Ischaemic heart disease	Ischaemic heart disease
	30%	24%	18%	17%	24%	13%	32%	22%	36%	25%	27%	25%
2	MN of respiratory and intra-thoracic organs	Cerebro-vascular disease	Other causes of injury and poisoning†	Road vehicle accidents	Other causes of injury and poisoning†	Other causes of injury and poisoning†	Other causes of injury and poisoning†	MN of genito-urinary	MN of respiratory and intra-thoracic organs	Cerebro-vascular disease	Cerebro-vascular disease	Cerebro-vascular disease
	9%	15%	17%	13%	19%	12%	9%	11%	13%	10%	12%	18%
3	Cerebro-vascular disease	MN of digestive organs and peritoneum	Congenital anomalies	Other causes of injury and poisoning†	Suicide and self-inflicted injury	MN of bones, connective tissue, skin and breast	MN of digestive organs and peritoneum	Ischaemic heart disease	MN of digestive organs and peritoneum	MN of digestive organs and peritoneum	Chronic obstructive pulmonary disease and allied conditions	Pneumonia
	9%	7%	13%	12%	16%	8%	9%	9%	9%	9%	8%	8%
4	MN of digestive organs and peritoneum	Pneumonia	Diseases of the nervous system and sense organs	Diseases of the nervous system and sense organs	Diseases of the nervous system and sense organs	MN of genito-urinary organs	MN of respiratory and intra-thoracic organs	MN of digestive organs and peritoneum	Cerebro-vascular disease	MN of respiratory and intra-thoracic organs	MN of respiratory and intra-thoracic organs	MN of digestive organs and peritoneum
	8%	6%	12%	11%	5%	6%	8%	8%	7%	8%	7%	6%
5	MN of Genito-urinary organs	MN of bone, connective tissue, skin and breast	MN of lymphatic and haema-topoietic tissue	MN of lymphatic and haema-topoietic tissue	MN of lymphatic and haema-topoietic tissue	MN of lymphatic and haema-topoietic tissue	Suicide and self-inflicted injury	Cerebro-vascular disease	Chronic obstructive pulmonary disease and allied conditions	MN of bone, connective tissue, and skin and breast	MN of digestive organs and peritoneum	Mental disorders
	5%	5%	6%	6%	4%	6%	5%	6%	6%	8%	6%	4%
Remainder	39%	44%	33%	42%	31%	55%	36%	44%	29%	40%	39%	40%
All causes of death	259,555	270,075	1,256	881	6,002	2,636	18,144	11,600	112,505	75,259	121,648	179,699

* MN = malignant neoplasm.

† This category comprises categories of external causes of injury and poisoning (categories E800-999) excluding road traffic accidents and suicide.

Source of data: OPCS

Table A.3: *Relative mortality from various conditions when ranked by numbers of deaths and future years of 'working life lost', England and Wales, 1986*

Cause	Males				Females			
	Number of deaths (thousands)		Years of life lost (thousands)		No. of deaths (thousands)		Years of life lost (thousands)	
	All ages	(%)	Age 15-64	(%)	All Ages	(%)	Age 15-64	(%)
ALL CAUSES*	286	100	923	100	292	100	543	100
All neoplasm^{o}	73	26	185	20	66	23	207	38
Lung cancer	25	9	46	5	10	3	20	4
Breast cancer†					14	5	62	11
Genito-urinary cancer	12	4	15	2	10	3	42	8
Leukaemia	2	1	15	2	17	6	12	2
Circulatory disease^{*o}	136	48	257	28	142	49	88	16
Ischaemic heart disease	89	31	190	21	70	24	41	8
Cerebrovascular disease	27	9	33	4	44	15	26	5
Respiratory disease^{*o}	33	12	45	5	30	10	29	5
Pneumonia	10	3	13	1	18	6	8	1
Bronchitis	9	3	14	2	5	2	10	2
Accidents^{*o}	7	2	153	17	5	2	49	9
Motor vehicle accidents	3	1	95	10	1	.3	30	6
Suicide	3	1	56	6	1	.3	16	3

NB Congenital malformations and infant deaths have been removed from the table because of the introduction of a new perinatal death registration form in 1986 which does not allow the coding of a single underlying cause for deaths in the first month of life.

* relating to deaths at age 28-days and over.
o These conditions are presented as well as selected causes within these broader headings.
† Not calculated for male breast cancer.
A more extensive table, including details of the method of calculation is presented annually in OPCS mortality statistics, series DH1.

Table A.4: *Trends in 'avoidable' deaths, 1979 to 1987, England*[1]. *Age Standardised Mortality Ratios (1979=100)*

Condition	SMRs(2)									Actual no. of deaths	
	1979	1980	1981	1982	1983	1984	1985	1986	1987	1979	1987
Hypertensive/cerebrovascular (35-64)[3]	100	91	86	84	80	77	76	73	69	8,827	6,093
Perinatal mortality	100	91	80	77	71	69	67	65	61	8,831	5,742
Cervical cancer (15-64)	100	100	95	91	91	91	90	96	88	1,059	934
Hodgkin's disease (5-64)	100	98	99	87	83	81	77	75	83	340	293
Respiratory disease (0-14)	100	104	94	86	62	51	50	41	46	308	138
Surgical diseases (5-64)	100	87	81	77	70	78	65	71	52	247	127
Asthma (5-44)	100	89	119	107	105	105	115	114	113	232	284
Tuberculosis (5-64)	100	118	90	89	63	66	66	59	65	211	138
Chronic rheumatic heart disease (5-44)	100	84	74	51	40	42	34	34	32	119	45
										20,174	13,794
All causes: age 0-14	100	96	86	82	77	73	74	73	71	10,503	7,915
All causes: age 15-64	100	96	93	92	90	88	88	86	84	119,224	100,290
All causes: all ages	100	97	95	94	93	90	92	90	86	554,952	531,150
All death less 'avoidable'	100	97	95	95	93	90	93	90	86	534,778	517,356

[1] In the 1987 Report, the equivalent table was based on England and Wales data rather than only England.

[2] The Standard Mortality Ratio (SMR) for a condition is calculated by dividing the observed number of deaths by the expected number of deaths based on 1979 death rates.

[3] Age ranges (in years) indicated in parentheses.

Source: Derived by Department of Health (SMI2A) from data supplied by OPCS.

Table A.5: *Live births, stillbirths, infant mortality and abortions, England, 1960-88*

Year	Live births	Stillbirths		Early neonatal mortality (deaths under 1 week)		Perinatal mortality (still-births plus deaths under 1 week)	Post-neonatal mortality (deaths 4 weeks to under 1 year)	Infant mortality (deaths under 1 year)	Abortions[1]
	No.	No.	Rate*	No.	Rate+	Rate*	Rate+	Rate+	Rate@
1960	740,859	14,753	19.5	9,772	13.2	32.5	6.3	21.6	—
1970	741,999	9,708	12.9	7,864	10.6	23.4	5.9	18.2	87.6
1975	563,900	5,918	10.4	5,154	9.1	19.4	5.0	15.7	149.9
1976	550,393	5,339	9.6	4,468	8.1	17.6	4.6	14.2	148.7
1977	536,953	5,087	9.4	4,070	7.6	16.9	4.5	13.7	152.7
1978	562,589	4,791	8.4	3,975	7.1	15.4	4.4	13.1	157.7
1979	601.316	4,811	7.9	4,028	6.7	14.6	4.5	12.8	158.8
1980	618,371	4,523	7.3	3,793	6.1	13.4	4.4	12.0	164.5
1981	598,163	3,939	6.5	3,105	5.2	11.7	4.3	10.9	168.8
1982	589,711	3,731	6.3	2,939	5.0	11.2	4.6	10.8	171.1
1983	593,255	3,412	5.7	2,746	4.6	10.3	4.2	10.0	169.2
1984	600,573	3,425	5.7	2,640	4.4	10.0	3.9	9.4	177.3
1985	619,301	3,426	5.5	2,674	4.3	9.8	3.9	9.2	177.6
1986	623,609	3,337	5.3	2,640	4.2	9.5	4.2	9.5	183.5
1987	643,330	3,224	5.0	2,518	3.9	8.9	4.0	9.1	187.7
1988	654,360	3,188	4.8	2,543	3.9	8.7	4.1	9.1	196.7

(1) Relates to England residents.
* Per 1,000 live and stillbirths.
+ Per 1,000 live births.
@ Per 1,000 conceptions (live births, stillbirths and abortions).
Source of data: OPCS.

Table A.6: *Congenital malformations, England, 1978, 1983 and 1988*

ICD Code(s)	Malformation	Stillbirths*			Live-births**		
		1978	1983	1988	1978	1983	1988
	Malformed babies						
	Number	857	428	223	11,318	12,753	12,088
	Rate	15.1	7.2	3.4	201.2	215.0	184.7
320-359, 740, 741, 742.0-742.5, 742.8, 742.9, 767.6	Central nervous system						
	Number	809	249	75	1,213	747	443
	Rate	14.3	4.2	1.1	21.6	12.6	6.8
360-389, 743.0-743.6, 743.8-744.3	Ear and eye						
	Number	12	14	13	386	693	643
	Rate	0.2	0.2	0.2	6.9	11.7	9.8
749.0-749.2	Cleft lip/cleft palate						
	Number	30	28	15	761	771	742
	Rate	0.5	0.5	0.2	13.5	13.0	11.3
390-495, 745-747, 425.3, 745.4, 746.9, 747.0, 747.5, 747.9, 785.2	Cardiovascular						
	Number	12	11	15	659	950	847
	Rate	0.2	0.2	0.2	11.7	16.0	12.9
752.6	Hypospadias/epispadias						
	Number	4	4	0	897	1,065	1,026
	Rate	0.1	0.1	0	15.9	18.3	15.7
755.0, 755.1	Polydactyly/syndactyly						
	Number	13	10	9	884	1,044	1,071
	Rate	0.2	0.2	0.1	15.7	17.6	16.4
754.5-754.7	Talipes						
	Number	54	14	13	2,099	2,012	1,952
	Rate	1.0	0.2	0.2	37.3	33.9	29.8
758.0-758.9	Chromosomal						
	Number	11	7	20	468	559	497
	Rate	0.2	0.1	0.3	8.3	9.4	7.6

* Rates per 10,000 total births

** Rates per 10,000 live births

Table A.7: *Cancer registrations (1984) by sex, age and site: England and Wales (males)*

	Numbers and percentages															
	Age-group (in years)															
	All ages		0–4		5–14		15–24		25–44		45–64		65–84		85 and over	
		%		%		%		%		%		%		%		%
Eye, brain and other nervous system	1,833	2	56	21	70	21	64	10	280	7	809	3	541	1	13	0
Mouth and pharynx	1,815	2	3	1	5	2	8	1	129	3	816	3	796	1	58	1
Oesophagus	2,437	2	—	—	—	—	2	0	55	1	828	3	1,450	2	102	2
Lung	26,203	26	—	—	—	—	7	1	294	8	8,286	27	16,730	27	886	19
Stomach	6,788	7	—	—	—	—	4	1	120	3	1,852	6	4,475	7	337	7
Pancreas	2,926	3	3	1	—	—	3	0	72	2	908	3	1,802	3	138	3
Large intestine and rectum	11,917	12	—	—	—	—	13	2	313	8	3,569	12	7,412	12	610	13
Prostate	9,524	9	1	0	—	—	—	—	10	0	1,290	4	7,401	12	822	18
Bladder	6,886	7	—	—	—	—	3	0	137	3	1,975	6	4,450	7	321	7
Skin	12,431	12	4	1	9	3	55	8	611	16	297	1	7,125	11	657	14
Leukaemias and lymphomas	6,283	6	105	39	182	55	262	39	729	19	1,774	6	2,992	5	239	5
All other cancer	13,281	13	96	36	64	19	249	37	1,167	30	7,985	26	6,930	11	463	10
Total cancer	102,324	100	268	100	330	100	670	100	3,917	100	30,389	100	62,104	100	4,646	100

Source of data: OPCS.

NB Table unchanged from 1987 Report

Table A.8: *Cancer registrations (1984) by sex, age and site: England and Wales (females)*

Numbers and percentages

Age-group (in years)

	All ages		0–4		5–14		15–24		25–44		45–64		65–84		85 and over	
		%		%		%		%		%		%		%		%
Eye, brain and other nervous system	1,471	1	53	23	58	22	63	10	223	3	576	2	478	1	20	0
Mouth and pharynx	1,105	1	1	0	7	3	13	2	80	1	361	1	547	1	96	1
Oesophagus	1,897	2	—	—	—	—	1	0	26	0	401	1	1,221	2	248	3
Breast	21,363	22	—	—	1	0	26	4	2,488	34	8,748	29	8,736	17	1,364	16
Lung	9,840	10	1	0	—	—	3	0	177	2	3,340	11	5,838	11	481	6
Stomach	4,465	5	—	—	—	—	3	0	59	1	791	3	2,933	6	679	8
Pancreas	2,772	3	—	—	—	—	1	0	27	0	554	2	1,839	4	351	4
Large intestine and rectum	12,500	13	1	0	1	0	12	2	240	3	2,849	9	7,783	15	1,614	19
Ovary	4,539	5	2	1	4	2	47	8	360	5	1,956	6	1,973	4	197	2
Cervix	4,043	4	—	—	—	—	41	7	1,411	19	1,433	5	1,066	2	92	1
Other uterus	3,759	4	—	—	1	0	2	0	160	2	1,689	6	1,726	3	181	2
Bladder	2,619	3	—	—	—	—	4	1	42	1	654	2	1,648	3	271	3
Skin	12,054	12	1	0	18	7	71	12	876	12	3,116	10	6,742	13	1,230	14
Leukaemias and lymphomas	5,520	6	100	44	106	41	194	32	462	6	1,261	4	2,883	6	514	6
All other cancer	11,232	11	68	30	64	25	127	21	613	8	2,774	9	6,416	12	1,170	14
Total cancer	99,179	100	227	100	260	100	608	100	7,244	100	30,503	100	51,829	100	8,508	100

Source of data: OPCS.

NB Table unchanged from 1987 Report

Table A.9: *Numbers (in thousands) of children aged 16 and under completing primary course of vaccination. The percentage of eligible children vaccinated by the end of the second year after birth is shown in parentheses. For BCG this percentage is the estimated school population age 13 years who were vaccinated in the year. England 1976-87/88*

Year	Diphtheria		Tetanus		Polio		Whooping cough		Measles		BCG	
1976	487.5	(75)	510.2	(75)	495.6	(75)	240.6	(38)	323.7	(47)	564.4	(74)
1977	490.9	(78)	513.1	(78)	515.6	(78)	191.9	(40)	304.9	(50)	590.1	(76)
1978	506.0	(78)	524.4	(79)	518.8	(78)	199.4	(31)	302.1	(48)	576.6	(74)
1979	528.6	(80)	543.7	(80)	533.6	(80)	250.3	(35)	331.7	(51)	563.9	(74)
1980	545.9	(81)	560.2	(81)	549.7	(81)	285.6	(41)	351.6	(53)	617.9	(82)
1981	552.2	(83)	564.4	(83)	554.5	(82)	320.5	(46)	368.5	(55)	575.1	(78)
1982	558.1	(84)	572.7	(84)	562.8	(84)	384.8	(53)	390.7	(58)	547.1	(75)
1983	528.5	(84)	538.3	(84)	531.5	(84)	406.8	(59)	392.9	(60)	539.8	(76)
1984	532.1	(84)	540.2	(84)	534.0	(84)	391.7	(65)	435.6	(63)	507.9	(71)
1985	544.4	(85)	551.6	(85)	548.9	(85)	414.2	(65)	473.8	(68)	518.7	(77)
1986	563.6	(85)	573.1	(85)	569.1	(85)	475.9	(67)	502.9	(71)	486.7	(76)
1987/88	701.4	(87)	709.7	(87)	703.8	(87)	590.3	(73)	647.3	(76)	450.2	(76)

1. Numbers for 1987/88 are not directly comparable with previous years due to the change-over from calendar to financial year. The numbers immunised for 1987/88 cover the period 1 January 1987 – 31 March 1988. For BCG, the period covered is 1 April 1987 to 31 March 1988.

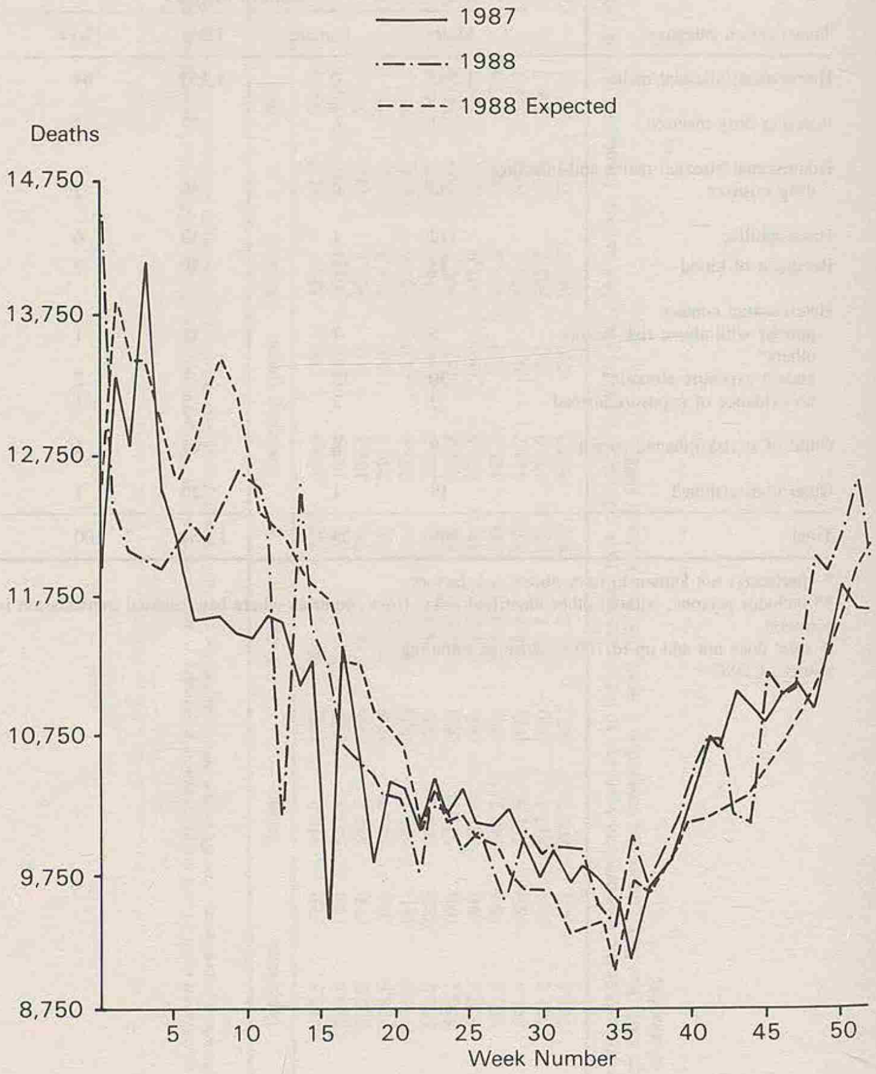
Source: Form SBL 607 (Department of Health).

Table A.10: *Cumulative totals of AIDS cases in England, by transmission category to 31 December 1988*

Transmission category	Number of cases Males	Female	Total	(%)+
Homosexual/bisexual male	1,565	0	1,565	84
Injecting drug misuser	21	6	27	2
Homosexual/bisexual males and injecting drug misuser	30	0	30	2
Haemophiliac	112	1	113	6
Recipient of blood	15	15	30	2
Heterosexual contact:				
partner with above risk factors	5	7	12	1
others*				
known exposure abroad**	30	15	45	2
no evidence of exposure abroad	3	2	5	<1
Child of at-risk/infected parent	9	8	17	1
Other/undetermined	19	1	20	1
Total	1,809	55	1,864	100

* partner(s) not known to have above risk factors
** includes persons, without other identified risks, from countries where heterosexual transmission is common
+ total does not add up to 100 because of rounding
Source: CDSC.

Figure A1: *Weekly deaths 1987, 1988; and 1988 expected deaths, England and Wales*



Source: OPCS

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