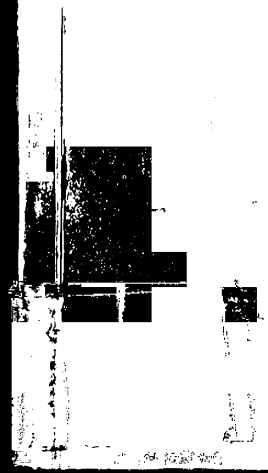
# Epidemiology & Policies for Health Planning

Mark McCarthy



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# Epidemiology and Policies for Health Planning

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# Epidemiology and Policies for Health Planning

Mark McCarthy

King Edward's Hospital Fund for London

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# Preface

This book is for people interested, or working, in health care planning: in particular, administrators, nurses or students of health services, members of health authorities, and secretaries and members of community health councils. It arises from my experience as a community physician in London, and sets out some of the epidemiological measures and the policies for prevention and treatment that are the basis of health care planning.

The book does not try to be a 'how-to-do-it' guide. Indeed, although the National Health Service planning cycle has a uniform administrative pattern, the arrangements vary locally because of differing problems and personalities. Information other than health statistics is required for planning, such as knowledge of manpower, buildings, capital and revenue likely to be available over the planning period, and health authorities also suggest 'norms' to give a geographical balance of services.

But this book is designed to help in thinking about health needs, their causes, and the various options for policies before more detailed planning of services. In some services, for example, for heart disease or mental health, a different distribution of resources might yield improvements in health beyond the present levels. Information for planning services is available in a wide range of publications. I have tried here simply to bring it together to form a source of reference for people concerned with a particular planning issue.

Section 1 introduces the ideas of epidemiology and planning, and gives a view of current levels of health. Sections 2 to 6 describe medicine and surgery and particular health care groups in more detail. Each chapter has a brief description of needs, followed by evidence for prevention and treatment. The final section describes more general factors influencing health, and the available sources of measures. Further reading and specific references are given at the end of each chapter.

Statistical material is presented mainly as diagrams, and draws on national or local studies in Britain. For those who so wish, it may be possible to use the data, appropriately adjusted, from these sources to give an estimate of local health problems, if local data are not available. There is still a long way to go before health planning is based completely upon rational assessments of need and the effectiveness of policies. I hope this book will contribute to the progress.

Many people have helped me during the preparation of this book and have read all or parts of the book in its different drafts. I thank them, and Katrina Kurowski and Rosy Daley for their excellent typing. The errors of fact or inference in the book are mine: but I hope that readers will see the purpose of a comprehensive approach to health care planning, and perhaps use this book to build their own, more accurate, local description of their health service.

# Section 1
# Introduction

# 1 Planning, epidemiology and measurement

## Planning

Health is the product of many influences: genetic characteristics, environment, wealth or poverty, employment or lack of it, personal behaviour and direct medical care. Health care planning, in its widest sense, is concerned with all these factors and with the social and economic policies that give rise to them. In a more limited way, the policies and development of health services can be directly planned by people working within the services: the words 'health service planning' make this distinction.

Planning has been described as the process of deciding how the future should be different from the present, what changes are necessary, and how these changes should be brought about.[1-3] There are two contrasting approaches: 'rational' and 'incremental'. The 'rational' approach suggests that the whole range of options should be identified and considered before a comprehensive programme is drawn up. The 'incremental' approach suggests that planning is necessarily based on limited information, and that the uncertainty of the future makes small decisions preferable to grand plans. In practice, planning is usually a compromise between these two approaches.

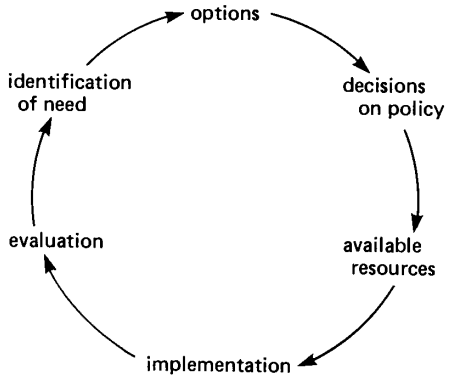
Figure 1 shows the cycle of rational health planning: identification of current needs, based on information about the health needs in the population; designing and deciding appropriate policies; getting the resources; implementing the changes; defining measures to evaluate the effect of the changes.

But there are many constraints to this form of planning in the National Health Service. Creating change depends upon political forces in central and local government. Future financial allocations are unpredictable and almost all the revenue will have to be spent on existing services. Change can sometimes only be made when a senior member of staff retires. People concerned with planning have to be aware of these and other constraints, although they may also consider whether a more radical solution, outside the ordinary framework of decision-making, might be better able to achieve the objectives.[4]

## Epidemiology

Epidemiology is the study of health and disease in human populations. It is based on social and statistical sciences and uses the concepts of diagnosis and disease

**Figure 1** Rational health planning



of clinical medicine. The uses of epidemiology have been described in detail by Morris[5], and there are also several accounts of epidemiological methods.[6-8]

Epidemiology is complementary to clinical medicine, which is concerned with individual patients. Studies of populations show that many diseases have a continuous spectrum from very mild to very severe. Conditions such as high blood pressure, chronic bronchitis or some mental illnesses can only be defined by arbitrary, yet reproduceable, criteria that separate 'normal' from 'diseased'.[9, 10] Clinical diagnosis must be accompanied by an understanding of social and psychological factors. For example, physical disease may be more disabling to a manual worker than to an office clerk. If a worker's job is not secure, illness may be more threatening. These factors may not be described in routine statistics of health and disease, but they are important in the planning and use of health services.

Epidemiological methods have been used analytically to identify some of the causes of disease, and to evaluate methods of treatment and prevention. Descriptive epidemiology is the starting point for planning — to describe health needs.

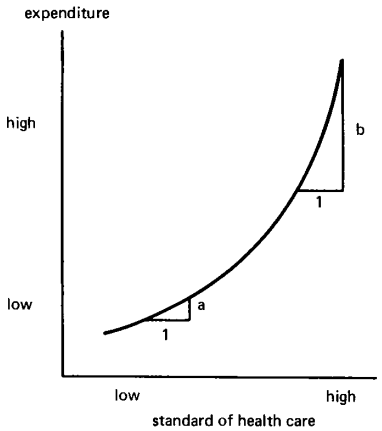
Need is not easy to define.[9,10] It can be recorded descriptively in a survey, although the individual may not wish to receive care or treatment for that need. An example would be someone who, on symptomless screening, was found to have raised blood pressure, but who regards the inconvenience of treatment too great a price for the possibility of preventing a stroke. On the other hand, some problems that are described by individuals as health needs may not be so regarded by doctors — for example, if they are problems arising from social or financial deprivation. Need, therefore, is relative to the levels of expectation in the population; to the ability of medical or social policies to relieve these needs; and to the costs involved in doing so.

The levels of expectation in a population have been likened to an onion.[5] Each time a level of health has been achieved (one layer of the onion is peeled away) another problem is revealed. Thus Beveridge and other architects of the health and social services in Britain expected that universal provision of services, free at the time of consumption, would lead eventually to a healthy population with lessening demands. This has proved radically wrong, in part because of rising expectations of health. But also, new technologies have been developed for previously incurable conditions, such as degenerative arthritis: joint replacement (Chapter 7) is now one of the most rapidly growing areas of practice and opens up an enormous range of new needs.

Knowledge of the extent of disease and disability in the population has led to the idea of the 'iceberg' of disease.[13,14] There are many conditions whose prevalence cannot be measured by estimates of hospital attendance or of general practitioner consultation.[15] In a survey of diabetes in Bedford, fewer than one per cent of a randomly chosen sample of adults was known to be diabetic by the health services. Yet in three per cent diabetic symptoms were found, and up to twelve per cent could be considered diabetic by biochemical tests.[16]

The third assessment of need compares feasibility with cost.[17] Some forms of health care which are attainable in theory cannot be widely provided because they are too expensive. Constraints on programmes for kidney, liver or heart transplantation are well known. But all medical care works within limited resources, and cost-benefit decisions are implicitly made all the time. So far, the way to make these decisions more explicit has not yet been found, partly because there is not enough relative costing information, and partly because not enough is known about the effects of treatment. Planners and managers have constantly to be aware of the broad returns from various resources invested, so that they may consider whether the money spent on one pro-

**Figure 2** Standards of health care related to expenditure (unit improvement in health for costs a and b at low and high standards of care)




*Source:* Maxwell R. Health care: the growing dilemma (figure 50). New York, McKinsey and Co Inc, 1974.

gramme might be more beneficially spent in some other way.

Expenditure on health care seems to rise the closer one gets to better health (Figure 2). Yet in a population with a wide range of health problems, some people will need quite simple remedies for their health needs. This, in financial terms, may be a better use of resources than the expensive services required by only a very few people. These issues need to be debated between professionals and the public.

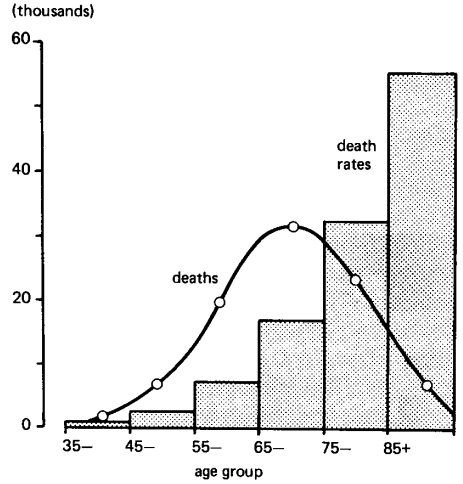
### Measurement

Epidemiological studies are concerned with the quality of measurements.[8]

The *validity* of a test is the extent to which it actually measures what it tries to measure. This is particularly important in questionnaire surveys, where a respondent's answer may vary according to the way the question is framed.

Measurements should also have good *repeatability*; that is, several consecutive tests should be in agreement. Disagreement may be due to random or to systematic errors. The former can usually be eliminated by taking the mean of several readings, but the latter will persist if it is the measurer or the machine that is causing the error. The *incidence* of a condition is the number of new cases arising in a given period. The *prevalence* is the total number of cases existing at one time. The incidence is, therefore, valuable in describing conditions of short duration such as infectious diseases or where preventive

**Figure 3** Comparison of deaths and death rates for coronary heart disease at different ages, England and Wales 1978 (deaths and age-specific rates per million)




*Source:* Great Britain, Office of Population Censuses and Surveys. Mortality statistics: cause (tables 2 and 3). London, HM Stationery Office, 1980. (Series DH2 no 5)

action has been taken to limit the number of new cases, for example in perinatal mortality. By contrast, prevalence is derived from cross-sectional surveys, and is of use for estimating the need for services for chronic or long-established conditions, such as arthritis.

Population comparisons are more clearly made by using *rates* rather than crude numbers. The rate is the number of cases within a defined population; for example, 50 cases per hundred thousand people. Populations and rates, when not otherwise defined, are usually for all ages and both sexes. Figure 3 compares the crude deaths and death rates for coronary heart disease at different ages.

*Age-specific* or *sex-specific rates* describe the number of cases and the defined population of a particular age or sex group; for example, per thousand people aged 15-24, or per thousand men of all ages.

The frequency of diseases in populations varies with such characteristics as age, sex and social class. Two populations can be compared using the statistical method of *standardisation*. The disease rates of the reference (for example, national) population are multiplied by the numbers of people within groups of the study (local) population. These 'expected' numbers can then be compared with the observed numbers to show whether the study population really differs from the reference. Standardised mortality ratios (SMRs) compare the mortality experience of the study population with that of the reference population as a ratio of 100. SMRs can be calculated for total mortality or individual diseases, and also for particular groups such as occupations or social classes.

The degree of precision of data should be related to the questions the data are being used to answer. For many problems of planning, when the future is rather unpredictable, data that show 'orders of magnitude' may still be very useful. Simple tests can show whether different numbers — say a change of 20 per cent or even 50 per cent — will affect the planning decision.

The completeness and accuracy of the data are only as good as the method of collection allows. Many factors can lead to inaccuracy, such as errors in counting, or transfer from one collection form to another. Sometimes data are not returned, or counted twice. Before using routine NHS data, it is worth finding out whether there have been any validation studies (Chapter 32).

Mean values taken from samples will show random variations because of the sampling. However, confidence limits for the means can be estimated statistically if the number in the sample and its range are known. Special care should be taken in comparing variations of small numbers.

**Reading**

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# 2 A general view

Health care can be divided into primary (community) and secondary (hospital) care. These are still, for the most part, separately organised within the National Health Service.

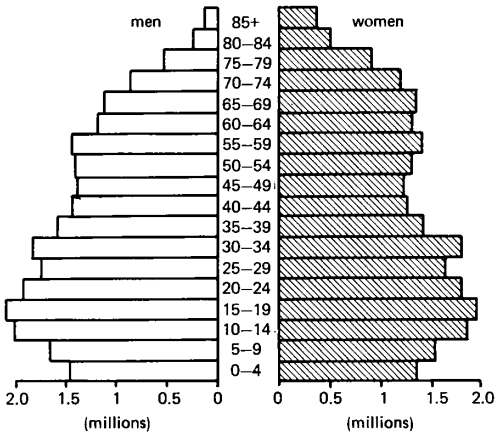
Every British resident is entitled to free primary care by a general practitioner, who is paid according to the number of people on the practice list. Each GP has on average about 2300 patients, with a range from about 1000 to 3500. The general practitioner holds a contract with a family practitioner committee. There are ninety FPCs in England and not all have the same geographical boundaries as health districts. Their prime responsibility is to administer the contracts by keeping a central list of patients and ensuring payment, rather than to consider the broader issues of service development. General practitioners can employ receptionists and nurses themselves, or these members of the primary care team can be employed by health authorities.

Hospital and some other community services, such as child health and family planning clinics, are managed by health authorities. They have professional advisory committees, and public opinion is represented by independent community health councils. Health authorities control most of the spending in the NHS, and are responsible for planning.

Other services outside the NHS have an influence on health. Occupational health services provided by large firms cover about half the total work force of the country.[1] Workers in smaller firms are often not covered. The Employment Medical Advisory Service is available to any firm on request, and undertakes a broader preventive role. The armed services and prisons have separate medical services.

Social services are the responsibility of local authorities, separate from the NHS. They provide personal social work, usually through area teams organised to cover a population of between 20 000 and 50 000 people; domiciliary support such as home helps and meals-on-wheels; and various forms of residential and day care. Environmental health services, housing and education are also responsibilities of local authorities. Social security benefits, such as sickness benefit, unemployment benefit or

**Figure 4** Population structure, England and Wales 1981



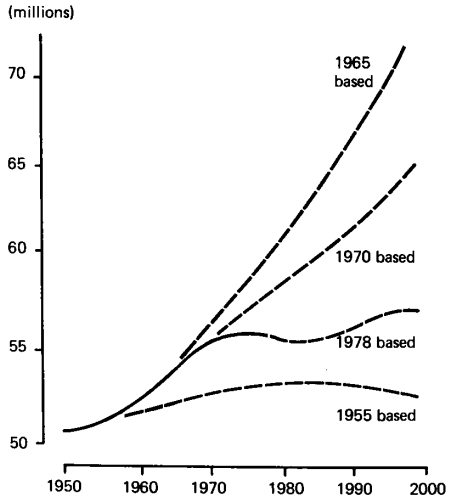

*Source:* Great Britain, Office of Population Censuses and Surveys. Population projections 1978–2018 (table 1c). London, HM Stationery Office, 1980. (Series PP2 no 10)

old age pension, are paid directly by the central government through local offices of the Department of Health and Social Security.

## Population

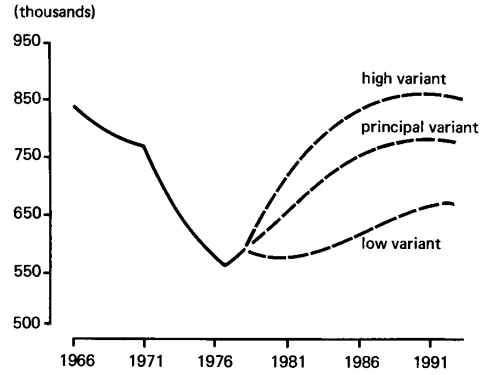
The national population has about 20 per cent children under 16 years, and 13 per cent people over 65 years. In the younger age groups there are slightly more males than females: the ratio of male to female births is 52:48. But in the older age groups, male deaths from heart disease and cancer lead to a preponderance of women (Figure 4). Of the elderly people over 75 years, women outnumber men two to one and at over 85 years by four to one.

**Figure 5** Actual and predicted population, United Kingdom 1950–2000




*Source:* Great Britain, Office of Population Censuses and Surveys. Population projections. London, HM Stationery Office, annually. (Series PP2)

**Figure 6** Actual and predicted total live births, England and Wales 1978-based




*Source:* Britton M. Birth intervals. Population Trends, vol 18. Winter, 1979. pp 8–16 (figure 6).

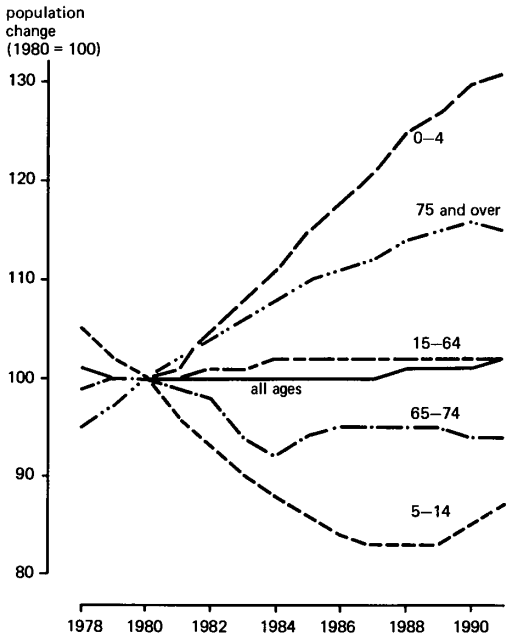
Population projections are of considerable importance for planning health services, but they must be treated with caution. Figure 5 shows some projections based on trends at different times over the past 30 years. Neither the rising birth rate in the late 1950s, nor the fall since the mid-1960s, was predicted.

The Office of Population Censuses and Surveys (OPCS) now offers a number of projection variants, depending upon different possible birth rates (Figure 6). If the family size does not fall below its present level, the recent upturn in the birth rate will continue in the 1980s, because the children of the high fertility of the early 1960s will be coming into their reproductive age. But any changes in the age of starting a family, or spacing of children, will markedly affect this rate of increase.[2]

The population structure of the older age groups is easier to predict. The numbers of people over 75 years

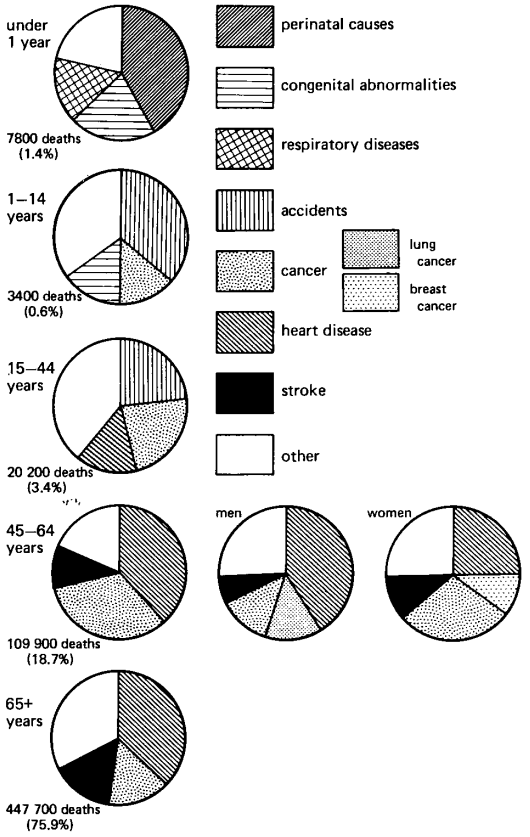
and over 85 years will continue to increase for some years (Figure 7), so geriatric services will be a continuing priority.[3] It has been asked whether a low birth rate will throw a heavier burden upon individuals of working age to look after the elderly.[4] However, the trend of working adults to live apart from their parents, sometimes a long distance away, probably has more significance for the health and social services than changes in population structure.

**Figure 7** Population change by age groups, England 1980-based projections




*Source:* Great Britain, Office of Population Censuses and Surveys. Population projections 1978–2018 (table 1c). London, HM Stationery Office, 1980. (Series PP2 no 10)

**Figure 8** Main causes of death by age groups, England and Wales 1978




*Source:* Great Britain, Office of Population Censuses and Surveys. Mortality statistics 1978: cause. London, HM Stationery Office, 1980. (Series DH 2 no 5)

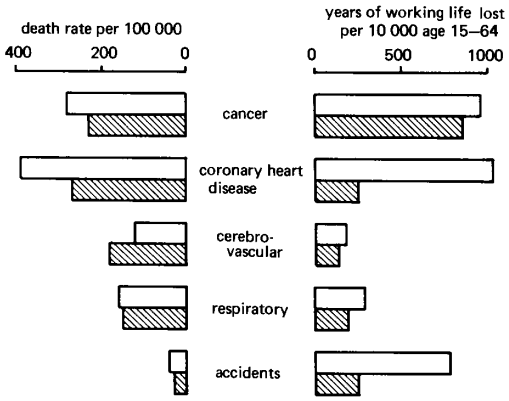
## Death, disability and disease

Almost one quarter of all deaths occur before the age of 65 (Figure 8). The major causes are heart disease and

cancer. Over 65, these two causes are joined by cerebrovascular disease. Accidents are the leading cause of death in children over one year, and in young adults. These numbers assume a greater importance when considered as the years of life lost (Figure 9).

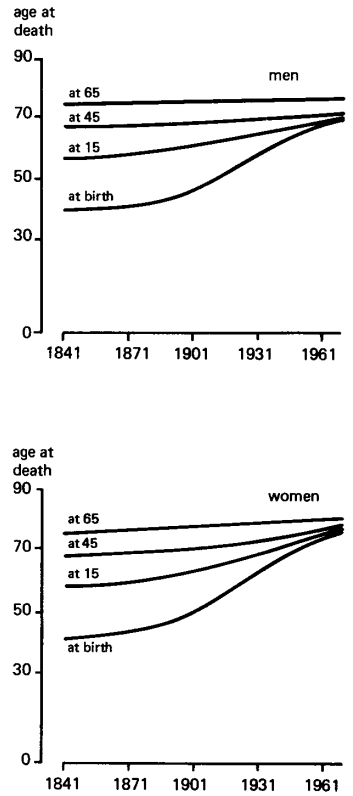
Most deaths in Victorian times were of young children, and were usually due to infectious diseases. McKeown[5] has shown that social and environmental improvements, related to the public health movement and rising standards of living, were the primary causes of the fall in death rates, rather than direct medical services. During the past 30 years, health services have contributed to reducing disability and sometimes to cure.[6] But the expectation of life at middle age has not changed substantially (Figure 10). The major causes of death and disability in adults now are chronic diseases, and the primary solution to these is still through prevention.[7]

**Figure 9** Death rates and working life lost for major causes, England and Wales 1977




*Source:* Great Britain, Offices of Population Censuses and Surveys. Mortality statistics (table 24). London, HM Stationery Office, 1980. (Series DH1 no 6)

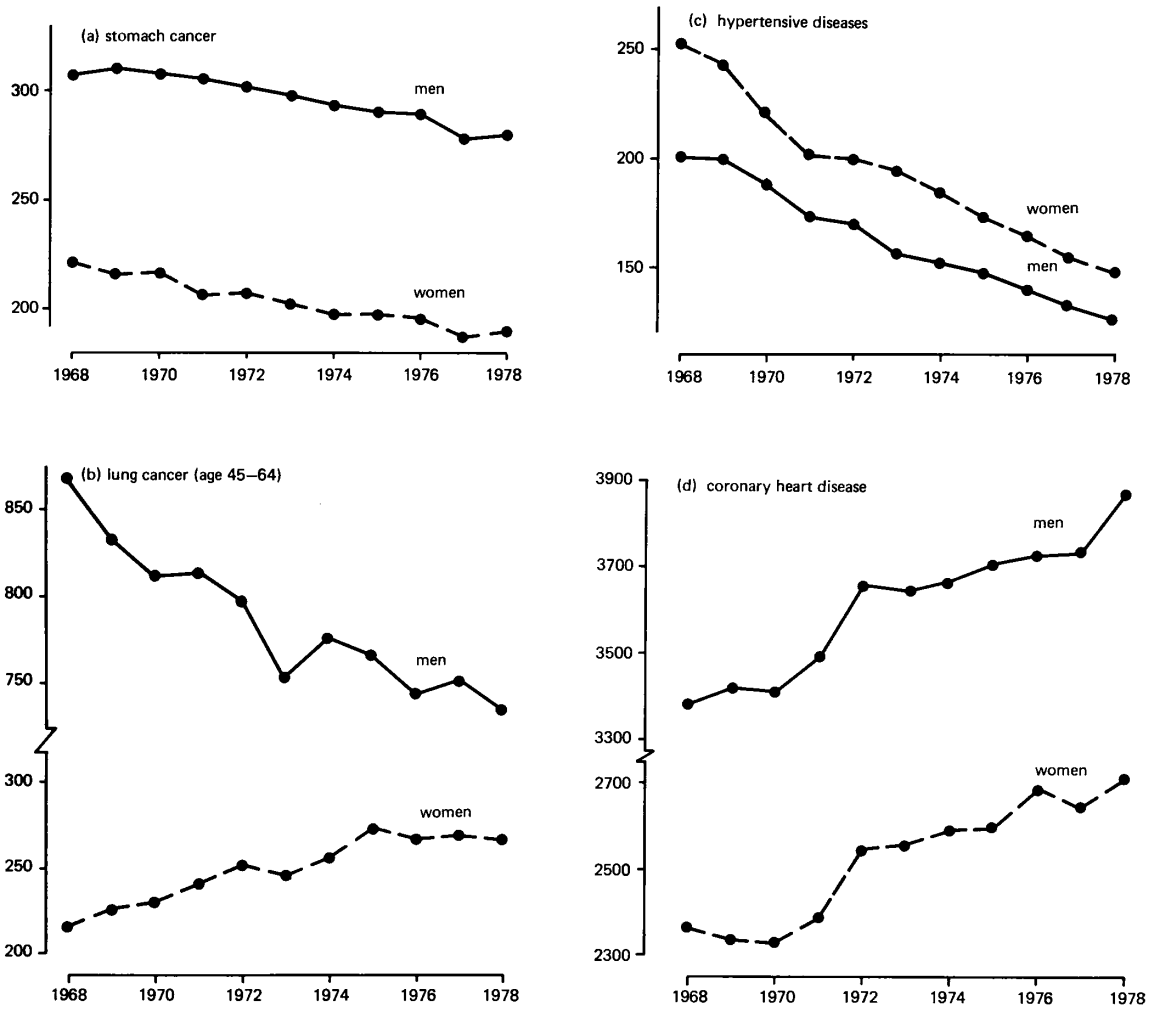
**Figure 10** Expected age of death at various ages of life, England and Wales 1841–1971



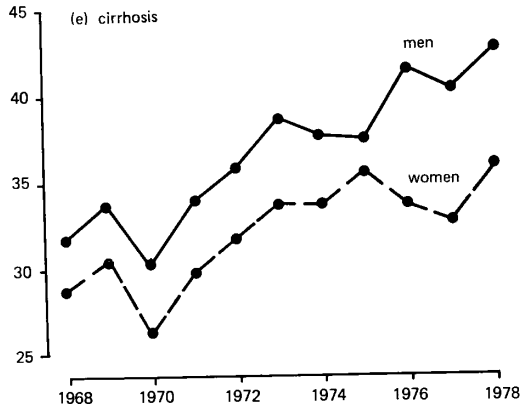

*Source:* Great Britain, Office of Population Censuses and Surveys. Trends in mortality 1951–75 (figure 1.2). London, HM Stationery Office, 1978. (Series DH1 no 3)

Between 1968 and 1978 there were changes in mortality for several conditions (Figure 11). Stomach cancer, bronchitis and hypertensive diseases decreased; coronary heart disease and cirrhosis rose; and lung cancer fell in middle age men but rose in women.

**Figure 11** Changes in mortality for selected causes, England and Wales 1968–78 (death rates per million population)




*Source:* Great Britain, Office of Population Censuses and Surveys. Mortality statistics (table 13). London, HM Stationery Office, annually. (Series DH1)


(e) cirrhosis
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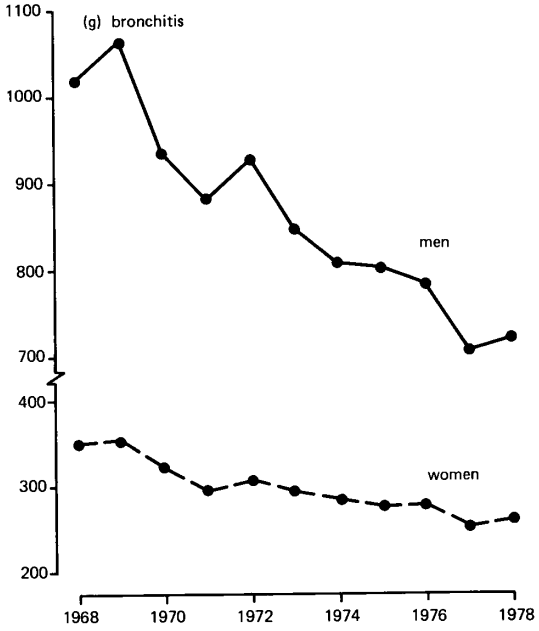
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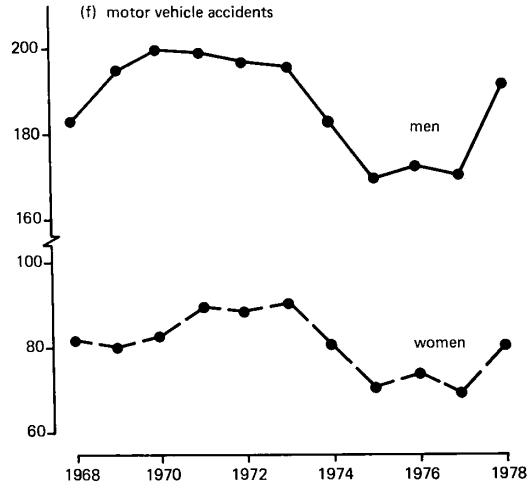
(f) motor vehicle accidents
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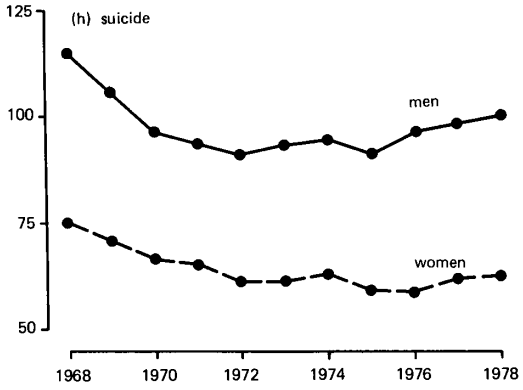
(h) suicide
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100
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50
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women
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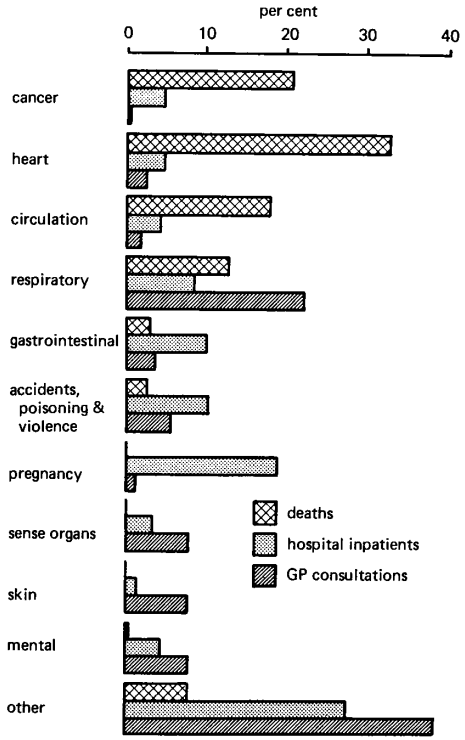
1970
1972
1974
1976
1978

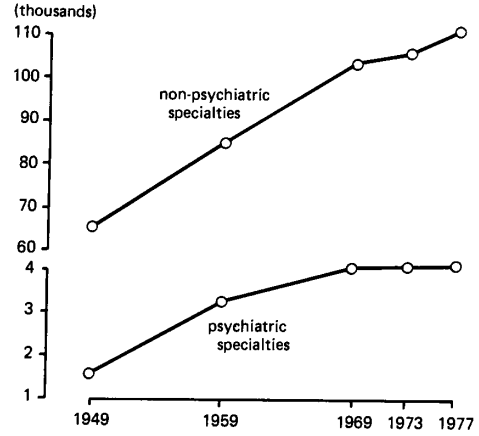
Figure 12 compares the recorded diagnoses for deaths, hospital admissions and general practice consultations, and shows the importance of cancer, heart disease and

**Figure 12** Disease groups in the spectrum of medical care, England and Wales 1971



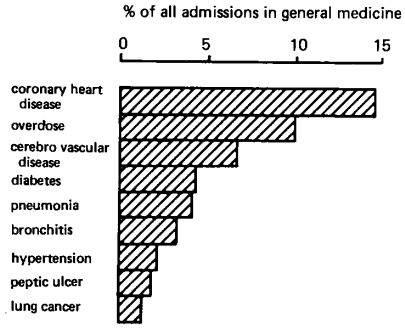

*Sources:* Great Britain, Office of Population Censuses and Surveys. Registrar General's statistical review, England and Wales 1971 (part 1(a)). London, HM Stationery Office, 1973. *and* Great Britain, Office of Population Censuses and Surveys. Report on hospital inpatient enquiry, 1971. London, HM Stationery Office, 1973. *and* Great Britain, Office of Population Censuses and Surveys. Morbidity statistics from general practice. Second national study 1970–71. London, HM Stationery Office, 1974. (Series SMPS no 26)

**Figure 13** Hospital discharges and deaths, England 1949–77




*Source:* Great Britain, Department of Health and Social Security. Health and personal social services statistics for England, 1978. London, HM Stationery Office, 1980.

**Figure 14** Main causes of general medical hospital admissions, England and Wales 1976



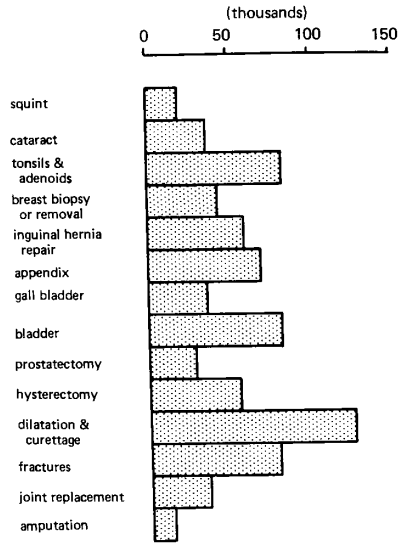

*Source:* Great Britain, Department of Health and Social Security. Hospital inpatient enquiry 1976 (table 12a). London, HM Stationery Office, 1980.

cerebrovascular disease as causes of death, whilst medical care is directed towards other conditions.

More people are admitted to general hospitals each year, but the rise in mental illness admissions before the 1970s has levelled off (Figure 13). Some of the common conditions for admission to medical wards are shown in Figure 14, and for surgical operations in Figure 15. Substantial numbers of people undergo surgery during their lifetime (Figure 16). There have been quite large changes in the numbers of admissions for some conditions in recent years (Table 1).

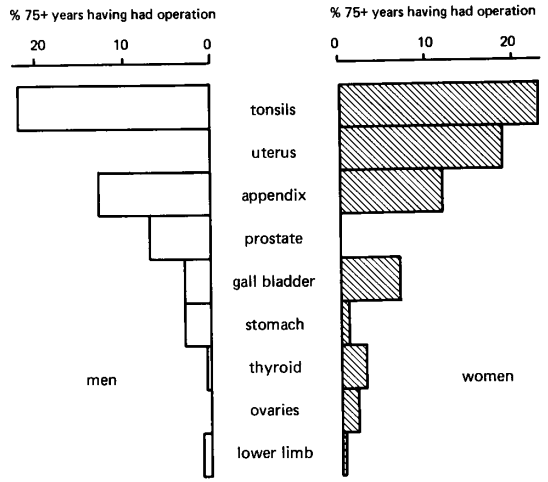
Three out of four people visit their general practitioner

**Figure 15** Common surgical operations, England and Wales 1978




*Source:* Great Britain, Department of Health and Social Security. Hospital inpatient enquiry 1978, preliminary tables (table 9). London, HM Stationery Office, 1980. (Series MB4 no 11)

**Figure 16** Likelihood of having undergone an operation by age 75: nine common operations for removal of organs




*Source:* Acheson E D and Fairbairn A S. Extent of organ removal: its importance and measurement. In Davies A M, ed. Uses of epidemiology in planning and health services. Belgrade, International Epidemiological Association, 1973.

in a year, with an average of four visits each. Figure 17 shows the conditions recorded in the second national morbidity study (Chapter 32), although many consultations in general practice are for poorly defined symptoms that cannot readily be put in a strict disease classification. Similarly, the diagnoses on certificates for sickness absence (Figure 18, page 24) give only a broad view of common illnesses in the employed population.

Descriptions of the conditions causing disability come from surveys of self-reported illness. Arthritis and heart disease are most frequent (Figure 19, page 24). The rates of reporting cancer are low, in part because patients are reluctant to talk about cancer. Most disabled people are

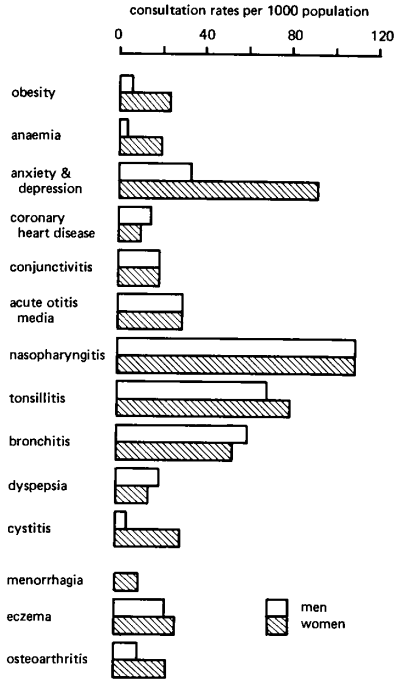
over 65 years, and the continuing rise in the proportion of very elderly people in the population means that the absolute number of disabled people is still increasing.

**Table 1** Changes in hospital discharges and deaths for selected conditions, England and Wales 1967–76

| *Condition* | *1967* | *1976* | *% change* |
|---|---|---|---|
| *Medical* | | | |
| tuberculosis | 26 900 | 16 400 | −39 |
| thyroid | 16 400 | 11 800 | −28 |
| diabetes | 38 700 | 53 800 | +39 |
| rheumatic heart disease | 22 300 | 17 400 | −22 |
| acute myocardial infarction | 71 600 | 93 700 | +31 |
| cerebrovascular disease | 85 900 | 107 000 | +25 |
| leukaemia | 7 400 | 11 800 | +59 |
| arthritis | 48 300 | 71 100 | +47 |
| overdose | 57 200 | 108 200 | +89 |
| *Surgical* | | | |
| appendicitis | 111 300 | 80 000 | −28 |
| gallstones | 44 600 | 61 000 | +37 |
| abdominal pain | 54 600 | 110 300 | +102 |
| head injury | 92 800 | 128 800 | +39 |
| breast cancer | 30 400 | 38 700 | +27 |
| uterine prolapse | 41 100 | 25 400 | −38 |
| uterine fibroid | 46 800 | 33 900 | −28 |
| All conditions | 4 605 000 | 5 209 000 | +13 |

*Source:* Great Britain, Department of Health and Social Security. Hospital inpatient enquiry: main tables 1976 (table 3). London, HM Stationery Office, 1980. (Series MB4 no 7)

**Figure 17** Common conditions in general practice



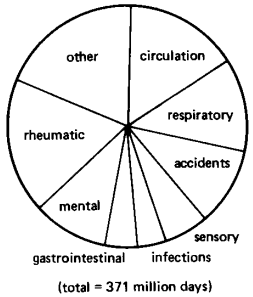

*Source:* Great Britain, Office of Population Censuses and Surveys. Morbidity statistics from general practice. Second national study 1970–71 (table 10). London, HM Stationery Office, 1974. (Studies on medical and population subjects no 26)

## Reading

Kennedy I. The unmasking of medicine: London, George Allen and Unwin, 1981.

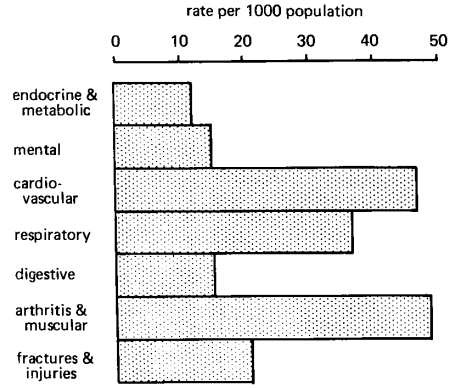
Great Britain, Department of Health and Social Security. Prevention and health — everybody's business. London, HM Stationery Office, 1976.

**Figure 18** Certified conditions for sickness and invalidity benefit, England 1978–79




*Source:* Great Britain, Department of Health and Social Security. Social security statistics for England. London, HM Stationery Office, 1980.

**Figure 19** Main conditions reported by people with chronic illness, Great Britain 1971




*Source:* Great Britain, Office of Population Censuses and Surveys. General household survey: introductory report (table 8.11). London, HM Stationery Office, 1973.

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1 Health and Safety Commission. Prevention and health. Occupational health services: the way ahead. London, HM Stationery Office, 1977.

2 Editorial. Population Trends, no 14. Winter, 1978. pp 1–7.

3 Great Britain, Department of Health and Social Security. The way forward. London, HM Stationery Office, 1977.

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5 McKeown T. The role of medicine: dream, mirage or nemesis? London, Nuffield Provincial Hospitals Trust, 1976.

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7 Great Britain, Department of Health and Social Security. Prevention and health: everybody's business. London, HM Stationery Office, 1976.

# Section 2

# Medicine and Surgery

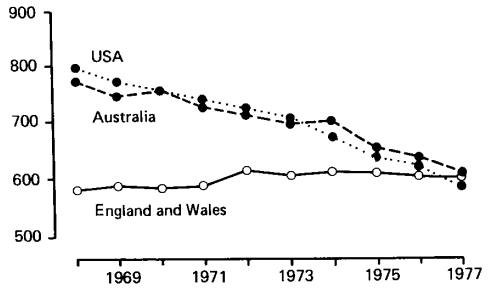
# 3 Cardiovascular diseases

## CORONARY HEART DISEASE

### Epidemiology

Coronary heart disease accounts for 40 per cent of deaths in men aged 45–64, and 10 per cent of deaths in women in the same age group. Death rates are higher in the north and west of Britain than in the south and east, and higher in working class than middle class men.[1] Death rates for coronary heart disease rose in the decades up to the 1970s[2,3] but have now levelled off. However, in several other western countries — including Finland, France, Canada, Australia and the United States — death rates in the last decade have been falling (Figure 20).[4]

**Figure 20** Coronary heart disease mortality in men age 35–74. USA, Australia and England and Wales 1968–77 (age-standardised rates per 100 000)




*Source:* Marmot M G, Booth M and Beral V. Changes in heart disease mortality in England and Wales and other countries. Health Trends, vol 13, no 2. May, 1981. pp 33–38.

**Table 2** Prevalence of heart attacks

*a Age-specific annual attack rates in East London[1] (per 100 000)*

| | *Men* | | *Women* | |
|---|---|---|---|---|
| | *25–44* | *45–64* | *25–44* | *45–64* |
| attack rate (definite and possible) | 160 | 1000 | 20 | 270 |
| fatality | 50 | 400 | 10 | 130 |

('definite' acute myocardial infarction rates are about 70% of above)

*b Annual heart attack rates in men in three towns (per 100 000)*

| | |
|---|---|
| Edinburgh[1] | 1550 |
| London[2] | 1000 |
| Oxford[3] | 650 |

[1]Armstrong A, Duncan B, Oliver M F and others. Natural history of acute coronary heart attacks: a community study. British Heart Journal, vol 34, no 1. January, 1972. pp 67–80.
[2]Pedoe H T, Clayton D, Morris J N and others. Coronary heart attacks in East London. Lancet, vol 1, no 7940. 1 November, 1975. pp 833–838.
[3]Kinlen L J. Incidence and presentation of myocardial infarction in an English community. British Heart Journal, vol 35, no 6. June, 1973. pp 616–622.

Community-based registers give a fuller picture of the extent of coronary heart disease than hospital admissions[5] (Table 2). Of 100 patients experiencing a heart attack, 40 per cent will die within 28 days, and more than half of these will be sudden deaths, for which no intervention is possible. Only 70 of the 100 patients will go to hospital, where ten will die and two will survive because of cardiac resuscitation.

Some of the factors that contribute to coronary heart disease are[1,6,7]

**Smoking** People who smoke heavily (over 40 cigarettes a

day) are up to four times as likely to die from coronary heart disease as people who do not. For moderate smokers, the risk is increased to 1½ to 2½ times.[8,9] If smokers stop smoking, the risk falls to that of non-smokers.

**Raised blood pressure** Hypertension contributes to coronary heart disease risk, although controlling the blood pressure may not reduce this risk because of the long-term strain that hypertension has already put on the heart.

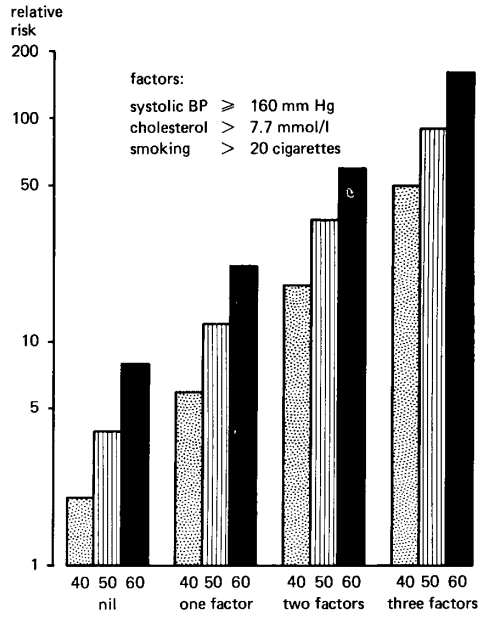
**Fat** There is a clear increased risk of heart attack and death in people with raised blood cholesterol. Populations with diets low in animal fats generally have low coronary heart disease rates, although prospective studies in developed countries have failed to show any association between individual fat intake and individual cholesterol levels. Two primary prevention trials[10,11] have shown a reduction in coronary heart disease after low-fat diets. The Royal College of Physicians has recommended a lower intake of animal fats[1] which should be part of broader changes in national diet.[12] Nevertheless, there is still conflicting evidence[13], and the effects of national dietary changes need to be observed closely.

**Lack of exercise** The low prevalence of heart attacks among athletes, and longitudinal studies of busmen and civil servants, have suggested a protective benefit from regular vigorous exercise in work or leisure activities.[14,15]

**Stress** Perhaps because stress is extremely difficult to define and to validate there is little evidence to support the common belief that chronic stress causes heart attacks.[16] Acute stresses or life events, such as death of a spouse or loss of employment, may be precipitating factors.

**Overweight** On its own, this factor seems to have little effect in increasing risk, but the dietary changes needed to lose weight are likely to be beneficial.

**Figure 21** Cumulative risk factors for coronary heart disease in men at three ages (log scale)




*Source:* Khosla T, Newcombe R G and Campbell H. Who is at risk of a coronary? British Medical Journal, vol 1, no 6057. 5 February, 1977, pp 341–344.

**Carbohydrate** No clear effect of refined sugar has been demonstrated, but a high carbohydrate intake (associated with exercise and dietary fibre) may be beneficial.[17]

**Alcohol** Countries with high wine consumption appear to be relatively protected against coronary disease.[18] Some recent studies have also suggested that modest intake of alcohol also has a protective effect at an individual level.[19]

All these factors interact. An assessment of the absolute risk for an individual can be made by using age, cholesterol, blood pressure and smoking habits (Figure 21).

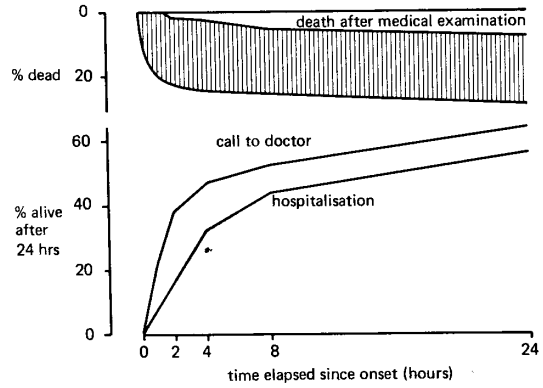
### Prevention

It is easier to discuss preventable factors than to mount programmes of coronary heart disease prevention.[1,20] Screening for high risk individuals has no benefit unless positive intervention is also provided.[21] Programmes for prevention should be aimed at changing people's habits through government measures and educational programmes and individually by general practitioners.[22] The best results are likely to come through changing several factors together — for example, smoking, diet, exercise and blood pressure.[23]

Programmes for community control of coronary heart disease are in progress in other countries. The extremely high rate of CHD in North Karelia, Finland, has led to an intervention study with active participation by the whole community.[24,25] In San Francisco, a mass educational programme, supported by direct face-to-face counselling, has been successful in lowering CHD risk factors.[26] And the World Health Organization is undertaking an intervention study in industry in four European countries.[27,28]

Prevention of recurrence of heart attacks is also possible. Oddly, most of the usual risk factors for coronary artery disease — hypertension, cholesterol, obesity and diabetes — are not predictors of reinfarction.[29] Only cigarette smoking remains a high risk factor. Prevention by various drugs is under trial[30], and exercise makes people feel better; but stopping smoking is the single most effective action, and halves the likelihood of subsequent death.[31,32]

**Figure 22** Hospitalisation and mortality after a heart attack




*Source:* World Health Organization, European Office. Coronary heart disease registers (figure 22). Copenhagen, World Health Organization, 1978. (Public health in Europe no 5)

### Services

**Medical** The natural history of heart attacks leaves little opportunity for medical intervention.[33] Death has occurred in about a third of attacks before a doctor can attend the patient (Figure 22).[34] Expert care can be brought to patients more immediately by training ambulance drivers[35] or a mobile team in a special van[36], but the results are of marginal benefit[37], especially because some calls turn out to be for complaints other than heart attacks.

After initial enthusiastic reports, there is still doubt about the benefit to be gained from coronary care units, when compared with admission to a general ward in which modern methods of coronary resuscitation are practised.[38-42] The potential benefit of intensive coronary care is to enable treatment of electrical rhythm disturbances by drugs or defibrillation. However, it is the size of the infarct that most affects mortality. Many deaths

occur because the attack has left the heart muscle too weak to pump properly, and there is no satisfactory treatment for 'cardiac shock' from this cause.

Randomised trials have compared the outcome of treatment at home with hospital care.[43-45] There seems to be no evidence of medical benefit from hospitalisation for the majority of patients — the journey itself may upset the heart[46] — but skilled nursing care in hospital for shocked or seriously ill patients may be preferred by general practitioners. Equally, in uncomplicated heart attacks, there seems to be no benefit from bed rest nor from special rehabilitative regimes, although patients benefit from discussion on whether and how to adjust their lifestyle.[47]

**Surgical** Artificial pacemakers are used to replace the heart's own system when there is a block in electrical conduction. Mortality associated with the operation is low, and there may be considerable improvement in the patient's physical or mental capacity, although the criteria for insertion are not fully defined.[48] The frequency of heart block increases with age, and the average age for insertion of a pacemaker is around 70 years.

Temporary pacemakers are inserted by a wire passed from an arm vein to the heart, but permanent pacemakers are placed within the chest wall. Several different makes exist. Experience is still being gained on how long the pacemaker continues to work. Lithium-iodide-powered pacemakers last much longer (probably up to eight years) than conventional technitium devices (about two years) but are twice as expensive.[49]

Open-heart surgery started in the 1950s after development of the heart-lung machine. The operations were developed for rheumatic heart disease, and gave much benefit to patients who were previously chair or bed-bound through heart failure, despite full drug treatment. However, the prevalence of rheumatic heart disease has been falling in developed countries due to control of rheumatic fever. In the 1960s, diagnosis and surgical treatment of congenital heart disease was developed. The aim has increasingly been for identification and correction in childhood, often now in the neonatal period.

In the past ten years, there has been rapid growth in surgery for coronary artery disease. A vein is taken from the patient's leg and sewn into the heart wall to replace the diseased section of the coronary artery. Heart surgery is very expensive, requiring highly trained surgeons, dedicated theatre teams, postoperative care units, heart-lung machines and specialised arrangements for anaesthetics and radiology. A rather larger number of patients have diagnostic cardiac investigations (catheterisation and radiology) than proceed to surgery, but it is safer for these also to be performed in the same surgical centre. On the other hand, it has not been shown that there is any disadvantage for a well equipped and staffed chest surgery hospital to be separate from a general hospital, as many are in Britain.

Fry[50] has estimated that between 50 and 100 patients per million population will need to be referred to a cardiac centre annually for investigation: fewer would receive an operation. An estimate of 150 per million has been made by a group of European surgeons.[51,52] Yet in the United States there are currently well over 500 operations per million population.[53]

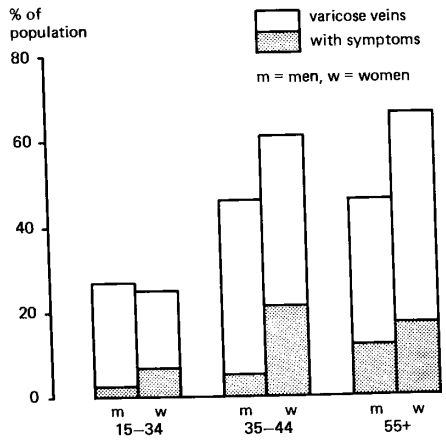
Coronary artery surgery can improve severe angina when medical therapy is ineffective[54,55], although the precise mechanism remains open to speculation, and includes some psychological effect.[56] Uncontrolled studies have shown that there is usually an improvement in work capacity and quality of life after operation.[57,58] The duration of improvement is not known. Coronary artery surgery can also reduce mortality, but only for some patients with particular sorts of coronary disease.[59,60]

Severe angina does not necessarily lead to a heart attack, and most heart attacks are not preceded by severe angina.[61] Since angina usually responds to drugs, coronary artery surgery will benefit only a small proportion of all people at risk from coronary heart disease. Any surgical service must, therefore, be matched by extensive preventive and community services for the majority of people at risk.

## VASCULAR DISEASE

Arteriosclerosis reduces blood flow, and has effects in various ways: as coronary artery disease; as cerebrovascular disease; and in the limb arteries as peripheral vascular disease. The legs are usually affected more than the arms, giving symptoms of pain on exercise or, more severely, gradual death of the tissues of the foot or leg (gangrene).

**Figure 23** Prevalence of varicose veins in the general population for three age groups




*Source:* Weddell J M. Varicose veins pilot study, 1966. British Journal of Preventive and Social Medicine, vol 23, no 3. August, 1969. pp 179–186.

Smoking is the single greatest risk factor for peripheral vascular disease, although there have been few experiments to determine the benefit to be gained by stopping.[62]

Surgical grafts can improve flow in larger arteries,[63] but more severe disease may only be saved by amputation. Patients with peripheral vascular disease also carry a high risk of having a heart attack or stroke.

About one in ten adults have varicose veins; rather fewer experience symptoms (Figure 23). There are two methods of treatment. In a representative clinic, about 60 per cent of patients will need some form of surgery — that is, vein-stripping or ligation under general anaesthetic — whereas 40 per cent will be best treated as outpatients by injection-compression sclerotherapy.[64] A randomised controlled trial of the two methods showed little difference in outcome at three years[65], but longer follow-up suggests that each method has advantages which depend on the extent of vascular abnormality.[66] All operations for varicose veins can be performed in outpatient departments, with considerable saving of hospital beds.[67-69]

## HYPERTENSION

### Epidemiology

High blood pressure is a common, symptomless and treatable condition. It is not itself a disease, but a risk factor in causing stroke, heart attack, heart failure and renal failure.

Blood pressure is measured using a cuff and sphygmomanometer to occlude (systolic pressure) or just allow ordinary blood flow (diastolic pressure) in the main artery of the arm.[70] In the general population, diastolic blood pressures show a continuous range (Figure 24), and the definition of 'high' blood pressure

is a chosen cut-off level in this distribution. Diastolic pressure over 110 mm Hg can be termed severe or moderate hypertension, and pressures between 90 and 110 mm Hg mild hypertension.

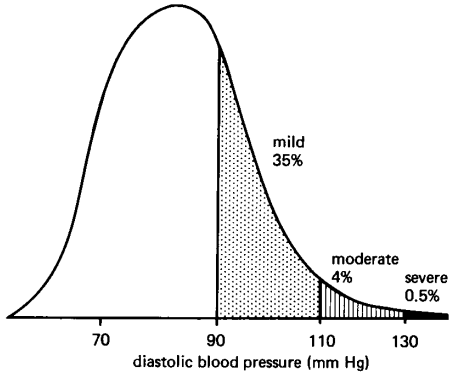
High blood pressure is more frequent at older ages[71] (Figure 25). Studies in America show that blacks are much more likely to have high blood pressure than whites, and they also have higher death rates from hypertension-related diseases, particularly strokes and heart failure.[72] On the other hand, although in Britain the death rates from these causes are higher in manual workers than middle class men, population studies have not shown social class gradients in blood pressure.[73] This paradox may be related to inequalities in case-finding and treatment.

## Prevention

The cause of high blood pressure is incompletely understood. Anthropological studies show that in some cultures average blood pressures do not rise with age. It has been suggested that salt added to the diet has a long-term effect, due to retained body fluid[74-76] but there is no evidence yet that a change in the population's diet would reduce blood pressure, and regimes for individual cases[77] have demanded such low amounts of salt that the food is made almost unpalatable. High alcohol intake has been suggested as responsible for a quarter of all cases of 'unexplained' hypertension, and the pressure returns to normal with abstinence.[78]

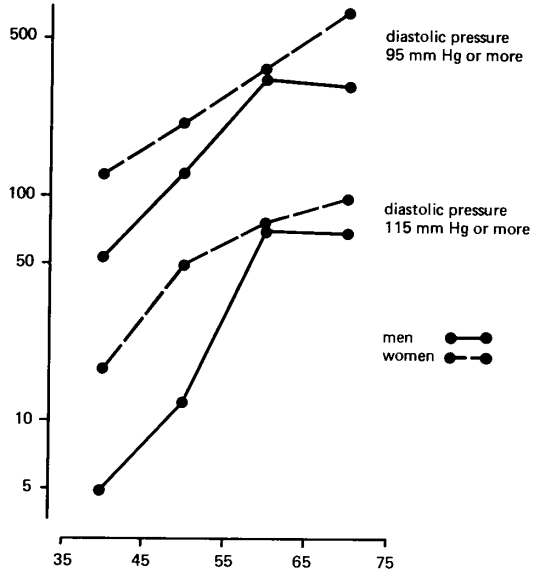
The efficacy of drug therapy for control of high blood

**Figure 24** Distribution of blood pressures in middle-age people




*Source:* Bannan L T, Beevers D G and Wright N. ABC of blood pressure reduction: the size of the problem. British Medical Journal, vol 281, no 6245. 4 October, 1980. pp 921–923.

**Figure 25** Prevalence of high blood pressure (age-specific rates per 1000, log scale)




*Source:* Rose G A. Screening for hypertension. Health Trends, vol 3, no 1. February, 1971. pp 2–4.

pressure for people under 65 is established[79-81], and adequate control leads to a reduced incidence of strokes, renal failure, and possibly also of heart attacks.[82,83] The value of treatment in mild hypertension is not yet established, but a large trial is in progress. A trial of effectiveness in the United States[84] is probably not applicable in the United Kingdom.[85]

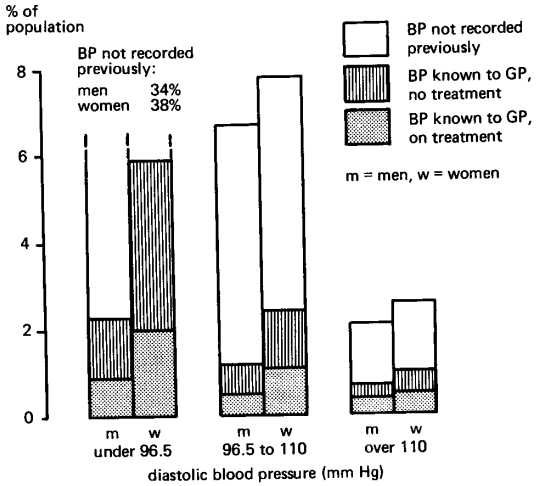
On these grounds, it is considered of value to initiate programmes of 'community control' of hypertension. The aim is to contact every member of the population with seriously raised blood pressure, and to offer treatment. Because the condition is symptomless, case-finding must be done by population screening. The most successful method is 'opportunist' screening in general practice, in which the blood pressure of every patient aged 35–64 is taken during consultation for whatever reason.[86,87] About two-thirds of patients on a GP's list come to consult annually, and about 90 per cent consult within a five-year period. Treatment is offered to those with serious or moderate high blood pressure, annual surveillance for those in the mild range and a recheck after five years for those whose pressures

**Table 3** Suggested frequency of re-screening for hypertension (from a longitudinal study of 1200 subjects in Wales 1954–71)

| *Diastolic pressure* | *Suggested re-screening interval* | |
|---|---|---|
| | *Men* | *Women* |
| <80mm Hg | 10–15 years if under age 45 | unnecessary within 15 years |
| 80–89 mm Hg | 10–15 years all ages | age <35 : 10–15 years<br>age 35–44 : 8 years<br>age 45+ : 4 years |
| 90–99 mm Hg | 4 years | 4 years |
| 100+ mm Hg | regularly | regularly |

*Source:* Miall W E and Chinn S. Screening for hypertension: some epidemiological observations. British Medical Journal, vol 3, no 5931. 7 September, 1974. pp 595–600.

**Figure 26** Blood pressures in people age 45–64, Glasgow




*Source:* Hawthorne V M. Multi-phasic screening in general practice. Lancet, vol 1, no 8072. 13 May, 1978. pp 1038–1039.

are normal[88] (Table 3). Case-finding and treatment of people with diastolic blood pressures of 110 mm Hg or more could halve their ten-year incidence of strokes, from 30 to 16 per cent.[89]

Screening is also possible in industry, if cooperation is gained from employment medical officers and trades union leaders. A mass screening clinic has been evaluated in Glasgow[90], but false-positives and the difficulty of follow-up give this method low cost-effectiveness.[91] New patients identified through screening require only limited medical investigation. Hypertension caused by kidney disease is found in less than 5 per cent of subjects[92], and can usually be controlled with drugs.

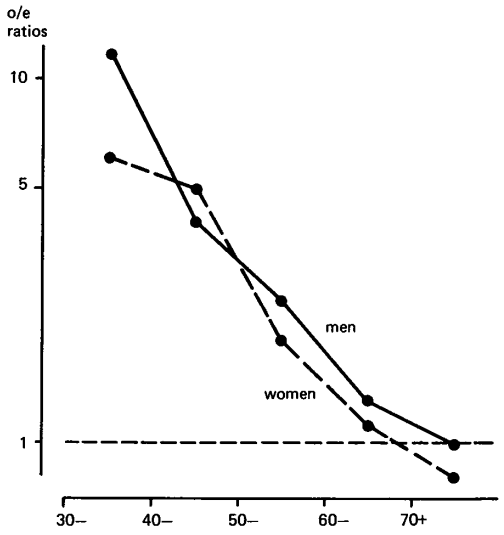
## Services

Studies of patients attending general practitioners or

hospital outpatient departments in London show that many have not had their blood pressure taken, and the control for those known to be hypertensive is sometimes inadequate.[93,94] A similar pattern was found in Glasgow (Figure 26). On the other hand, some treatment of hypertension at present is inappropriate, such as for people over 65[95] (Figure 27) or those with levels for which there is as yet no evidence of benefit.[96]

Once started, therapy may have to be maintained for life. Some patients stop taking their treatment because of the drug side-effects, such as drowsiness, impotence or depression.[97] Various strategies have been tried to raise the patients' compliance.[98–99] Other methods of blood pressure control — relaxation, losing weight or salt control — are valuable adjuncts to drug treatment, and may prove to be effective alternatives.

**Figure 27** Observed/expected death ratios in untreated hypertension by age groups (log scale)




*Source:* Fry J. Natural history of hypertension. A case for selective non-treatment. Lancet, vol 2, no 7878, 24 August, 1974. pp 431–433.

The general physician or cardiologist in hospital has a key role in encouraging general practitioners to perform opportunist screening. He may be a referral point for further investigation of patients who are refactory to normal treatment in primary care, but many of the patients attending hospital outpatient departments for blood pressure control could be seen by their GP or a trained nurse with equally good results.[100]. Shared care, using a 'cooperation card' can help improve the quality of care.[101]

## Reading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# 4 Respiratory diseases

## Epidemiology

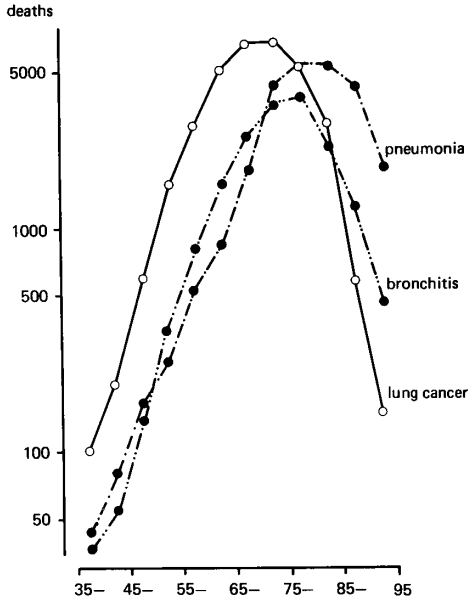
Viral infections of the upper respiratory tract are the commonest cause of consultation in general practice; and three respiratory illnesses, bronchitis, cancer of the lung, and pneumonia, are major causes of death in middle and older age (Figure 28).

Over a million people in England have bronchitis.[1] Children whose parents smoke have a greater tendency to bronchitis and pneumonia, and there is also a social class gradient.[2] However, by the age of 20, bronchitic symptoms in young adults are strongly related to personal smoking habits.[3] Occupational exposure to dust — from coal, coke, iron foundaries, asbestos, woodpulp or cotton — contribute to chronic bronchitis, and to air pollution. Progress in cleaner air, and earlier treatment has led to falling hospital admission rates (Figure 29). But the effect of industrial pollution is made much worse by personal smoking, which is the biggest single factor (Figure 30).

Lung cancer has risen from being rarely-diagnosed at the beginning of this century, to being now the commonest cancer of all, and the rise in smoking (Figure 31, page 40), has been reflected in mortality rates 20–30 years later.

Between 1972 and 1980, cigarette smoking declined among men, more in non-manual than manual workers (Figure 32, page 40), and deaths from lung cancer in men at most ages are now static or falling. However, lung cancer deaths continue to rise in women (Figure 33, page 41).

**Figure 28** Deaths from three respiratory diseases in men, England and Wales 1978 (log scale)




*Source:* Great Britain, Office of Population Censuses and Surveys. Mortality statistics: cause (table 2). London, HM Stationery Office, 1980. (Series DH2 no 5)

Pneumonia used to be a serious, life-threatening illness in young adults; it is now more frequently a complication of some other condition which lowers the body's resistance — for example, after a surgical operation or a stroke.

About 4 per cent of children have asthma[4,5], and it is quite common in elderly people.[6] Self-administered in-

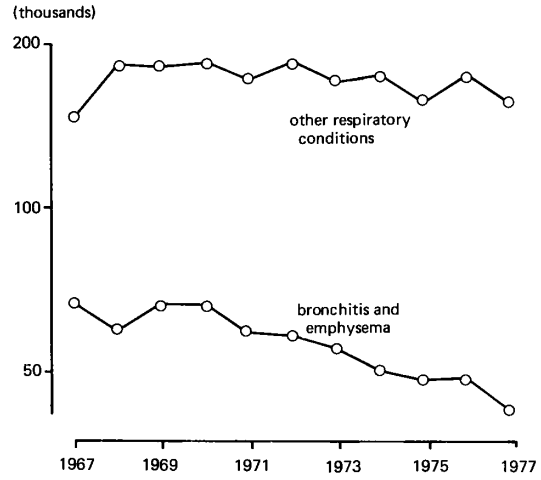
halation sprays were believed to have caused a number of deaths, particularly in younger people during the 1960s[7] (Figure 34, page 41), but machines which deliver a limited metered dose have overcome this misuse.

## Prevention

Each year about 27 000 people in Britain die before the age of 65 from smoking cigarettes, many of them after years of ill-health, and at least as many old men and women have their lives cut short for the same reason.[8]

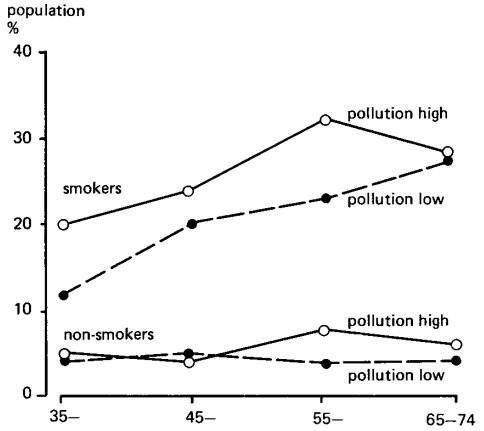
Smoking contributes to mortality in three mains ways: lung cancer, bronchitis and coronary heart disease. Other less common cancers associated with smoking include cancer of the mouth, throat, oesophagus and bladder.

**Figure 29** Hospital discharges and deaths for respiratory diseases, England and Wales 1967–77 (log scale)




*Source:* Great Britain, Office of Population Censuses and Surveys. Hospital inpatient enquiry (table 3). London, HM Stationery Office, annually. (Series MB4)

**Figure 30** Prevalence of persistent cough and phlegm in relation to smoking and air pollution




*Source:* Lambert P M, Reid D D. Smoking, air pollution and bronchitis in Great Britain. Lancet, vol 1, no 7652. 25 April, 1970. pp 853–857.

It has been estimated that each cigarette shortens the habitual smoker's life on average by about 5½ minutes. The proportion of men aged 35 who will die before reaching the age of retirement is 40 per cent for heavy smokers (25 or more cigarettes a day) compared with 15 per cent for non-smokers. However, after stopping smoking the risks fall to the same level as someone who has never smoked (Figure 35, page 42).

There are three approaches to smoking prevention.[9,10]

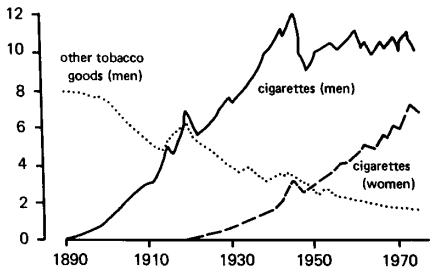
**Government** Progress to reduce smoking through government action has been slower in Britain than, for example, in Norway.[11] A health warning has been introduced in cigarette advertisements and packets, and there is a ban on advertising cigarettes on radio and television. Nevertheless, these measures have been taken with the agreement of the tobacco manufacturers,

and were therefore unlikely to have much effect on sales. The industry has strongly resisted firmer measures such as a complete ban on advertising, markedly increasing taxation, or controlling importation of tobacco.[12]

Considerable tax revenue comes from tobacco, but the same amount could be raised from higher taxation on less tobacco, or other goods could be taxed instead. It has been estimated that a realistic programme of tax increases, increased health education, and a ban on advertising could reduce smoking by 40 per cent.[13]

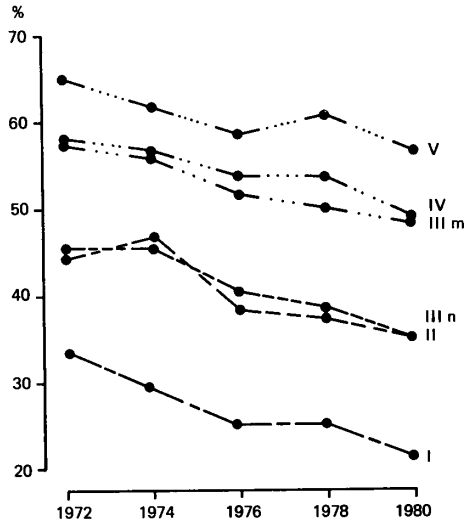
**Education** The Health Education Council has invested in a number of anti-smoking campaigns, using television and films. The amount spent annually on these is probably less than 1 per cent of that spent by the tobacco industry on promotion (estimated at over £80m in 1975).[13] Although evaluations shortly after HEC campaigns have shown little direct impact on smoking behaviour, except for the particularly successful campaigns to stop smoking in pregnancy, the primary concern is to generate a climate of awareness and support for further anti-smoking measures. HEC also produces fact sheets and posters to support local activity.

**Figure 31** Smoking habits in England 1890–1975 (cigarettes and grams of tobacco goods per adult per day)




*Source:* Royal College of Physicians. Smoking *or* health (fig. 1.1). London, Pitman Medical, 1977.

**Figure 32** Percentage of men smoking cigarettes by social class, Great Britain 1972–80




*Source:* Great Britain, Office of Population Censuses and Surveys. Monitor GHS 79/2. London, OPCS, 1981.

The Royal College of Physicians set up ASH (Action on Smoking and Health) as an education and pressure group after its first two reports on smoking.[14,15] ASH provides information and also seeks to influence the public and the government through television, radio and the press, parliamentary lobbying, and collaboration with anti-cancer and international organisations. ASH, therefore, aims to counteract the powerful pro-smoking interests.

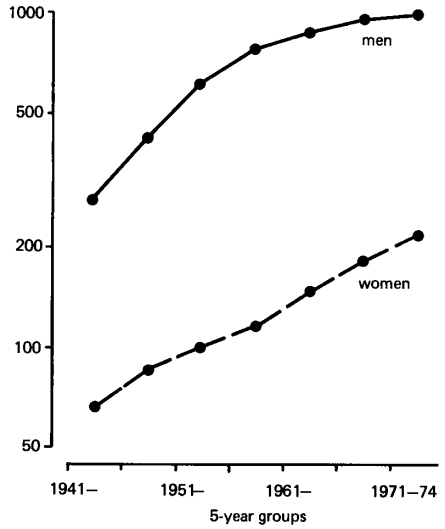
**Local** Change in smoking behaviour is most likely to occur through personal contact. Health visitors, doctors and health education officers can influence such groups as teachers, social workers, trades unions, mothers' clubs. Action can be coordinated through the com-

munity health department, health centres or local branches of ASH. Health authorities can ensure non-smoking areas, in hospitals and committee meetings, and can prevent the sale of cigarettes on the premises.[16] Several community health councils have run anti-smoking campaigns. Schools can be oriented towards smoking prevention.[17] Local police can be asked to enforce the laws against the sale of cigarettes to children. Cinemas and transport companies can be persuaded to increase their non-smoking areas.

About 50 stop-smoking clinics in Britain use individual or group counselling, and supportive measures such as acupuncture, hypnosis or nicotine chewing-gum. Their effectiveness usually reaches a six-month abstinence in 20 per cent of those people who complete a course.[18] Such clinics might also form the centre for more active publicity and preventive work locally.

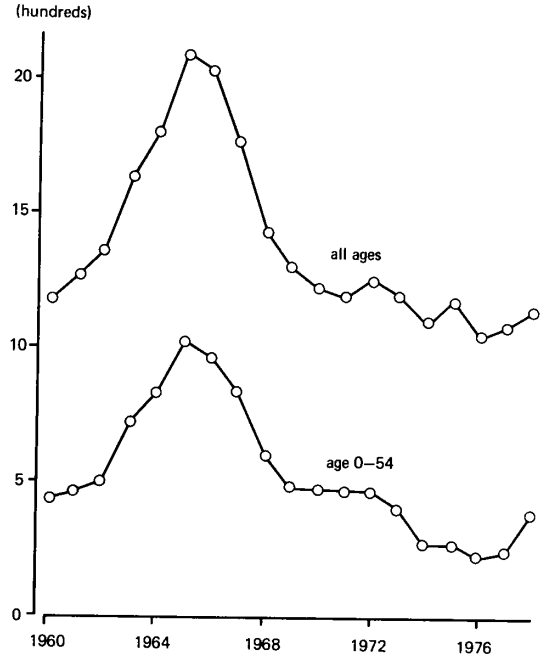
Perhaps the most successful intervention could be through general practitioners, who see two-thirds of their patients each year. Advice from general practitioners on a single occasion can lead to as many as 5 per cent of smokers giving up.[19] This would be an extremely cost-effective approach and, if implemented nationally,

**Figure 33** Standardised death rates for lung cancer, England and Wales 1941–74 (per 100 000 population, log scale)




*Source:* Great Britain, Office of Population Censuses and Surveys. Trends in mortality 1951–75 (appendix table B). London, HM Stationery Office, 1978. (Series DH1 no 3)

**Figure 34** Deaths from asthma, England and Wales 1960–78




*Source:* Great Britain, Office of Population Censuses and Surveys. Mortality statistics. London, HM Stationery Office, annually. (Series DH1)

would be as effective as 10 000 special smoking-cessation clinics at current levels of efficacy.

*Allergies*

Some milder forms of asthma in children are related to household dust formed by mites, and asthma attacks can be reduced by suitable precautions. A number of industrial occupations produce asthma-like symptoms (acute allergic alveolitis) which pass if the person's job is changed away from the allergising environment.[20] Hay fever, most frequent in May and June when pollens abound and the weather is more likely to be dry[21], can be prevented in part by desensitising injections during the previous winter.

**Services**

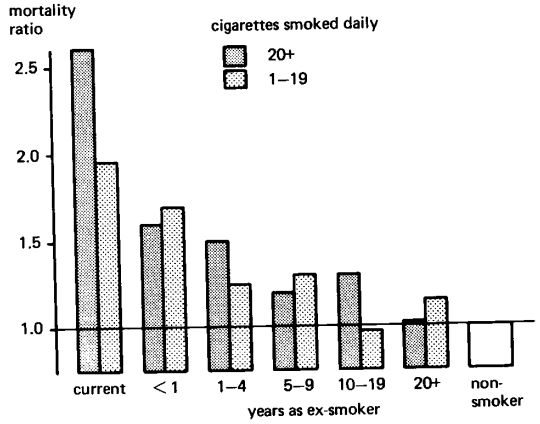
The reduction of deaths and hospital admissions for bronchitis has been attributed in part to early treatment with antibiotics. These drugs have also been markedly successful in treatment of pneumonia.

The prospects for treatment of lung cancer remain dismal. Five-year survival rates are less than 10 per cent. Few patients gain benefit, even from surgery or radiotherapy, except in relief of symptoms. Cytotoxic chemotherapy is under trial but at present only prolongs life by a few months on average, and has the disadvantage of unpleasant side-effects from the drugs.[22] Chemotherapy is, however, more effective for the rare 'small-cell' lung cancers.

Acute asthma is a potential emergency. There are still about 20 deaths per million under the age of 65 each year. Detailed studies of the case-histories of patients dying with asthma show many 'avoidable factors' of management.[23–26] Mortality has been much reduced by a special emergency admission service in Edinburgh.[27]

Chest clinics were set up as a public health measure for tuberculosis, to identify new cases, provide isolation for the infected, and regular follow-up. Management of tuberculosis by chemotherapy given in outpatients allows respiratory medicine now to be one service (in hospital and chest clinic), and chest hospitals need no longer be isolated from other hospital services (Chapter 16).

**Figure 35** Mortality ratios of cigarette smokers and ex-smokers compared with non-smokers




*Source:* Ball K and Turner R. Smoking and the heart: the basis for action. Lancet, vol 2, no 7884. 5 October 1974. pp 822–826.

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# 5 Gastro-intestinal diseases

## Epidemiology

Gastro-intestinal diseases are not often causes of death, but they are common causes of morbidity.[1] Some prevalence rates are shown in Table 4.

About a quarter of the population admit to some symptoms of indigestion or abdominal discomfort[2], although investigation demonstrates a cause in far fewer people. Anxiety or other psychological states often underlie presentation of abdominal symptoms such as 'irritable bowel' syndrome.

Peptic ulcers include gastric ulcers (of the stomach) and duodenal ulcers (of the early small intestine). Their specific cause is unclear, but they are related to acid secretion by the stomach, to diet, and to constitutional factors protecting the gut. Recognition of a true peptic ulcer, rather than indigestion, often awaits perforation, severe bleeding, or some other clinically specific event. Peptic ulcers are more common in men than women, and in older people.[3] They are more frequent in Scotland and the north of England than in the south. The overall prevalence seems to have been falling since the early decades of the century[4], but the social class gradient persists (Figure 36). Hospital admission rates are also falling.[5]

Chronic inflammatory diseases of both the small intestine (Crohn's disease) and large intestine (ulcerative colitis) are more common in young adults, but are found equally in both sexes and all social classes.

Diverticula of the large intestine are common in older people; a small proportion of people have complications of variable bowel habit, bleeding or infection, which are termed 'diverticular disease'.

**Table 4** Approximate prevalence of some gastrointestinal diseases

| *Condition* | *Frequency* | *Population* |
|---|---|---|
| dyspepsia[1] | 350 per 1000 | men and women age 15+ |
| peptic ulcer[2] | 58 per 1000<br>9 per 1000 | men age 15–64<br>women age 15–64 |
| Crohn's disease[3] | 9 per 1000 | total population |
| ulcerative colitis[3] | 80 per 100 000 | total population |
| diverticular disease[4] | 180 per 1000<br>300 per 1000 | men and women age 40–59<br>men and women age 60–79 |
| acute appendicitis[5] | 100 per 100 000 | total population |
| gall bladder disease[6] | 50 per 1000<br>140 per 1000 | men age 50–59<br>women age 50–59 |
| acute pancreatitis[7] | 5 per 1000 | total population |
| cirrhosis[8] | 15 per 100 000 | total population |

[1]Doll R, Jones F A and Bakatsch M M. Occupational factors in the aetiology of gastric and duodenal ulcers with an estimate of their incidence in the general population. London, HM Stationery Office, 1946. (Medical Research Council special report series no 276)
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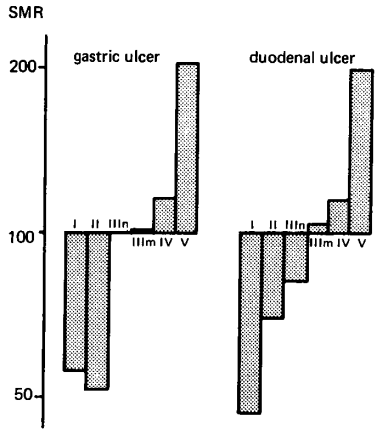
[8]Saunders J B, Walters J R F, Davies P and Paton A. A 20-year prospective study of cirrhosis. British Medical Journal, vol 282, no 6260. 24 January, 1981. pp 263–266.

Appendicectomy is the commonest emergency operation in England. Deaths and hospital discharges for appendicitis are all falling[6] (Figure 37) because surgeons are performing fewer non-acute appendicectomies and also because of diagnostic improvement in acute cases.[7] In other countries[8-10], large variations in appendicectomy rates have been related to economic factors such as the ability of patients to pay as well as surgical skills in diagnosis.

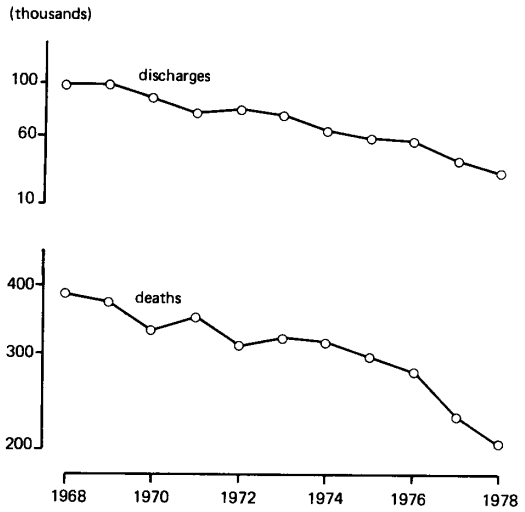
Surprisingly, considering the unmet demand indicated by long waiting times, there have been no population-based surveys in England to describe the prevalence of two common non-acute surgical conditions — inguinal hernia and piles. Figure 38 (page 46) shows the high prevalence of unoperated hernias in Israel.

**Figure 36** Mortality for peptic ulcer by social class in men age 16–64 (standardised mortality ratios, log scale)




*Source:* Great Britain, Office of Population Censuses and Surveys. Occupational mortality 1970–72. London, HM Stationery Office, 1978. (Series DS no 1)

**Figure 37** Hospital discharges and deaths for appendicitis, England and Wales 1968–78 (log scale)




*Sources:* Great Britain, Office of Population Censuses and Surveys. Hospital inpatient enquiry (table 3). London, HM Stationery Office, annually. (Series MB4) *and* Great Britain, Office of Population Censuses and Surveys. Mortality statistics (table 6). London, HM Stationery Office, annually. (Series DH1)

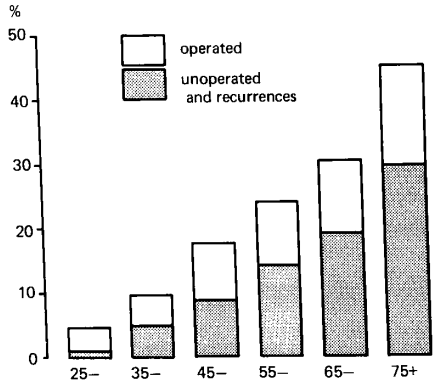
Gallstones are common in the adult population[11], more frequently in women, and are usually symptomless. They are formed from cholesterol and bile pigments after chronic infection of the gallbladder. Their prevalence does not seem to have changed in the past three decades, according to evidence from postmortem studies[12], but the number of cholecystectomies has increased steadily.[13,14]

Acute pancreatitis is a rare but severe condition, with a death rate of about one per 100 000 per year. Acute and chronic pancreatitis are associated with alcohol

consumption.[15] Similarly, cirrhosis is strongly related to alcoholism, though the majority of deaths from cirrhosis are not ascribed to a specific cause.[16] More than half of patients admitted to hospital with cirrhosis have drinking problems.[17] Cirrhosis is also a late consequence of hepatitis (viral infection of the liver). Infectious hepatitis is transmitted by ingestion, often water, and is a particular risk of foreign travel.[18] A less common form of hepatitis is partly related to medical procedures; it can be transmitted by transfusion, unsterile injections[19], tattooing and ear-piercing. Special care is therefore needed in medical care of a hepatitis carrier.[20]

Cancers of the stomach and large intestine cause one in 20 deaths, and account for a quarter of all deaths from cancer. The incidence of both cancers has been falling over the last 30 years. There are regional variations, with a lower incidence in the south and east of England. Scotland has the highest mortality of all countries for cancer of the large intestine.[21]

**Figure 38** Prevalence of inguinal hernia in men age over 25, Israel




*Source:* Abramson J H, Gofin J, Hopp C and others. The epidemiology of inguinal hernia: a survey in western Jerusalem. Journal of Epidemiology and Community, vol 32, no 1. March, 1978. pp 59–67.

Studies of migrants from Japan, where the incidence of stomach cancer is very high, to the United States, where the incidence is much lower, show that diet is an important determinant.[22] Nitrosamines, which are known to cause cancer experimentally, can be formed from many commonly occurring chemicals and food preservatives; for example, the nitrates and nitrites traditionally used as food preservatives and created by smoking meat. The change to preservation of food by refrigeration may be one factor in the falling incidence of stomach cancer.

**Prevention**

There has been extensive research into the social and environmental factors associated with peptic ulcer, particularly the suggestion that the stress of modern life is a cause. But the results are conflicting.[23]

There is much interest in dietary fibre which, until recently, was regarded as an inert residue after nutriments had been digested. Fibre is in itself a complex substance with many properties. The ability to retain water and form bulky faeces gives protection against constipation, irritable bowel and diverticular disease. It has an effect on fat absorption, and so may also be involved in preventing atherosclerosis.[24]

In English diets, fibre intake used to be quite high because people ate wholemeal bread and cereals. The change to refined white flour has probably had serious consequences to health. After working as a surgeon in East Africa, Burkitt collected evidence from surgical colleagues that appendicitis[25], hiatus hernia[26] and varicose veins[27] may all be more common in western countries, and suggests that this is because diets are low in fibre. However, we do not yet know whether changes in western diets will lead to a reduction in the prevalence of these conditions.

Alcohol is an important factor in several gastroentero-

logical diseases, including oesophageal cancer, peptic ulcer, gastritis, pancreatitis and cirrhosis. Damage to the pancreas and liver is often irreversible. Approaches to the control of alcoholism are discussed in Chapter 30.

Early diagnosis of intestinal cancer may be possible by testing for blood in the stools. However, the test requires a meat-free diet for a few days beforehand, and has yet to be shown to be an acceptable or effective method of population screening.

**Services**

Physicians and surgeons specialising in gastroenterology see similar patients, and there are probably advantages in facilities for joint management, particularly for acute conditions such as gastro-intestinal haemorrhage and ulcerative colitis.[28] Despite a variety of regimes, mortality for haemorrhage remains substantial in general hospitals. Fibreoptic endoscopy improves the diagnosis of the site of bleeding, compared with radiology, but has not affected mortality rates.[29-31] A routine service at a district general hospital requires the enthusiasm and continuous availability of an experienced consultant. Open-access for general practitioners[32], and an outpatient service[33], have been reported.

Medical treatment of peptic ulcer (rest, stopping smoking, and specific drugs) is now increasingly effective. Surgical treatment may be indicated for persistent ulcers or complications, but long-term follow-up is necessary because of nutritional problems arising from the surgery.[34] Crohn's disease and ulcerative colitis also need continuing specialist review in outpatients because of complications.[35]

Several studies now show that day, or short-stay, surgery is acceptable treatment for inguinal hernia.[36-38] The most crucial factors in preventing recurrence are the surgeon's method and technical skill.[39] The time off work after hernia repair was found in Oxford to average over seven weeks in one study, although two to three weeks would have been ample from a surgical viewpoint.[40]

Treatment of piles is generally for symptoms, which do not necessarily correlate with physical findings. The standard haemorrhoidectomy needs hospitalisation for ten days, and has a rather painful postoperative course. Lord[41] introduced the technique of anal dilation, which can be performed as day surgery, and this seems to be successful for the majority of patients[42,43], and they need less time off work.[44]

There are wide variations in cholecystectomy operation rates.[45] A simulation study of American practice suggested that a small gain in life-expectancy might be expected for elective surgery in young low-risk patients with gallstones, but there would be a loss for older patients.[46] An evaluation of operations for gallstones suggested that in about 10 per cent the stones are incompletely removed.[47]

Treatment of acute liver failure relies on empirical methods of support: no equivalent to chronic renal dialysis has been developed. The majority of liver problems can be assessed in general hospitals by a gastroenterologist; special facilities are needed for procedures such as liver transplants.[48,49]

For stomach cancer, 18 per cent survive one year after diagnosis and 7 per cent survive five years. For cancer of the large intestine, 50 per cent survive one year and 30 per cent five years. These rates have hardly changed over the past decades. Surgery is the main form of treatment, but claims of improved survival for different surgical procedures are not based on prospective randomised trials.[50] Radiotherapy is useful as an adjunct, before or after surgery, but rarely as primary treatment. Trials are also needed to assess the place of drug therapy.

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# 6 Accidents and suicide

## ACCIDENTS

### Epidemiology

On average, 50 people die through accidents or suicide each day.[1] Deaths from road accidents, suicide and falls have their peak prevalence at different ages (Figure 39). Fatal accidents are investigated by the coroner, and the place of the accident is recorded. The main places of death are on the roads and at home or in residential institutions.

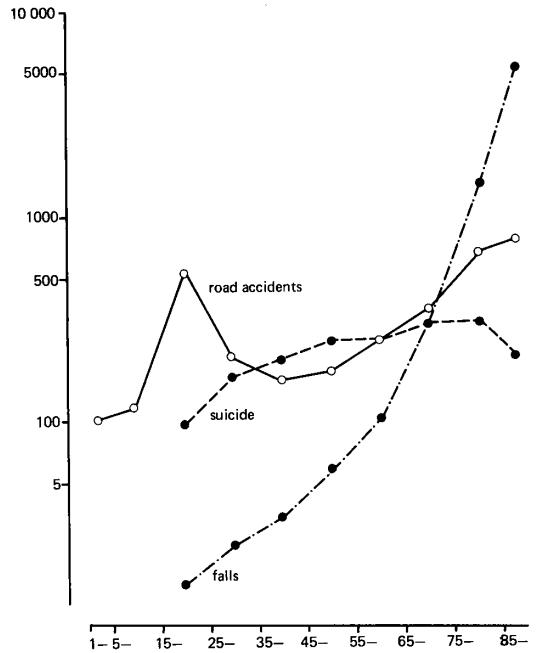
Motor vehicles are the most frequent cause of road accident deaths (Figure 40), but pedal and motorcycles are more dangerous in proportion to the number of people using these forms of transport. Road accident deaths are lower in Britain than most other countries[2]; the figures relate not only to road safety design but also to styles of driving in different cultures.

Home accident deaths show peaks for very young children and elderly people.[3] Poisoning or suffocation are common causes of death of children at home, but falls account for 40 per cent of adult deaths.

The total number of non-fatal accidents is not known. For every fatality from road accidents there have been estimated to be 13 inpatients and 38 people attending as casualties.[4] Hospital admissions for fractures, dislocations and sprains number about four per thousand. Another 2.5 per thousand are admitted for head injuries without fracture (Chapter 11) and burns.

The Home Accident Surveillance System collects continuous information from 20 hospital accident departments to identify the sorts of products associated with domestic injuries.[5]

**Figure 39** Accidents and suicide deaths, England and Wales 1978 (age-specific rates per million, log scale)




*Source:* Great Britain, Office of Population Censuses and Surveys. Mortality statistics: cause 1978 (table 3). London, HM Stationery Office, 1980. (Series DH2 no 5)

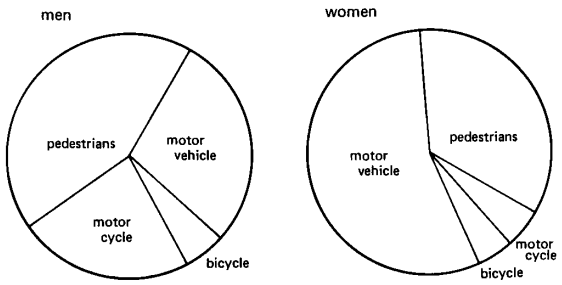
## Prevention

**Road accidents** Prevention can aim at the environment, the vehicle or the driver. Lighting, road-layout and surface and pedestrian crossings all contribute to reducing accidents. Many local authorities employ a road safety officer who is responsible for advising the highways department. Vehicle design features to reduce accidents include non-splintering glass, and better design of the rear-overhang of lorries.

Only one-third of drivers wear seatbelts at present.[6] Legislation to make wearing compulsory could, it is estimated, save 500 deaths and 9000 severe injuries, and release 100 000 hospital bed-nights each year.[7,8] Public education of road hazards and good practices is undertaken in the Highway Code, and through the Royal Society for Prevention of Accidents.

Alcohol is an important contributory factor in road accidents.[9] Introduction of breath tests in 1968 gave a significant reduction in accidents; but one in three drivers dying within twelve hours of an accident still has a blood alcohol level above the limit of 80 mg per cent.[10] Other diseases in drivers contribute less than 1 per cent to all fatal accidents, so compulsory medical examinations would have little impact on the total problem.[11]

**Figure 40** Agent involved in road accident deaths, England and Wales 1978




*Source:* Great Britain, Office of Population Censuses and Surveys. Mortality statistics: accidents and violence (table 7). London, HM Stationery Office, 1980. (Series DH4)

**Domestic accidents** Less research has been invested to understand the many and varied factors leading to accidents in the home than to road accidents. The most common domestic accidents are falls[12]: older people are particularly at risk, and younger people fall while climbing stairs or from heights. Burns and scalds are next in frequency, and are the commonest cause in children. Inflammable clothing and unguarded fires are preventable hazards. Accidental poisoning is also a risk for children, and can be greatly reduced by better packaging of drugs and tablets.[13]

## Services

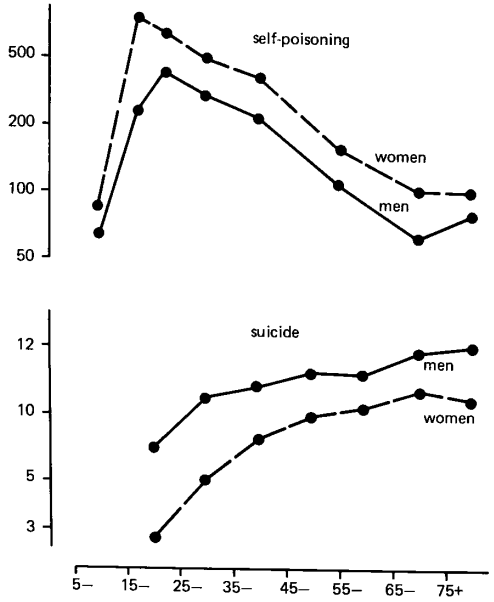
The volume and pattern of accident work vary according to the department's siting within the hospital and the district served. Departments serving mainly rural districts, or those near major roads, have a high proportion of trauma work[14]; those in conurbations often provide a substantial primary care service for self-referred patients with medical problems.[15,16]

A national study of casualty departments showed considerable variations in their objectives and standards of care.[17] Every district needs one well-equipped accident centre open all the time for major emergencies[18],but a substantial proportion of minor injuries could probably be seen during the day by trained nurses at health centres or community hospitals. Solutions to the problem of 'inappropriate' attenders in accident departments in cities[19] have varied between suggesting that local GPs should take greater responsibility for these patients, to suggesting that accident departments should accept and, indeed, foster this responsibility if it is a form of care that the local people want.[20,21]

## Epidemiology

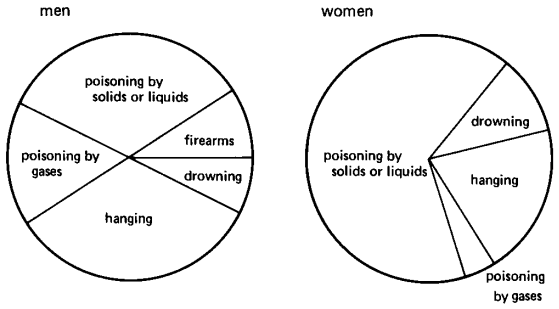
About two-thirds of patients known by their GPs to have made suicidal attempts are admitted to hospital.[22] The largest group is women aged 15–24[23] (Figure 41) and the most frequent method is ingestion of drugs. Annual hospital admissions have been rising faster than for any other individual diagnosis.

**Figure 41** Suicides and hospital admissions for self-poisoning, England and Wales 1978 (age-specific rates per 100 000, log scale)




*Sources:* Great Britain, Office of Population Censuses and Surveys. Mortality statistics: cause (table 3). London, HM Stationery Office, 1980. (Series DH2 no 5) *and* Great Britain, Department of Health and Social Security. Hospital inpatient enquiry: preliminary tables (table 4). London, HM Stationery Office, 1980. (Series MB4 no 9)

**Figure 42** Methods of suicide, England and Wales 1978




*Source:* Great Britain, Office of Population Censuses and Surveys. Mortality statistics: cause 1978. London, HM Stationery Office, 1980. (Series DH2 no 5)

Poisoning is the cause of death for two-thirds of women but only one-third of men, for whom strangulation and hanging are more frequent, particularly at older ages[24] (Figure 42). Alcoholics have a risk of suicide up to 80 times that of non-alcoholics.[25–26] Up to a quarter of admissions for self-poisoning are complicated by alcohol ingestion.[27]

Deaths from suicide fell during the 1960s, although this trend has levelled off since 1971.[28] This fall was unique among countries in Europe. Two suggestions to account for it are that carbon monoxide has been replaced by methane, which is less harmful, in domestic gas supply,[29] and that doctors are not prescribing so many barbiturates (Figure 43).

## Prevention

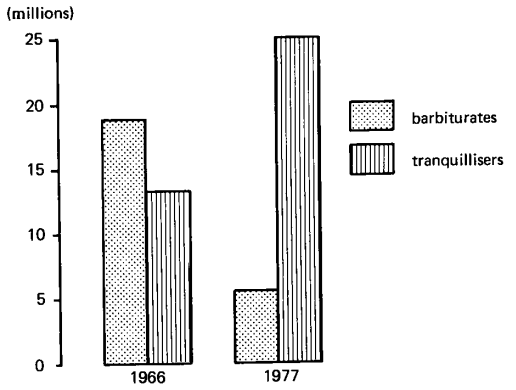
Voluntary agencies, such as the Samaritans, are a focus for self-referral of people contemplating suicide, although it is not clear whether the Samaritans actually prevent suicides through their befriending.[30,31]

Most people who commit suicide have seen a doctor in the weeks before their death. Many take overdoses using tablets prescribed by their doctor. One study[32] showed that many suicides who had been diagnosed as having depressive illness were receiving barbiturates and tranquillisers rather than specific antidepressant drugs. Salicylates, such as aspirin and paracetamol, have a high mortality, and yet are available at chemists without prescription. However, they are valuable as minor painkillers, and restricting their sale would probably place an unnecessary new load on the primary care services. Many attempted suicides seem to be impulsive: packaging dangerous tablets individually would be an important preventive step.

## Services

A study of suicides by self-poisoning showed that two-thirds were found dead, and less than one-fifth died after admission to hospital (Table 5). Any further reduction in mortality is likely therefore to come through improvements in primary care, particularly treatment of depression, rather than acute hospital facilities.[33] On the other hand, over 90 per cent of self-poisoning patients admitted to hospital need supportive care only rather than active treatment[34], and not all such patients seen in the accident department are admitted as inpatients.[35]

**Figure 43** Prescriptions for barbiturates and tranquillisers issued in Great Britain, 1966 and 1977




*Source:* Office of Health Economics. Compendium of health statistics (table 4.18). 2nd ed. London, OHE, 1979.

**Table 5** Place of death of 100 suicides in relation to medical attention

| *Place of death* | % |
|---|---|
| no medical attention | 66 |
| in general hospital | 14 |
| after medical attention called | 12 |
| after GP arrived or in ambulance | 4 |
| in mental hospital | 4 |

*Source:* Barraclough B M, Bunch J, Nelson B and Sainsbury P. A hundred cases of suicide: clinical aspects. British Journal of Psychiatry, vol 125. October, 1974. pp 355–373.

An expert report recommended that every attempted suicide should be seen by a psychiatrist before discharge.[36] This may place a heavy burden on psychiatric staff, and medical registrars (when giving special emphasis to a full history) seem to identify patients at risk with the same ability as psychiatrists.[37,38] There is conflicting evidence whether psychiatric clinic or social work support after discharge helps reduce a further suicide attempt.[39,40]

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# 7 Diseases of bones and joints

## Epidemiology

Diseases of bones and joints are uncommon causes of death, except through accidents; but they are important causes of disability and chronic ill-health.

Rheumatic complaints, broadly including arthritic and muscular conditions, are more common in older people. Their effects are augmented by factors such as poor housing, steeply sloping streets, or by living alone. Rheumatic conditions are a major class of conditions presenting in general practice, along with respiratory illness and mental disorders. Many of the epidemiological data in Britain come from work by the Arthritis and Rheumatology Council Research Unit at Manchester[1,2] (Table 6).

Rheumatoid arthritis is an episodic inflammation of joint capsules, typically the small joints of the hand, and the knees, elbows and neck. Osteoarthritis is a degenerative, wear-and-tear condition affecting larger joints of the back, the hips and the knees. Gout typically affects the feet, the knees and the elbows, pain being caused by crystals within the joint fluid. Paget's disease and osteoporosis are conditions of, respectively, thickening and thinning of the bones.

Two conditions of younger people are ankylosing spondylitis, causing painful stiffness of the back in young men, and scoliosis, curvature of the spine, which occurs in schoolgirls and may need treatment to prevent complications in later life.

**Table 6** Estimated prevalence of some rheumatic complaints

| | | *Rate per 100 000* | |
|---|---|---|---|
| | | *Clinical* | *Radiological* |
| rheumatoid arthritis | men | 1900 | 600 |
| | women | 2800 | 1300 |

| | *excluding minimal disease* | *more than five joints affected* | *more than five joints: people over 65* |
|---|---|---|---|
| men | 19% | 0.5% | 37% |
| women | 22% | 1.8% | 49% |

osteoarthritis in any joint: 52% of adults

| | |
|---|---|
| gout | 300 per 100 000 |
| ankylosing spondylitis | 100 per 100 000 |
| osteoporosis | 400 per 100 000 |
| Paget's disease | 1.9% (people over 45 years) |
| scoliosis | 4 per 1000 (girls 0-15 years) |

*Source:* Wood P H N. Epidemiology of rheumatic disorders. In Scott J T, ed. Copeman's textbook of rheumatic diseases. 5th ed. Edinburgh, Churchill Livingstone, 1978.

Little is understood of the most ubiquitous complaint — back pain. Back pain causes a spell of certified sickness for one in every hundred people each year, and 11.5 million days of work lost.[3] However, research has not yet delineated the various subgroups and specific conditions causing this symptom.

The incidence of fractures rises with age (Figure 44). Patients with fractures caused by accidents are seen in casualty departments, and usually at an outpatients'

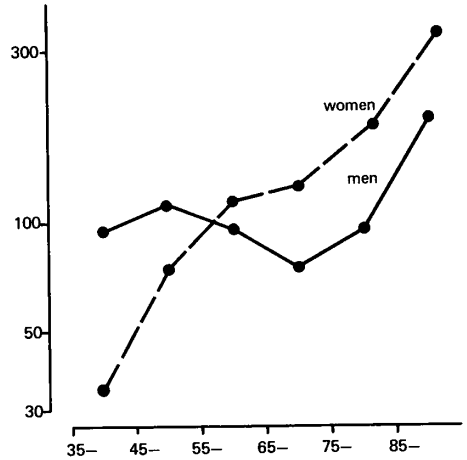
clinic for follow-up. Fractures of major bones may require inpatient admission (Figure 45). Admission rates for fractures of the femur have risen faster than for other fractures (Figure 46, page 58): they occur particularly in elderly people, and are sometimes fatal (Chapter 6).

## Prevention

Lack of knowledge of the causes of most rheumatic conditions makes prevention difficult. One clue may be the association of some arthroses with immunological markers that can be identified in blood samples. However, these markers are not adequately specific for population screening.[4]

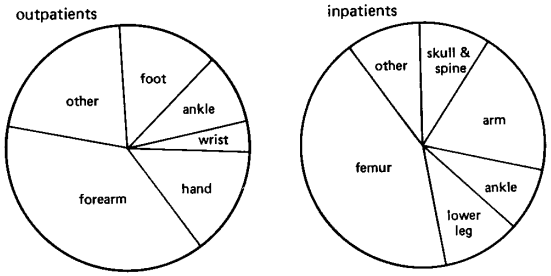
Screening in schools has been suggested for scoliosis, which can be corrected surgically, but too little is known of the natural history of this condition to be certain that correction of minor deformities is warranted.[5]

**Figure 44** Incidence of fractures in older adults, Dundee and Oxford together, 1954–58 (age-specific rates per 10 000, log scale)




*Source:* Knowelden J, Buhr A J and Dunbar O. Incidence of fractures in persons over 35 years of age. British Journal of Preventive and Social Medicine, vol 18, no 3. July, 1964. pp 130–141.

**Figure 45** Site of fracture in hospital outpatients and inpatients, Chesterfield 1970




*Source:* Trout K. An experiment in outpatient information. Harrogate, Sheffield Regional Hospital Board, 1972.

Osteoporosis contributes to the frequency of fractures in elderly people. There is interest in whether women taking oestrogens after the menopause may be protected: long-term studies are in progress.[6]

Instruction in lifting heavy objects is believed to prevent back pain, although this has not been demonstrated scientifically.[3] One study showed that back pain was more frequent in sedentary workers (particularly drivers) than people with heavy manual jobs.[7]

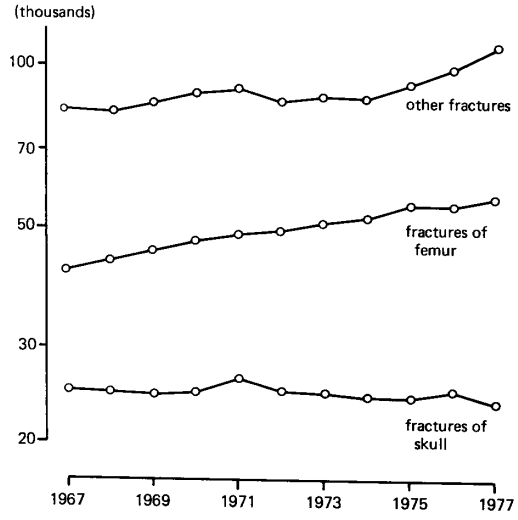
## Services

Advances in rheumatology include the control of rheumatic fever and infectious arthritis by antibiotics, steroid treatment for some non-articular rheumatism and effective drug therapy for gout. There have also been advances in knowledge of the relative advantages of rest and exercise in different conditions, such as preventing flexion deformities, splinting, or exercise in ankylosing spondylitis.

Rheumatology is, therefore, closely associated with physiotherapy and rehabilitation departments (Chapter 19), although there is growing recognition of rheumatology as a speciality.[8] Because of the frequency of arthritis, rheumatologists also need to work closely with general physicians and geriatricians; and, with the increasing benefit of joint replacement, cooperative assessment clinics are often held by rheumatologists and orthopaedic surgeons.

Orthopaedics has two aspects: emergency, particularly setting and correcting fractures, and 'cold' orthopaedics or non-emergency operations on bones and joints. Serious accidents, particularly road accidents, often damage organs such as the brain or kidneys as well as giving bone injuries, and management needs to be at the district general hospital where multidisciplinary care can be provided. Much cold orthopaedics, however, can be undertaken in a hospital without these other resources. The demand for joint replacement surgery has grown considerably in the last decade, but is now considered to be levelling out.[9,10]

**Figure 46** Hospital discharges and deaths for fractures, England and Wales 1967–77 (log scale)




*Source:* Great Britain, Department of Health and Social Security. Hospital inpatient enquiry (table 3). London, HM Stationery Office, annually. (Series MB4)

There is probably scope for more home care and cooperative observation by general practitioners after some non-emergency orthopaedics, such as operations on knee cartilage in younger people. Fractures of neck of femur account for many acute admissions, primarily because they affect frail elderly people. Early operation and mobilisation are necessary to prevent the complications that arise from bed rest, such as thrombosis, stiffness and bedsores. There are wide variations in duration of hospital stay for fractured hip.[11] Devas, working in a retirement town with a very high proportion of elderly people, has commented[12]: 'It is not uncommon to hear a surgeon remark that his hospital beds are blocked by elderly patients with fractured femora, as though this was the fault of the patient for being elderly; in fact this is a criticism of the methods used which do not provide a satisfactory system of rehabilitation for the geriatric patients who are then unable to regain independence and go home.'

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# 8 Urinary diseases

## Epidemiology

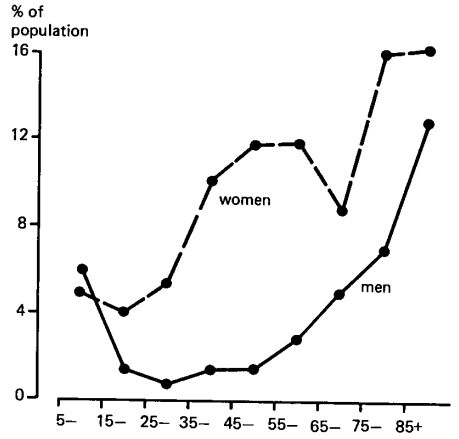
General practice consultations for infections of the bladder are six times, and infections of the kidney three times, more frequent in women than in men. Transient urinary infections or symptoms are common in general practice but are falling as a cause of hospital admission — perhaps due to earlier treatment. Incontinence is more frequent in the general population than usually recognised (Figure 47).

Admission rates for renal stones vary by region[1], but the difference is more likely to be related to differences in facilities than climate.[2] The commonest single cause of surgical admission is bladder cancer, because these patients need regular examination (cystoscopy) under anaesthetic.

Acute renal failure may still occur after streptococcal infections, trauma, septic abortions and complications of abdominal surgery, but better understanding of transfusion needs, the use of broad spectrum antibiotics and the disappearance of illegal septic abortion have made it much less common.[3]

Several estimates of the prevalence of chronic renal failure suggest that there are about 30 patients per million population under the age of 50 years, and 40 patients per million under the age of 60 years, who would benefit from dialysis.[4,5]

**Figure 47** Prevalence of urinary incontinence (occurring twice or more per month) in a postal survey in five general practices




*Source:* Thomas T M, Plymat K R, Blannin J and Meade T W. Prevalence of urinary incontinence. British Medical Journal, vol 281, no 6250. 8 November, 1980. pp 1243–1245.

## Prevention

Renal disease in children is often associated with urinary infection, and it has been suggested that screening of school children would be a useful preventive measure. However, kidney damage occurs in children before they are five years old, at an age when they are difficult to screen.[6] Urinary infections in older children are often transitory. Prospective studies have failed to show a significant benefit from treating children with infections found on screening, and the authors advise against routine screening of well children.[7-9]

About 20 per cent with chronic renal failure have long-standing kidney infections (Figure 48), but the natural history of pyelonephritis is not sufficiently understood to allow earlier prevention. The underlying cause of most renal failure is unknown.

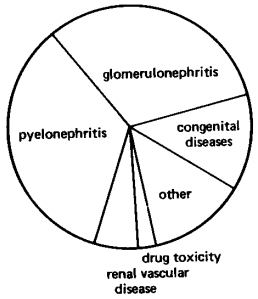
## Services

Although urinary infections can be treated with antibiotics, much can be done by individuals themselves to lessen the frequency and severity of attack.[10] Incontinence can also be successfully managed with suitable aids.

Urologists only treat a quarter of all hospital genito-urinary conditions.[11] Acute obstruction of the prostate has a lower mortality rate when treated by urologists than by general surgeons[12] and in hospitals with adequate staff and facilities. Whereas general surgeons perform prostatectomy by opening the abdomen, urologists are more likely to use a different technique (transurethral resection) which places less strain on the patient and shortens his stay in hospital. Although only 25 per cent of NHS patients are currently treated by transurethral resection, experience in urological centres suggests up to 90 per cent could be, if there were more urologists in district general hospitals.[13]

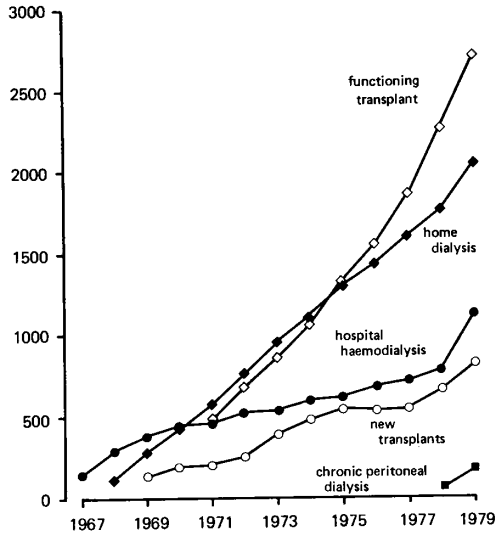
Carcinoma of the bladder needs regular surveillance after treatment to ensure that the cancer does not recur, and routine cystoscopies form a large part of genito-urinary surgery. Most of these procedures can be undertaken as day-cases.

**Figure 48** Causes of chronic renal failure




*Source:* Pincherle G. Kidney transplants and dialysis (table 1). London, Department of Health and Social Security, 1978. (Topics of our time no 2)

**Figure 49** Patients currently receiving long-term treatment for chronic renal failure, United Kingdom 1967–79




*Source:* Pincherle G. Kidney transplants and dialysis (table 3). London, Department of Health and Social Security, 1978. (Topics of our time no 2)

Treatment of acute and chronic renal failure has become the work of the specialist nephrologist.[14] The main elements of treatment are dietary control, drugs and dialysis. There are three forms of long-term treatment — dialysis in hospital, dialysis at home and transplantation. Hospital facilities for dialysis are limited by staff and costs. Treatment starts in hospital and includes teaching the patient how to perform home dialysis. Thereafter, transplantation can be performed when a kidney is available, but the patient's house must be satisfactorily converted to continue dialysis should the transplant fail.

Home dialysis is preferable to long-term dialysis in hospital because the risk of hepatitis is less, and because it is cheaper. The highest cost is the house conversion at the start. There is a substantial emotional burden also on the patient's spouse or relative. Many dialysis patients are able to work.

It is not yet known whether survival is greater with dialysis or transplantation because all the published series have been on patients selected by physicians for one or other form of treatment rather than by random allocation.[15] Uncontrolled series suggest that dialysis patients tend to have longer survival, but transplant patients a more normal life.

The number of transplant operations offered is limited by the number of donor kidneys available: some doctors with donors who are dying do not refer them to their surgical colleagues. The law at present requires consent from the patient or relative for donating a kidney, rather than the system of contracting-out which some other countries have. Although the public seem in favour of kidney transplantation[16] less than 5 per cent of the population hold kidney donor cards.

In Britain, about 16 patients per million population receive treatment for chronic renal failure each year (Figure 49).[17,18] In other countries, the rates are higher — over 30 per million in France and Germany, over 50 per million in USA and Japan.[19] This is largely because these countries have more facilities and doctors accept both older patients and those with complicating diseases such as diabetes.

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# 9 Endocrine diseases

## Epidemiology

The common endocrine conditions are diabetes and disorders of the thyroid. Other rarer endocrine conditions include disorders of the pituitary, parathyroid[1] and adrenal glands, often produced by non-malignant tumours of the gland.

There are broadly two types of diabetes: severe, insulin-dependent diabetes, often starting in young adult life, and maturity-onset diabetes, which can usually be controlled by diet or drugs. Population surveys show that almost all severe diabetics are known to medical services. Mild diabetes can be considered present in up to 12 per cent of the population, depending on the criteria of diagnosis (Figure 50)[2], but fewer have symptoms.

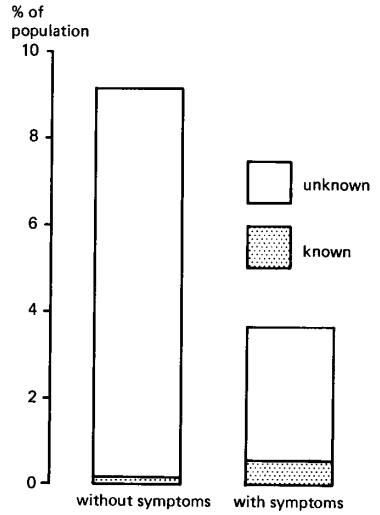
Overactivity of the thyroid gland (hyperthyroidism or thyrotoxicosis) may develop at any age without predisposing cause. Failure of the thyroid (hypothyroidism or myxoedema) develops more insidiously and is more common in elderly people.[3]

## Prevention

It has been suggested that maturity-onset diabetes is related to the large quantity of refined sugar in the diets of people in industrialised countries, which leads to over-stimulation and, eventually, failure of the pancreas. Diabetes is becoming evident in developing countries in those people who have changed to Western diets. However, although diabetes is known to decrease with food shortages[4,5], there have been no intervention experiments to show whether moderate dietary change in a community can reduce diabetes. At present the strongest preventive force is the social pressure of fashion to be slim. Although screening of the general population aged 45–70 has been suggested[6], the value of treatment for these previously unidentified patients is not known.[7]

Congenital hypothyroidism is rare, but can potentially be prevented by routine screening of newborn children.[8]

**Figure 50** Prevalence of known and previously undetected diabetes in a population sample




*Source:* Butterfield W J H. Summary of results – the Bedford diabetes survey. Proceedings of the Royal Society of Medicine, vol 57. March, 1964. pp 196–200.

## Services

The specific treatment for acute-onset diabetes in young people is insulin, and is life-saving. Treatment by diet alone should be possible for most people with late-onset diabetes, but it is difficult to get older people to change bad patterns of eating established over a lifetime.[9] Drug therapy is, therefore, widely used. It is not clear that treatment improves survival at this age, and an American study has suggested that some antidiabetic drugs give an increased risk of heart attacks.[10]

Responsibility for management of diabetics has tended to shift from general practice to hospital, and diabetic outpatient clinics often include patients who could be as well managed by their GP. Consultants can provide satellite clinics in health centres[11,12], and education programmes for general practitioners can encourage them to look after more patients themselves.[13,14] The hospital clinic can then concentrate on the initial care and education of new, pregnant or 'difficult' insulin-dependent diabetics, and those with complications, particularly of the feet (when chiropody is required), or of the eyes. Day-care units for instruction and stabilisation may be a valuable alternative for younger diabetics.[15]

Treatment of hyperthyroidism may be by surgery, drugs or radiotherapy, according to the age of the patient. Follow-up of these patients can be aided by a computer recall system.[16] Hypothyroidism is corrected by hormone replacement. Investigation and treatment of other endocrine conditions may need referral to a regional centre, particularly for the new range of specific hormone assays.

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# 10 Blood diseases

## Epidemiology

The most common haematological condition is anaemia[1] (Table 7). Ninety per cent of anaemias are due to iron-deficiency, usually from chronic bleeding such as heavy menstruation rather than dietary deficiency. Pernicious anaemia, due to a deficiency in absorption of vitamin B12, occurs most frequently in elderly people. Some haemolytic anaemias are caused by drugs and industrial agents.

Haemophilia is the commonest hereditary abnormality of blood clotting, and only affects men. There are also hereditary abnormalities of haemoglobin or red-cell formation, which are found in particular ethnic groups: sickle cell disease in African and Caribbean people[2], and thalassaemia in people from Mediterranean and Asian countries.

Haematological cancers include leukaemias (of white blood cells) and lymphomas such as Hodgkin's disease. The leukaemias show a peak of incidence in childhood, and account for about 40 per cent of childhood cancers. Both the leukaemias and lymphomas increase at older ages. Some chronic leukaemias and acute leukaemia in Down's syndrome are associated with chromosome abnormalities. Radiation is a serious potential cause of leukaemia, as investigations of deaths of radiologists and survivors of the atom bomb explosions in Japan have shown, but the extent to which current man-made radiation causes leukaemia is not clear.

**Table 7** Estimated prevalence of some blood diseases

| | | |
|---|---|---|
| anaemia[1] | haemoglobin ≤ 12.5g : 3.3% of men 35–64<br>haemoglobin ≤ 10.0g : 3.0% of women 35–64 | |
| pernicious anaemia[2] | 100–200 per 100 000 | |
| haemophilia[3] | 5 per 100 000 | |
| cancer registration[4] (incidence rate per 100 000) | | |
| | *men* | *women* |
| Hodgkin's disease | 3.5 | 2.2 |
| other lymphoid neoplasms | 6.5 | 5.1 |
| leukaemias | 8.9 | 7.1 |
| other blood neoplasms | 5.1 | 4.5 |

[1]Kilpatrick G S and Hardisty R M. The prevalence of anaemia in the community, vol 1, no 5228. 18 March, 1961. pp 778–782.
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## Prevention

It is of value to screen elderly people for anaemia, since both pernicious anaemia and iron-deficiency anaemia are readily treated. Early detection of pernicious anaemia will also limit other complications of the vitamin deficiency, such as damage to nerves.

Some hereditary haemoglobin abnormalities can be detected in fetal blood, sampled through amniocentesis, from about the sixteenth week. It is now possible to offer screening (with a view to abortion) for carriers of the trait.[3] More widespread understanding of this is needed by doctors and ethnic minority groups, particularly Asians.[4]

Sickle cell disease is a potential hazard during an anaesthetic, and pre-anaesthetic and pregnancy tests should be routine in people of African and Caribbean origin.

Radiation surveillance and protection is important for prevention of leukaemia. X-rays of reproductive organs, or of women in pregnancy, should be strictly controlled.

**Services**

Although moderate and severe anaemia — and its causes — should be treated, a controlled trial of treatment of mild iron-deficiency anaemia in an adult population showed that commonly associated symptoms of dizziness and tiredness were not relieved by iron therapy.[5]

Regional centres are needed for management of haemophilia in severe crises or during surgery; but day-to-day care can be provided through haematology and accident departments of a district hospital.[6,7] Increasingly, haemophilic patients are undertaking maintenance care for themselves at home.[8,9]

There has been considerable progress in the treatment of acute leukaemia and Hodgkin's disease through systematic trials of anti-cancer drugs.[10] Organisation of these services is discussed in Chapter 18.

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# 11 Neurological and neurosurgical conditions

## Epidemiology

There have been several epidemiological surveys of nervous diseases.[1,2] The prevalence of selected neurological conditions in one north of England town is shown in Table 8.

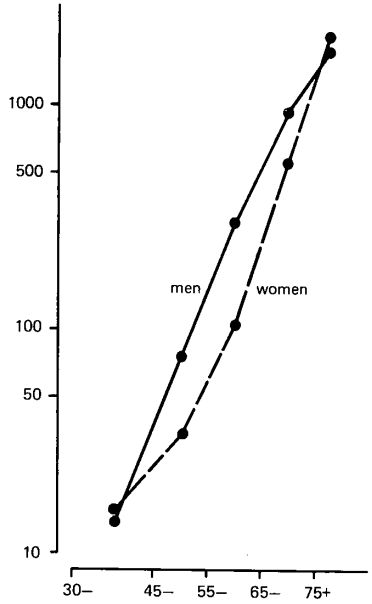
About two-thirds of the population acknowledge having a headache in the past year, and of these people about one-third consider their headaches 'severe' to 'almost unbearable'.[3,4] However, few of these are associated with any serious disease.

**Table 8** Prevalence of selected neurological conditions, Carlisle 1961

| | *Rate per 100 000* |
|---|---|
| epilepsy | 506 |
| Parkinson's disease | 101 |
| multiple sclerosis | 80 |
| primary tumours | 38 |
| subacute combined degeneration | 25 |
| muscular dystrophy | 10 |
| syringomyelia | 8 |
| Huntington's chorea | 3 |

*Source:* Brewis M, Poskanzer D C, Rolland C and Miller H. Neurological disease in an English city. Acta Neurologica Scandinavica, vol 42, supplement 24. 1966. pp 1–124.

**Figure 51** Incidence rate of strokes by age group, Frimley 1971 (per 100 000, log scale)




*Source:* Weddell J M and Beresford S A A. Planning for stroke patients: a four-year descriptive study of home and hospital care (table 23). London, Department of Health and Social Security, 1979.

The prevalence of epilepsy has been found to average 6 per cent per 1000.[5] Patients with recurrent epilepsy frequently experience remissions — as many as 40 per cent over a 10-year follow-up — but the factors responsible are not known.

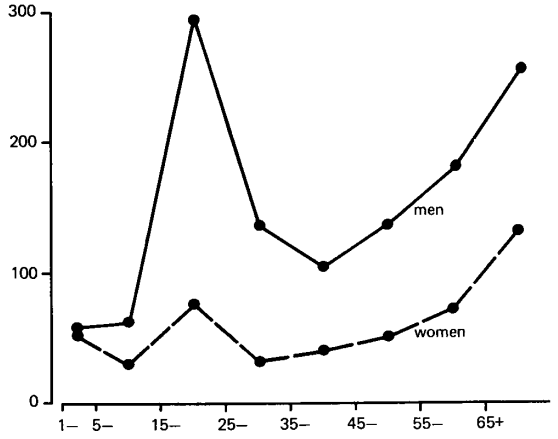
The commonest cause of a stroke is disease of the blood vessels of the brain, but other causes, such as brain tumour, must not be excluded. There are about 250 new

strokes, and a prevalence of 1250, in a population of 100 000 each year.[6] The incidence rises with age (Figure 51) and is higher in blacks than in whites.

All western countries have seen a decline in death rates from strokes in recent years, although this trend may in part be due to changes in diagnostic habit. However, the mortality rates for strokes in different countries bear no relationship to the death rates for coronary heart disease. Also, in contrast to CHD, there is little difference between rates for men and women.

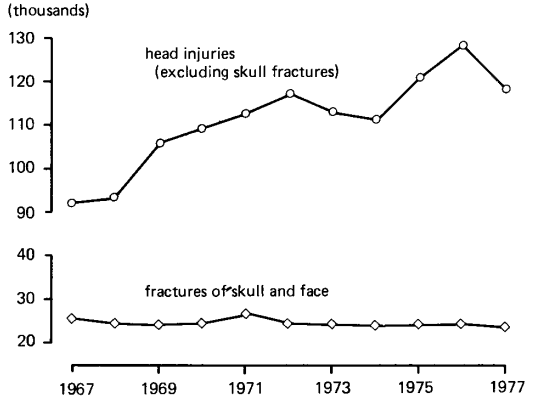
Several neurological conditions are slowly progressive and may lead to severe disability (Chapter 19). Multiple sclerosis, affecting young and middle-aged adults, is believed to be caused by a virus contracted in childhood, although one has not yet been specifically identified. Parkinson's disease affects older people; a viral cause has also been suggested.[7] Huntington's chorea[8] and some muscle diseases affecting children and young adults are hereditary.

**Figure 52** Head injury deaths by age group, England and Wales 1978 (age specific rates per million)




*Source:* Great Britain, Office of Population Censuses and Surveys. Mortality statistics 1978. London, HM Stationery Office, 1980. (Series DH1 no 6)

**Figure 53** Hospital discharges and deaths for head injuries, England and Wales 1967–77




*Source:* Great Britain, Department of Health and Social Security. Hospital inpatient enquiry 1976 (table 3). London, HM Stationery Office, 1979. (Series MB4 no 7)

Head and spinal injuries are most common in young men[9] (Figure 52). The incidence of severe head injuries reached a peak in the mid-1960s, but has since declined in Britain — partly due both to fewer motor cyclists and to compulsory crash helmets. However, admissions of 24 hours or so in hospital, for minor head injuries, have increased markedly (Figure 53). About half of the head injuries of adults admitted to hospital have occurred in a road accident and many are associated with alcohol.[10]

Primary tumours of the brain form less than 2 per cent of all neoplasms; the commonest brain tumours have spread secondarily from a lung cancer. There is a small peak of death rates for primary tumours in children, followed by a higher peak in later adult life (Figure 54, page 70). No causal agents have been found.

## Prevention

Although the causes of many neurological diseases remain unknown, several conditions can be prevented, including strokes due to hypertension (Chapter 3), head injuries by wearing seat belts (Chapter 11), polio (Chapter 16) and syphilis (Chapter 17). Damage to the brain at birth, from physical damage or lack of oxygen, can lead to epilepsy in childhood or adult life, and the condition is, thus, in part preventable by better obstetric care. Genetic counselling may be welcome for relatives of people affected with hereditary conditions.[8]

## Services

Where there is no predisposing cause (such as a metabolic disease or a brain tumour), treatment of epilepsy with drugs can be very effective, but needs frequent consultation to adjust dosage and minimise side-effects. A special outpatient clinic for epilepsy, staffed by a multidisciplinary team, may be helpful.[11] However, a substantial number of people with epilepsy can be cared for successfully in general practice[12] and they do not need to attend hospital regularly. Perhaps their greatest problems are social, such as limitations on driving, and finding and keeping employment.[13-15]

A small number of patients need detailed investigation for refactory epilepsy or where neurological and psychiatric problems are mixed. There are at present three specialised referral centres in England, two for adults and one for children. There are also several long-established 'colonies', some of which remain institutional and protective to their residents.[16]

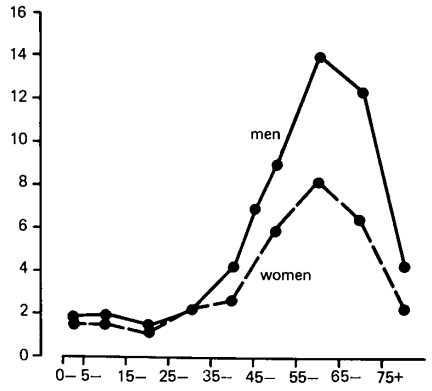
A number of drugs, such as L-dopa, are helpful in the management of Parkinson's disease.[7] However, they can only delay the progress of the disease, and do not stop it.

The decision whether to admit a patient with stroke to hospital depends mainly on social factors, particularly the desires of the patient and family.[17] There is little agreement on the medical indications for admission, but the several remediable conditions which mimic a cerebrovascular accident need to be excluded. As alternatives to admission, a consultant with an interest in stroke can visit the patient at home, or patients with transient or minor strokes can be seen in outpatients.[17]

About one-quarter of stroke patients die within 24 hours, and 50 per cent are dead in a month. Recovery may occur for up to six months, but about a third of survivors are permanently disabled, and one in ten may be admitted to a long-stay institution.[18] Rehabilitation is important to ensure the maximum use of residual function and to maintain morale.[19] Units specialising in stroke patients may have better results than general wards.[20,21]

Weddell and Beresford[22] give a detailed account of a

**Figure 54** Brain cancer registrations, England and Wales 1975 (age specific rate per 100 000)




*Source:* Great Britain, Office of Population Censuses and Surveys. Cancer statistics: registrations 1975 (table 5). London, HM Stationery Office, 1981. (Series MB1 no 5)

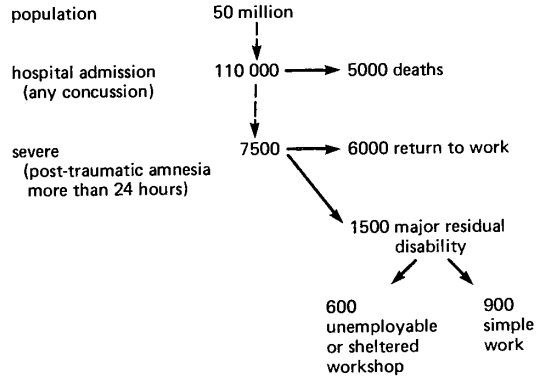
pilot stroke register, and followed people up at three months and four years. Community support services most used by survivors were chiropody, district nursing and home-help services, but there was need for more day centres and clubs for elderly people to keep in touch with the world around them (Chapter 20).

Forty per cent of deaths from head injury occur before the patient reaches hospital, and another 20 per cent in the casualty department.[9] Outcome is related to the time of unconsciousness (Figure 55). Complications may include epilepsy[23], infection and a blood clot in the brain. The last is uncommon, but may develop rapidly and be life-threatening. Anxiety about this complication is the main reason for the large number of minor head injuries admitted 'for observation' overnight. Prognostic indices for head injury are being developed.[24,25] Some patients have long-term handicaps of neurological or mental loss, and a few remain unconscious for months before showing improvement. Rehabilitation of brain-damaged survivors is made more difficult by a shortage of employment, of suitable family or hostel accommodation, or prolonged litigation for financial compensation.

It is usual in Britain for patients with head injuries to be admitted to general surgical wards, and only five per cent are transferred for specialised neurosurgical care.[26] This selective policy seems to be satisfactory if criteria for transfer, and return, are agreed by general and neurosurgeons. Spinal injuries are considered in Chapter 21.

Scanning or radiological investigation is required in many neurological conditions to exclude or confirm a diagnosis of tumour, and the neurologist, radiologist and neurosurgeon must work together in diagnosis. Fully remediable tumours of the nervous system are quite rare. The commonest ones, meningiomas, account for about 15 per cent. It is usually necessary to confirm by operation that other tumours cannot be removed.

**Figure 55** Estimated outcome of head injuries in England and Wales each year




*Source:* Field J H. Epidemiology of head injuries in England and Wales (para 4.3.2). London, Department of Health and Social Security, 1976.

Tumours in children are more sensitive to radiotherapy than in adults. Partly because the causes of many neurological conditions are unknown, few curative treatments have been found. Skilled nursing care is, therefore, the more important, particularly for patients with progressing disability. A social worker with experience of these quite rare conditions can be of great practical and moral support to both the patient and relatives.

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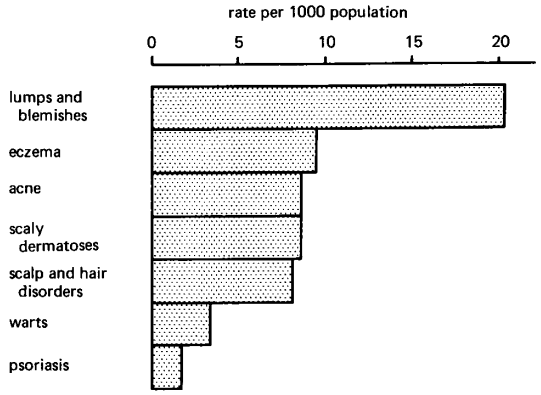
# 12 Diseases of the skin

## Epidemiology

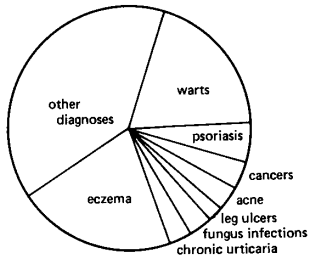
Skin diseases form about 6 per cent of all complaints in the community[1] and 15–20 per cent of consultations in general practice.[2] In a population survey of skin disease in Lambeth (Figure 56)[3], there were more skin conditions in women than in men, but nine-tenths of those were not thought to need (or would not benefit from) treatment. On the other hand, only one in five people with severe conditions justifying treatment reported using professional services within the previous six months, and only 3.5 per cent of them had seen a specialist. There have been no other epidemiological surveys in Britain but a detailed survey of skin diseases in Scandinavia has been reported by Hellgren.[4]

**Figure 56** Prevalence of selected skin conditions in adults age 26–64, Lambeth 1968.




*Source:* Rea J N, Newhouse M L and Halil T. British Journal of Preventive and Social Medicine, vol 30, no 2. June 1976. pp 107–114.

**Figure 57** Common referrals in an outpatient clinic, Buckinghamshire 1974–76




*Source:* Rook A, Wilkinson D S and Ibling F J G. Textbook of dermatology, 3rd ed. Oxford, Blackwell, 1979. p 33.

## Prevention

Some skin conditions are influenced by the environment. Protection against environmental irritants, particularly alkalis and friction, could limit the frequency of occupational eczema. Psychological factors are also involved. Sun screen lotions could reduce the amount of skin cancer in outdoor workers.

## Services

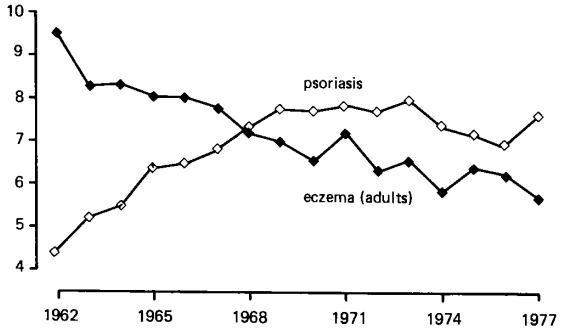
A common condition referred to dermatology clinics is warts (Figure 57). Although these often remit spontaneously they can also be removed by surgery or by freezing.

Leg ulcers, often from varicose veins, require prolonged regular treatment: the dermatology and surgical clinics,

and the casualty treatment room, may all have patients attending frequently for treatment, and the methods of treatment often differ in each place. Intractable leg ulcers, particularly in elderly people, may require several weeks of bed rest to heal successfully.

Dermatological emergencies needing admission to hospital are rare, except for unwanted reactions to drugs. Antibiotics have considerably reduced the prevalence of infective dermatoses. Eczema, until recently the main diagnosis admitted, is now predominantly treated with steroid creams outside hospital. The empty beds have been filled with admissions for intensive treatment of psoriasis (Figure 58); but outpatient treatment can also be successful for many of these patients.[5]

**Figure 58** Trends in hospital discharges for eczema and psoriasis, England and Wales 1962–77




*Source:* Great Britain, Department of Health and Social Security. Hospital inpatient enquiry (table 5). London, HM Stationery Office, annually. (Series MD4)

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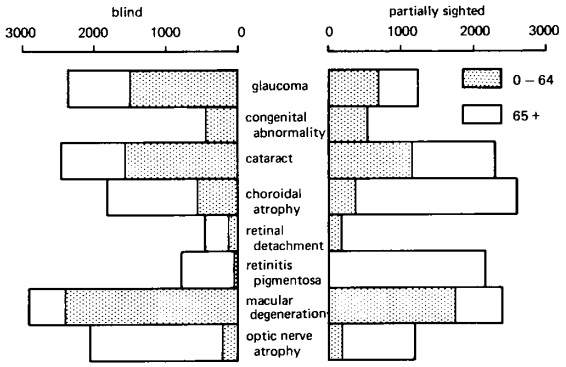
# 13 Sight

## Epidemiology

The prevalence of visual disability rises with age: about three-quarters of visually disabled people are over 65. Many of them have other disabilities as well, such as deafness or osteoarthritis, and poor sight is not their primary limiting condition. In household surveys, a general question such as 'Do you have any difficulty at all seeing to read or seeing to get about?', appears to be effective in case-finding. In a national survey[1] only half of the visually disabled, defined as a measured distance visual acuity of less than 6/18, had ever had a specialist eye assessment.

About three in every thousand of the population are registered as blind or partially sighted. The most frequent causes in children are congenital conditions; in adults, cataract and macular degeneration (Figure 59). Registration is certified by a consultant ophthalmologist. There are financial advantages for people registered blind, such as higher tax allowances, higher supplementary benefit, a lower television licence fee and free travel on British Rail. These advantages are not shared by partially sighted people. Registration is believed to underestimate the true prevalence of blindness by about 30 per cent, and rather more for partial sight.[2]

**Figure 59** Number of new registrations by main diagnosis of blind and partially sighted people, England 1969–76




*Source:* Great Britain, Department of Health and Social Security. Blindness and partial sight in England 1969–76. London, HM Stationery Office, 1979. (Reports on public health and medical subjects no 129)

## Prevention

**Children** It is important to identify squints and refraction abnormalities (short or long sight) early in childhood since the uncorrected eye may become permanently sightless (amblyopia). Squints are usually referred to hospital eye clinics by general practitioners. Amblyopia without squint is usually detected by screening at school — often too late to save the eye. Vision screening should, therefore, be part of every child's developmental assessment by the general practitioner, clinic medical officer or health visitor. Although the optimum age for beginning treatment is not established, it is probably around two years old.[3] There are considerable difficulties in subjective sight-testing at this age and Ingram[4,5] has suggested that examination of each child by an ophthalmologist should be seriously considered.

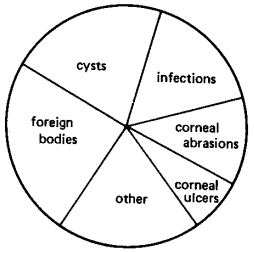
A mobile orthoptic service for assessment of pre-school children identified by screening, and for those with a family history of related eye disorders, has been effective in two districts.[3,6] The service is staffed by an orthoptist, who decides on the need for further referral.

**Adults** Protection of eyes at work is simple and valuable. On the other hand, screening programmes for early detection of glaucoma and atrophy cannot be recommended.[7] For glaucoma there is no evidence that current treatment has any effect on the natural history, and screening methods are inadequate; whilst for optic atrophy there is no treatment.

**Old people** Regular examination of the eyes is worthwhile for all people over 65 because abnormalities are common. Although some have macular degeneration, for which there is no treatment, many others can be helped.[8] As Cullinan has pointed out, many older people accept failing sight as part of growing old and do not seek help. 'It is certainly within the competence of any trained social worker, health visitor or home nurse to administer simple, non-intrusive tests on which action can be taken.'[1] Regular examination of elderly people in long-stay wards is also of benefit.[9]

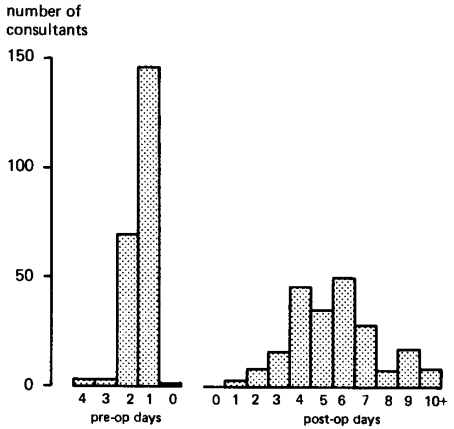
Most old people at home can be assisted substantially by better glasses, improved lighting[10] and suitable low vision aids.[11] Some need surgery; but they are often accorded low priority on hospital waiting lists.[12]

**Figure 60** Diagnoses of patients attending the accident and emergency department of an eye hospital




*Source:* Price M and Phillips C I. A general practitioner in an ophthalmology accident and emergency department. British Medical Journal, vol 2, no 6034. 28 August, 1976. pp 509–511.

**Figure 61** Differences in duration of stay for glaucoma (drainage) operation preferred by consultant ophthalmologists




*Source:* Gilkes M J and Handa V K. The duration of pre- and post-operative inpatient stay in ophthalmology. Health Trends, vol 6, no 4. November, 1974. pp 76–78.

## Services

For most people, eye services mean refraction and prescription of suitable glasses. This is the work of the general ophthalmic service, with glasses dispensed by opticians.[13,14] Ophthalmic opticians also provide a valuable service of primary assessment of all eye conditions, and of referral to hospital where appropriate.

The historic division between the hospital ophthalmic service and the school eye clinics where children who fail simple eyesight screening tests are referred for assessment, is unnecessary. Half the children referred to the school eye clinic have either no abnormality, or uncomplicated myopia which can be treated by an ophthalmic optician. The other half have refractive errors associated with squint or amblyopia, and need specialist care.[15] All screened children could be seen in a consultant clinic once, or by a mobile orthoptist clinic, rather than by the present system of a sessional clinic ophthalmologist.

Most ophthalmological care is performed in the accident (Figure 60) and outpatient departments, although age distribution of these patients is younger than would be expected from visual handicap registers.[16] Some may be diabetic patients needing continuing hospital surveillance, but many who have received no alteration in treatment could be discharged.

The need for inpatient facilities in ophthalmology is limited and a separate unit in every district general hospital is uneconomic. Eye nursing has special expertise: it is best for patients to be grouped in a ward of suitable size, with access to an operating theatre for eye surgery only. There is a wide range of pre- and post-operative stay for eye operations (Figure 61). With a positive approach to short-stay, and a suitable programme, it is possible to run an effective service using a 'five and a half day' ward.[17] Emergencies in ophthalmology are rare, and can be accommodated in a general surgical ward.

More assistance could be given to visually handicapped people than at present in the provision of low vision aids. Half of all newly registered blind people would benefit from aids.[18] Hospital ophthalmology departments should have a suitably trained ophthalmic optician to advise newly blind people, and to provide follow-up for them. About 30 per 100 000 adults need this service, and it is of considerable importance also to children. The expense of aids can be alleviated by a suitable loan service.

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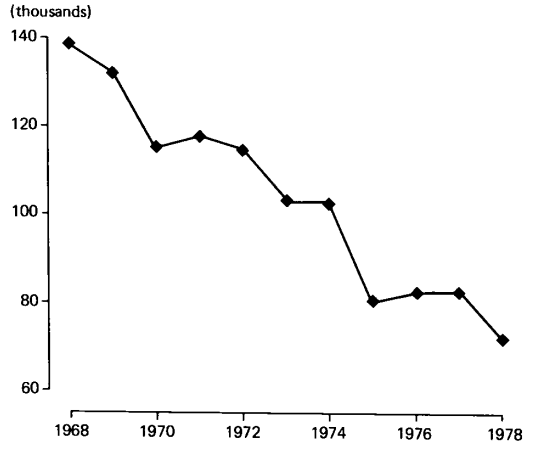
# 14 Ear, nose and throat

## Epidemiology

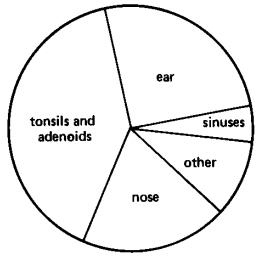
There have been relatively few epidemiological studies of ear, nose and throat conditions. Hinchcliffe[1,2] has described the frequency of common conditions in five rural populations in Britain. Infections of the ear are common in childhood, and, unless treated, can lead to permanent deafness. The tonsils and adenoids are lymph glands protecting the respiratory passage, and are frequently a focus for chronic or recurrent infection, causing obstruction or difficulty in breathing. Symptoms are most severe between ages 2–7 when the child is in contact with many new infections, and the respiratory passage is relatively small. Acute sinusitis is a common and painful condition in adults.

**Figure 62** Hospital discharges for hypertrophy of tonsils and adenoids, England and Wales 1968–78




*Source:* Great Britain, Department of Health and Social Security. Hospital inpatient enquiry (table 3). London, HM Stationery Office, annually. (series MB4)

**Figure 63** Ear, nose and throat operations, England and Wales 1977




(total = 13 300 operations)

*Source:* Great Britain, Department of Health and Social Security. Hospital inpatient enquiry 1977 (table 22(i)). London, HM Stationery Office, 1980. (Series MB4 no 10)

Socially handicapping hearing loss is present in about 3 per cent of the population, more frequently in elderly people.[3,4]

ENT cancers are infrequent: one recently described occupational hazard is nasal cancer in wood workers.[5]

## Prevention

Surveillance of hearing loss is of value in children (Chapter 26), since poor hearing can lead to educational retardation. Elderly people frequently have hearing loss, and could benefit from surveillance by doctors, social workers or other people in contact with them.[6]

## Services

Although tonsillectomy is becoming much less common (Figure 62) it remains the most frequent ENT operation (Figure 63). Antibiotics form the first line of treatment for chronic tonsillitis. A randomised control trial of tonsillectomy against no operation indicated that mothers perceived benefit from the operation in children under 8 years old who had previously had three or more infections a year.[7] But the decision for operation is often influenced by parental anxiety or medical tradition.[8,9] Because of long waiting lists, many children get better without operation; and some have to wait a long time to receive definitive treatment. It would be more rational to have a short-list of children for whom operation is agreed, with other children under review by their general practitioners. And for those who receive operation, the majority could be as day cases.[10]

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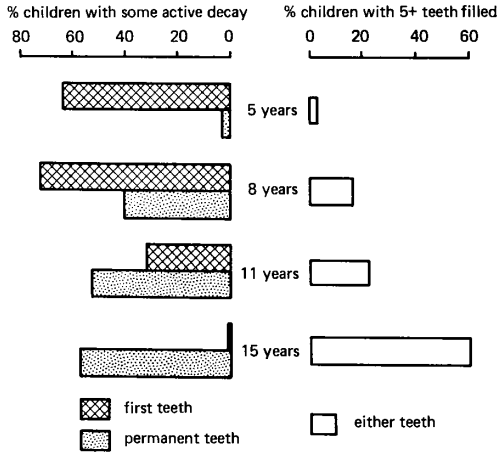
# 15 Teeth

## Epidemiology

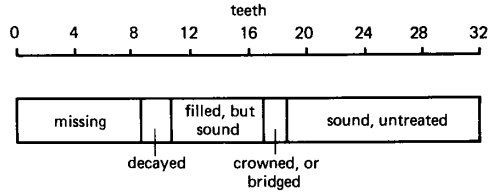
Two national surveys of adults in 1968[1] and 1978,[2] and one of children in 1973[3], have given a detailed view of the state of dentition in Britain. The results of the surveys are striking. Caries is present in two-thirds of children at age 5 (Figure 64). In the 1968 survey, in adults in the age group 16–34, only 2 per cent of those with some natural teeth had 27 or more (out of 32) teeth that were sound and had never been treated. For adults with some natural teeth, an average of only 13 out of 32 teeth in the 1978 survey were completely sound (Figure 65).

**Figure 64** Tooth decay in children, England and Wales 1973




*Source:* Todd J E. Children's dental health in England and Wales 1973 (tables 3.1 and 3.4). London, HM Stationery Office, 1975.

**Figure 65** Average state of teeth in all adults with some natural teeth, England and Wales 1978




*Source:* Todd J E and Walker A M. Adult dental health 1968–78, vol 1 (table 6.1). London, HM Stationery Office, 1980.

A marked feature of adult dental health is the number of teeth extracted: 29 per cent of adults in 1978 were completely without natural teeth, although this is lower than the 1968 level of 37 per cent. Teeth are extracted at younger ages for caries, because extraction is a quicker form of treatment than restoration by filling. At older ages, tooth loss is more often due to gum disease.

There is a geographical gradient of people who have lost all their teeth, from 33 per cent in the north to 21 per cent in London and the south east (Table 9). There is also a social class gradient of 21 per cent for non-manual workers to 37 per cent for semi-skilled and unskilled manual workers. The surveys indicate no great variation in decay, by region or social class. Rather, there is variation both in the demand for treatment and in the treatment available and given.

The attitudes towards dental care are thus an important determinant of the state of dental health. In the 1978 adult dental survey, people who said they would prefer

to have an aching back tooth extracted rather than filled, or who did not attend a dentist regularly for a check-up, were older and more likely to be living in the north. Only a quarter of all adults with teeth had ever been given a demonstration on how to clean them.

The treatment given also depends upon the ratio of dentists to patients. In general, in the north there are fewer dentists. But a comparison of two towns in the north showed that an unfavourable dentist/patient ratio was particularly detrimental to the children of manual workers, whereas with enough dentists the level of conservation was much closer between social classes (Figure 66).[4]

Overcrowding and the estimated need for orthodontic care in children is greatest at eight years old, and reduces thereafter as a result of appliance therapy. However, no satisfactory method of measuring the social and psychological factors which cause people to seek correction of malocclusions has yet been perfected.[5]

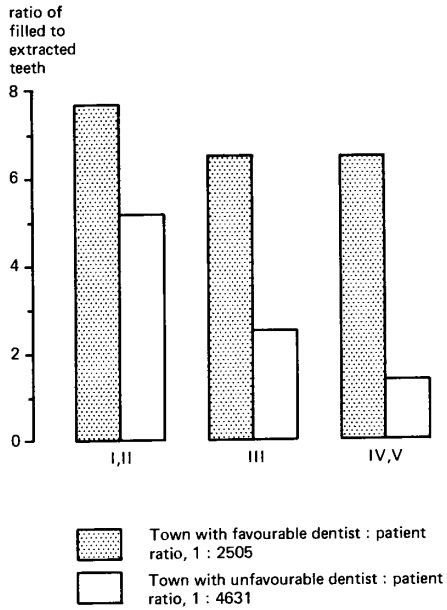
The amount of gum disease is also difficult to measure, but it was estimated in 1968[1] to affect about a quarter of the remaining natural teeth in adults (Figure 67, page 82).

**Table 9** Regional differences in proportion of men with no natural teeth, England and Wales 1978

| | *North* % | *Wales and South West* % | *Midlands and East Anglia* % | *London and South East* % |
|---|---|---|---|---|
| 35–44 | 16 | 14 | 5 | 4 |
| 55–64 | 53 | 47 | 40 | 27 |
| all ages (16–75+) | 29 | 28 | 27 | 16 |

*Source:* Todd J E and Walker A M. Adult dental health, vol 1. England and Wales 1968–1978 (table 4.4). London, HM Stationery Office, 1980.

**Figure 66** Ratio of filled to extracted teeth of children age 14 in two towns by social class




*Source:* O'Mullane D M and Robinson M E. The distribution of dentists and the uptake of dental treatment by schoolchildren in England. Community Dentistry and Oral Epidemiology, vol 5, no 4. 1977. pp 156–159.

## Prevention

There can be no doubt of the considerable public health benefit if a greater proportion of resources were to be deployed on prevention.

**Fluoridation**[6,7] Fluoride in water supplies, at a safe level of one part per million, will substantially reduce the prevalence of new tooth decay (Figure 68, page 82). Among the British studies showing the benefit of fluoride (Figure 69, page 83) are a comparison of Hartlepool (high fluoride) and York (low fluoride), and of the

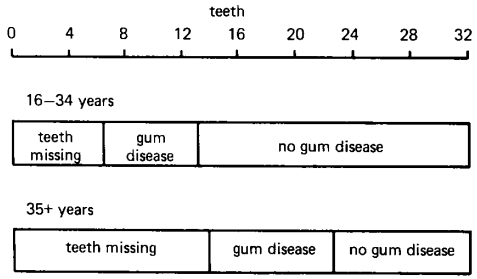
artificial fluoridation of Cumbria[8], Newcastle[9], Birmingham, Watford, part of Anglesey and Kilmarnock.[7] In Kilmarnock, fluoridation was subsequently discontinued by the borough council and childhood caries once again rose to the proportions of pre-fluoridation days.[7]

Protection from caries occurs through fluoride absorption during the growing phase of childhood, and lasts for life, although the onset of new dental caries is less common in adults. The exact mechanism is not known. Kept within the recommended level of between 0.8 and 1.2 ppm, fluoridation of water has no adverse effects. Tooth mottling occurs only at higher concentrations (which also, however, occur naturally) and there is no evidence to support any skeletal or renal effects, congenital malformations or carcinogenesis.[7]

The cost of building and running fluoridation schemes depends upon the arrangements for water supply: an estimate for the annual cost in Birmingham was 1.5p per head in 1976.[7] The cost-effectiveness of water fluoridation was shown by an estimate in 1968 that £40 000 spent on dental care would provide 17 000 dental restorations; the same amount spent on topical application of fluoride would prevent 60 000 cavities, and on water fluoridation would prevent 670 000 cavities.[10]

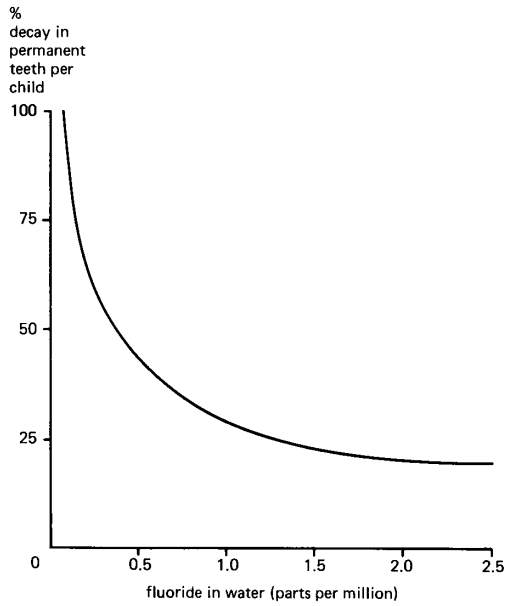
Alternative methods of fluoridation include fluoride tablets, fluoride added to vitamin solutions and fluoridation of milk. These all fail as public health measures because only a minority of the public (and those with least caries risk because of other good dental habits) will take them regularly. There are also good grounds for reducing consumption of sugar and other refined carbohydrates, perhaps by selective taxation.

**Figure 67** Average number of teeth affected by gum disease in adults, England and Wales 1978




*Source:* Gray P G, Todd J E, Slack G L and Bulman J S. Adult dental health in England and Wales in 1968 (table 7.1). London, HM Stationery Office, 1970. (SS 411)

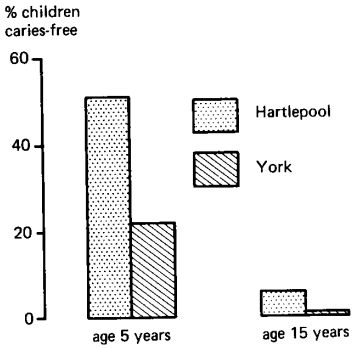
**Figure 68** Approximate relationship between fluoride content of water and dental decay in children




*Source:* Royal College of Physicians. Fluoride, teeth and health (figure 3.1). Tunbridge Wells, Pitman Medical, 1976.

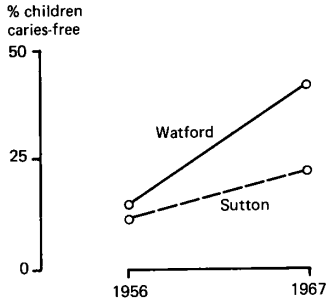
**Figure 69** Three studies of fluoridation

(a) Northern England



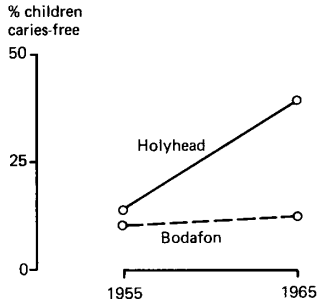

Similar towns with differing natural water fluoride content, studied in the same year.

(b) Southern England




Fluoridation was introduced in Watford in 1956; Sutton remained unfluoridated.

(c) Wales




Fluoridation was introduced in Holyhead in 1956; Bodafon remained unfluoridated.

*Source:* Royal College of Physicians. Fluoride, teeth and health (table 3.2). Tunbridge Wells, Pitman Medical, 1976.

Support for fluoridation as a public health measure has come from the World Health Organization, DHSS, and governments throughout the world. Opposition is local but vocal. In Britain, the most frequent argument against fluoridation is based upon 'civil liberties', and suggests that no one should be forced to ingest any substance against his will. Inconsistently, those who hold this objection accept the regular addition of several other substances to drinking water such as copper sulphate, chlorine, aluminium and calcium. But it is essentially an argument of philosophy, not science, and must be balanced against the immense morbidity and appreciable number of deaths (from dental anaesthesia and bacterial endocarditis) ensuing from withholding fluoridation.[7]

**Oral hygiene**[11] Brushing of teeth does not prevent caries unless a high standard of brushing is achieved; but it is a simple, easy and inexpensive way of controlling periodontal disease. If children are not encouraged to form regular and efficient cleaning habits by parents,

encouragement must be through dental health personnel, who provide regular recall examination and supervision of brushing: if this is discontinued, hygiene deteriorates to pre-existing levels. Health education and supervision are the tasks of dental hygienists, whose preventive role is as important as the treatment role of dentists. Adults benefit particularly from dental hygiene, because the main problem of adults is gum disease rather than caries.

### Services

Dental services are deployed in three sectors, similar to medical services — hospital, general dental practice and community, but their proportions are different from medicine. Most dental care is given by general dental practitioners, working as independent contractors to the NHS and paid by item-of-service (in contrast to general medical practitioners, who are paid mainly according to their list size, regardless of the quantity of treatment). Hospital dentistry is quite limited, necessary for difficult extractions (particularly for patients with other medical conditions), for trauma, tumours and some orthodontic work. Community dentistry, derived from the former public health service, is empowered to provide services only for children in state schools, pregnant women and, under some circumstances, handicapped people.

The resources available for dental services are not deployed to achieve maximum dental health. Item-of-service payment for dental practitioners encourages fast, restorative work; whereas good dental health care services should give at least an equal emphasis to prevention. This could be achieved by far greater use of ancillary workers than at present.[12] Dental auxiliaries could undertake a substantial proportion of the present work of fillings, particularly for children[13], at less cost to the public, if the NHS system allowed this. Dental hygienists could provide advice and encouragement on personal habits for dental conservation, to overcome the vast loss of teeth that at present occurs. And the most effective single use of resources would be the introduction of water fluoridation: at present less than 10 per cent of the population is receiving water supplies containing added fluoride.[7]

**Table 10** Orthodontic treatment in children: need and provision, England and Wales 1973

| | *Need* | | *Provision* | |
|---|---|---|---|---|
| *Age* | *All orthodontic treatment* % | *Appliance* % | *Orthodontic extraction* % | *Appliance* % |
| 5 | 17 | 8 | 0 | 0 |
| 8 | 57 | 40 | 0 | 0 |
| 11 | 46 | 34 | 7 | 3 |
| 15 | 27 | 20 | 21 | 1 |

*Source:* Todd J E. Children's dental health in England and Wales 1973 (tables 8.11, 8.12 and 8.14). London, HM Stationery Office, 1975.

**Children** Bowden[13] reviewed the dental needs of children about to leave school in north-west England. Eighty per cent of the children needed treatment for dental caries, for periodontal disease, or for both conditions. Eighty per cent of the work could be performed by dental auxillaries or dental hygienists. About 30 per cent of the children would also benefit from orthodontic treatment (Table 10).

About one-quarter of pre-school children, and three-quarters of children aged 5 to 15, attend a dentist during a year. Eighty per cent of treatments are provided by the general dental service, but the school dental service continues to be needed to inspect and treat children whose parents would not think of taking them to a dentist (and who often do not go regularly themselves).[14]

Although the amount of child restorative treatment given by general dental practitioners is growing, the

massive unmet dental health needs of children require new initiatives. One solution[15] would be to develop pilot schemes of GDPs working wholly with children, and paid on a capitation basis rather than item-of-service. Alternatively[13], and with greater cost-effectiveness, dental auxiliaries and hygienists could be recruited to the school dental service, where recruitment of dental officers is poor. The latter scheme would depend upon a higher level of pay for dental officers in the school service and on establishing more training schools for dental auxiliaries.

There are pilot studies of applying fluorides directly to teeth, and sealing teeth fissures with resins. These preventive methods are still under evaluation, and their cost-effectiveness is not known. They may be of benefit for handicapped or otherwise disadvantaged children, whose dental health may be particularly poor.[16]

The majority of children attending hospital do so for orthodontic care. The separation of this service from community clinics is historic, and largely unnecessary.[17] In an integrated service, the consultant orthodontist serving a defined population holds joint clinics with school dental officers and GDPs, who provide education and can help in orthodontic work.[18]

**Handicapped and elderly people** An enquiry into the dental health of physically handicapped adults attending a day centre[19] showed that the proportion of clients receiving regular dental care was similar to the national average. They were more likely to be attending a hospital dental department than a general dental practitioner, for whom there is a financial disadvantage because the time taken in treatment is longer. But a further group are in need of assessment, and will accept treatment if it is offered locally. There is also a substantial need among elderly people for dental care, particularly in improving the fit of dentures[20], as studies of outpatients and long-stay inpatients have shown.[21,22] Services for these patients are often underfunded and neglected, and it may be difficult to convince staff of the need these patients have for dental care.

**Hospital services** Inpatient dental care is not given at every district hospital, but visiting dental consultants advise on mixed medical-dental problems such as fracture of the jaw or bacterial endocarditis. Most hospital oral surgery can be performed as day care[23], and some of the referrals are for work that is usually within the competence of general dental practitioners.

Emergency dental care is not a contractual part of a general dental practitioner's work, but can be provided on request. In urban areas, emergency care is often offered by district hospitals which have either a resident dental house officer or a rota of general dental practitioners who have agreed to be on call.[24,25]

Judged from the aspect of prevention, dental care services are inefficient and ineffective. The expenditure currently employed on extraction and restoration could be better spent on fluoridation, dental hygiene and dental health education. The primary constraint to this is the organisation and financing of the service. Sheiham[10] also gives evidence of the ineffectiveness of the present services. In one study, one in three restorations was judged a failure, and two-thirds of dentures were ill-fitting. Sheiham has also questioned the value of six-monthly examinations[26]: an interval of one year for adolescents and up to two years for adults would seem to be as valuable. On the other hand, far more experimentation is needed in new patterns of preventive dentistry, preferably on a basis of capitation or salaried payment for dentist and an expanded dental team. And, as Moser and others[27] proposed 20 years ago, a study of good dental practice would be particularly welcome.

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# 16 Infectious diseases

## Epidemiology

Certain infectious diseases are statutorily notifiable to the medical officer of environmental health by the doctor who makes the diagnosis (Table 11). A national summary of the cases notified is published each week (OPCS Monitor, weekly return) and the corrected notifications are published quarterly and annually (OPCS Series MB2). Notification is much less than complete for the milder childhood infections such as measles or mumps. However, the proportion of cases notified compared with all cases is believed to remain steady; the annual figures are therefore useful indicators of trends (Figure 70, pages 88–89).

From 1975 there was a fall in vaccination for whooping cough because of concern for possible side-effects.[1] Subsequently there has been a rise in notifications for whooping cough, returning to levels of the 1950s before specific vaccination[2].

Polio immunisation from the 1950s has led to the virtual abolition of this condition.

Sustained reductions in notifications also followed the introduction of measles immunisation in the late 1960s.

Notifications for meningitis, for which there is no immunisation available, rose up to 1975 but have since declined. The reason is not known.

**Table 11** Notifiable infectious diseases in England and Wales

| | |
|---|---|
| anthrax | paratyphoid fever |
| cholera | plague |
| diphtheria | poliomyelitis |
| dysentery | rabies |
| encephalitis | relapsing fever |
| food poisoning | scarlet fever |
| infective jaundice | smallpox |
| lassa fever | tetanus |
| leptospirosis | tuberculosis |
| malaria | typhoid fever |
| marburg disease | typhus |
| measles | viral haemorrhagic disease |
| meningitis | whooping cough |
| ophthalmia neonatorum | yellow fever |

*Source:* Great Britain, Office of Population Censuses and Surveys. Statistics of infectious diseases 1979. London, HM Stationery Office, 1981. (Series MB2 no 6)

Typhoid and para-typhoid are usually contracted abroad, particularly in recent immigrants from Asia who return to their country of birth for a holiday. Their previous natural immunity to typhoid, maintained by frequent challenge from the local environment, is diminished by living in Britain. Active immunisation should be taken by all travellers to countries where the infection is prevalent.

Tuberculosis notifications show a continuing decline. However, many cases are now in immigrants, so that some districts in England have increasing rates.

The rapid rise in notifications for malaria reflects the expansion of international air travel. This trend would be reversed if all travellers took an adequate course of antimalarial tablets.

**Prevention**

Infectious diseases were the major cause of death until the present century and their control has been due primarily to the public health movement. Better housing, nutrition and sanitation were introduced partly by legislation and partly through general rises in the standard of living. The major battle to control infections was won before the 1930s, when specific measures of immunisation and chemotherapy were first introduced.[3] There may also have been a decline in the virulence of some infections.

The regime for childhood immunisations is now fairly standard, although uptake varies with social class and

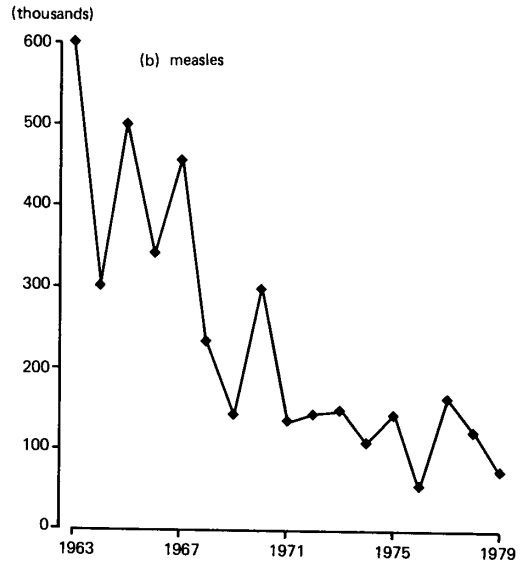
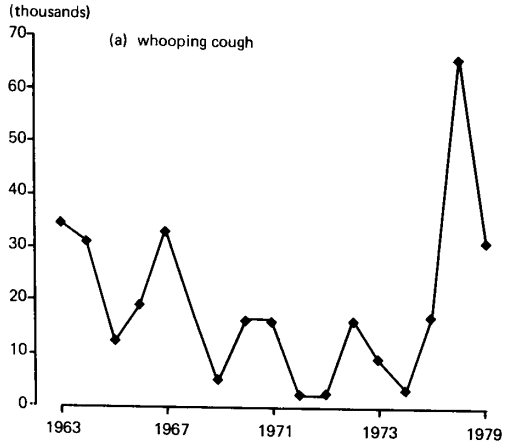
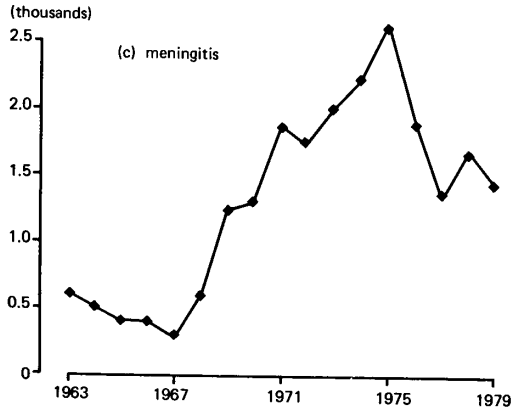
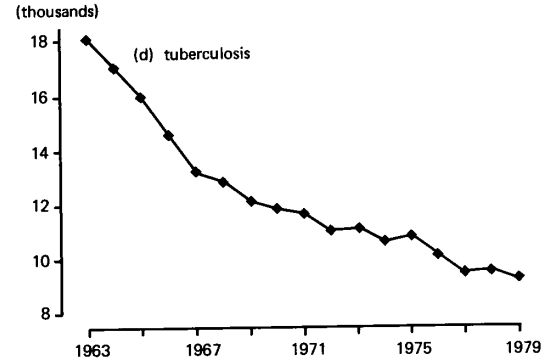
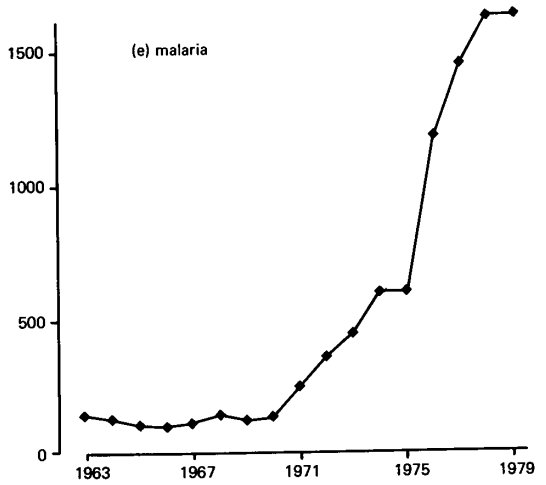



**Figure 70** Notifications of selected infectious diseases, England and Wales 1963–79






*Source:* Great Britain, Office of Population Censuses and Surveys. Statistics of infectious diseases. London, HM Stationery Office, annually. (Series MB3)

area. Immunisation against whooping cough and measles continue to be recommended in the belief that they provide a measure of community control that more than offsets the rare but damaging side-effects. Polio and typhoid immunisations are valuable for people travelling abroad, although not necessarily required by international regulations.

The pattern of major influenza epidemics during the century suggests a cycle every 11–13 years when a new sub-type of virus comes to the population. Between these major changes, minor 'drifts' also occur but with less dramatic impact. Unfortunately, there are many sub-categories within the two main strains of virus, and it is impossible to predict each year which strain will become epidemic. Mass campaigns of influenza vaccination have never been shown to be efficacious, and, although annual immunisation of particular groups (such as people with chronic respiratory disease, industrial workers or key medical personnel), is usually recommended, such a policy may not be cost-effective.

Routine smallpox vaccination was discontinued in Britain in 1971[4], and worldwide eradication of smallpox was achieved in 1977.[5]

Mass x-ray for tuberculosis has been abandoned since it was shown largely not to be cost-effective.[6,7] It has also been suggested that BCG immunisation against tuberculosis could usefully be given to children at high risk of infection from adults in their home (particularly in immigrant communities) rather than waiting until 13 to test the child's immune status.

**Services**

A medical officer of environmental health is appointed as adviser to every local authority. Non-medical environmental health officers do the fieldwork of supervising infected people and their contacts in the home and at

work. There are also facilities for deinfestation, and for protective transport of smallpox or lassa fever suspects and subsequent fumigation.

In the past, serious infectious diseases were treated in isolation hospitals, remote from urban areas. However, except for smallpox and lassa fever, these precautions are now unnecessary, and isolation can be practised successfully in general hospitals, where the full range of investigative procedures are available. In a system developed at Northwick Park Hospital[8], patients were allocated for different types of care according to the method of transmission of their infection (Table 12).

Many of the recommendations of isolation techniques are made on general principles, but have not been tested experimentally. For example, it is not known how or whether ventilation of hospital rooms affects the probability of spreading infection. Thus, although a separate isolation ward is preferable, useful isolation nursing can also be provided in the side-rooms of general wards.

**Table 12** Appropriate methods of infection control in hospital

| *Method* | *Condition* |
|---|---|
| strict isolation | suspected smallpox<br>staphylococcal pneumonia<br>E Coli enteritis in infants |
| stool/urine/needle isolation | typhoid<br>viral hepatitis<br>diarrhoea of unknown cause |
| standard | streptococcal infections<br>drug resistant staphylococcal infections |
| protective | immunosuppressive therapy<br>agranulocytosis |

*Source:* Tyrell D A J, Stephany J, Larson H E and Blowers R. An isolation unit in a district general hospital. British Medical Journal, vol 2, no 6083. 6 August, 1977. pp 373–374.

Patients in hospital are not only more likely to be infectious, but also to have lowered resistance to infection. It is a good reason for keeping people out of hospital wherever possible, especially children. Hospitals usually have a control of infection committee[9], to which day-to-day problems can be referred, or have introduced policies for antibiotic use.[10]

The Communicable Diseases Surveillance Centre has been established to coordinate national epidemiological investigations, and to provide a reference centre for unusual problems.[11]

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# 17 Sexually transmitted diseases

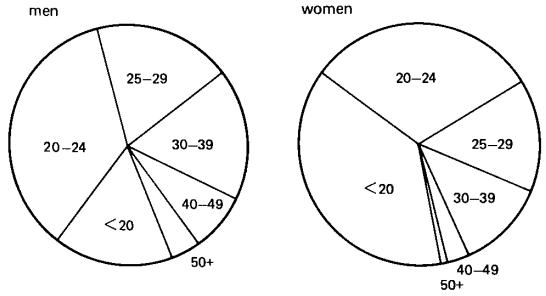
## Epidemiology

The three most important sexually transmitted diseases (STD) are syphilis, gonorrhoea and non-specific infection, although several other conditions are also found.

Most statistical information about STD is derived from people attending clinics. Woodcock has commented that, for epidemiological purposes, 'the information being collected and published is incomplete by an unknown amount, inadequate because it tells only of laboratory diagnosis, and unusable at a local level because it relates to no identifiable population'.[1] Clinic data under-record the true prevalence of STD because some people are treated by general practitioners, or treat themselves with antibiotics retained from a previous infection. Some people, indeed, have mild symptoms and do not regard treatment as necessary. Laboratory diagnostic records do not reflect the problems that individuals perceive when they present themselves, and are, therefore, not a true indication of need. Patients have free access to clinics, without regard for catchment boundaries.

People attending STD clinics are mostly young (Figure 71) and are more commonly men than women (Table 13). The social class distribution approximately follows that of the general population[2,3] although a higher proportion of clinic attenders are migrant workers and travellers.[4]

**Figure 71** Ages of people attending sexually transmitted disease clinics.




*Sources:* Heywood C P and Bacon P M. A survey of male clinic registrations. British Journal of Venereal Diseases, vol 51, no 6. December, 1975. pp 405–409. *and* Bacon P M. A survey of female clinic registrations. British Journal of Venereal Diseases, vol 55, no 4. August, 1979. pp 255–259.

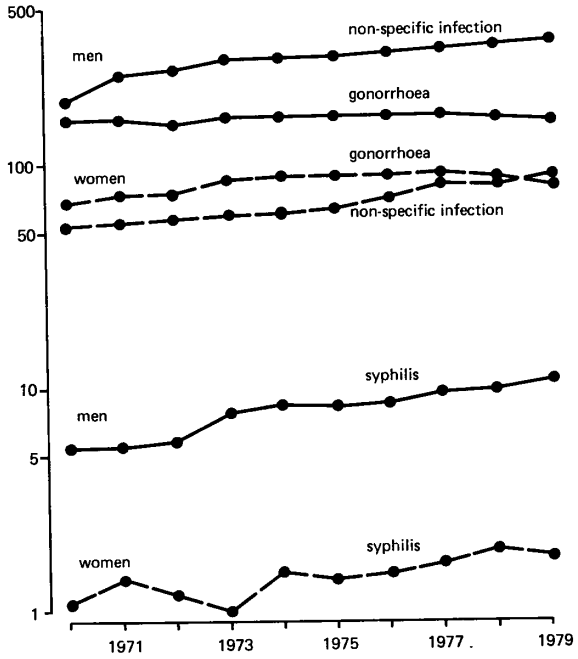
**Table 13** Sexually transmitted diseases (selected diagnoses): new cases seen at hospital clinics, England 1978–79 (rate per 100 000)

| | *Men* | *Women* |
|---|---|---|
| non-specific infection | 349 | 86 |
| gonorrhoea | 155 | 86 |
| candida | 35 | 132 |
| warts | 69 | 37 |
| herpes | 24 | 14 |
| pubic lice | 22 | 10 |
| early syphilis | 11 | 2 |
| not requiring treatment | 275 | 159 |

*Source:* Great Britain, Department of Health and Social Security. On the state of the public health for the year 1979 (table 5.4). London, HM Stationery Office, 1980.

About half of all attendances at STD clinics are in London, compared with a sixth of the population living in the capital.[4] There was a rapid increase in new cases nationally during the 1960s, particularly gonorrhoea and non-specific infections. This subsequently levelled off, perhaps due to improvements in tracing contacts. On the other hand, syphilitic infections have been increasing in the last few years (Figure 72).

**Figure 72** New patients attending hospital clinics for sexually transmitted diseases, England and Wales 1970–79 (rate per 100 000, log scale)




*Source:* Great Britain, Department of Health and Social Security. On the state of the public health (table 5.3). London, HM Stationery Office, annually.

## Prevention

Primary prevention of STD is by education of sexual caution; for example, that the male partner in a casual relationship should use a sheath. People who have symptoms also need to come earlier for treatment. Delay is partly due to not recognising the meaning of symptoms, and partly to being afraid to take action.[5] Health education needs to provide simple factual information, emphasising the effectiveness of treatment. Programmes that attempt to use fear to provoke action are likely to be unsuccessful.

Important secondary prevention is the work of tracing contacts.[6,7] Patients are encouraged to ask people with whom they have had recent sexual contact to come to the clinic. Workers attached to the clinic may also visit contacts at home, and this can double the number of contacts seen.

## Services

There are almost 200 clinics for STD in England and Wales, but half the clinics are open for ten hours or less in a week, and one-third for five hours or less;[8] and there are differences between clinics in the criteria used for diagnosis, treatment, and reporting.[9] Twenty per cent of clinics do not have contact tracers. Adler has commented: 'The main problem facing the STD service today is exactly the same as that found when the facilities for diagnosis and treatment were first established by the Venereal Disease Regulations in 1918 — namely, a large increase in patients, a shortage of staff, and inadequate facilities.'[8]

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# 18 Cancer

## Epidemiology

Cancer is the second commonest cause of death at age 1–14 years (Figure 8, Chapter 2), but most cancers occur in later life (Figure 73). There has been little change in cancer mortality since the beginning of the century: the falling incidence of the majority of cancers has been offset by the marked rise in lung cancer (Figure 74, page 96). Variations by social class are evident in lung and stomach cancers (Figure 75, page 97), but are relatively slight for other sites. Standardised mortality ratios for breast cancer are greater in the south than the north, but most other cancers show the more typical higher rates in the north. Although 20 per cent of deaths (128 000 in England and Wales in 1978) are certified due to cancer, only 6 per cent of general hospital admissions and 2 per cent of GP consultations have a primary diagnosis of cancer. This reflects the still limited benefit of treatment.

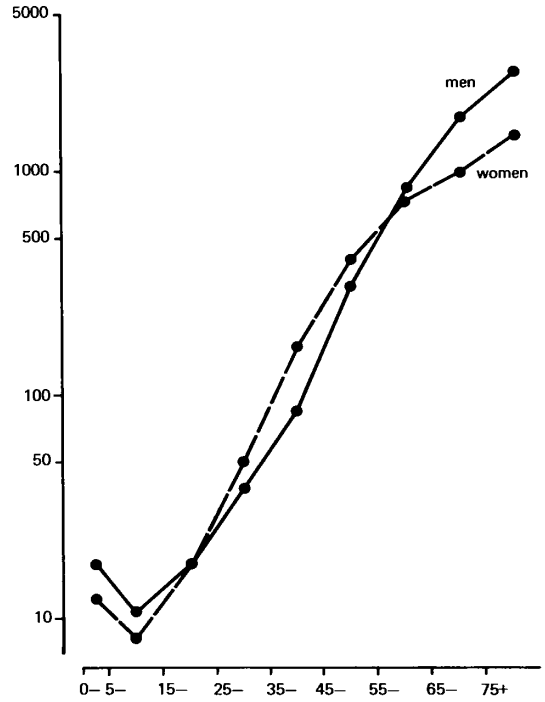
Cancer registrations (Chapter 32), combined with death certificates, give a better description of the epidemiology than for any other chronic disease. Incidence and survival rates by site are available nationally, and from regional registries (Figure 76, page 97).[1]

## Prevention

International comparisons (Table 14, page 98) show wide variations in the incidence of similar cancers, and it has been concluded that most cancers are likely to be primarily of environmental origin.[2]

The greatest single preventable factor is cigarette smoking which, apart from causing over 90 per cent of lung cancers, increases the risk of cancer of the mouth, throat, oesophagus and urinary tract.[3,4] Forty per cent of all cancer deaths are due to this single factor (Chapter 4).

**Figure 73** Cancer registration in England and Wales 1975 (age specific rates per 100 000, log scale)




*Source:* Great Britain, Office of Population Censuses and Surveys. Cancer statistics registrations 1975 (table 5). London, HM Stationery Office, 1981. (Series MB1 no 5)

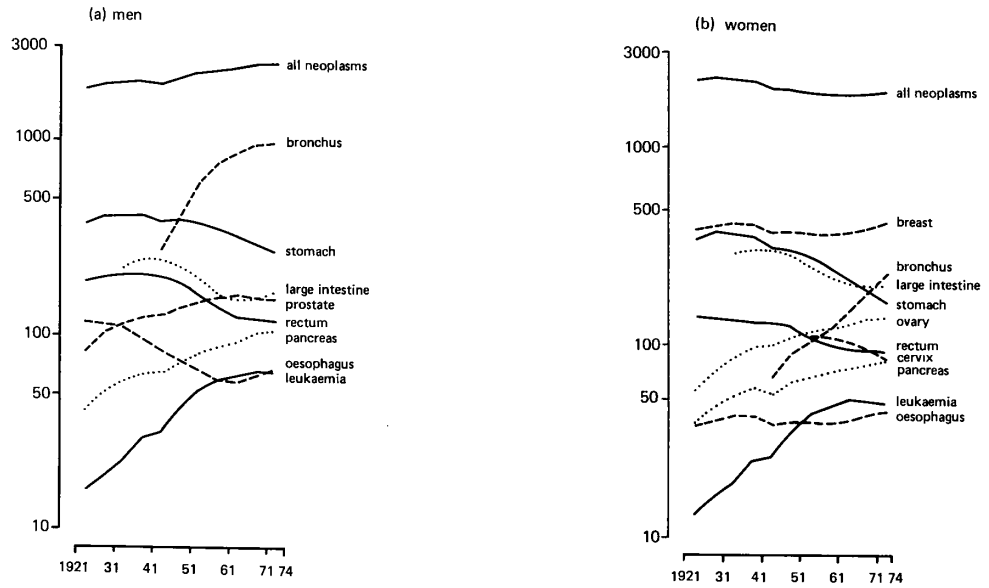
Environmental carcinogens have been identified, particularly in industrial processes. Examples include naphthylamine and benzene causing bladder cancer in dye and rubber industry workers; polyvinyl chloride which causes liver cancer; and asbestos which causes mesothelioma of the lung. Interest is often initially aroused in a clinician, pathologist or epidemiologist by a cluster of cases of unusual cancers; for example, the association of nasal cancer in the woodwork industry was found by an ENT surgeon's review of several cases in one locality.[5]

Some agents, such as asbestos, arise from industrial processes but spread more widely in ambient air. Strict standards for 'acceptable' levels of asbestos dust have now been recommended.[6] It will be necessary to wait many years to be clear to what extent these levels still predispose to mesothelioma of the lung.[2]

Diet is likely to be an important factor in cancers of the alimentary tract, but few specific agents producing cancer have been found.[7,8] Oesophageal cancer is associated with a high intake of alcohol. Stomach cancer may be related to nitrosamines (Chapter 5).

Presymptommatic screening is an attractive concept for cancer because the disease usually starts at one site and, in principle, early removal can lead to cure. However, the time during which presymptommatic detection is

**Figure 74** Cancer deaths by site and sex, England and Wales 1921–74 (age standardised rates per 100 000, log scale)



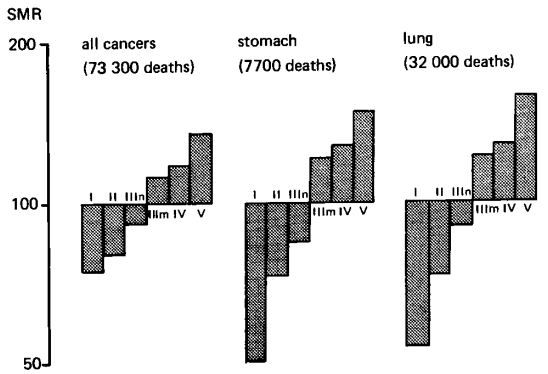

*Source:* Great Britain, Office of Population Censuses and Surveys. Trends in mortality 1951–75 (appendix table B). London, HM Stationery Office, 1978. (Series DH1 no 3)

possible is often quite short, and rescreening would need to be too frequent to be practicable.[9] Routine screening is recommended only for three cancers.

1 **Cancer of the cervix** Here, the screening programme is aimed at identifying pre-cancerous changes. The difficulties are discussed in Chapter 24.

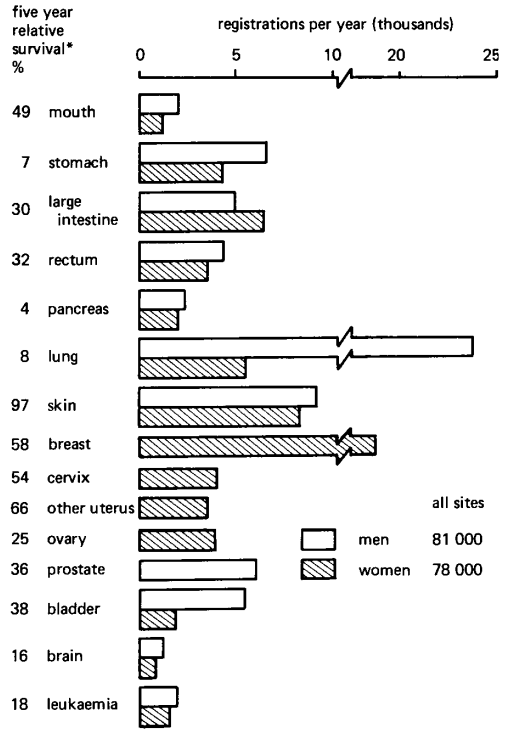
2 **Cancer of the breast** Evidence for the benefit of screening for breast cancer comes from a large study in America. Only women between 50 and 59 years old showed benefit from screening, and for this group, followed for seven years, mortality was only reduced by one third.[10] On this evidence, a major screening programme might only identify 10 per cent of cancers and there would be substantial difficulties from false positives (biopsies on lumps that proved to be benign) and false negatives (patients clear on screening who shortly afterwards develop clinical cancer). Pilot screening programmes are therefore being evaluated to see

**Figure 75** Standardised mortality ratios by social class for cancers in men age 15–64, England and Wales 1970–72 (log scale)




*Source:* Great Britain, Office of Population Censuses and Surveys. Occupational mortality 1970–72 (table 4A). London, HM Stationery Office, 1978. (Series DS no 1)

**Figure 76** Selected cancer registrations and five year survival, England and Wales 1971–73




*relative survival rates take into account expected deaths for other conditions at each age

*Source:* Great Britain, Office of Population Censuses and Surveys. Cancer statistics: survival (table 3). London, HM Stationery Office, 1980. (Series MB1 no 3)

whether death rates are reduced in comparison with control areas.[11,12] Of course, patients with symptoms will continue to be referred by general practitioners for specialist services in the usual way, and much could be done to improve the efficiency of this channel of diagnosis.[13,14]

3 **Cancer of the bladder** Although the dye and rubber industries now undertake routine surveillance of their workers for bladder cancer, employees of many years ago, who have left the industry, are still at risk. The DHSS has contacted about 15 000 ex-employees using national insurance records, and offers regular screening (urine cytology) through health authorities.[15]

## Services

Many cancer charities have maintained an optimistic view of progress in cancer treatment, combined with a call for increased fundamental biological research.[16] Understanding of cellular behaviour, immunology and pharmacology has progressed, and the new specialty of oncology links these basic sciences with clinical practice. But survival has changed little over the past decades, except in a few rarer cancers, despite considerable investment[17]; and relatively few patients are yet included in the randomised comparative trials needed to make advances in therapy.[18]

**Table 14** Very common cancers: approximate range of variation of cumulative incidence rates up to age 75

| *Cancer site* | *High incidence* | | *Low incidence* | | |
|---|---|---|---|---|---|
| | *Area* | *Risk %* | *Area* | *Risk %* | *Range* |
| oesophagus | NE Iran | 20 | Nigeria | 0.1 | × 300 |
| skin | USA (Texas) | 17 | India (Bombay) | 0.1 | × 150 |
| bronchus | England | 11 | Nigeria | 0.1 | × 100 |
| stomach | Japan | 11 | Uganda | 0.2 | × 50 |
| cervix uteri | Columbia | 10 | Israel (Jewish) | 0.6 | × 20 |
| liver | Mozambique | 8 | Norway | 0.1 | × 20 |
| prostate | USA (black) | 7 | Japan | 0.3 | × 20 |
| breast | USA (Connecticut) | 7 | Uganda | 0.9 | × 7 |

*Source:* Doll R. Epidemiology of cancer: current perspectives. American Journal of Epidemiology, vol 104, no 4. October, 1976. pp 396–404.

Part of the difficulty in evaluating the benefit of cancer treatment is that little is known of the natural history of different cancers. It would probably be unacceptable to compare a current treatment prospectively against an untreated control group. Yet there is scepticism, for example, as to whether any treatment of the primary breast tumour will affect the ultimate prognosis. A tumour of 1 cm already has a billion cancer cells within it, and increases only about a thousandfold more before death.[19] The important characteristics for survival are how fast the tumour grows, and whether it spreads beyond the original site.

It is also not known whether early diagnosis necessarily improves survival. Studies of some cancers showed more favourable outcomes in patients with symptoms for a longer rather than shorter time.[20,21] But, it is possible that patients with a long period of symptoms before presenting may have a different natural history to those with a short period of symptoms.

Most of the cancers that can be cured are of the skin, head and neck. They present early because they are easily visible, and have only local dissemination. For many other cancers, treatment may sometimes cure, but survival rates are not good because it is secondary dissemination of the cancer that is eventually fatal. Cancers in this group include breast, intestine and uterus. For a third group of cancers, cure is rare — this includes the common cancers of lung[22] and stomach, as well as rarer ones such as ovary, oesophagus and most brain tumours.

Hospital admissions occur under various specialties (Table 15).

Surgery is still the major treatment for most common solid tumours and is likely to remain so for many years. It is also used in reconstruction of parts destroyed in the initial treatment, and in later stages for relief of obstruction of the bowel.

Radiotherapy offers results comparable with surgery for tumours of the bladder, prostate and cervix. It has considerable benefit in lymphomas, particularly when the extent of disease within the abdomen has been determined by initial surgical investigation. Cancer of the lung cannot be cured by radiotherapy, but sometimes symptoms of obstruction can be temporarily relieved.

Drug treatment for cancer (cytotoxic chemotherapy) has increased in the past decade. Dramatic success has been achieved in treatment of certain rare tumours of pregnancy, lymphomas and childhood leukaemia.[23] But most other cancers give only temporary remission. In theory, chemotherapy should be particularly effective in limiting cancer spread, but lack of blood supply in tumours may prevent the drugs reaching their target cells. Chemotherapy is now widely used in association with surgery and radiotherapy. Some of this treatment is of questionable efficacy[24], and it has been suggested that cancer chemotherapy should still be limited to well-conducted clinical trials.[25-27]

**Table 15** Cancer patients: discharges by hospital departments

| | *General medicine %* | *General surgery %* | *Geriatrics %* | *Chest medicine %* | *Radio-therapy %* | *Other departments %* |
|---|---|---|---|---|---|---|
| stomach | 17 | 65 | 7 | – | – | 11 |
| bronchus | 27 | 4 | 5 | 30 | 10 | 24 |
| breast | 6 | 64 | 2 | – | 22 | 4 |
| site unspecified | 25 | 35 | 11 | – | 4 | 25 |
| leukaemias | 49 | 9 | 4 | – | 19 | 19 |
| all malignant neoplasms | 12 | 37 | 4 | 6 | 12 | 29 |

*Source:* Great Britain, Department of Health and Social Security. Hospital inpatient enquiry, main tables 1976 (table 12a). London, HM Stationery Office, 1979. (Series MB4 no 10)

The clinical oncologist is sometimes a radiotherapist with expertise in chemotherapy, sometimes a physician using drugs primarily and cooperating with surgeons and radiotherapists. Combined with other treatments, chemotherapy may prolong survival and improve the length of time a patient is 'clinically free' of the cancer. On the other hand, disadvantages of bone marrow suppression, nausea, hair loss and high cost[28] make it preferable for drug treatment to be used in a planned approach.

Four regions in England have set up pilot regional cancer organisations to develop policies for cancer control. They are based on the cancer registries, and have functions of coordinating clinical trials, reviewing the effectiveness of services and developing education and preventive strategies. They have received relatively little DHSS funding, and every region could probably develop similar oncology surveillance groups from within their specialist advisory committees structure.

The best place for cancer treatment remains undecided. It has been argued that treatment of children should be in regional centres so that doctors can build adequate expertise in treatment[29], although one study of leukaemia suggested that the results can be equally good at district hospitals if similar regimes are used.[30]

Radiotherapy units form a major component in a regional strategy for cancer services. Two types exist: the orthovoltage unit, producing ordinary x-rays and useful for superficial treatment; and the supervoltage unit, using a linear accelerator to produce a more deeply penetrating beam for internal treatment. Radiotherapy

equipment is expensive to install and requires several full-time physicists for maintenance, and to arrange the computer-based treatment schedules. It is usually recommended, therefore, that radiotherapy should be centralised as far as possible, with catchment populations of not less than one million per unit. The natural desire for treatment to be available at every district hospital (since cancer is a common condition) can be overcome to some extent by well-organised outpatient sessions at district hospitals by consultant radiotherapists. There may be room also for increasing the efficiency of current treatment schedules.[31]

Since cure will not be achieved for the majority of people with cancer, there must also be concern about the quality of life. Few studies of the outcome of cancer treatment include social as well as physical measures of well-being,[32] but there have been descriptive studies about communication between doctor and patients with cancer.[33,34]

'Voluntary' hospices have developed better standards of care for terminal cancer, where the main concern is control of pain and reducing fear of death.[35] These ideas are also being introduced in community services such as day hospitals, symptom-control teams and night-sitter services, to provide better terminal care at home.[36-39]

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# Section 3

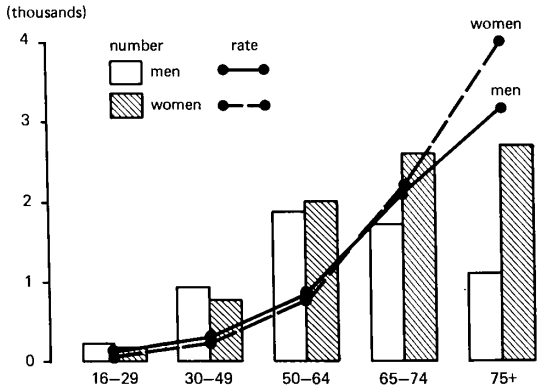
# Disability and Handicap

# 19 Disability

## Epidemiology

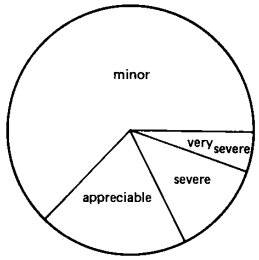
Estimates of the prevalence of disability depend on the definitions used and the grades of severity recorded by surveys. The words 'impairment', 'disability' and 'handicap' are used in two ways.[1,2] Impairment implies a lacking or defective limb, organ, or system of the body. In the commoner terminology, which will be used in this chapter, disability means limitation of function, whereas handicap is social limitation which can be overcome by aids or assistance. However, in a national survey, Harris[3] used the term 'handicap' to describe both functional and social limitation, leaving 'disability' as a non-specific word which can be applied to someone with an impairment, whether handicapped or not.

**Figure 77** Prevalence of handicap and impairment, Great Britain 1969 (number per 100 000 all ages *and* age-specific rate per 10 000)




*Source:* Harris A I. Handicapped and impaired in Great Britain, part 1 (tables 1 and 2). London, HM Stationery Office, 1971.

**Figure 78** Degree of handicap in people living at home, Great Britain 1969




*Source:* Harris A I. Handicapped and impaired in Great Britain, part 1 (table 9). London, HM Stationery Office, 1971.

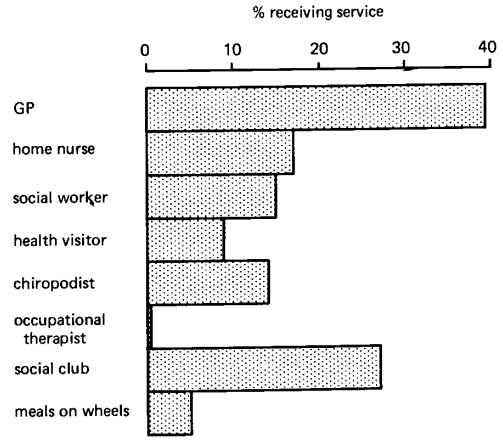
In that survey[3], about six per cent of the population (three million people) had an impairment. Prevalence rates rise with age, reaching one person in three impaired by 75 years (Figure 77). About a third of impairments produce disability or handicap (Figure 78). The overlap between old age (Chapter 20) and disability is important for health planning.

The Chronically Sick and Disabled Persons Act (1970) requires local authorities to make themselves aware of the number of disabled people in their area, and to provide appropriate services. Local surveys using a wide range of methods and precision have reached broadly similar estimates of prevalence[1], and show a considerable amount of unmet need. For example, in a population of 30 000 people in Canterbury[4] only about half of the disabled people were receiving care in the health or

social services (Figure 79), and detailed questioning yielded requests for a wide range of appliances, adaptations, home help or night attendance (Figure 80). Disabled people have high death rates, because most of them are elderly. Services have a continuing task to identify the many people becoming newly disabled each year.

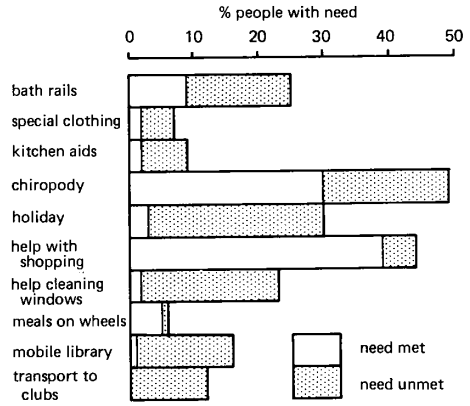
The number of people on the disabled employment register fell from 906 000 in 1951 to 532 000 in 1977.[5] Every employer with 20 or more workers is required by law to employ a quota of at least 3 per cent disabled workers, although a study in 1977 showed that only 37 per cent of firms achieved the quota (for instance, the NHS rarely fulfils its obligation here[6]). Two occupations, car park attendant and electric passenger lift operator, are 'designated' by law, and must normally be filled by registered disabled people.

**Figure 79** Services received by handicapped people living at home, Canterbury 1972




*Source:* Warren M D. The Canterbury survey of handicapped people (table 4.9). Canterbury, Health Services Research Unit, University of Kent, 1974.

**Figure 80** Some expressed needs of handicapped people living at home, Canterbury 1972




*Source:* Warren M D. The Canterbury survey of handicapped people (tables 4.11 and 4.12). Canterbury, Health Services Research Unit, University of Kent, 1974.

Arthritis is the commonest condition producing disability. It is more frequent in women, whereas lung disease and accidents are more frequent in men. Neurological conditions, although less common, often produce severe handicap (Figure 81, page 106), and are more likely to affect younger people. Heavily dependent people are most often in geriatric hospital wards and private nursing homes, although the total number of disabled people is greatest in local authority homes[7] (Figure 82, page 106).

## Prevention

Handicap registers are kept by some local authorities to assess community prevalence, and to monitor whether individuals are receiving services; but voluntary registration under-estimates the total number of disabled people.[8] There is some confusion over the purpose of registration; some local authorities make registration obligatory for the supply of certain services. There are

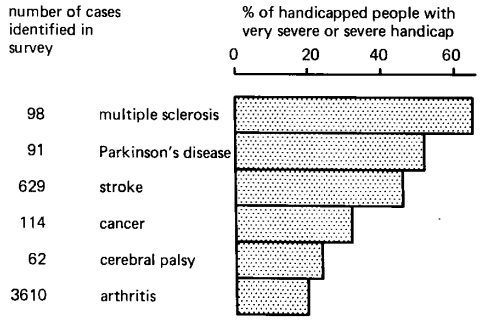
also sometimes financial advantages — registration as a blind person entitles that person to tax allowances, and registration as a handicapped person to council rent rebates. But many people resent formal registration. General practice registers, and contacts by the primary care team, might provide a better basis for surveillance.[9]

## Services

For the best results, a programme that encompasses rehabilitation should be in the mind of the physician as soon as the emergency is over, whilst the patient is recovering. Two everyday examples of the overlap between medical treatment and rehabilitation are early physiotherapy for hemiplegia after a stroke to minimise contracture, and graded reintroduction of exercises for a man who has had a myocardial infarction. More specialised services are needed for orthopaedic and rheumatological complaints.

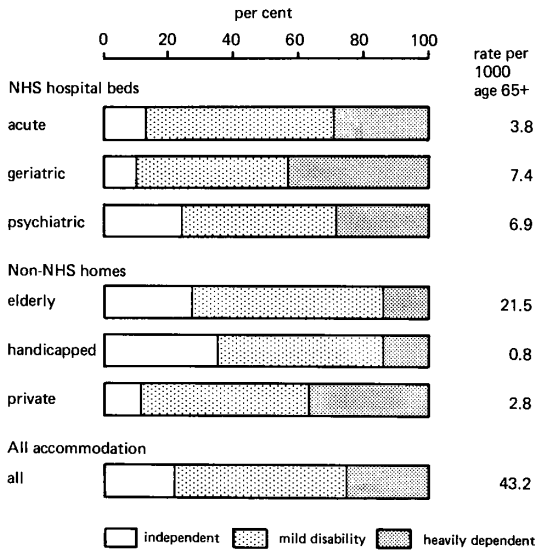
A review of medical rehabilitation services in 1972 recommended that every district should have a rehabilitation department at the main hospital, and that this should have close links with the geriatric and psychiatric

**Figure 81** Degree of handicap for various causes, Great Britain 1969




*Source:* Harris A I. Handicapped and impaired in Great Britain, part I (table A6). London, HM Stationery Office, 1971.

**Figure 82** Elderly people in residential care: pattern of disability, Leicestershire 1976.




*Source:* Clarke M, Hughes A O, Dodd K J and others. The elderly in residential care: pattern of disability (table 5). Health Trends, vol 11, no 1. February, 1979. pp 17–20.

day care units.[10] A typical example, attached to a small inpatient ward, is described by Golding.[11] The committee recommended that a consultant should be in charge, but believed that he could be from any relevant specialty (for example, neurology or orthopaedics). But consultants in rheumatology have increasingly desired to separate themselves from rehabilitation specialists, and the specialty of 'physical medicine' is declining.

Eighteen rehabilitation departments in England have been designated as 'demonstration centres' and receive special finance to develop new services. A quarterly newsletter gives details of their development.[12]

The departments range widely in size and services, from traditional hospital physical medicine and rheumatology departments, to residential units for specialist assessment (such as the Wolfson Centre, London; Mary Marlborough Lodge, Oxford) and day units separate from hospitals (Camden Road Rehabilitation Centre, London). There has been no published evaluation of the demonstration centres.

The number of convalescence beds within the NHS fell by over 50 per cent from 1958–1975. One large rehabilitation hospital on the south coast was found to be providing recuperative holidays more often than rehabilitation[13]: many of the patients were sent there routinely after acute illnesses or surgery (particularly after hysterectomy). There was little evidence that they improved more than if they had gone home directly. Studies of hernia operations[14,15] show considerable variation in the length of time off work after an operation, with no clear reasons to account for the variation.

The care provided for disabled people by home nurses ranges from occasional visits for injections to intensive supportive therapy and terminal care.[16] There have been successful developments of long-term nursing care in the 'Crossroads' and 'Hospital-at-home' schemes.[17] Even people needing continuous artificial respiration may be cared for at home, and this is often preferred by the patients.[18] However, the costs of continuous home nursing, including home help and laundry services, may approach those of institutional care.[19,20]

Access to remedial therapists for patients being cared for by their own GP is usually through a consultant outpatient clinic. This has the effect not only of increasing the number of people in outpatient departments (and the length of the waiting time for appointments), but also prolongs the time before therapy is provided. But open access to physiotherapy departments is practicable and the volume of new work is not great.[21] Poor use of facilities may well be because the findings, treatment and results of physiotherapy are rarely reported back to the doctor, and referrals would probably improve if an effort were made to educate the referring doctor towards appropriate use.[22]

Community physiotherapy requires evaluation. Partridge and Warren reviewed fourteen schemes, but caution: 'The fact that therapists enjoy treating patients and feel that it is worthwhile, and that patients appreciate the treatment and are grateful, does not mean that such a service is in fact a cost-effective way of spending limited Health Service money'.[22] Chiropody[23] and assessment of vision[24] are also important for elderly people to maintain their mobility.

Social services provide occupational therapy assessment for aids and adaptations to the house, support, 'life lines' with telephones, alarms and neighbourhood warden schemes, and day centres and luncheon clubs, as well as individual visiting.

The medical care of elderly people in residential homes is an NHS responsibility.[25] Most homes have a part-time visiting medical officer, usually a GP. The work done by this service has not been critically examined. There is often a confusion in the contract between the work of medical assessment for admission (a preventive service) and care for episodes of illness (which could normally be covered by a GP's capitation fee). In some areas, the geriatric physician sees some applicants for residential homes, at the request of social workers, before deciding admission. Many remediable medical conditions are found.[26] Such cooperation will also be likely to help transfer of patients in the opposite direction — from hospital to residential home.

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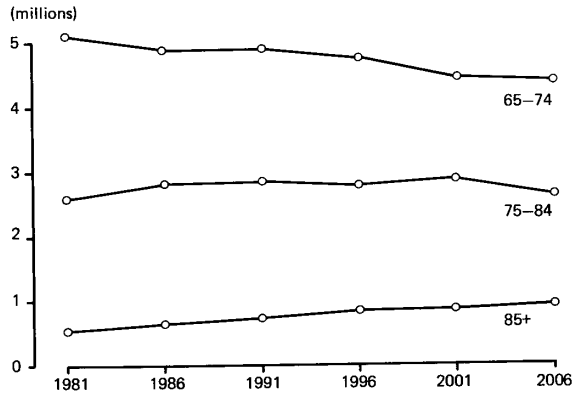
# 20 Old age

## Epidemiology

The age of 65, or of retirement (which in England is usually 65 for men and 60 for women), is commonly used to define the onset of 'old age'.[1] Retirement leads to different lifestyles, not only in daily habits but also because of a fall in income for many people. However, the personal health of people in their 60s shows little change from their earlier decades. It is in the 70s that multisystem disease and increasing disability lead to more complex needs for services that encompass both medical and social provision.

**Figure 83** Estimated population age 65 and over, England and Wales 1981–2011

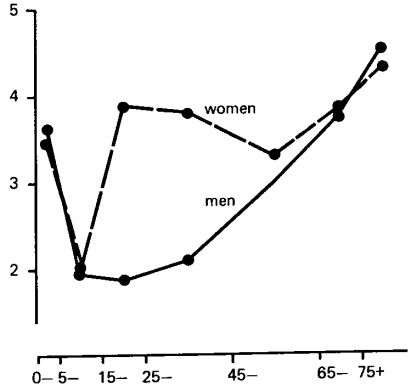



*Source:* Great Britain, Office of Population Censuses and Surveys. Population projections, 1978–2018. London, HM Stationery Office, 1980. (Series PP2 no 10)

About 14 per cent of the population, over seven million people in England and Wales, are over 65. Rising numbers of elderly people have been a prominent feature of population change for several decades — mainly the result of improved perinatal and infant survival at the turn of the century. But in the 1980s, this pattern, it is predicted, will level off (Figure 83), and there will be a slightly growing proportion of people over 75.[2] Because men die younger, three-fifths of all elderly people are women.

Death rates are, of course, much higher in old age than in the young: the dominant causes are cerebrovascular disease (including strokes), coronary heart disease and

**Figure 84** GP consultations by age and sex, England and Wales 1970–71 (average rates per list per patient per year)




*Source:* Great Britain, Office of Population Censuses and Surveys. Mortality statistics from general practice 1970–71 (table 10). London, HM Stationery Office, 1974. (Series SMPS 26)

cancer. Pneumonia is a frequent terminal illness in very frail people, although there is often an underlying condition leading to the respiratory infection. Underlying causes are probably less frequently recorded on the death certificate for very old than for younger people, so that less reliance can be placed on statistics of cause of death (see Chapter 32).

General practitioners receive higher capitation fees for elderly patients, although consultation rates do not proportionately reflect the higher morbidity (Figure 84). This may be because of the chronic nature of the conditions, or the probability that the more severely sick are seen regularly by district nurses (and, thus, not recorded as a GP consultation) or the possibility that elderly people do not seek care for their complaints as much as younger people. Two-thirds of consultations for people over 75 take place in the home rather than in the GP's surgery.[3]

**Prevention**

Several medical surveys of elderly people on the lists of general practitioners have revealed a substantial amount of unreported but remediable ill health.[4-8] Medical conditions newly found by such surveys typically include cardiac failure, anaemia, vulvovaginitis, foot disorders, cataracts, deafness and dementia. Specialist services can help to relieve many of these conditions and improve the mobility and quality of life of older people. Two follow-up studies have shown that up to 20 per cent of the people screened had their health improved by specialist service intervention.[5,9]

Pilot clinics set up for screening[10,11] have been closed: it is suggested that domiciliary assessment is better. The conditions commonly found in surveys can be identified by a nurse for referral. Limitations to a comprehensive scheme are that few practices at present have age-sex registers, GPs may not be prepared to accept the extra work, and more community nursing staff may be needed. However, a pilot study with general practices in Devon has shown that community surveillance can be successful.[12]

**Services**

The specialty of geriatric medicine started with the Emergency Medical Scheme in the 1940s, when physicians from general hospitals began to investigate the care and potential of bed-bound people in poor law institutions.[13]

Modern geriatric services are more than the remnant of care that other services either cannot or do not want to provide.[14] Skilled care and investigation are as necessary for elderly as for other acutely ill patients — age of itself is no bar to success in cardiac resuscitation, acute dialysis, or removal of a brain tumour. Whilst an 'acute' bed is an expensive bed, it is cost-effective if it prevents the cumulative costs of a long-stay patient.[15] But elderly people take longer to recover from illness than younger patients, and rehabilitation and social care are frequently as important as specific medical treatment.

Two factors continue to limit the effectiveness of geriatric medicine.

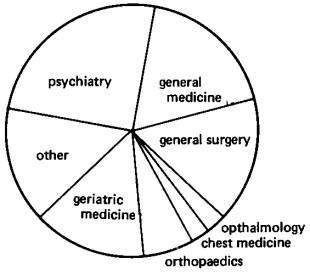
**Facilities** In 1976, almost one in five districts in England still had no geriatric service beds in the district general hospital.[16] Most of the beds are still in large, old, poor law institutions, forbidding, and distant from good investigative or rehabilitative services. Local authority provision for elderly people varies considerably across the country, and is unrelated to hospital provision. Apart from residential places, there is also a lack of alternative accommodation, such as sheltered housing or street warden schemes for people to stay in their own homes.[17]

**Status** Despite the clear fact of so many old people in

need of medical care, academic departments of geriatrics have been developed slowly in medical schools. Geriatrics is given little attention in higher medical examinations, and general physicians are often reluctant to 'share' junior medical staff on rotations with geriatrician colleagues.[18] Recruitment to training programmes in geriatric medicine is therefore low, and this results in vacant posts or long-term locums by poorly-trained doctors at consultant level. A vicious circle is perpetuated of overstretched services, with too few medical staff, which continue to be unattractive to new recruits.

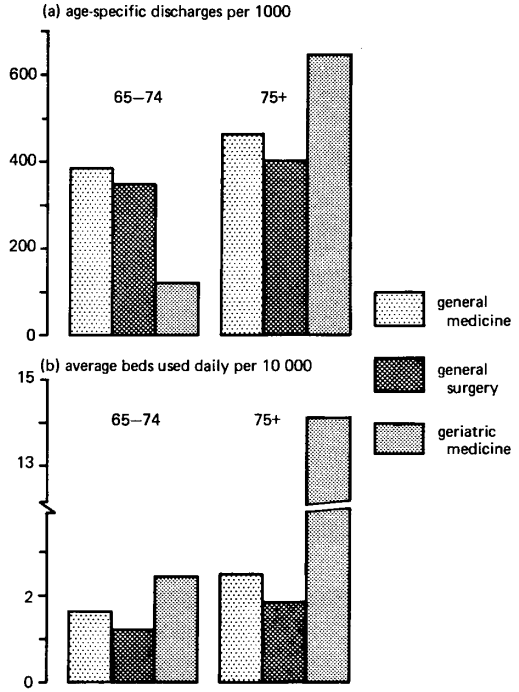
There are many ways of running a hospital service for elderly people.[19] In Oldham all patients 'of pensionable age' are accepted.[20] In Hull, the geriatric services accept all referrals of medical emergencies over 75 years old (in practice this accounts for 85 per cent of all medical patients aged 75 years or more).[21] Rather more commonly, there is a mixed pattern of referral by GPs, who tend to refer patients with pressing social problems to the geratrician, but those with clear cut diagnoses to other specialists (Figures 85 and 86).

**Figure 85** Hospital discharges and deaths of patients age 65 and over by specialty, England and Wales 1977




*Source:* Great Britain, Department of Health and Social Security. Hospital inpatient enquiry 1976 (table 12). London, HM Stationery Office, 1979, *and* Great Britain, Department of Health and Social Security. Inpatient statistics from the mental health enquiry for England 1976 (table A1). London, HM Stationery Office, 1979. (Statistical and research report series no 22)

**Figure 86** Hospital use by elderly people for three specialties, England and Wales 1977




*Source:* Great Britain, Department of Health and Social Security. Hospital inpatient enquiry 1977 (table 12). London, HM Stationery Office, 1980. (Series MB4 no 10)

However, the Royal College of Physicians' report on medical care of the elderly recommends reintegration of geriatric medicine with general medicine.[18] General physicians may agree to accept the work of rehabilitation and long-term care themselves, so there may be no need for a special geriatric service. Alternatively, geriatricians or general physicians with an interest in elderly people can be part of a rota for general medical

admissions, but have responsibility for the specialised facilities.

It is frequently suggested that patients with mixed medical and psychiatric conditions — including dementia — should also be cared for within the geriatric service.[22-24] Although, in this book, services for these patients are considered in the section on mental health (Chapter 29), it is primarily a matter of style. The main need is for close cooperation between geriatrician and psychiatrist.

There is sometimes delay in admission of elderly patients, particularly for long-term care. Yet progressive units can be run without a waiting list at all if the geriatrician has an active policy with a high turnover.[21,25] In their experience of a new service in North London, Hodkinson and Jefferys comment: 'We believe that whether or not a geriatric department has a waiting list is more a matter of choice by its medical staff than a reflection of local circumstances. It does not depend on bed provision; indeed, lower bed provision may be an additional stimulus to high turnover. Adequate staffing — medical, nursing and auxiliary — is probably of greater importance. Medical staff need to have the elimination of a waiting list as a major aim in shaping the policies of setting up and running their department.'[25]

The day hospital movement in the 1960s led to most geriatric services providing a range of day care to patients after discharge as inpatients. It is important to distinguish the work of day hospitals from that of social services day centres.[26,27] Day treatment rather than hospital admission is provided for patients with stroke, or neurological and arthritic complaints. Nursing care and treatment can also be given, instead of domiciliary care by home nurses. Some day hospitals function as an alternative to outpatient departments when there is inadequate provision of the latter. Day hospitals also offer an opportunity to educate relatives, community nurses and social workers in special aspects of the care of old people.

*Housing*

Of elderly people living at home, 30 per cent live alone and a further 37 per cent live only with their spouses.[28] Although the housing of more than half of elderly people is of a good standard,[17] the long stay of some elderly people in hospital, particularly in metropolitan areas, may still be related to inadequate housing rather than continuing medical needs. Social service departments provide residential 'homes' for elderly people which have traditionally admitted people of relatively low dependence, the more disabled being placed in long-term hospital care; but increasingly residents are more likely to be very elderly people. At present, an elderly person has to give up his or her own house permanently (whether owned or rented) to receive long-term care in a residential 'home'. Social services will need to provide more short-term residential care in the future.

There is increasing awareness of the need for intermediate services: that is, between services for fully independent old people at home and residential care. There is a small but growing amount of sheltered housing[29], which ranges from street warden schemes for unconverted housing to purpose-built accommodation grouped together with a shared day room and resident warden.

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# 21 Younger chronic sick

## Epidemiology

Younger chronic sick patients include people between 16 and 64 who need long-term care for chronic disabilities or illnesses, excluding mental illness or handicap, but including brain damage due to injury. About eight younger chronic sick patients are in hospital per 100 000 population, and a similar number live at home.[1] In a study of chronic sick patients in Glasgow[2], people living at home were usually less disabled, and had arthritis, heart or chest diseases, whilst people in hospital tended to have greater disability, often a neurological illness, such as multiple sclerosis, brain damage (Chapter 11) or spinal injury.

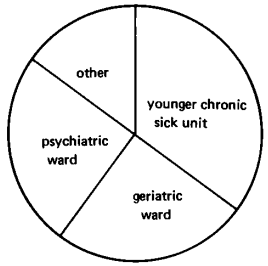
## Prevention

Most chronic arthritic and neurological diseases are of unknown cause. Chronic disability from chest and heart disease would be substantially reduced if cigarette smoking could be stopped (Chapter 4). Spinal injuries result from accidents, some which could be prevented (Chapter 6).

## Services

Hospital care for younger chronic sick people is often inadequate. Many of the patients are inappropriately in acute or geriatric wards, waiting transfer to the few adapted housing or residential units (Figure 87). People of middle age are particularly difficult to place, especially if they have mental impairment or an awkward personality, which frequently accompany neurological illnesses such as Huntington's chorea or multiple sclerosis.

**Figure 87** Place of care of younger chronic sick patients, Glasgow




*Source:* MacLennan W J. The young chronic sick at home and in hospital. Health Bulletin, vol 30, no 2. April, 1972. pp 110–119.

Miller and Gwynne[3] made a penetrating study of a small number of homes provided by voluntary and statutory agencies for younger chronic sick people. The voluntary homes usually gave more independence to their residents, who were encouraged to participate more in decisions, whereas hospital units were more paternalistic.

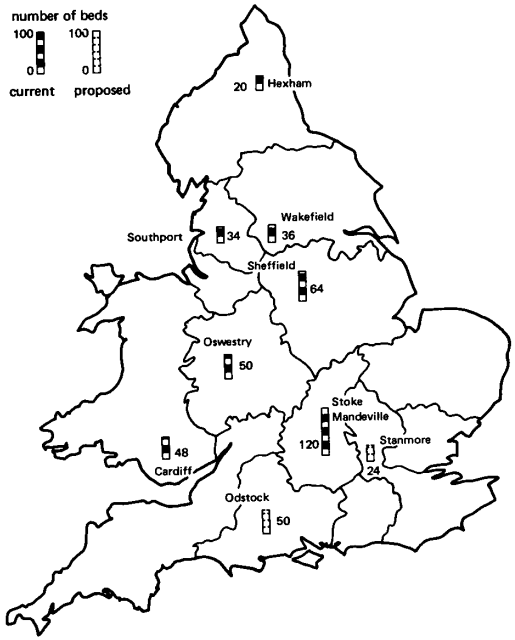
A group of people with special needs are those who have suffered spinal injuries as adults, often because of falls or road traffic accidents. In contrast to the rather larger number of young people who have progressive neurological illnesses, skilled rehabilitation of spinal injuries can lead to considerable improvement. Nevertheless, the individual needs are complex and continuing, and reach well beyond the health services.

A special hospital for paraplegia was established at

Stoke Mandeville during the last war, and many of the techniques for nursing and rehabilitation of spinal injury patients were developed there. Other units, in the north of England, developed out of services for coal mining injuries. In the south of England, new units are being built to be closer for visiting by relatives (Figure 88).

Newly injured patients should be transferred to a spinal injury unit as soon as possible, because many patients who arrive after delay have pressure sores and other complications that would not have arisen with suitable nursing.[4] Patients may stay for six months or more, and will have continuing contact with the unit for several years after.

**Figure 88** Spinal injury units in England and Wales – current and proposed




*Source:* Great Britain, House of Commons. Spinal units. Parliamentary Debates, vol 983, no 165. 30 April, 1980. Written answer cols 443–444.

Wheelchairs are provided through artificial limb and appliances centres. About five per cent of all users have powered wheelchairs. A national survey showed that most people were happy with the chair they had, but there was frequent dissatisfaction with the repair service.[5] Appliance centres subcontract the work to approved repairers, and these repairers only provide a 9–5 Monday to Friday service. Delays can seriously impede someone who is dependent on a wheelchair for daily living. The poor service may be compared with, for example, the continuous availability of technicians for home dialysis. There were also long delays in supplying wheelchairs — the survey showed that for 20 per cent of users, the wheelchair took eight weeks or more to be delivered.

Suitable accommodation and mobility are vital to help younger disabled people to live as normal lives as possible. There has been some purpose-built housing, but more could probably be done by adaptation of existing homes. It has not yet been possible to make an adequate estimate of need[6] although the persisting demands suggest underprovision. Local authorities keep a record of the number of purpose-built homes completed each year, but there are no data on the current stock of such buildings, or on conversions.

Long-term provision for younger chronic sick people made by the health service must try to avoid an overtly 'hospital' approach within the units. Adapted housing is preferable to residential care, unless continuous assistance is needed. Wheelchair patients may choose to live together; this prevents them feeling isolated and also helps staff to learn more about their specialised care. One NHS home for wheelchair bound people has a balance of residential and day places.[7]

Special housing for disabled people has been developed more extensively in other European countries.[8,9] But the bigger schemes, such as Fokus in Sweden, Hans Knudsens Plads in Denmark or Het Dorp in Holland, still have some aspects of institutional living. Greater independence can be achieved in converted ordinary housing with supporting community services.[10]

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# 22 Mental handicap

## Epidemiology

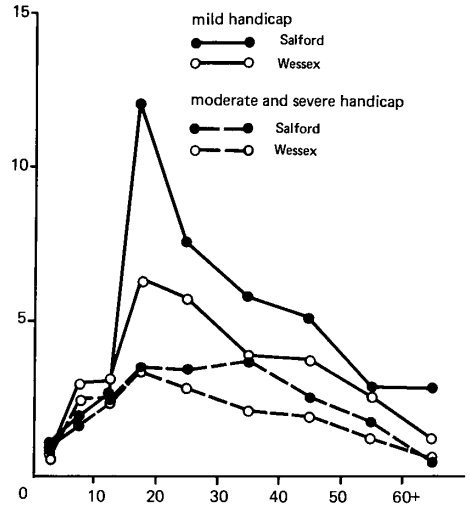
Mental handicap can be described in three ways.

1 **Intelligence tests** Severe mental handicap, an IQ below 50, can be distinguished fairly clearly. Mild mental handicap, an IQ between 50 and 69, is less easily defined because the IQ score depends upon social as well as intellectual factors and can, therefore, change. Severe mental handicap is found in children from all social classes, but children with measured IQs in the range 50 to 69 are more frequently from social classes IV and V. This indicates the additional effect that social or material deprivation can have on intellectual development.

2 **Clinical** Down's syndrome, the proper name for 'mongolism', is the commonest known cause of mental handicap. About a third of severely mentally handicapped people have Down's syndrome.[1] Another third have associated factors, such as a history of postnatal infection, toxaemia of pregnancy or birth injury, although the association is not necessarily causal. Organic disorders also cause a small proportion of mild mental handicap, but the majority of mentally handicapped people are clinically normal.

3 **Function** This is the most important aspect, because it is related to the individual's ability to lead a normal life. In a simple grouping to distinguish between people who are broadly in need of social services alone and those who need health services, Kushlick[2] divided mentally handicapped people into those who are continent, ambulant and have no severe behaviour disorder, and those with one or more of these disabilities.[2] The former group are about three-quarters of all mentally handicapped adults. Wing has developed a rather more complex classification, based on intellectual and social disabilities.[3]

**Figure 89** Prevalence of mentally handicapped people known to services in two areas (age-specific rates per 1000)



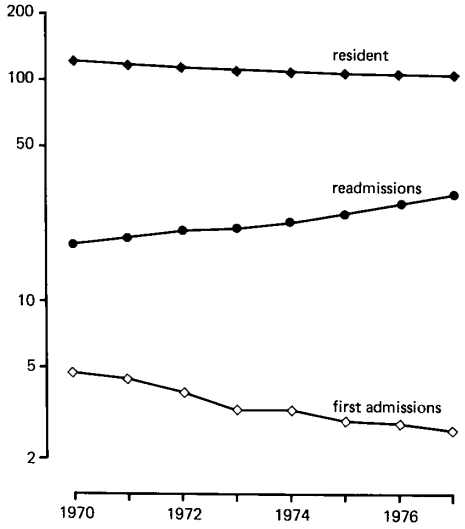

*Source:* Kushlick A and Cox G R. The epidemiology of mental handicap. Developmental Medicine and Child Neurology, vol 15, no 6. December, 1973. pp 748–759.

A distinction can be drawn between the 'administrative' prevalence of mentally handicapped people, gained from records of educational departments and institutions, and the prevalence in the general population of people with handicaps who are not necessarily brought to the attention of services.[4] Between three and four per

1000 people, in both urban and rural areas, who are severely mentally handicapped survive to age 15–19. Until recently, almost all severely mentally handicapped adults were eventually admitted to hospital. On the other hand, the majority of people with mild mental handicap only come to the attention of the health and welfare services on leaving school, when they need placement for employment. The administrative prevalence falls thereafter, as the individuals settle into regular work or marriage (Figure 89).

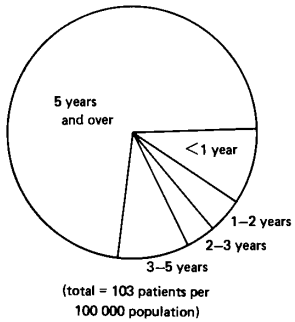
There has been a slow fall since 1968 in the total number of residents in mental handicap hospitals (Figure 90). But as more people now live in local authority homes, the total number in residential care has increased. Part

**Figure 90** Mental handicap hospitals: resident patients and admissions, England 1970–77 (rates per 100 000 population, log scale)




*Source:* Great Britain, Department of Health and Social Security. Inpatient statistics from the mental health enquiry for England 1977. London, HM Stationery Office, 1980. (Statistical and research report series no 23)

**Figure 91** Mental handicap hospitals: length of stay of resident patients, England 1977




*Source:* Great Britain, Department of Health and Social Security. Inpatient statistics from the mental health enquiry for England 1977 (table). London, HM Stationery Office, 1980. (Statistical and research report series no 23)

of the increase is due to longer survival. Although 70 per cent admitted to hospital are discharged within three months, two-thirds of the residents have been in hospital for 10 years, and 40 per cent for over 20 years (Figure 91).

The national statistics for mental handicap hospitals are published each year along with mental illness hospital statistics.[5] Hospitals are identified by name, and the reports indicate which hospitals are failing to reach the minimum levels of staffing and facilities recommended in a detailed DHSS circular in 1971.[6] Confusingly, however, the hospitals are separated into those with more than 200 beds and those with fewer, and are grouped by region only. Catchment populations follow historical boundaries and it is often necessary to subdivide the facilities of a large hospital to estimate the proportional amount available for a particular district.

To create new services for mentally handicapped people, planning can be based upon estimates from local surveys[1] (Table 16). Nevertheless, to provide suitable

services to individuals with particular handicaps at the right time, a register is useful[7], particularly if it records all the people known to have been resident in a particular geographical area (for example, a county, borough or health authority catchment area). Most hospitals now record the 'place of origin' of all their residents, and a geographically-based file can be created by contacting all the relevant hospitals. Unfortunately, hospitals often differ in their assessments of the suitability of their patients for community care and of their overall needs.

## Prevention

Some mental handicaps can be prevented.[8] It has been suggested that the prevalence could be reduced by up to half by better preventive services — but this would require concerted policies by both health and social services on the following matters[9]:

**Table 16** Social and physical abilities of mentally handicapped people, Wessex 1963 (rates per 100 000).

| | *Where living* | *Continent, ambulant, no severe behaviour disorder* | *Ambulant, but severe behaviour disorder* | *Ambulant, severely incontinent, no severe behaviour disorder* | *Non-ambulant* |
|---|---|---|---|---|---|
| *Under 16* | | | | | |
| mildly mentally handicapped | at home | 7 | 1 | 1 | 1 |
| | institution | 1 | 0 | 0 | 0 |
| severely mentally handicapped | at home | 20 | 4 | 2 | 3 |
| | institution | 5 | 5 | 3 | 5 |
| *Over 16* | | | | | |
| mildly mentally handicapped | at home | 69 | 0 | 0 | 1 |
| | institution | 45 | 4 | 1 | 2 |
| severely mentally handicapped | at home | 45 | 2 | 1 | 2 |
| | institution | 53 | 14 | 6 | 6 |

*Source:* Kushlick A and Cox G R. The epidemiology of mental handicap. Developmental Medicine and Child Neurology, vol 15, no 6. 1973. pp 748–759.

1 Immunisation. The rubella immunisation programme for schoolgirls should progressively reduce the number of mothers who contract rubella in early pregnancy, which produces mental handicap and other congenital abnormalities in their children.

2 Genetic conditions such as Down's syndrome[10], spina bifida and Tay-Sachs disease, cause mental handicap. These can be identified by amniocentesis up to 20 weeks (Chapter 23). Genetic counselling probably has a small role to play.

3 Improvements in perinatal care, particularly in reducing the number of low-birthweight babies, could lead to a reduction of mental handicap (Chapter 23).

Developmental assessment can allow a handicapped child to be identified for special education; the earliest age for which this is beneficial is not known, and probably varies with different handicaps. For mild mental handicap, perhaps the most important issue is to improve the factors in the lives of working class families which lead to the greater incidence of retardation — there may be language, stimulation, emotional, diet or other unrecognised factors.

## Services

Work with mentally handicapped people does not usually attract doctors. Mental handicap is rarely mentioned in the undergraduate syllabus. There are few teaching hospitals with much contact with the mental handicap institutions or community services. And the problems seem unchallenging to doctors because they are predominantly organisational and behavioural rather than clinical. There are many people able to research, innovate and develop new ideas: but they are not usually medical people.

At present, responsibility for mentally handicapped people is divided between the health services, whose

resources are heavily vested in hospitals, and the social services whose insufficient new funds prevent the development of community-based care. Traditional policies for mentally handicapped people sought to contain them in institutions — both to protect them from an unsympathetic hostile world and to protect the outside world from people that were feared. In 1948, the institutions were transferred from the local authorities to the new National Health Service; but in 1959 the Mental Health Act recommended that a range of community services should be set up by the local authorities again.

The legacy from past policies for mentally handicapped people is daunting (Table 17). A national survey of hospitals in the 1960s[11] showed that two-thirds of the residents were living in buildings put up before 1900 to house the sick, destitute and aged. At that time, one-third were sleeping in dormitories with over 60 beds, without personal possessions and with minimal furniture and comforts. Over 80 per cent of the residents were ambulant, and few of them had serious physical diseases, except epilepsy which can usually be well controlled with an appropriate drug regime. The institutional objectives were poorly defined. Doctors in the main presumed they were 'treating' their patients, the nurses more practically saw their work as 'nursing and care'. There was little education or training for residents. The lack of interest in discussing and spreading new ideas was compounded by the rigid hierarchies of the institutions and their isolation from the communities they served.

Reports[12-16] of mistreatment of patients remind us of the difficulties of caring for mentally handicapped people in large institutions. Four aspects of residential care that are 'anti-therapeutic' have been described.[17]

1 **Rigidity** Inflexible ward routines and lack of encouragement to make original, creative solutions to daily problems.

**Table 17** 'The idea and the reality': four views of services for mentally handicapped people

| *View* | *Comment* |
|---|---|
| *Total optimism*<br>The past is irrelevant – let's start from the present and build a good service. | A-historical model, held by some politicians, civil servants and directors of social services. |
| *Modified optimism*<br>Progress may seem very slow, but if one looks back we have really come a long way in the past twenty (thirty, forty) years. We have forgotten what the bad old days were like and conditions gradually improve all the time. | Millennial model, held by most voluntary society spokesmen and some older doctors and nurses, involving the use of the past as a frame of reference. |
| *Modified pessimism*<br>All these changes are profoundly unsettling, and do little to bring about real improvements for the patients. | Anti-change model, held by many doctors and nurses. |
| *Total pessimism*<br>Things are getting worse instead of better. All these so-called new ideas have been tried before and at the end of the day the staff are left dealing with the same problems in the same old way. | Rejection model, held by many ward and hostel staff. |

*Source:* Jones K. Opening the door: a study of new policies for the mentally handicapped. London, Routledge and Kegan Paul, 1975.

2 **Block treatment** For example, as many as 20 children may be washed, dressed, toileted and fed together.

3 **Depersonalisation** Personal attributes such as preferences or possessions of the residents are limited.

4 **Social distance** Staff are not expected or encouraged to form close relationships with individual patients.

'Richer' environments, which are more stimulating, lead to less boredom and self-destructive or aggressive behaviour, and allow staff to develop their relationships with their patients. The number of staff about at peak times — when patients are waking, dressing, washing, toileting, eating or going to bed — is important.

The organisational structure of units, and staff training, are also important. King and colleagues[17] compared eight hostels, five wards and three voluntary homes all looking after mentally handicapped children. In the units which were 'child-oriented', the person in charge had much greater responsibility to make decisions, role differentiation was reduced, and staff changes were fewer. The staff were more likely to involve the children in their activities. The children were more advanced in feeding and dressing skills, and in speech, than those in institution-oriented units. These measures of care were not affected by the size of the unit nor the levels of handicap.

Wessex region has developed a number of locally-based hospital units.[18] These have a maximum size of 25 places, four of which are reserved for short-term care. Each unit serves a defined catchment territory, related to social service boundaries. They are located in urban centres, and designed to be 'domestic' with a 'family' model for living. They are intended for severely disabled people: those who are non-ambulant, have a severe behaviour disorder or severe incontinence, or need help with feeding, washing and dressing.

The regional health care evaluation research team has compared these new units with care in traditional hospital units.[19]

1 The average revenue costs of the local units and traditional units are very similar even though traditional units have a higher proportion of less handicapped patients.

2 Recruitment and stability of staff are better in the locally-based hospital units.

3 Those behaviourally-disturbed clients have been successfully cared for in the locally-based hospital units; and the behaviour of the few clients transferred back to traditional units has not improved thereafter.

4 Parents and relatives have maintained more contact and have more frequently commented favourably on specific aspects of the service given by locally-based hospital units than by traditional units.

These findings are important, because the 1971 White Paper[20] presented the alternatives of either developing local units or continuing larger specialised hospitals without recommending either course. There was disagreement in the advice given to the civil servants and politicians preparing the paper — the senior medical advisers favoured the status quo[21], while the educational and sociological researchers favoured the new units on experimental evidence.[4,17] After extensive research and evaluation, Wessex has decided to provide the large majority of hospital places in locally-based units.

Small locally-based units are only a part of the new strategies needed for improving the care of severely mentally handicapped people. Other important issues include:

**Children**[22] A mentally handicapped child at home makes extra demands on the family because of the expense, limitation of social contacts and the strain of management. The burdens can be lightened if there are adequate community services — advice and counselling for mothers of pre-school children, special day care units for severely handicapped children, and friendly short-stay residential care. As day services improve, pressure on residential services declines sharply.[23] In Wessex, it has been possible to care for all of the severely mentally

handicapped children, with all types of handicap, from a total population of 100 000, in a locally-based converted house staffed without specially trained nurses and with a GP providing primary medical care.[24]

**Education** As well as an adequate education service for children up to the age of 16, most mentally handicapped adults will benefit from continued education and training in matters such as numeracy, table manners, self-care, self-expression, sport and social values. It is not widely realised that education authorities have a duty to provide full-time education up to the age of 19 for all people, including mentally handicapped people.[25]

A national survey showed that fewer than one in 25 handicapped people attending adult training centres pass on each year to more open employment,[26,27] and most of the staff are untrained for their educational task.

The National Development Group for the Mentally Handicapped* suggested that adult training centres should be renamed 'social education centres', but should remain the responsibility of social services departments.[28] The group saw an expanded role, including the use of the newer teaching methods developed for adult literacy programmes. Payment should be made for attending, and the student should be encouraged in independence, such as travelling to the centre, handling money or developing social contacts. A special care section should be concerned with the needs of the most severely handicapped, but these students should also be exposed to the increasingly demanding tasks and experiences of the other students of the centre. The centre should also encourage outside contacts and should work with families, residential homes and health personnel.

*In 1975, the government established the National Development Group for the Mentally Handicapped to advise the Secretary of State on policy, and a Development Team for the Mentally Handicapped to advise on implementing new services at a local level. The next government disbanded the group in 1980, but the Development Team continues.

**Employment**[26,29] Although in times of high unemployment it may be more difficult to raise enthusiasm for the special needs of mentally handicapped people, they have greater potential for work than is currently offered. The local disablement resettlement officer has responsibilities here, but may be ineffective if lacking particular knowledge of mentally handicapped people's abilities. Sheltered employment is provided in adult training centres and government Remploy factories, but it is much more satisfactory to involve local industry in accepting small groups of handicapped people to work as part of the workforce, and to provide intensive support and surveillance on the shop floor to overcome the problems of adjustment and learning.

**Housing** There is no reason for the housing of mentally handicapped people to be different from that of an ordinary working family.[30] Much more use could be made of local authority rented housing, or schemes by housing associations. Fostering and lodging are also very suitable. Mentally handicapped people, including those living with their parents, can be supported by staff working from a 'core' home[30], which acts as a focal point for local services and a first home for the rehabilitation of new clients. Figure 92 shows how this 'core and cluster' arrangement can meet a wide range of needs.

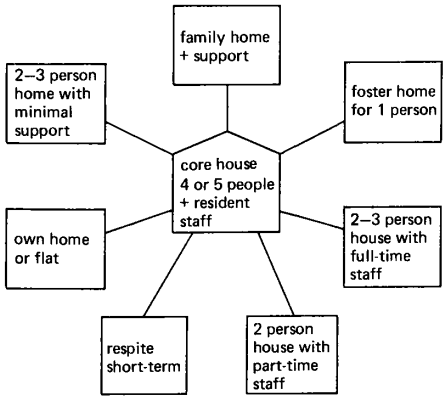
Although there have been several pilot schemes of new patterns of care in Britain, perhaps the most exciting new service is being developed in the United States by the Eastern Nebraska Community Office of Retardation (Encor).[31] Encor's success in part lies in dedicated leadership and support from a group of influential local citizens who were not previously associated with the institutionally-based service. Public pressure and enabling legislation at State level have led to a well-financed programme which is constantly exploring new ways of developing services. Houses and flats in ordinary urban neighbourhoods have been rented, and clients travel to work or to the training centre in the same way as

others in the community. Intensive support is given to individuals and groups in placement industry, and this has shown that an intermediary 'training' stage may not be necessary if enough attention is given to smoothing out the initial difficulties in the workplace. Perhaps the most telling point is that for over ten years no mentally handicapped person has needed admission to the state institution, and the number of residents there has fallen by three-quarters.

Alternatives to institutional care have developed from the concept of 'normalisation' — that provision for a mentally handicapped person should try to produce a way of life as close as possible to that of the general population.[32,33] Family life is one of the most important features, and so there have been programmes of family placement, such as 'a foster family', care of two or three clients by a young person or student in exchange for free accommodation, or of developing group homes of not more than six residents. Medical treatment is obtained, as for other people, from a general practitioner, or from a specialist if there are other handicaps — dental, orthopaedic, neurologic, or psychiatric.

Encor ensures it maintains contact with clients, that they receive appropriate therapeutic skills (speech, walking, foot care) and do not become neglected simply because they are not within the smothering protection of an institution. Close involvement of parents and relatives, and staff training to develop a committed, optimistic philosophy in every member, are fundamental ingredients to the programme's success.

**Figure 92** The core and cluster model




*Source:* King Edward's Hospital Fund for London. An ordinary life. London, King's Fund Centre, 1980. (Project paper no 24)

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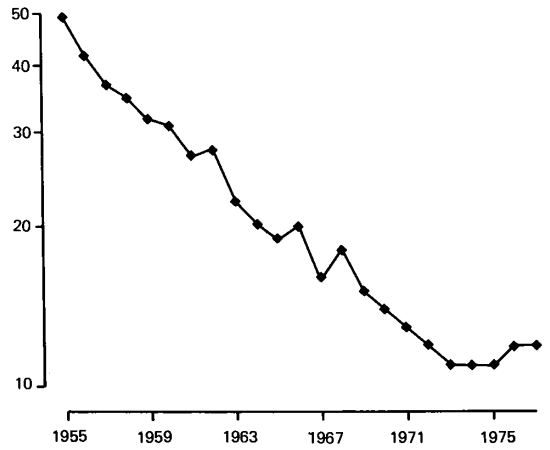
# Section 4
# Women's Health

# 23 Maternity

## Epidemiology

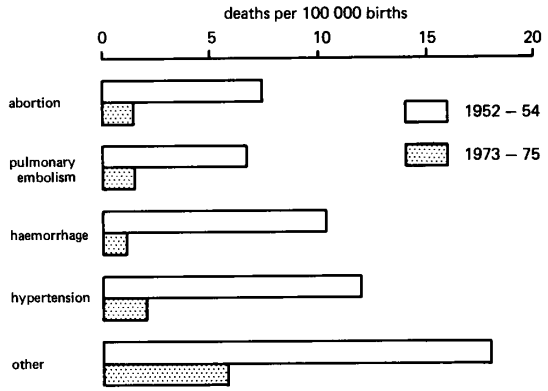
The traditional measures of effectiveness of obstetric care are prevention of death to the mother and her child; but as the number of deaths has fallen, another important measure has become minimising handicaps.

**Figure 93** Maternal mortality, England and Wales 1955–77 (deaths per 100 000 births, log scale)




*Source:* Great Britain, Department of Health and Social Security. On the state of the public health. London, HM Stationery Office, annually.

**Figure 94** Main causes of maternal death, England and Wales, 1952–54 and 1973–75




*Source:* Great Britain, Department of Health and Social Security. Report on confidential enquiries into maternal deaths in England and Wales 1973–75 (table 1.8). London, HM Stationery Office, 1979. (Report on health and social subjects no 14)

**Maternal mortality** has fallen from one death in 250 in the 1930s to almost one death in 10 000 now (Figure 93). This trend has, in part, been stimulated by the confidential enquiries into maternal deaths which have been published since 1950 every three years by the DHSS.[1]

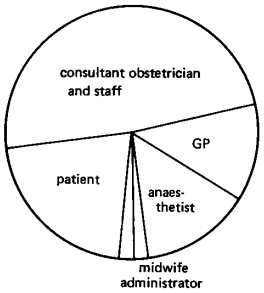
The main causes of death in the 1950s have been controlled; other causes such as ectopic pregnancy, pulmonary embolus and anaesthetic deaths are now more prominent (Figure 94). A substantial proportion (60 per cent in the 1973–75 survey) of deaths are still considered to have been an 'avoidable factor' (Figure 95). This does not mean that death could necessarily have been prevented, or that the factor was direct cause of the mother's death; but it indicates that some aspect of care fell short of the best professional standards, and may have contributed to the death. About half the

avoidable factors occur in the antenatal period, the rest during labour or after birth. Avoidable factors by doctors do not include errors of diagnosis, but faults in management which fall below a recognised norm, such as delegation of difficult cases to inexperienced junior staff. Avoidable factors by the patient include, for example, concealing pregnancy and thus not receiving adequate antenatal care.

**Perinatal mortality** Normal pregnancy lasts about 40 weeks from the date of the last menstrual period. Stillbirth or extraction of a dead foetus up to 28 weeks is recorded as an abortion. Perinatal mortality includes stillbirth from 28 weeks and death of a live child (of any gestation) up to one week after birth.

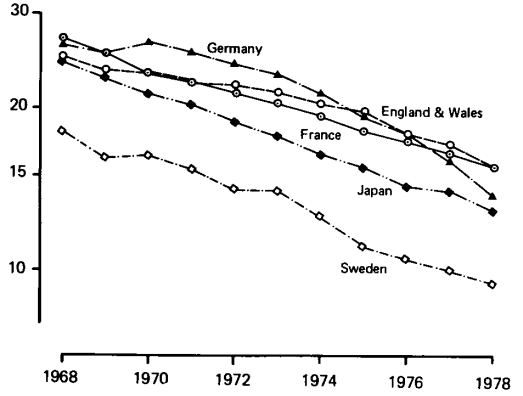
There has been a consistent fall in the perinatal mortality rate of all developed countries in the past 30 years (Figure 96), although improvement in England and Wales has not equalled that of some other countries.[2] Much of this fall has been due to improved socio-economic conditions, and to fewer births to older, multiparous women, rather than to specific medical care.[3-5]

**Figure 95** People attributed with main responsibility for avoidable factors in maternal deaths, England and Wales 1973–75




*Source:* Great Britain, Department of Health and Social Security. Report on confidential enquiries into maternal deaths in England and Wales 1973–75 (table 16.8). London, HM Stationery Office, 1979. (Report on health and social subjects no 14)

**Figure 96** Perinatal mortality in selected countries 1968–78 (deaths per 1000 live and still births, log scale)




*Source:* World Health Organization. World health statistics annual: vital statistics and causes of death (table 5). Geneva, WHO, annually.

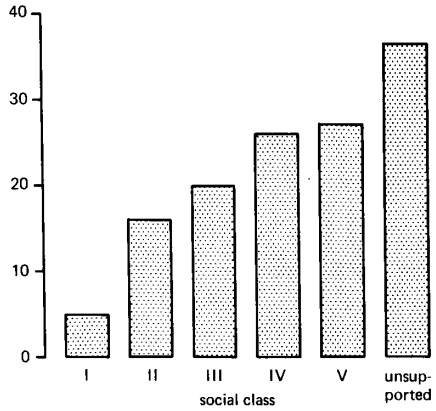
The risk of perinatal mortality is associated with previous obstetric history, social class, parity (number of children previously born) and age (Figures 97–99, pages 128–129).[6] The exact reasons for the variation in perinatal mortality between social classes I and V remain unexplained, but are probably due to differences in behaviour (diet and smoking), material conditions (particularly income) and environment. The social classes also make different use of maternity services and may receive different care.

Low birthweight is an important index of perinatal health: 6 per cent of infants weigh less than 2500 grams (5½ lbs) but account for 60 per cent of perinatal deaths.[7] Low birthweight may be caused by premature birth or retarded growth. Perinatal mortality ratios standardised for birthweight are necessary in making comparisons between obstetric services of different areas.[8,9]

Some consultants meet regularly to review perinatal mortality in their district, using routine statistics and case information. In one study, although it was not possible to ascribe the improving trend in perinatal mortality figures to any particular factor, 'avoidable factors' of clinical care were identified in about 20 per cent of deaths.[10] Obstetric data can be readily recorded and stored in a computer, and can assist in clinical review in a district hospital.[11]

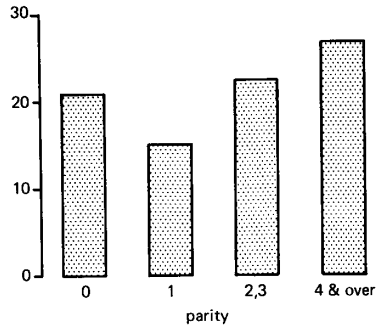
**Morbidity** Because deaths are now relatively rare, morbidity of the mother or child is also used to assess maternity services. Many obstetric departments produce an annual report on their work which includes, for example, statistics of the frequency of elective interventions (such as forceps or Caesarian section) or the proportion of abnormal deliveries (such as breech birth or twins). Many departments also hold meetings with paediatric departments monthly to discuss all the babies born with abnormalities, particularly those with congenital defects or low birth weight, which are the most important factors in subsequent infant deaths and morbidity.

**Figure 97** Perinatal mortality by social class, United Kingdom 1970 (deaths per 1000 births)




*Source:* Chamberlain R, Chamberlain G, Howlett B and Claireaux A. British births 1970 vol 1: the first week of life (table 2.9). London, Heinemann, 1975.

**Figure 98** Perinatal mortality by parity, United Kingdom 1970 (deaths per 1000 births)




*Source:* Chamberlain R, Chamberlain G, Howlett B and Claireaux A. British births 1970 vol 1: the first week of life (table 2.16). London, Heinemann, 1975.

## Prevention

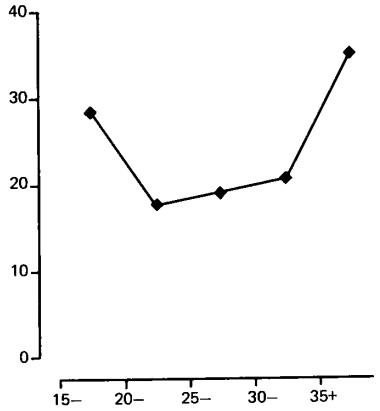
Antenatal care is preventive.[12] It is traditional for mothers to be seen monthly from booking (preferably around 12 weeks) up to 36 weeks, and then each week until the birth. However, a minimum of five visits may be enough for a normal pregnancy.[13]

Antenatal attendance allows the mother's blood to be tested for anaemia, alphafetoprotein (see below), syphilis and immunity to german measles (vaccination after the pregnancy can be offered to women found not to be immune).[13] Subsequent examinations check normal growth and the position of the baby, and the mother's blood pressure for the possibility of toxaemia. Mothers are usually counselled to stop smoking, and antenatal classes are provided for women to learn about childbirth and care.

Amniocentesis (examination of the amniotic fluid surrounding the fetus) is offered for antenatal diagnosis of Down's syndrome to mothers at high risk, for some hereditary disorders of the blood, and to identify fetuses with neural tube defects (anencephaly and spina bifida).[14] A screening test can be offered to mothers to check for high levels of alphafetoprotein in her blood, as an indicator of an abnormal fetus. Amniocentesis improves the specificity of the test, and gives better information on which to consider termination of the pregnancy. Although about 200 neural tube defect births could be averted each year by a national screening programme, the possible risks associated with amniocentesis would suggest it should have priority in areas of high incidence (Table 18).[15]

It is necessary for satisfactory screening for mothers to attend a hospital booking clinic before the eighteenth week of their pregnancy. Some mothers do not attend by this time. The delay is due both to the mothers and also to services, particularly waiting for a clinic appointment.[16-18] Since late bookers tend to include high risk groups (young unmarried mothers, older women with several previous pregnancies and mothers from ethnic minorities), intensive local effort is needed to reach these women earlier.

**Figure 99** Perinatal mortality by age of mother, United Kingdom 1970 (deaths per 1000 births)




*Source:* Chamberlain R, Chamberlain G, Howlett B and Claireaux A. British births 1970 vol 1: the first week of life (table 2.15). London, Heinemann, 1975.

**Table 18** Estimated benefits and costs of antenatal screening and amniocentesis in regions of different incidence of neural tube defect (per 100 000 births)

| | *Benefits of screening* | | *Costs of amniocentesis* | |
|---|---|---|---|---|
| | *Neural tube defect births averted* | *Handicapped survivors averted* | *Fetal and perinatal deaths* | *Non-lethal damage to infant* |
| high-incidence region | 215 | 41 | 10 | 9 |
| national average | 187 | 36 | 10 | 9 |
| low-incidence region | 104 | 20 | 11 | 10 |

*Source:* Chamberlain J. Human benefits and costs of a national screening programme for neural tube defects. Lancet, vol 2, no 8103. 16 December, 1978. pp 1293–1296.

## Services

A mother seeks maternity care initially from her general practitioner. In the NHS, this is a service for which GPs contract (and are paid) separately from their other work. The majority of GPs are on the 'obstetric list' and undertake to provide maternity care in part (antenatal and postnatal care) or in full (including care in labour). A more common arrangement in rural areas is for the mother to be seen at a consultant 'booking clinic' before the sixteenth week of her pregnancy. If there are no adverse factors, her GP continues to provide antenatal care until a second consultant attendance between 32 and 36 weeks, and, thereafter, until labour begins.

There are, however, many variations on this pattern of care, depending on the caution of the obstetrician and the inclination of the GP.

In practice, much of the care is provided by midwives rather than doctors. Midwives often take the detailed history at the first 'booking clinic', which will determine the pattern of care to be provided. And midwives, in fact, deliver the large majority of babies (70 per cent in the 1970 British Births Survey).[6]

**Site of care** The proportion of births in hospital has risen steadily over the century from 15 per cent in the 1920s to more than 95 per cent now; but some mothers still want their babies delivered at home.[19,20] The argument of home versus hospital delivery concerns the relative risk of each.[21-23] With good selection of high-risk cases for hospital, perinatal mortality of home birth is low. For example, in Holland up to 40 per cent of deliveries are at home.[24] But some untoward events in childbirth cannot be predicted, and require rapid action if the child (or mother) is to be saved (for example, constriction of the umbilical cord, a child that does not breathe, severe bleeding after the birth). A randomised controlled trial to compare the relative risk of well-selected mothers delivered either at home or in hospital, although much needed, would now be very difficult to organise because mothers' preferences would markedly affect the selection procedure.

One reason for the reduction in home deliveries was the development of GP-maternity beds whose numbers increased by 85 per cent from 1950 to 1968.[25] Woods[26] has commented: 'Three prerequisites for good GP obstetrics are careful selection of cases, intelligent antenatal care and close cooperation between the GP and the consultant'. The several evaluations of GP units are critical or enthusuastic primarily on the basis of whether these prerequisites have been adhered to. Critical studies[27-30] show that poor selection of cases still occurs and patients have to be transferred to consultant units in labour when their problems could have been predicted. Other studies[31,32] show that low perinatal mortality can be attained if standards of GP care are high.

The advantages of delivery by her GP to a mother are the continuity of care by somebody she knows well, and that the care is given near home. However, because of the risk attached to transfer of the mother when she is in labour, it is preferable for the GP-maternity beds to be within the same hospital as the consultant obstetrician unit. At present, many GP units are several miles away. There is often local resistance to their closure, and a simple comparison of their perinatal mortality with that of the consultant unit, where the high-risk cases are necessarily collected, will often be favourable. But there is a high perinatal mortality in cases originally booked for the GP unit but transferred, sometimes during labour, to the consultant unit.

However, the lower birthrate, and better selection, mean that many GP units are under used, and the rate of delivery for an individual GP may be too low to sustain his clinical skills. The role of most GPs in obstetrics in the future may be antenatal care, in its widest sense, including preparation for childbirth and parenthood, with responsibility for delivery limited to a number small enough for them to retain their skills.[33]

The 1970s have experienced major new applications of technology in obstetrics; but public disquiet and more critical studies of effectiveness, have tempered the enthusiasm of the originators.[7] The new technology has three areas of practice.[34]

**Monitoring** It is now possible to measure the size of the fetus in the womb by the fourth month, using ultrasound scanning; and repeated measurements can help to clarify the length of pregnancy when there is doubt. Biochemical measurements of samples of the mother's urine can

also help to assess fetal growth. In labour, external ultrasound can be used to detect and amplify the baby's heartbeat, and an electrocardiogram can be recorded by attaching electrodes to the baby's head as it comes down the birth canal. Blood sampling, from a vein on the baby's head, is also used to check well-being.

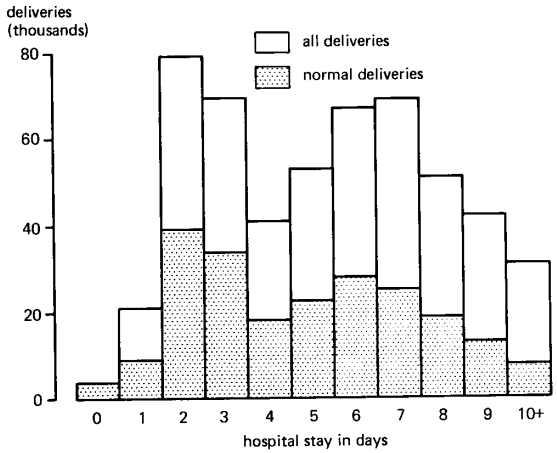
**Analgesia** Traditional pain-relief, by injecting pethidine or inhaling nitrous oxide and oxygen gases, has been supplemented by epidural anaesthesia, in which pain (and movement) of the lower part of the body is eliminated, but the mother remains fully awake.

**Augmented labour** Although induction of labour by breaking the forewaters has been practised for many years, synthetic hormones can now be infused into the mother to speed labour if it is progressing too slowly.

These developments have occurred only with an increase of resources for the maternity services. Ultrasound equipment requires an experienced and meticulous technician, and can give misleading information in unskilled hands. Monitoring during labour needs continuous commitment by an experienced obstetrician.[35] Epidural anaesthetics can be given by anaesthetic or obstetric staff[36,37] and need regular surveillance; and augmented labour needs regular measurements of progress and monitoring to exclude fetal distress.

Criticism of these developments comes from two sources. First, though mothers vary in their responses, most would probably prefer a labour without 'unnatural' intervention.[38,39] Secondly, many of the techniques have not been systematically evaluated by randomised controlled trials, and evidence of their ultimate value in improving the child's welfare is conflicting.[3,7,40] Clearer understanding will only come through meticulously controlled studies, since many factors are known to affect perinatal outcome.

**Figure 100** Postnatal stay in hospital, England and Wales 1977




*Source:* Great Britain, Office of Population Censuses and Surveys. Monitor ME4 80/1. London, OPCS, 1980.

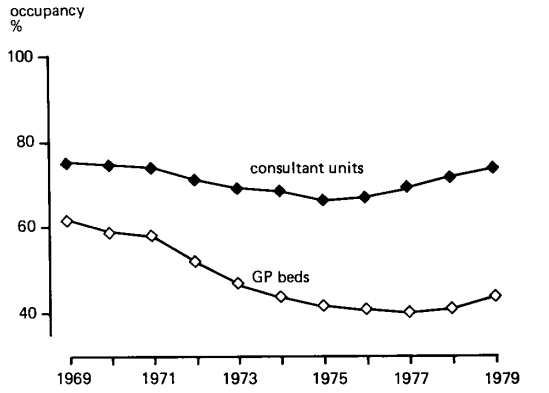
Local evaluative studies are worthwhile. Pharaoh[41] has suggested that low birthweight children should be assessed at two-year follow-up. He compared the outcome of two hospitals with different obstetric policies: the hospital with more intervention in labour (and better facilities) had lower perinatal mortality but higher prevalence of handicapped children at two years. Chalmers[3] compared two groups of obstetricians with markedly different policies working in the same hospitals: there was no difference in the outcomes recorded.

Planned early transfer home is safe[42-45] and is used for 60 per cent of mothers in one district, including those with their first child.[46] But some still stay up to 10 days in hospital, probably without medical benefit (Figure 100). Where hospital and domiciliary services are integrated[45,47] mothers can receive antenatal care locally, and the midwife who has seen them regularly can also

come into the hospital to deliver the baby and then provide postnatal care again at home. This 'Domino' scheme[46] (domiciliary midwifery in and out) would be feasible for most patients, but it is not widely offered at present, mainly because of the historic division of hospital and community midwives.

There is no evidence that maternity wards should have a lower average occupancy than general wards, although this was suggested in a national report on obstetric services.[48] With changing maternity care practice and lower birth rates, many maternity units are working well below capacity (Figure 101) and if there were shorter postnatal stays this inefficiency would be accentuated, since most hospital beds are for postnatal care. Closure of small, more isolated, maternity units is recommended on medical and economic grounds, and operational research models have been developed which allow efficient use of beds,[49,50] and can allow resources to be released for other aspects of perinatal care.

**Figure 101** Occupancy of maternity beds, England 1969–79




*Source:* Great Britain, Office of Population Censuses and Surveys. On the state of the public health for 1979 (table 7.1). London, HM Stationery Office, 1980.

Consumer attitudes to maternity care are also important.[51,52] Several community health councils have undertaken local surveys. Long waiting times in antenatal clinics (perhaps accounting for late booking by some mothers) seem to be ubiquitous, although they could be largely overcome by better organisation and timekeeping by doctors. Rigid, authoritarian attitudes still exist in some maternity units. 'Much obstetric dogma has been formulated at the expense of individuals.'[53] Examples include whether husbands are encouraged to be present at the birth, rigidity of feeding regimes or even whether other children can be brought to visit in the postnatal wards. 'The quality of perinatal health services is determined principally by the extent to which individual professional workers combine compassion with clinical expertise in their dealings with individual women and their families.'[54]

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# 24 Gynaecology

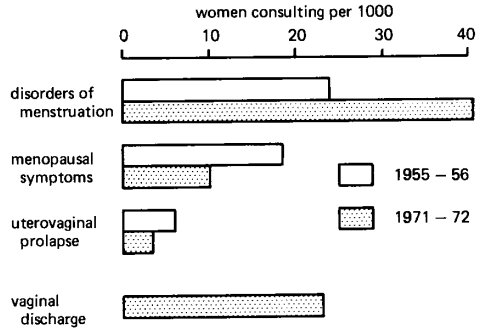
## Epidemiology

Gynaecological problems are common in primary care, and are increasing as women become more informed and concerned about their symptoms, and as specific therapy of antibiotics and hormone therapy has become available. Prolapse of the womb is becoming less frequent as a diagnosis in general practice and also in hospital admission. This may reflect improvements in obstetric practice in past years (Figure 102).

Gynaecological cancers form about one-eighth of all female cancers (Figure 103, page 136). Ovarian cancer is the most common, and has the poorest prognosis because symptoms usually occur only late in the course of the disease. The frequency of the condition seems to be rising, particularly in older people, although this may be partly an effect of better diagnosis. No etiological factors have been clearly identified.

Cancers of the uterine cervix (neck) and corpus (body) usually present with irregular bleeding. Death rates have been falling except for cancer of the cervix in women under 35. Cancer of the cervix is more common in wives of manual workers and women starting sexual activity at an early age; it is possible that trauma and an unidentified infective agent may combine to initiate the cancer.

**Figure 102** Common gynaecological disorders seen in general practice, England and Wales 1955–56 and 1971–72




*Source:* Birmingham Research Unit. Trends in national morbidity (table 22). London, Royal College of General Practitioners, 1976. (Occasional paper no 3)

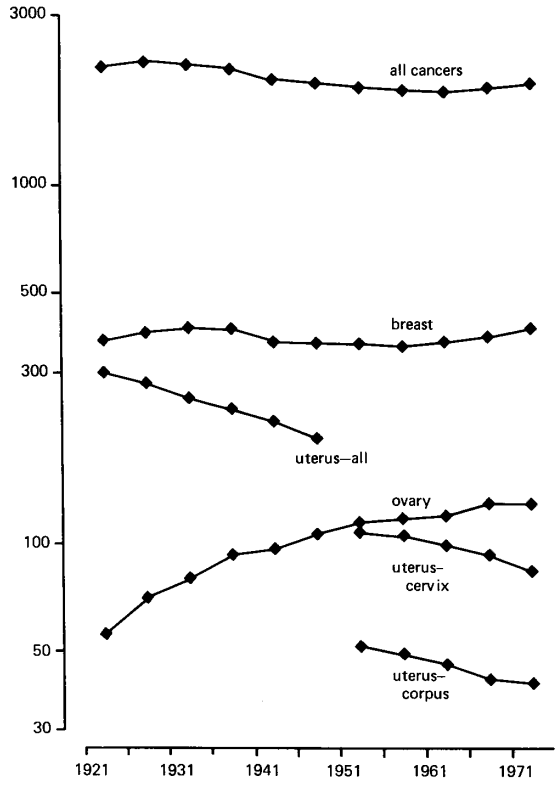
## Prevention

The cervical cancer screening programme is one of the best known areas of prevention, but there are many reservations about its effectiveness. The objective of cervical screening is to find those women whose cervix shows pre-cancer changes (carcinoma-in-situ), and for this to be removed by operation as a preventive measure against true cancer. There is controversy because not enough is known about the natural history of cancer of the cervix.[1] Since there are more women with early changes than eventually die from cancer, it is probable that a proportion of in-situ changes return to a normal cervix again. Also, it is not known how long in-situ changes exist before they progress to full cancer. If, for example, progressive in-situ changes exist for only a short time, but are non-progressive for a long time, the likelihood of preventing cancer by screening is small.

There is also an unresolved debate on whether screening actually changes cancer mortality. Mortality has fallen in

Aberdeen[2] and British Columbia[3] where intensive screening programmes are well established. But mortality has also fallen in places where screening is very limited; this suggests that at least some of the improvement must be attributed to changing (but unknown) external factors, for example an increase in hysterectomy rates.[4,5]

**Figure 103** Cancer deaths in women, England and Wales 1921–74 (standardised death rates per million, log scale)




*Source:* Great Britain, Office of Population Censuses and Surveys. Trends in mortality 1951–75 (appendix table B). London, HM Stationery Office, 1978. (Series DH1 no 3)

A further problem is that cervical smears are taken more frequently from low risk than high risk women. The cancer is commonest in the wives of semi-skilled and unskilled manual workers, yet smears are more frequently taken from middle class women. Similarly, the cancer occurs mainly in women aged over 45, and yet more than half of smears are taken on women under 35.[6] An important factor is that a smear is often 'routine' during an internal examination in pregnancy or a family planning consultation, and these smears have an extremely low yield. Although it has been suggested that taking smears at young ages 'trains' women to use cervical screening in later years, the smears taken in clinics are not usually at the request of the women and women are not coming forward in any greater numbers in the over-35 year groups as the years go by.

There are, therefore, some doubts about the effectiveness of the present screening service, although more positive views have been presented by pathologists responsible for running the laboratories.[7,8] Knox[9] made a computer model to try to test alternative forms of service. He found that an optimum series of ten tests between the ages of 35 and 80 could perhaps save up to three-quarters of all deaths, but his recommended ages for smears — 35, 40, 44, 48, 51, 54, 59, 66, 73 and 80 — is a distribution quite contrary to the present pattern. This suggests that the service needs to be recast in most districts, to give much greater emphasis on screening women of older age and to ensure they return at the best interval. It might also be more cost-effective if laboratories stopped reviewing any smears on women under 35. On the other hand, women over 35, incidentally admitted to hospital, could well be screened[10], although this is not often done at present.

Prophylactic hysterectomy, for women past the repro-

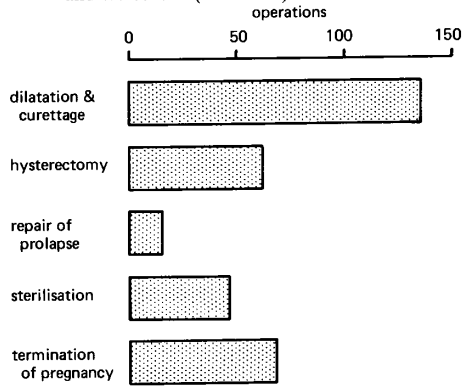
ductive period with menorrhagia or doubtful cervical smears, has also been suggested. But surgical intervention for either of these conditions has associated risks, and the balance of costs and benefits are still uncertain.[11]

## Services

Dilatation and curettage is the commonest of all operations for which patients are admitted to hospital (Figure 104). Nevertheless, an alternative technique of aspiration curettage in the outpatient department has been shown to be as effective[12,13], and far cheaper for the majority of cases. Furthermore, Vessey has commented that D and C is used extensively for minor menstrual disorders, cervicitis or cervical erosion in younger women without convincing evidence of benefit.[14] It would seem worthwhile reappraising the value of many of these operations.

Hysterectomy is the main major gynaecological operation. It is used with, or as an alternative to, radiotherapy in cancer treatment. Hysterectomy for fibroids and prolapse is becoming less common, possibly because of a true decline of these conditions in the population. There is a tradition of postoperative 'rehabilitation' after hysterectomy, which is without clear benefit[15]; but there needs to be better counselling on sexual life and other unspoken fears after the operation.[16]

**Figure 104** Common gynaecological hospital operations, England and Wales 1976 (thousands)




*Source:* Great Britain, Department of Health and Social Security. Hospital inpatient enquiry 1976 (table 22(ii)). London, HM Stationery Office, 1979. (Series MB4 no 7)

Luckman and Murray[17] describe policies for the efficient use of a three-ward gynaecological department shared between four consultants. More minor gynaecological operations could be performed as day cases[18,19], or in a weekday ward[20], if facilities were made available.

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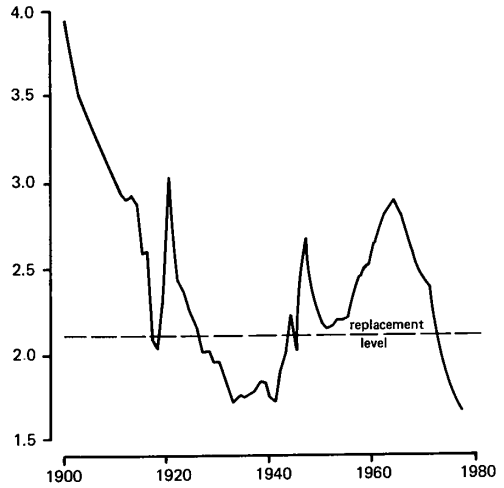
# 25 Fertility control

## CONTRACEPTION

### Epidemiology

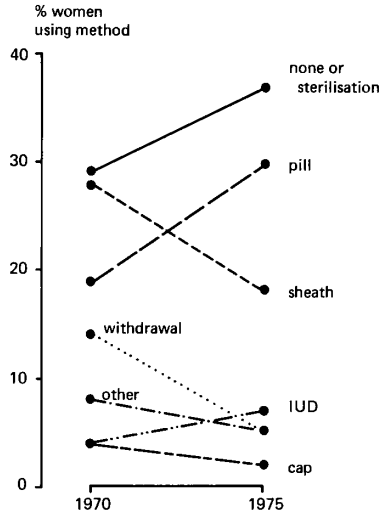
The traditional forms of fertility control are late marriage, abstinence and withdrawal. The birthrate in England fell steadily during the nineteenth century, before specific forms of contraceptive became available, indicating the importance of social motivation for fertility control. The lowest levels were reached in the 1930s (Figure 105). There was a rise in fertility in the 1950s, due to a combination of earlier marriages, shorter intervals between births and larger sizes of completed families. From the mid-1960s there was a trend towards postponement of first births. The upturn in fertility from 1978 is related to 'catching-up' of this postponement, and rising numbers of younger women of reproductive age. Contraception has allowed people to choose for themselves how many children they will have, and when, but it cannot be said that contraception is a cause of change in the birthrate.

**Figure 105** Average number of live births per woman, England and Wales 1900–78




*Source:* Great Britain, Office of Population Censuses and Surveys. Population projections (figure 2). London, HM Stationery Office, 1980. (Series PP2 no 10)

**Figure 106** Changes in contraceptive use by ever-married women under 41 years, England and Wales 1970–75




*Source:* Bone M. Family planning services: changes and effects (table 4.1). London, HM Stationery Office, 1978.

Surveys of contraceptive use have been based upon various population denominators. Cartwright[1,2] interviewed women who had recently had a baby; Bone[3,4] used a national sample of women aged 16–55; and Allen[5] used both these approaches in two contrasting areas. The studies show that the proportion of women using less reliable methods is falling (Figure 106) and that social class variations are narrowing (Table 19). Fewer older women use the pill, partly because they are accustomed to other methods, but the figures also reflect the greater risks of using the pill for women over 35.[6,7] More older couples use sterilisation (Figures 107 and 108) and there is a rising demand for these operations.[8]

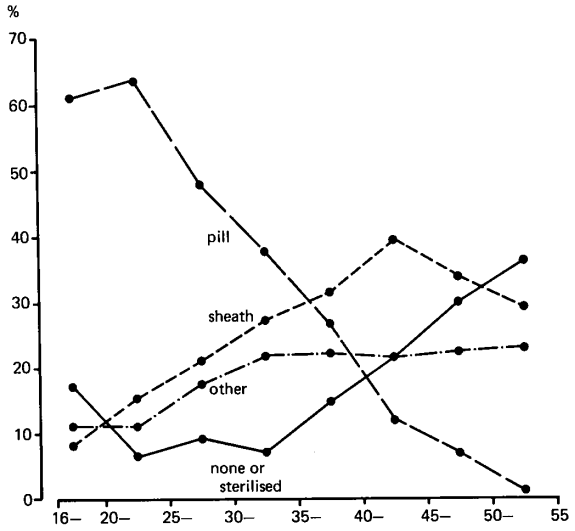
One in six pregnancies in a sample of married women in 1970 were regretted[3] and a further 10 per cent would have been more welcome later. The women most likely to regret their last pregnancy were those who married before 20 years old, who had conceived before marriage, who already had two or more children or whose husbands were semi-skilled or manual workers. Births to teenagers are increasing, particularly to girls under 16; this is against the general trend of a falling birthrate.[9] Twenty-four per cent of women aged 16–20 become pregnant, and most of these are first, unplanned pregnancies (Figure 109). Special effort is needed for contraceptive services to reach these young women.

**Table 19** Use of contraception by social class: married women under age 41 at risk, England and Wales 1970 and 1975

| | *Social class* | | | | | |
|---|---|---|---|---|---|---|
| | I, II, IIIn | | IIIm | | IV, V | |
| | *1970* % | *1975* % | *1970* % | *1975* % | *1970* % | *1975* % |
| pill | 28 | 42 | 24 | 43 | 21 | 39 |
| IUD | 6 | 9 | 5 | 9 | 4 | 7 |
| cap | 10 | 5 | 3 | 2 | 4 | 1 |
| condom | 38 | 28 | 35 | 24 | 36 | 24 |
| other, including none | 18 | 16 | 33 | 22 | 35 | 29 |

*Source:* Bone M. The family planning services: changes and effects (table 4.4). London, HM Stationery Office, 1978.

**Figure 107** Family planning methods; ever-married women at risk age 16–55, England and Wales 1975




*Source:* Bone M. Family planning services: changes and effects (table 6.5). London, HM Stationery Office, 1978.

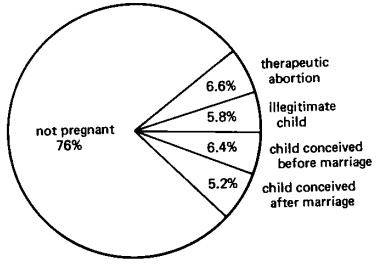
## Services

In 1975 there were 2.8 million single women, and 6.4 million married women aged 16–44. About a third of them were using contraceptive services: 1.4 million went to clinics and 1.9 million to their general practitioner. Contraceptives for men are still purchased mainly outside the family planning services.

**Figure 108** Prevalence of sterilisation: per cent of couples in which husband or wife sterilised, England and Wales 1975

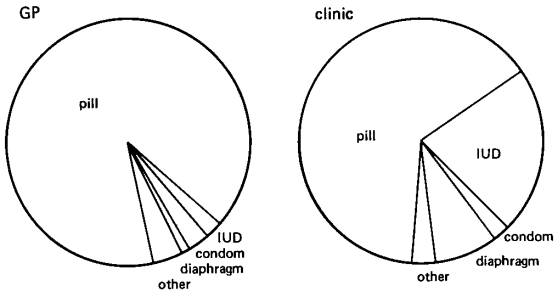

*Source:* Bone M. Family planning services: changes and effects (table 5.7). London, HM Stationery Office, 1978.

**Figure 109** First pregnancies in women age 16–20




*Source:* Teper S. Recent trends in teenage pregnancy in England and Wales. Journal of Biosocial Science, vol 7, no 2. April, 1975. pp 141–152.

**Figure 110** Contraceptive prescribing by GPs and clinics, ever-married women age 16–55




*Source:* Bone M. Family planning services: changes and effects (table 4.6). London, HM Stationery Office, 1978.

Family planning services were pioneered by voluntary agencies, particularly the Family Planning Association, and later also by local authority health departments. Since 1974, family planning services have been provided free. The NHS makes payment separately to both hospital doctors and general practitioners; and most GPs are now registered to provide family planning services.[10]

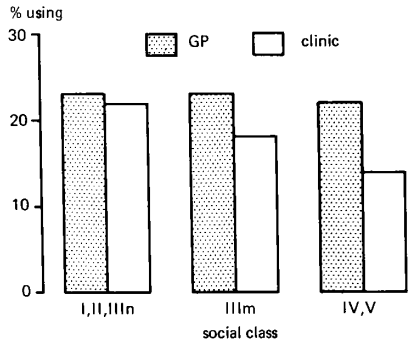
The two forms of service are complementary. Clinics prescribe from a wider range of alternatives, whereas GPs predominantly prescribe oral contaceptives (Figure 110). GPs are potentially able to discuss family planning when a woman has consulted for another condition. Family planning clinics, in health centres or community health clinics, can liaise with health visitors to encourage special target groups of women to attend; yet their clients are more frequently middle class (Figure 111, page 142). Some clinics also offer domiciliary family planning — a specially trained worker who visits women at home[11] — but this would be unnecessary if all health visitors and social workers included family planning advice in their daily contact with their clients.[12]

Contraception can also be discussed with women after childbirth, at the six week postnatal clinic. One reason for maintaining a network of family planning clinics, rather than relying on GP services only, is that most GPs are men. Some women prefer to discuss contraception with other women, and clinics are more likely to have women on their staff.

Sex education in schools could be improved.[13,14] It should include information about contraception, that advice is available to unmarried people, and where and how it is available. The Brook Advisory Service[15] is particularly oriented to young and unmarried people and is often preferred to more orthodox channels. Hospital clinics should be as flexible as possible.[16]

Sterilisation is free for women, but vasectomy is supposedly only available in the NHS on 'medical' as opposed to 'social' grounds (the interpretation rests entirely with the surgeon).[17] Since 1975, doctors performing both operations in the NHS have received item-of-service payment extra to their salary. There seems to be little liaison between gynaecologists and surgeons performing sterilisation, and inadequate counselling.[5] Reversal of sterilisation is sometimes requested, usually by women who have remarried: current methods are very time-consuming and cannot ensure success.[18]

**Figure 111** Use of family planning services by social class, England and Wales 1975




*Source:* Bone M. Family planning services: changes and effects (table 2.4). London, HM Stationery Office, 1978.

Infertility has many causes, and preliminary investigation of a couple can be done in the outpatient department.[19] Some women conceive during these months. A further series of investigations includes diagnostic curettage of the womb and x-ray investigation of the fallopian tubes. The hospital admission rate for infertility is rising. A small number of women, who have inadequate ovulation can be helped by drug therapy.[20]

## ABORTION

### Epidemiology

About 15 per cent of pregnancies are terminated by therapeutic abortion. The operation is more frequently performed on young unmarried women and on older women who have conceived outside marriage or who have two or more children.[9] With improvements in contraception, abortion will still be needed; even a relatively effective method such as the IUD has a likelihood of one in five women becoming pregnant during their reproductive span.[6]

In contrast to any other surgical operation, abortions performed within the 1967 Abortion Act must be notified within seven days, on a special form, to the Registrar General. Summaries of these registrations are published annually by OPCS (OPCS Series AB), and give details of each health district. In the early years after the Act, the number of notified abortions on resident women rose to just over 100 000 a year; this probably corresponded with the numbers of illegal abortions before the Act. The fall since 1973, and upswing

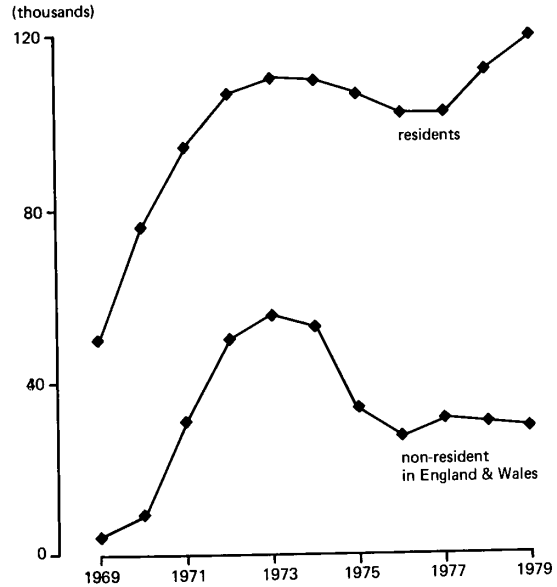
from 1978, corresponds with changes in general fertility (Figure 112).

The geographical variations in abortion rates in the NHS relate to availability of facilities and to the attitudes of medical staff.[21,22] Largely because of these factors, half the abortions for British residents, who are eligible for NHS services, are still performed in private practice (Figure 113).

## Services

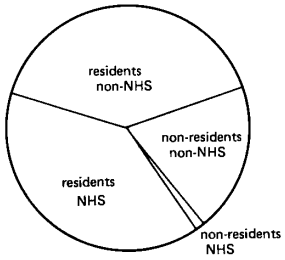
Abortion is easier the earlier in pregnancy it is performed. Termination can be offered within a few days of a missed period.[23,24] Complications of abortion increase as the pregnancy progresses. After 8–10 weeks the neck of the womb has to be dilated for the fetus to be extracted, and after 12–14 weeks abortion has to be induced by infusion of a hormone, prostaglandins. It is in the women's interest, therefore, for an abortion to be performed before 10 weeks.[25]

**Figure 112** Notified abortions, England and Wales 1969–79




*Source:* Great Britain, Office of Population Censuses and Surveys. Abortion statistics. London, HM Stationery Office, annually. (Series AB)

**Figure 113** Legal abortions: category of premises of operation for residents and non-residents, England and Wales 1978




*Source:* Great Britain, Office of Population Censuses and Surveys. Abortion statistics. London, HM Stationery Office, 1978. (Series AB no 5)

At present, abortions in the NHS are performed on average later than those in private practice. One reason is delay: caused by the GP, by waiting for outpatient appointments, or because of admission waiting lists.[26,27] But care must be taken in making comparisons between hospitals because the NHS also provides late therapeutic abortions for abnormal pregnancies such as congenital malformations identified in an antenatal screening programme up to 20 weeks.

Delay is much reduced by day-care abortion, which is feasible up to 12 weeks[28-31], and is also cost-effective.[32] In a successful scheme in North Devon,[33] the consultant is available by telephone to general practitioners at a fixed

time each day, and can perform an abortion in the outpatient department within 24 hours. However, for most NHS terminations of pregnancy inpatient admission is — perhaps unnecessarily — required, with one or even two days' stay.[34]

The Committee on the Working of the Abortion Act[35] made a comprehensive review of who seeks an abortion, and the outcome, and suggested a number of indicators to assess how adequate a local service is, most of which are available from existing record systems.

1 The proportion of local residents having abortions who are treated by their local NHS hospital compared with those treated in NHS hospitals elsewhere and in private practice.

2 The proportion of patients, referred for abortion by general practitioners, for whom termination of pregnancy is undertaken.

3 The local abortion rate, and ratio to all births.

4 The proportion of abortions undertaken before the twelfth week.

5 The length of inpatient and outpatient waiting lists, their trends and variations.

**Reading**

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# Section 5
# Children

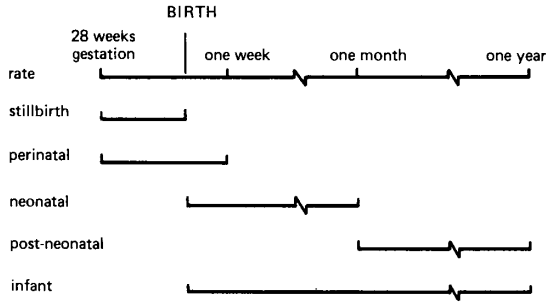
# 26 Child health

## Epidemiology

The common measures of childhood deaths are shown in Figure 114. Death rates are highest on the day of birth, and decrease with time up to 1–14 years (Figure 115).

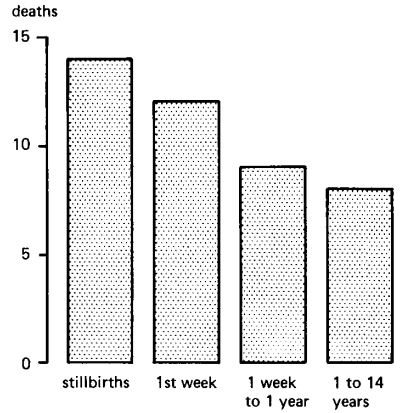
Infant mortality includes all deaths of liveborn children within the first year. It is higher in areas of poor housing and overcrowding, where there are high birth rates and large families, and there is a geographical gradient from the north of England to the south. Infant mortality has been falling only slowly over the last 20 years in England and Wales — certainly not as well as other countries, such as France, Sweden and Japan (Figure 116).[1]

**Figure 114** Timespan of various mortality rates in the perinatal period




*Source:* Lambert P. Perinatal mortality: social and environmental factors. Population Trends, vol 4. summer, 1976. pp 4–8.

**Figure 115** Childhood deaths each year in a population of 100 000 by age group




*Source:* Great Britain, Office of Population Censuses and Surveys. Mortality statistics: childhood and maternity. London, HM Stationery Office, 1980. (Series DH3 no 5)

Infant mortality can be separated into neonatal deaths (up to one month), over half of which are accounted for by low birthweight (under 2500 grams) and reflect obstetric and special baby unit care, and post-neonatal deaths (from one month up to one year) which are more closely related to infant care and environmental factors.

The main certified causes of neonatal mortality are shown in Figure 117. Important current concerns are sudden infant deaths, also termed 'cot deaths'[2,3], which have an incidence of about 2–3 per 1000 live births. Sudden death occurs usually within the first six months of life, and more frequently in poorer families. A recognisable serious illness can be found in only a third of these deaths.[4]

There have been detailed studies of postnatal deaths[5-7],

which suggest that the certified causes may understate the importance of infections and accidents. There are marked social class gradients for both infant mortality[8] and that of children aged 1–4[9] (Figures 118 and 119, page 150). From 5–14, the main causes of death are cancer and accidents, and both these are more frequent for boys than girls (Figure 120, page 151).

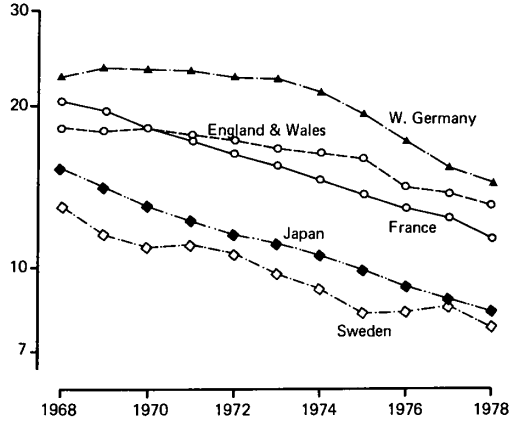
About nine out of ten children aged 0–4, and six out of ten children 5–14, are seen by their general practitioner during the course of a year.[10] Acute infections and accidents are common reasons for consultation and also for hospital admission. Chronic conditions, more often seen in paediatric outpatients, include asthma, epilepsy, speech problems, and physical handicaps due to congenital malformations, injury or progressive neurological diseases.

The extent of non-fatal accidents is unknown. Backett[11] estimated a ratio of one death to 150 serious and 3500 minor accidents. At all ages, accidents to boys are more common than to girls.[12] Apart from GP consultations, more than one in 100 children are admitted to hospital for accidental injury each year, and about one in six children attend the casualty department.[13] Details of the causes of domestic accidents in children are available through the Home Accident Surveillance System (Chapter 32).

It is being increasingly recognised that some serious injuries and deaths are not accidental but are inflicted by parents. Most hospital accident departments now notify social work agencies about children attending with unexplained, or frequent, injuries.[14]

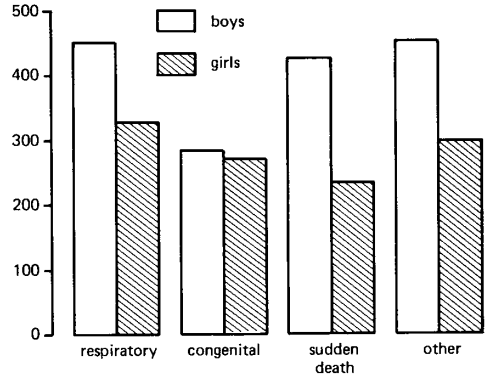
Congenital malformations are notified at birth through a voluntary system in each region (Chapter 32). Some defects, such as spina bifida, are more common among

**Figure 116** Infant mortality in selected countries 1968–78 (rate per 1000 live births, log scale)




*Source:* World Health Organization. World statistics annual: vital statistics and causes of death (table 5). Geneva, WHO, annually.

**Figure 117** Causes of death in children aged 1 month to 1 year, England and Wales 1978



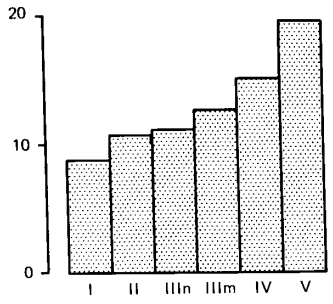

*Source:* Great Britain, Office of Population Censuses and Surveys. Mortality statistics: childhood and maternity (table 16). London, HM Stationery Office, 1980. (Series DH3 no 5)

poorer families. There are also geographical variations in incidence, such as the higher incidence of neural tube defect in Northern Ireland and South Wales; but generally little local use is made of these statistics because the environmental factors causing congenital malformations are unknown.

Handicaps in children may be physical, intellectual, educational or emotional. The prevalence of handicap varies with different methods of identification and at different ages. Severe neurological handicaps are often recognised within the first year, but intellectual, educational and emotional handicaps present later.

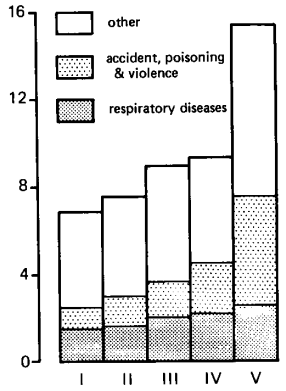
The most comprehensive study of all four types of handicap was undertaken on the Isle of Wight.[15] Altogether one in six children aged 10–12 were found to have a chronic or recurrent handicap; a quarter of these children had an educational handicap (as might be expected), but one third of intellectually retarded children had a physical handicap; and a third of psychiatrically disordered children had multiple handicaps.

**Figure 118** Infant deaths by social class, England and Wales 1977 (per 1000 live births)




*Source:* Great Britain, Office of Population Censuses and Surveys. Perinatal and infant mortality: social and biological factors 1975–77 (table 23). London, HM Stationery Office, 1980. (Studies on medical and population subjects no 41)

**Figure 119** Causes of death in children aged 1 to 4 by social class, England and Wales 1959–63 (age-specific rates per million)




*Source:* Great Britain, Office of Population Censuses and Surveys. Child health: a collection of studies (chapter 3, tables 3, 12 and 14). London, HM Stationery Office, 1976. (Studies on medical and population subjects no 31)

There have also been longitudinal follow-up studies on the children born during the three national surveys of perinatal mortality: 1946, 1958 and 1970.[16-18] The reports describe the pattern of common disabilities, such as deafness and poor sight, and relate these to the use of health services. Table 20 shows the prevalence of common disabilities at age seven found in children born in 1958.

## Prevention

The role of prevention for children is probably better understood than it is for any other area of health care, although the preventive services are still often separated from treatment. Medical services should present a positive attitude towards children's health as a whole, rather than simply 'hunting for hidden handicaps'.[19] Regular

surveillance of every child in the population is a major task, and a balance has to be drawn between detail and practicability.

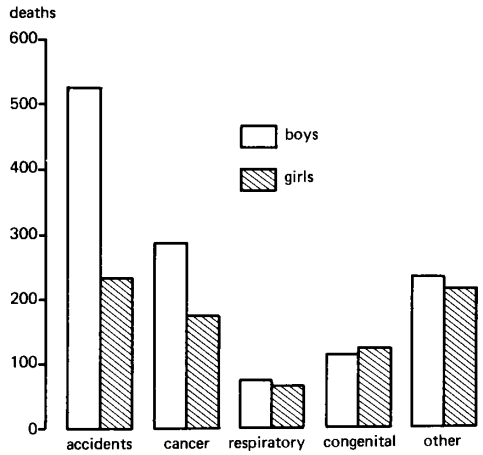
Examination for congenital abnormalities is made at birth and at six weeks, and is carried out as part of maternity care. Hearing is best tested at seven months, and can be done by a health visitor. A check is usually made at 18 months to determine developmental progress. At three years, most children are able to cooperate in having their vision tested; and a further examination can be made at 4–5 years when the child first goes to school.[20]

These tests identify problems that may be treatable, such as those of hearing, sight or speech. They also detect early motor or intellectual handicap, so that physiotherapy for the child and advice to the parents can be given. More detailed surveillance programmes than this have not yet been shown to have any greater benefit.[21]

Repeated examinations by doctors, after the child begins school, are unnecessary.[22] School nurses can test sight and hearing, record height and weight, make inspections for head lice, and refer children for medical care if necessary.

The Committee on Child Health Services[22], reporting in 1976 recommended that children aged 12–13 years should have a private interview with the school doctor to discuss health and development, and to form a link with

**Figure 120** Causes of death in children aged 5 to 14, England and Wales 1978




*Source:* Great Britain, Office of Population Censuses and Surveys. Mortality statistics: childhood and maternity (table 16). London, HM Stationery Office, 1980. (Series DH3 no 5)

**Table 20** Disabilities found in 7-year old children

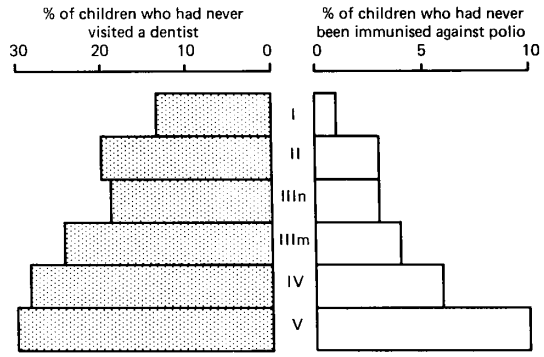
| | | |
|---|---|---|
| vision | 8% | : moderate or severe defect in one or both eyes |
| | 3% | : definite squint |
| speech | 6% | : impediment reported by parent |
| | 1% | : impediment reported by medical officer |
| hearing | 9% | : discharging ear |
| | 6% | : hearing loss of 35 decibels or more in one ear at 2 or more of the frequencies tested |
| | 1% | : hearing loss in both ears |
| | *(rate per 1000)* | |
| congenital defects | 1.1 | : spina bifida |
| | 3.6 | : heart disease |
| | 2.3 | : severe mental handicap |
| | 1.1 | : dislocated hips |

*Source:* Davie R, Butler N and Goldstein H. From birth to seven: the second report of the National Child Development Study (1958 cohort). London, Longman in association with the National Children's Bureau, 1972.

the doctor for reasons other than sickness. There has been no evaluation yet of this proposal. Medical examinations on children about to leave school do not reveal many new problems, but cooperation between the school and the employment medical advisory services could be improved, especially concerning the placing of handicapped school leavers in suitable employment.

A child surveillance programme is designed to identify handicaps that have not been previously anticipated.[18,22] Handicaps may be present at birth (such as malformations of the heart), or as the child develops (such as short sight), or may be acquired (such as hearing loss developing from chronic ear infection).[16] The 'risk register' for selective surveillance has been abandoned in favour of full population screening.[23] Nevertheless, when children *are* found to have a handicap, keeping their names on a register allows surveillance of epidemiological trends, and makes possible the mounting of follow-up investigation to find out whether all the children with a particular handicap are receiving appropriate care and services.[24]

**Figure 121** Use of preventive health services for children up to age 7 by social class, Great Britain 1965




*Source:* Davie R, Butler N and Goldstein H. From birth to seven (figures 17 and 18). London, Longman, 1972.

Health visitors are concerned with prevention of accidents in the home, and advise on dangers from fires, domestic appliances, windows. Road training is provided for many school-children. The Child Accident Prevention Committee is developing policies to reduce child accidents at the local level.[25] Non-accidental injury (child abuse) can be limited by coordinating health and social services, and a high level of awareness.[26]

*Immunisation*

The routine immunisation programme is reviewed from time to time[27] (see Chapter 16). Recent changes have been the introduction of german measles (rubella) vaccination for schoolgirls to prevent the effects of congenital malformation if the girl first develops german measles during pregnancy; and cessation of routine smallpox vaccination now that the disease is no longer endemic in the world. Uptake of immunisation, like many other preventive measures, varies by social class (Figure 121). Controversy over whooping cough (pertussis) immunisation led to a marked fall in uptake in the late 1970s[28], but the majority of experts consider that the benefits of immunity outweigh the risks.[29] Uptake can be improved by a computer file and recall system designed to make appointments and to send for children automatically. Birth notification is the basis for the file. A modified system is being introduced nationally.[30]

A cost-effectiveness study of the immunisation programme for tuberculosis in schools has suggested that its costs will exceed those of treatment by the mid 1980s; selective immunisation for high-risk groups may then be preferred.[31]

**Services**

There is potential for much closer cooperation between

hospital and community services in child health care. Trefor-Jones[32] described five ways of integrating the services.

1 A district handicap team, whose membership includes a paediatrician, mental handicap consultant, senior clinical medical officer, educational psychologist, social worker and health visitor. The team meets in outpatient or clinic premises and does not need an elaborate purpose-built assessment centre to function well.

2 Attachment of health visitors to the paediatric department in rotation, so that every health visitor spends two-weeks in hospital at a time.

3 Attendance of clinic medical officers in the outpatient department.

4 Consultant sessions in community clinics, with consultants seeing children referred with problems such as asthma, developmental delay, epilepsy, failure to thrive.

5 Rotation of junior hospital staff through GP training appointments.

Responsibility for immunisation and for developmental assessment is not at present clearly defined between the clinic doctor and the general practitioner. There has been improved cover of immunisation since records have been kept on computer files which report the names of children who have been missed by routine services. Although many health authorities keep handicap registers, few know what proportion of their children at a particular age have not been screened, or whether their identification rate is similar to the national average. In preventive screening programmes of this sort, the service has to make considerable efforts to ensure full cover: it is not much use simply waiting for the children to turn up.[33] Indeed, it is in the children who do not turn up that the highest rate of abnormalities are found.[17]

**Table 21** Physical disorders of children age 10–12, Isle of Wight, 1962–63

| | *Age-specific rate per 1000 children* |
|---|---|
| asthma | 232 |
| eczema | 104 |
| epilepsy | 64 |
| cerebral palsy | 46 |
| other brain disorders | 37 |
| orthopaedic conditions | 34 |
| heart disease | 24 |
| deafness | 18 |
| diabetes | 12 |
| neuromuscular disorders | 12 |
| other | 37 |

*Source:* Rutter M, Tizard J and Whitmore K. Education, health and behaviour (table 18.1). London, Longman, 1970.

Detection and care of handicapped children are the combined responsibility of health, social service and education departments. In the Isle of Wight study (see Table 21), most of the children with physical handicaps were receiving adequate medical care but services for the accompanying educational and psychiatric handicaps, and the social problems of the families, showed deficiences.[15]

Honeylands, a comprehensive project for handicapped children, has been developed in Exeter.[34] The district population of 200 000 yielded about 140 handicapped children of all ages needing special care. A disused chest

hospital with 30 beds, in its own grounds, was converted to provide a range of services for infants and for pre-school and school age children. Parents can live in when necessary, or can use the centre for short-term (even overnight) stay when they need relief. Apart from offering a full range of educational and therapy services for the children, the centre also provides support and education for the parents by individual and group counselling.

**Special care baby units** The first days in a child's life are particularly important for normal development of the mother's attachment to her child. However, seriously ill and very low birthweight babies need to be cared for in special care units. If the baby is nursed in an incubator, extra arrangements must be made for the mother to be closely involved during these vital first days.[35]

There are broadly two forms of special care for babies. Most need observation and feeding rather than treatment — for example, after delivery of a diabetic mother, or for mild prematurity. A much smaller number require intensive neonatal care[36] with highly trained and expert nursing and medical staff, particularly if artificial respiration is required.

It has been recommended that each region should have only one or two designated intensive care units for babies[37], and that other maternity units should provide special care primarily for observation and nursing of the newborn rather than intensive treatment. Transporting a newborn baby to the regional centre in a suitably manned and equipped ambulance is safe and effective[38,39], though it is better to bring the mother in before delivery.

Special care units for premature babies have been built at most obstetric hospitals, but because of a lower birth rate and because indications for special care have become clearer, it seems that many regions are now over-provided.[40] Whilst some units admit babies according to well-defined criteria of benefit[41], other units admit routinely all babies who have had difficult deliveries, so many of them are not of low birthweight.

Richards[35] recommends that if more attention were given to the training of midwives in postnatal wards in simple neonatal nursing, the need for special unit care would lessen; and that better admission policies would reduce the need for special care cots from the present recommended level of six per thousand births to three — and thus fewer mothers would be separated from their babies at birth.

**Hospital Care** Although hospital discharge rates for children have risen steadily, the average number of occupied beds has fallen, and this reflects progressive reduction in the length of stay. The fall has been greatest for older children. At the same time, hospital outpatient attendances have increased.

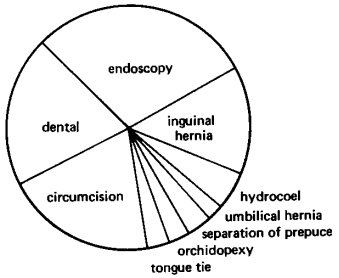
The Platt report on the welfare of children in hospital[42] recommended that all children should be admitted to a children's ward, so that they can be looked after by trained children's nurses, have suitably sized furniture and an attractive, non-threatening environment. Some hospitals also have casualty departments for children only.

Play has special significance for children in hospital: it helps to express the tensions derived from illness or handicap, from fear of losing family, and from the bewildering and, sometimes, frightening occurrences of the hospital. There should be a trained playworker, employed by the hospital, on every ward and in the outpatient department[43]; and a teacher, employed by the local education authority, for the older children. In 1972, fewer than three-fifths of hospital wards had access to a teacher[44]; and only two-thirds of wards could provide overnight accommodation to parents — another recommendation of the Platt report.

The effect of hospital admission on later emotional development has been studied in longitudinal samples. The evidence[45] suggests that a single hospital admission of less than a week is without long-term harm, but prolonged or repeated admission is associated with behaviour disturbance in adolescence (Chapter 27). About 4 per cent of all children have multiple admissions to hospital, and two-fifths of these show later disturbance (although this is a factor in only a small proportion of *all* disturbed children).[45] Whether it is the hospital admissions or the disability which required hospitalisation that causes behavioural disturbance is still in doubt.

Why are children admitted to hospital? In urban areas more than half of the children have been brought to hospital directly by their parents.[46] There is a strong social class gradient, which suggests that many might have been nursed at home if there had been suitable support and advice from domiciliary services. A pilot study in Gateshead has evaluated how home nurses who have retrained in paediatric care can support families to prevent hospital admission and allow earlier discharge.[47]

**Figure 122** Day-case operations at a regional paediatric surgery centre, Wessex 1969–73




(836 operations during 4 year period)

*Source:* Atwell J G, Burn J B, Dewar A K and Freeman N V. Paediatric day case surgery. Lancet, vol 2, no 7834. 20 October, 1973. pp 895–897.

In one London teaching hospital, a doctor and nurse from the hospital visit children at home. Reporting the scheme, Oppé comments 'There are few sick children except surgical or accident cases, that cannot be cared for at home'.[48]

Up to a third of children needing general surgery can be treated as day cases (about 50 per 100 000 population per annum), although many surgeons prefer to admit these children for two nights.[49,50] Adequate preoperative assessment at a special anaesthetic outpatient clinic is important for satisfactory day surgery. The range of possible operations is shown in Figure 122.

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# 27 Child psychiatry

## Epidemiology

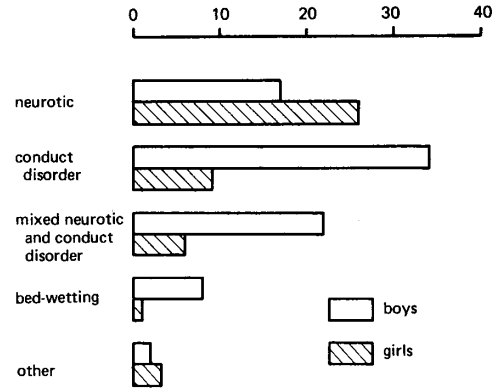
Most children show isolated conduct or emotional disturbances at some time in their childhood. Psychiatric disorders of children are diagnosed on the basis of the extent and severity of these symptoms. Childhood disorders occur more frequently in families where parents experience marital difficulties, psychiatric disorder or show antisocial behaviour; in large families; those with poor housing; and at schools with high rates of staff turnover.[1] The 'cycles of disadvantage'[2] that perpetuate these problems are complex and inter-related, and it is not easy to identify a basic or main cause. The determinants lie deep in the structure of society and the political decisions that are made.[3]

In epidemiological studies, psychiatric 'syndromes' rather than diagnoses have usually been recorded[4] (Figure 123). Rutter[5] found rates of emotional and conduct disorders and specific reading retardation in 9–11 year old boys and girls of 12 per cent in a country district (Isle of Wight), and rates twice as high, 25 per cent, in an inner London borough. Other physical handicaps are frequently associated with these psychiatric disorders.

## Prevention

If the origins of childhood problems lie in the interaction of genetic constitution with family relationships and the wider environment of social group and school, prevention must be applied broadly to these areas of social life. There are many agencies in this work: health visitors, nursery nurses, social workers, school counsellors, educational welfare officers. Prevention is similar to treatment, seeking to produce remission of symptoms by altering the external environment. Nevertheless, magistrates are more reluctant to grant a care order on grounds of a child's mental health than for physical damage.

**Figure 123** Psychiatric syndromes identified in 118 children in a population survey




*Source:* Rutter M, Tizard J and Whitmore M. Education, health and behaviour (table 11.1). London, Longman, 1970.

## Services

Only a small number of children receive specialised treatment. The structure and activity of child guidance services vary markedly around the country[6]; they use the perspectives of psychiatry, social work and educational or clinical psychology. The child guidance services developed from local authority provision and are now usually within the NHS community services. Clinics also

have a role in assessing children for special education and in the training and education of staff of other agencies.

The authors of a detailed evaluation of a child guidance service in an outer London borough[7] repeat the suggestion of Rehin[8] that much of the current work of the child guidance team should be returned to the welfare agents primarily responsible. Education authorities need to recognise that further provision of special schools and child guidance clinics is an inadequate answer for problems that exist in up to one quarter of all children.[5]

Social workers in child guidance clinics are seconded from social service departments and are, therefore, separated from their own area teams and family service units. The work of clinical psychologists in the child guidance service and of educational psychologists in the education service overlaps considerably, but cooperation is sometimes poor. To add to the complexity, there are also school counsellors and educational welfare officers whose work is in many ways similar to that of social workers.

General practitioners are also frequently consulted about children showing behavioural or developmental abnormality, and should be able to call on the family counselling skills of other members of the primary health team. Child psychiatrists may offer specific treatments to a limited group of children. But their main role is to offer research evidence and expertise to the 'front line' workers in primary health services, social work and education. It is possible that their work could extend to caring for mentally handicapped children since about half the children with a mental handicap also have a psychiatric disorder.[9]

Child psychiatry is a quite recent specialty in hospitals. Its treatment methods are more defined, but the specialist services are often rather isolated from the communities they serve. Integration of hospital and clinic work would be logical, but the differing treatment philosophies have delayed this.

The research findings on treatment are sparse and inconclusive for the most part.[10] Most emotional disorders of childhood will ultimately remit, even without treatment: the purpose of treatment is usually to bring about an earlier remission.[11,12] But conduct disorders are more likely to persist into adult life as antisocial behaviour.[13] With some of the less common and more severe psychiatric disorders, such as infantile autism, it is not realistic to expect full recovery, except with the occasional child. The objects are to reduce handicap and aid more normal development.

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# Section 6
# Mental Health

# 28 General psychiatry

## Epidemiology

Every one experiences transitory states of unhappiness, anxiety or excitement, usually in relation to identifiable external circumstances. Mental illness may be considered to be present when these states are abnormally prolonged or profound. It is convenient to distinguish the milder neurotic illnesses from psychotic illnesses, such as schizophrenia, in which a person shows loss of contact with reality. Some drugs, including alcohol, and sometimes dementia in elderly people, also produce these states.

Population surveys in psychiatry emphasise the difficulty of making a clear definition of mental illness. One survey using very open questions has suggested that most people have some symptoms of mental disease.[1] However, when case diagnosis by a doctor is included in the survey, the frequency of mental illness recorded is between 10 and 20 per cent; and admissions to or outpatient attendances at psychiatric hospitals give a prevalence of between one and two per cent.[2]

The most detailed English study of psychiatric morbidity in the general population was that of Shepherd[3] working with 26 general practices in London in 1966. The frequency of diagnoses in this study is similar to that found in the national morbidity survey of 1970–71 (Table 22).

**Table 22** Comparison of mental illness in two general practice surveys (patients consulting rates per 1000)

| | *London GPs 1966* | *National Morbidity Study 1970–71** |
|---|---|---|
| dementia | 1.4 | 1.4 |
| schizophrenia | 5.9 | 1.4 |
| psychotic depression | | 4.1 |
| neurotic depression | 88.5 | 31.4 |
| anxiety | | 34.0 |
| personality disorders | 2.7 | 0.9 |
| physical disorders with psychiatric origin | 3.0 | 17.6 |
| other | 22.5 | 21.2 |
| total | 124.0 | 112.0 |

*All ages. The categories have been approximated to those of the 1966 study.

*Source:* Shepherd M, Cooper B, Brown A G and Kalton G. Psychiatric illness in general practice. London, Oxford University Press, 1966, *and* Great Britain, Office of Population Censuses and Surveys. Morbidity statistics from general practice: second national study 1970–71. London, HM Stationery Office, 1974. (Studies on medical and population subjects no 26)

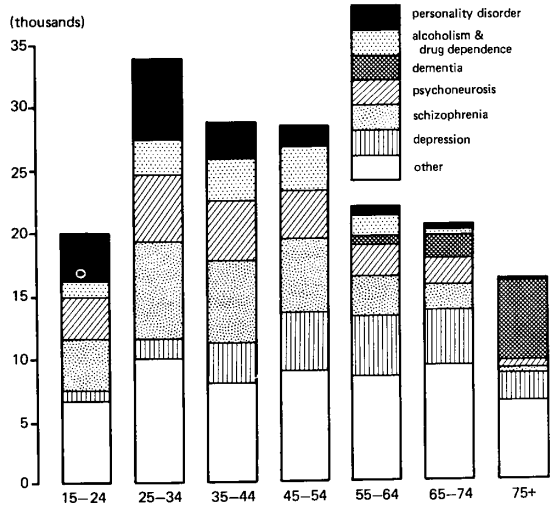
In a general practice where one of the doctors had trained in psychiatry[4], 25 per cent of the patients were thought to show some psychiatric disturbance, although in only 7 per cent was the illness presented without associated physical complaints. Yet, compared with an estimate of psychiatric symptoms using a standardised inventory, the general practitioner underestimated the true extent of mental illness by a third. The researchers commented 'It needed direct enquiry to elicit phenomena of psychiatric illness, since most of the patients did not see themselves as emotionally disturbed'.

Some epidemiological data about mental hospital admissions are available from the Mental Health Enquiry (Chapter 32 and Figure 124). There have been no

validation studies of the diagnoses recorded in the MHE and there is probably considerable variation between psychiatrists. Admissions are more frequent for women, reflecting the higher prevalence rates found in population surveys. Admission rates fall in late middle age but rise markedly in old age (Figure 125).

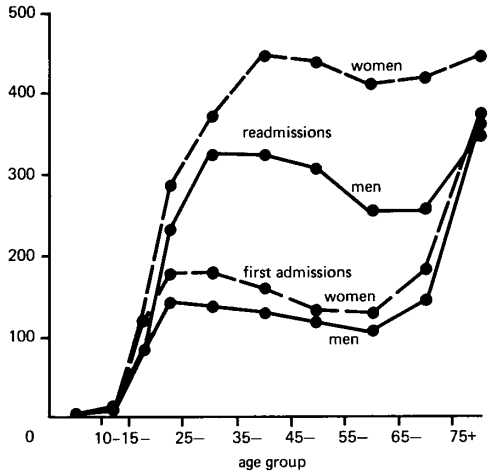
Mental hospital patients are found more frequently to be unmarried (including widowed or divorced) than the general population, and there is a social class gradient, with higher admission rates for working class people.[5] Although there were no social class variations in the general practice study of Shepherd, population-based studies by Brown and Harris[6] suggest that threatening

**Figure 124** Hospital admissions for mental illness by age group and diagnosis, England 1977




*Source:* Great Britain, Department of Health and Social Security. Inpatient statistics from the mental health enquiry for England 1977 (table A13). London, HM Stationery Office, 1980. (Statistical and research report series no 23)

**Figure 125** First admissions and re-admissions to mental illness hospitals, England 1977




*Source:* Great Britain, Department of Health and Social Security. Inpatient statistics from the mental health enquiry for England 1977 (table A1). London, HM Stationery Office, 1980. (Statistical and research report series no 23)

life events (such as financial loss, unemployment or imprisonment of husband, or the death of a close relative) occur more frequently to working class than to middle class women, and account in part for the higher rates of depression found.

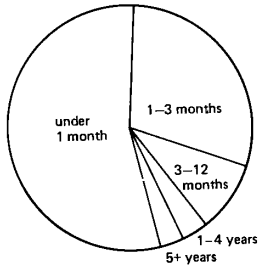
Hospital admission rates for Irish-born residents are much higher than for other groups. Both Irish and Scots are admitted particularly for alcoholism. Admissions for schizophrenia seem to be higher in residents of West Indian origin, although this is partly accounted for by differing age structures.[7-9]

The number of patients in mental hospitals reached its peak in 1954 and has since declined steadily. Yet, while

average lengths of stay have fallen, numbers of admissions and readmissions, as well as outpatient attendances, have risen, leading to the wry comment that the locked door has been exchanged for the revolving door. Psychiatric patients tend to stay longer than other patients in general hospitals, and the number of long-stayers has a striking effect on the use of hospital beds. Less than 3 per cent of discharges and deaths are of patients resident in hospital over five years (Figure 126), and yet these people are almost fifty per cent of all residents in mental hospitals and units[10] (Figure 127). Although only 3 per cent of all NHS admissions are for mental illness, psychiatry has 30 per cent of all hospital beds.

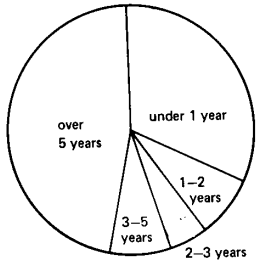
Psychiatric case registers (Chapter 32) have been used to compare the services in different parts of the country. For example, the Camberwell and Salford registers[11] indicate that about one per cent of the population has a new episode of outpatient or inpatient care each year (Figure 128), and about a quarter of these patients have not previously received specialist psychiatric care. On a single day, just over 0.5 per cent of the population is receiving a course of inpatient or outpatient care. Figure 129 shows the variation in admission rates and length of stay in the two districts.

**Figure 126** Duration of stay of discharges and deaths from mental illness hospitals, England 1977




*Source:* Great Britain, Department of Health and Social Security. Inpatient statistics from the mental health enquiry for England 1977 (table A4.1). London, HM Stationery Office, 1980. (Statistical and research report series no 23)

**Figure 127** Length of stay of patients resident in mental illness hospitals, England 1977




*Source:* Great Britain, Department of Health and Social Security. Inpatient statistics from the mental health enquiry for England 1977 (table A24.1). London, HM Stationery Office, 1980. (Statistical and research report series no 23)

## Prevention

It is easier to suggest ways in which the environment or social factors may be associated with mental illness[12] than to provide evidence of causality, or of successful intervention.[13] Caplan described three levels of prevention in psychiatry.[14] In primary prevention, he included environmental factors such as good housing, sufficient income, employment and law and order. For the individual, he suggested the development of 'healthy crisis-coping behaviour', particularly for predictable events such as childbirth, retirement, or bereavement.

Secondary prevention includes early treatment or specialist referral, self-referral (including emergency services) and early detection through screening. Perhaps more emphasis has been placed on tertiary prevention, by shortening inpatient stay, improving community support for patients and their families, and rehabilitating

long-stay patients. But the theory of preventive policies for mental health is poorly developed, and deserves more study and experimentation.[15]

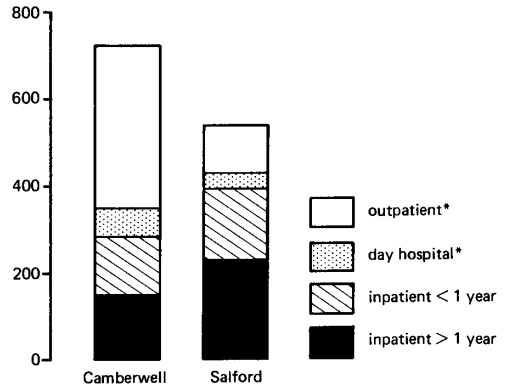
## Services

**Concepts in psychiatry** There is a variety of approaches to psychiatric practice in Britain.

1 The dominant model sees mental illness as parallel to physical illness, which requires physical treatments such as drugs and ECT. Description and making a formal diagnosis are emphasised in postgraduate psychiatric training of doctors, and the examinations of the Royal College of Psychiatrists.

2 A contrasting model is derived from the discoveries and teaching of Freud. This psychodynamic approach is not usually used in psychotic illnesses and requires long and personal attention from the psychiatrist to each patient. The patients treated tend to be well educated and the practice is often private, in consulting room rather than hospitals. Full-time psychoanalysis and psychotherapy form only a minor part of NHS practice.

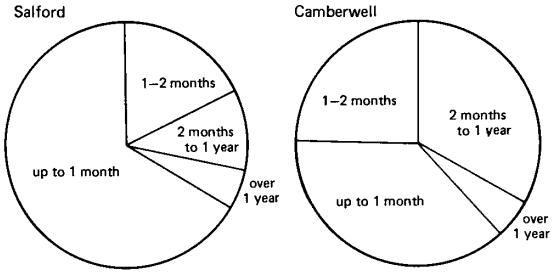
**Figure 128** Hospital psychiatric patients identified by census in two districts (per 100 000 population)




* outpatient and day hospital attendances within three months of census day

*Source:* Wing J K and Fryer T. Statistics from the Camberwell and Salford psychiatric registers 1964–74 (table 3.3.1). London, MRC Social Psychiatry Unit, Institute of Psychiatry, 1976.

**Figure 129** Length of stay of patients admitted to psychiatric hospitals in two districts (admissions per 100000, 1972: Salford 345, Camberwell 453)




*Source:* Wing J K and Fryer T. Statistics from the Camberwell and Salford psychiatric registers 1964–74 (tables 4.3.2 and 4.3.3). London, MRC Social Psychiatry Unit, Institute of Psychiatry, 1976.

Other treatment approaches have developed which are usually complementary to these two approaches.

3 Social psychiatry is concerned with understanding individuals and families in their social setting, and with epidemiological studies of the distribution and determinants of mental illness.[16] Research has included studies of suicide, alcoholism, factors causing relapse in schizophrenia, rehabilitation, standardisation of diagnosis, and comparative cultural studies.[17-23]

4 Community psychiatry attempts to use the perspectives of social research for care and treatment at home and in the local community. The term is rather imprecise, and has sometimes been used to cover all types

of care outside hospitals with many different philosophies.[24,25] Developments include walk-in centres, community groups and attachment of counsellors in general practice.[26]

5 Another pattern of residential treatment is the therapeutic community[27], where 'the institution's total resources, both staff and patients, are self-consciously pooled in furthering treatment'.[28] Four characteristics of therapeutic community ideology are democratisation (abolition of marks of difference, such as uniforms, between people), permissiveness (tolerance of disturbed behaviour so as to understand it), reality confrontation (feedback, of what an individual has done), and communalism (a philosophy of equal shares). The approach has been particularly applied to younger people with problems of social adjustment treated in small units, but the principles have potential application to all psychiatric services.

6 The 'anti-psychiatry' movement questioned many of the medical concepts of mental illness[29-32] and has promoted self-help as a development of the ideas of therapeutic communities. This practice of psychiatry is allied to other radical philosophies[33] and sees mental illness as due to social pressures. Disease labels, and indeed treatment, are thus potentially harmful; the individual is encouraged to understand his responses to these pressures, and to confront and change them.

7 Newer techniques for group and individual therapy have emerged from the US west coast in the past few years, such as encounter, gestalt, and co-counselling. They have been enthusiastically taken up by many people in England who might never have been referred for formal psychiatric treatment in the NHS.

**Community services** Primary care services deal with a wide range of minor mental states. The responses of different GPs to these probably vary more than for any group of conditions seen, being influenced by the GP's awareness of psychodynamic theory[34] and the attraction or otherwise of drug therapy. Attachment of social workers and counsellors[26,35,36] has been welcomed by both patients and doctors.

Hospital psychiatric services have been extended into the community.[37,38] Community psychiatric nurses[39,40] support patients discharged from hospital or referred to their care. One pattern is for the nurse to work with the consultant in outpatients, and not to take referrals for care directly from general practitioners[41], but there are also schemes where nurses are attached to primary care teams, often working from health centres.[42,43]

A few districts have developed acute intervention services[44-46], in which, usually, two members of a team — for example, psychiatrist and social worker — are available to make home assessments at all times of the day or night. This service reduces admissions to hospital, since in many instances the matter can be resolved by discussion with other members of the family and the full range of factors associated with the illness can be assessed. Much greater contact is made between the psychiatrist and the GP, who prescribes the drugs and maintains personal care and responsibility.

Social service departments must be closely involved in psychiatric care, since environmental problems such as income, housing or employment are outside the particular expertise of psychiatric nurses. Hospital admission rates were found to be lower for a borough with an integrated psychiatric social service than in the adjacent borough with a separated service.[47]

Accommodation for people with mental illness is a statutory responsibility of local authorities, and requires active planning between social service and housing departments.[48] The number of places is still very small and this remains a major constraint in rehabilitation

from hospitals.[49] In an early survey of several hostels[50], Apte showed that there was sometimes under-occupancy because the warden, social services and hospital staff had different definitions of the hostel's role. Although many hostels in principle saw themselves as transitional for their residents, few provided structured therapy or group meetings to assist this, and few wardens appeared to be aware of their own potential influence in bringing about change in their residents.

In the past, purpose-built hostels were often thought to be the only alternative to hospitals; but very few were actually built because of their expense. Increasingly, however, housing associations are taking an interest in accommodation for mental illness patients, and these schemes are often sponsored by local mental health voluntary associations.[51] A typical group hostel is a converted large house, providing for four to six people who have been hospitalised for many years but who are capable of looking after themselves if supported by volunteers and a community psychiatric nurse. A less expensive alternative to a group hostel is a boarding-out scheme (also called supervised lodgings), in which landladies accept placements of rehabilitated patients, and receive an increment of extra rent payed by the social service department.[52,53] Several variations on this idea have been reported.[54]

Day centres and sheltered work or occupational therapy are also, by statute, the responsibility of local authorities. Again, provision is very limited and there is a large overlap with the developing extramural psychiatric services. Certain groups can be identified who will benefit from day care, particularly depressed or anxious patients lacking social support and younger (usually male) schizophrenic patients living apathetically at home with their family, and having no steady employment.

**Hospitals** Within a particular locality, major influences on the style of service are the policies of the consultant psychiatrist. The same facilities can be used in different ways, although the range and location of these facilities is also important. The commonest organisation of traditional psychiatry remains a large mental hospital, despite changes over the last 30 years. Fewer patients are detained by law; few wards are now locked (although some still are, where there are 'disturbed' patients or staff 'shortages'); staffing ratios of doctors and nurses to patients are higher; and there is less crowding in the communal bedrooms.

Many large mental hospitals are divided into sectors: that is, separate parts of the hospital are grouped for acute and chronic care under the two or three consultants and provide a service for a defined population. Outpatient and day care services are usually provided at the district hospital, where the psychiatrist is also called on to see referrals from medical colleagues, particularly patients who have attempted suicide, alcoholics and patients suffering from dementia. Although about a quarter of acute admissions are to acute psychiatric beds in the district hospital, less responsive patients are often transferred to the separate mental hospital.

Several features make the large mental hospitals undesirable. They are usually sited far from the population they serve, so the patient's contact with his social environment is broken and rehabilitation and visiting become difficult. They may lack the sense of progress and the inderdisciplinary thinking of district general hospitals. They are large, and so tend to produce potentially restrictive routines. And they are widely feared by the public, so producing resentment in the patients for whom inpatient treatment is recommended.

District hospital units cannot necessarily overcome all these problems. The unit may continue to be ignored by the other medical staff; some of the reputations of the big mental hospitals can remain.[55] But the advantage of being closer to the patient's home and local community

can lead to shorter care. The need for asylum may still be met for selected patients; but the majority can continue treatment as day patients, and this avoids the disruption to family and work that occurs with admission.

A number of successful services based upon district hospital units have been described. These are in central metropolitan areas[56,57] as well as small towns.[58] However, in a detailed description of two adjacent services in Lancashire[55], it was found that the district with sufficient numbers of beds in the general hospital had lower overall bed use than the district with fewer beds in the DGH. These findings are reinforced by the experience elsewhere of services where there are insufficient DGH beds — for example in South Wales[59] and North London.[60] Mental hospital 'backup' leads to less attention being given to the longer stay, more difficult, patients who, therefore, on average remain in hospital longer than if they were in a DGH unit.[45,55]

An important study of the efficiency of hospital care for acute mental illness was made by Hirsch.[61] Immediately on admission, a group of patients was allocated at random to 'standard' or 'brief' care: for the latter, the patient and relatives were told that discharge would be arranged within a maximum of a week. Follow-up of the two groups showed no difference in effects on either the patients or the relatives, and a 33 per cent saving in use of beds. Other studies[62,63] have had similar findings.

The characteristics of outpatient referrals have been studied.[64-66] It seems that more patients are retained by psychiatrists for outpatient care than the GP's reference notes had indicated. An alternative way for specialist advice to be given, with the GP maintaining long-term care, is for consultants to make joint consultations in the health centre.[67-69]

A few psychiatric patients are violent, and may have committed criminal offences. The DHSS directly manages four maximum security hospitals which together hold over 2000 patients. There are considerable difficulties in transferring these patients to ordinary hospitals[70]; small units with high staffing ratios are probably needed in every mental hospital, rather than more maximum security units.[71]

**Long-stay** Although the average length of stay of patients in mental hospitals has fallen, the few long-stay patients make a large demand on available resources. Long-stay patients can be divided into 'old', already long-stay, and 'new', those who will accumulate in the future. These two groups depend in size upon the policies of consultant psychiatrists, and the social service provision. Active rehabilitation, with good access to group homes, day centres and sheltered employment, can make a major reduction in 'old' long-stay patients. Accumulation of 'new' long-stay patients can be limited by a community psychiatric assessment service which gives low admission rates, and a well established district hospital unit.[56]

Studies of 'old' long-stay hospital patients in various hospitals have repeatedly shown that many of these patients could well be cared for in sheltered accommodation outside hospital.[72-75] The lack of will is both with the hospitals, who do not take the initiative for rehabilitation, and with local authorities, who do not provide adequate facilities. Yet there are also some examples of imaginative cooperative schemes described in a report by MIND.[76]

Institutionalism particularly affects people suffering from schizophrenia. First, these patients may be admitted to hospital because they lack strong outside links such as marriage or family, and may have a tendency to accept the authority of others rather than make their own decisions. Some characteristics are also associated with the illness, such as social withdrawal, lack of initiative or spontaneity. But on top of these personal handi-

caps, the institution gradually increases dependence and lack of individuality, because the habits of everyday life outside — working hours, employment, cooking, maintaining awareness of social group — are not required. Rehabilitation of these patients is a long and demanding process. There may be several months of preparation before the patient can be placed in outside work[77] and careful follow-up is needed to prevent the otherwise high relapse rate.[78,79]

In mental hospital wards, the tendency to dehumanise the patient in the welter of routine can be overcome by specific goals uniquely decided for each patient[80] and by an organisational structure that provides motivation. These two concepts — policies for individual patients and open organisational systems — have been cornerstones in the recommendations of recent committees of inquiry into abuse in large hospitals. Psychiatrists and nurses have to know that the needs of a patient in long-term care are different from those in acute, curative medicine, which has been the model for much medical training and practice.[81]

A community-based rehabilitation unit[82] provides a further link in the chain towards re-establishing independence. Individual work objectives need to be formulated, however, to distinguish between those for whom rehabilitation — improvement in performance — is expected, and so have a time limit for their stay, and those with chronic handicaps, who need continuing stimulation and sheltered employment for life. However, a randomised controlled trial of chronic schizophrenics attending outpatients showed that a course of rehabilitation did not objectively improve their social performance of employment beyond that already obtained in the community.[83]

There are considerable disparities in rehabilitation services provided by the pioneering hospitals and by inactive ones.[76] Between 1969 and 1976, a few hospitals reduced their inpatient beds by over 40 per cent whereas the majority fell by 25 per cent or less. The most significant variation in hospitals is the number of occupational therapy staff. In two hospitals over 1000 beds, one had 21 and the other only one. A quarter of the hospitals do not have a consultant with a formally recognised interest in rehabilitation, and one in seven hospitals do not have a rehabilitation committee to plan services and review progress of patients: these two factors have been of vital importance in hospitals which have developed good rehabilitation schemes.

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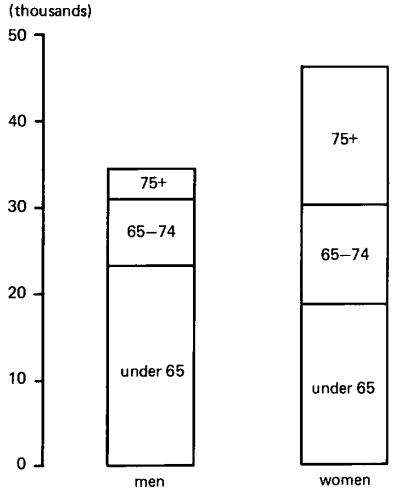
# 29 Elderly mentally infirm

## Epidemiology

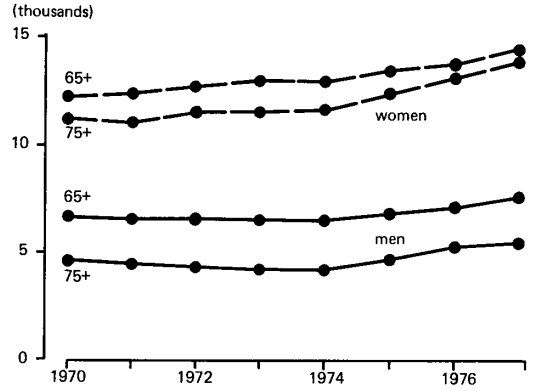
Almost half the patients in mental hospitals are over 65; and there are more women than men (Figure 130). Rather less than half of elderly mentally infirm patients

**Figure 130** Ages of patients resident in mental illness hospitals, England 1977




*Source:* Great Britain, Department of Health and Social Security. Inpatient statistics from the mental health enquiry for England 1977 (table A25.1). London, HM Stationery Office, 1980. (Statistical and research report series no 23)

**Figure 131** Admissions of elderly people to mental illness hospitals, England 1970–77




*Source:* Great Britain, Department of Health and Social Security. Inpatients statistics from the mental health enquiry for England 1977 (table A1.1). London, HM Stationery Office, 1980. (Statistical and research report series no 23)

in hospital have dementia: the others have depression or schizophrenic disorders of old age, or are people admitted for schizophrenia who have been in hospital for many years. The total number of people over 65 admitted to mental hospitals is rising (Figure 131); but fewer of them have a diagnosis of dementia.[1] The residents of local authority homes also include a substantial proportion of elderly mentally infirm people.[2]

A detailed survey of the prevalence of mental illness in elderly people at home as well as in institutions in the 1960s[3] showed that about a quarter of them had some form of mental illness (Table 23, page 174). There was an overall prevalence of about 10 per cent for dementia, which rose with age. Less than one in seven people with moderate or severe dementia were in institutions. About half the elderly people at home with moderate or severe dementia were in contact with health or welfare

services; another quarter received sufficient support from their relatives; those in the remaining quarter were in need but were not receiving help from the health and welfare services.[4]

### Prevention

The opportunities for primary prevention of mental illness in old age are limited. Dementia is due to progressive degeneration of brain cells, and is sometimes associated with arteriosclerosis. It is not clear what leads to mental illness in elderly people. For example, loneliness does not correlate closely with objective measures of isolation; it is more frequently a product of lifelong difficulties and problems in relating to others.

### Services

The increasing number of people over 75, and even 85, in the population in the 1980s means that services for elderly infirm people must be a major concern in health planning. The main strategy must be to support elderly people before they require hospital or residential care; and residential care services must aim to provide the maximum of personal independence and community integration.[5]

Some pioneering psychiatric services for elderly people have been reported.[6-9] Improving the organisation and policies for elderly people in a large mental hospital can reduce the number of long-stay patients and the number of beds needed. The bed provision currently recommended by the DHSS was derived from the average number of elderly people in hospital at the 1971 census of hospital residents.[10,11] However, people in need of psychiatric care are distributed in various institutions, including psychiatric, geriatric and general hospitals, and local authority residential homes (Figure 132).

Baker and Byrne[8] describe a service in a country setting which is based on day hospital care. By creating three new day hospitals in addition to one already there, the inpatient beds could be reduced by 40 per cent. Only one day hospital was purpose-built; the others were a former hospital ward, a large house and hired church hall. All degrees of dementia can be cared for, including patients who are also doubly incontinent. Regular attendance at the day hospital may eliminate night-time restlessness and excess sedation. Admissions in this service are agreed between consultant, GP and relatives: the day hospital will attempt to improve the patient's condition through treatment, but the intended plan is for discharge after two to three weeks (although, of course, some patients are insufficiently improved to leave).

A joint assessment unit[12,13] shared by psychiatrist and geriatrician helps to assess acute confusional states, many of which may have an organic underlying cause. Some geriatricians have also provided specialised ser-

**Table 23** Location of elderly mentally infirm people, by diagnosis, Newcastle-upon-Tyne 1960

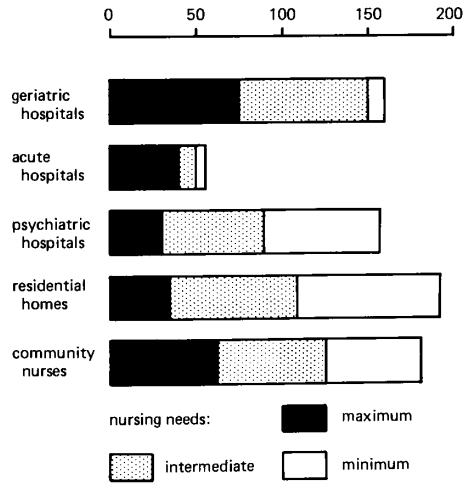
| | *Prevalence per 1000 age 65+* | | |
|---|---|---|---|
| | *Institution* | *At home* | *Total* |
| severe dementia | 7.6 | 48.5 | 56 |
| mild dementia | 5.3 | 51.8 | 57 |
| manic-depressive disorders | 0.7 | 12.9 | 14 |
| schizophrenia (excluding long-stay mental hospital schizophrenics) | 1.1 | 9.7 | 11 |
| neuroses | 1.9 | 87.4 | 89 |
| personality disorder | 0.5 | 35.6 | 36 |
| total | 17 | 247 | 263 |

*Source:* Kay D W K, Beamish P and Roth M. Old age mental disorders in Newcastle-upon-Tyne. Part 1: a study of prevalence. British Journal of Psychiatry, vol 110. March, 1964. pp. 146–158.

vices for demented people, although the DHSS recommends that geriatric services should be reserved primarily for old people with physical disabilities as well as dementia.[14]

An important feature of a good psychiatric service for elderly people is ready domiciliary assessment on first referral. Although this is usually done by a psychiatrist, a specialised nurse could also offer a useful service to the referring social worker or GP[15], and community psychiatric nurses have a developing role in supporting patients at home.[16] If the patient lives alone there may be concern for her safety; for instance, that she may forget to turn off a gas cooker, or she is found wandering by the police. Sheltered housing is particularly valuable as an alternative to hospital admission for long-term residential care for chronically depressed and lonely people.

**Figure 132** Location and nursing needs of elderly and mentally infirm people in contact with services: a one-day census in a district of 220 000 people




*Source:* Pasker P, Thomas J P R and Ashley J S A. The elderly mentally ill – whose responsibility? British Medical Journal, vol 2, no 6028. 17 July, 1976. pp 164–166.

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# 30 Alcoholism and drug dependence

## ALCOHOLISM

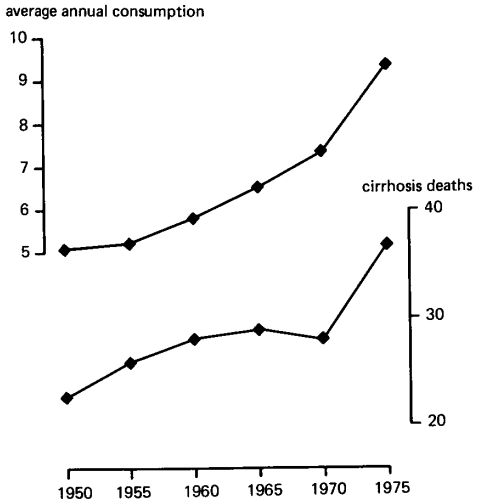
### Epidemiology

Although levels of consumption per capita of beer, wine and spirits are lower than a century ago, there has been a persistent rising trend since 1945 which, closely matched by a rising number of deaths from cirrhosis (Figure 133), prosecutions for drunkenness, and psychiatric hospital admissions for alcoholism, indicate the growing seriousness of the problem.[1]

In a recent national survey of drinking habits in adults[2], six per cent of men and one per cent of women had an average weekly consumption suggesting alcoholism. A weekly level of 50 units for men and 35 units for women was taken, as studies indicate physical harm increases above these levels.[3] A 'unit' is one half-pint of bitter, a single measure of spirits or a small glass of wine.

Drinking habits vary considerably by age and sex (Figure 134, page 178). Although the total consumption is similar in all social classes, middle class people tend to drink more frequently but less heavily, and more frequently drink wine and spirits, whereas working class people drink more heavily, more usually at weekends, and drink more beer.[2] Certain occupations, including journalists, doctors, publicans, people in entertainment and the armed forces, are particularly at risk.[4]

**Figure 133** Average annual alcohol consumption (litres of absolute alcohol per adult) and cirrhosis deaths (rate per million population), United Kingdom 1950–75




*Source:* Royal College of Psychiatrists. Alcohol and alcoholism (tables 3 and 5). London, Tavistock, 1979.

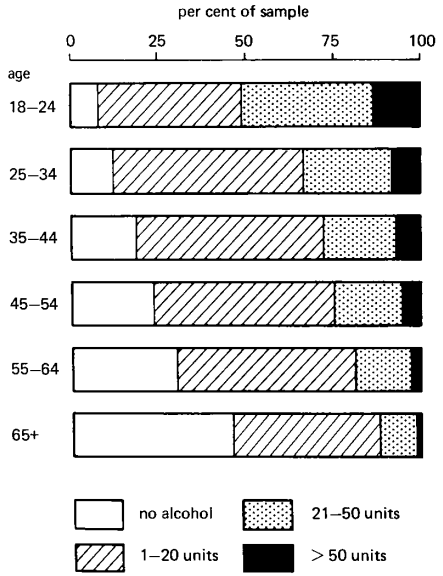
Epidemiological studies show there is no distinct, separate group of people who are 'alcoholics'; the proportion of the drinking population tails off with rising consumption and alcoholics are people within the small righthand tail of the distribution curve (Figure 135, page 178).[5] A resurvey of a small population sample nine years after a first survey showed marked increases in individual consumption (on average by over 50 per cent), but the proportion of non-drinkers had not changed.[6]

The death rate from cirrhosis also gives a rough guide to the extent of alcoholism in a population.[7] International comparisons must be interpreted cautiously because of different practices in death certification, and different national habits of consumption. Nevertheless, in many

countries, there is a remarkably close correlation between the total volume consumed and the number of deaths from cirrhosis.

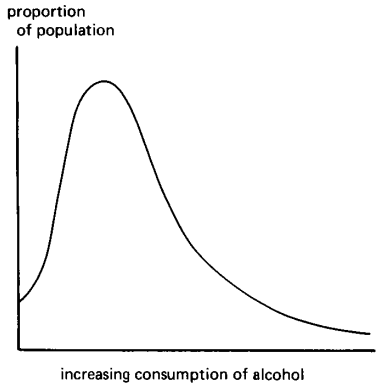
Alcohol is the cause of cirrhosis in up to two-thirds of patients[8]; the risk of developing liver damage is related to the quantity drunk and the length of time of heavy drinking. However, people vary greatly in their susceptibility, and women have a proportionately greater likelihood of liver damage than men.[9] The earlier stages of biochemical liver damage, or of alcoholic hepatitis before chronic cirrhosis, may be reversible with complete abstinence, but in some people progression to cirrhosis still occurs. Neither nutrition, nor the type of alcoholic drink, seems to affect the likelihood of cirrhosis developing.

**Figure 134** Alcoholic drinks consumed during previous week in a national sample of men, England and Wales 1979




*Source:* Wilson T. Drinking in England and Wales (table 1.1). London, HM Stationery Office, 1980.

**Figure 135** The Ledermann curve: a theoretical distribution of drinking habits in the general population




*Source:* Smith R. Alcohol and alcoholism: the relation between consumption and damage. British Medical Journal, vol 283, no 6296. 3 October, 1981. pp 895–898.

Alcohol is a factor in disorders of the stomach, pancreas, heart, brain and peripheral nerves.[10] It is also related to cancer of the throat, mouth, oesophagus and liver. The suicide rate of alcoholics may be as much as 70 times that of the general population, and alcohol contributes to many fatal and serious road accidents.[11] Many people attending emergency services, and up to one in six patients admitted to general hospitals with any diagnosis have an underlying drinking problem.[12-14]

## Prevention

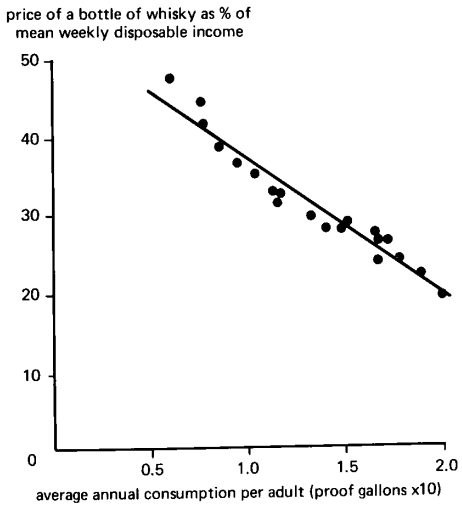
Prevention rather than treatment is the fundamental approach to alcoholism.[15-17] Prevention should be by

education of the public and professionals about safe drinking, and by government action to limit the likelihood of excessive drinking.

Too little is known by the public and professionals about drinking limits. The Royal College of Psychiatrists[1] recommended that drinking four pints of beer, four doubles of spirits, or one bottle of wine, daily is likely to be harmful. On any drinking occasion, more than two pints of beer, or the equivalent in other drinks, may be harmful, because of impairment in driving or work. These levels are recommended as a guide for people to 'count their drinks'.[4]

Education of the public should include first, more discussion of drinking behaviour, of maximum levels of drinking, and the reasons for control of drinking by government action. The government is unlikely to introduce more controls if public opinion is not in favour. Secondly, individuals need to know how to recognise alcoholism and what to do about it, either for themselves or for someone known to them.

**Figure 136** Whisky consumption related to price per bottle, United Kingdom 1950–70




*Source:* Semple BM and Yarrow A. Health education, alcohol and alcoholism in Scotland. Health Bulletin, vol 32, no 1. January, 1974. pp 31–34.

The government can act in a number of ways to control drinking.[1] Most of the price of alcoholic drinks is tax, and consumption of alcohol is closely related to price levels. Unfortunately, over the past 30 years, the price of alcoholic drinks relative to other consumables has fallen, mainly because taxation on alcohol has not been increased in proportion to inflation (Figure 136); and, at the same time, individual incomes have risen with the growth of the national economy. The government could hold the real price of alcohol steady in the future (raising it would be much more difficult).

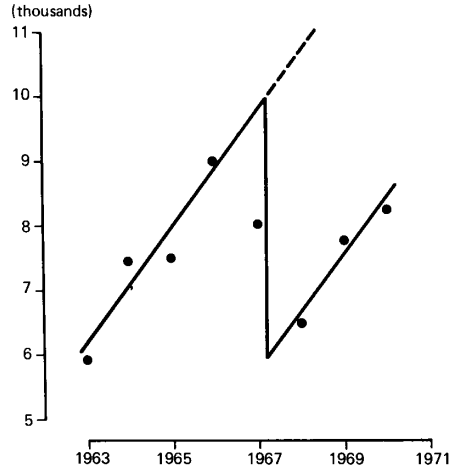
Other forms of control include licensing legislation, stricter implementation of drinking and driving laws, and limiting advertising to the point of sale only. Introduction of the breathalyser in 1967–68 reduced the number of fatal accidents by 1000, and serious casualties by 5000, in one year (Figure 137, page 180).

### Services

Some alcoholics already come into contact with a range of medical and social services: general practitioners, social workers and specialised referral centres, for example. Because of the prevalence of alcoholism, the 25 current regional referral centres would be unable to carry the load of a comprehensive national service.[18] Each district must, therefore, formulate a strategy combining the work of a psychiatrist, gastroenterologist and accident department consultant with primary care teams. Some inner city areas also need special facilities for 'skid row' drinkers.[19-21] Detoxification centres are of benefit, particularly as alternatives to imprisonment for drunkenness.[19-21]

Clare has commented that 'The case in favour of the significant effects of treatment of alcoholism remains to be conclusively established'.[22] Many of the published studies are flawed by poor design and observer bias. Better social background, high motivation and less severe dependence are selective factors likely to be associated with a good outcome for the patient. Three well-controlled studies have failed to show the benefits of current medical care for alcoholics. Willems and others[23] randomised 69 unselected male alcoholics into short-stay (mean 3 weeks) and long-stay (mean 12 weeks), with outpatient follow-up care for two years. Edwards and Guthrie[24] compared men assigned randomly to either two months inpatient or outpatient care. And Edwards and Orford[25] compared 100 married couples, (in which one partner was alcoholic) who were given either full inpatient treatment and supportive counselling as outpatients over twelve months or a single comprehensive consultation. In none of these three studies was a significant difference demonstrated for one or other treatment.

**Figure 137** Fatal and serious accidents to car drivers between 10 pm and 4 am, Great Britain 1963–70, showing effect of drinking-and-driving legislation introduced in October 1967.




*Source:* Great Britain, Department of Environment. Road accidents 1970. London, HM Stationery Office, 1972.

Brief hospital admission would therefore seem to be needed only for physical illness, detoxification or, perhaps, severe depression.[25] Continued outpatient care is of little benefit, but the initial assessment should be by an experienced team, to allow the patient to gain insight into his pattern of behaviour and to formulate a specific plan and goals for self-control. Perhaps most important is for treatment centres to be self-critical of their methods, to attempt adequate follow-up and outcome measurements, and to foster work by primary care teams. Alcoholism can be compared with cancer in lack of adequate therapy — but it is hardly less serious a condition in its effects.

## DRUG DEPENDENCE

In the 1960s there was a sharp rise in drug taking, and opiate dependence became a major public health problem for the first time. A small number of people had been known to be dependent on opiate drugs for many years, usually being supplied by doctors. In Britain, legislation was introduced to restrict prescribing of these drugs by certain registered doctors only, and special outpatient clinics were set up at regional centres.

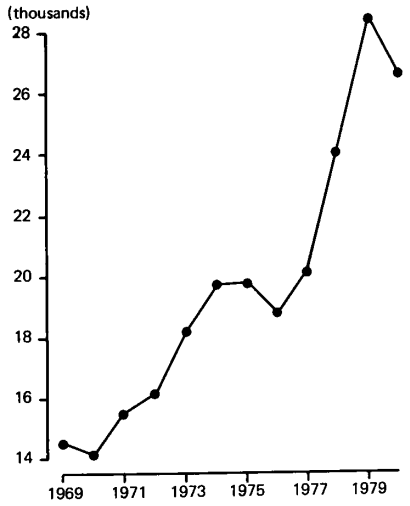
The policy of most clinics was to maintain the opiate dependency by substituting methadone, a longer-acting drug, for heroin when dependency was established, and to specify a chemist at which the drug could be picked up each day. By these measures, life-expectancy improved, and a proportion of patients maintained employment.[26]

A register of patients currently known to be dependent

is kept by the Home Office (Figure 138). Although the measures introduced in the 1960s were broadly successful in controlling the spread[27], the register understates the true number of people taking opiate drugs. People usually only attend a clinic when their habit has become regular, since there are disadvantages in being notified to the Home Office (for example, it may be more difficult to get a passport or foreign visa). The histories of people attending clinics indicate that there are more, unregistered, people who are occasional or light users. Also, at any one time, a proportion of the population of dependent people are in prison.

The main problem in drug dependency now is the abuse of several drugs together: cocaine, barbiturates, amphetamine, alcohol and other stimulants or tranquilisers are variously swallowed or injected.[28] Most clinics have kept to a narrow interpretation of their work with opiate drugs, whereas a more comprehensive approach is needed. Drug taking is widespread, so that policies for control need to be instituted in every district rather than by regional centres alone. Much more coordination is needed with local practitioners[29], pharmacists and the police. On the other hand, the regional centres need to evaluate the benefit of different methods of control: most of the research so far has been observational rather than analytic.

**Figure 138** People known to the Home Office taking narcotic drugs, United Kingdom 1969–80




*Source:* Great Britain, Department of Health and Social Security. On the state of the public health. London, HM Stationery Office, annually.

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# Section 7

# Health and Disease

# 31 Factors associated with health and disease

## SOCIAL CLASS

Analysis by social class was developed in the early years of this century to show the effects of work and lifestyle on mortality. The social classes I–V are made up by ranking relatively similar occupations according to income, skills and social position[1,2] (Table 24). Whilst one might question the values implied by this ranking, it remains a useful shorthand description of the lifestyles and expectations that are passed on from one generation to the next (Table 25).

Alternative approaches to social stratification include ethnic group, religion or years of full-time education. Recent studies by the Office of Population Censuses and Surveys have used 16 socio-economic groups, which are designed to be compatible with statistics collected by other European countries. The groups can, however, be converted into social classes with relative ease, and

**Table 24** Socio-economic and social class groupings of the Registrar General

| *Socio-economic group* | *Social class* | *Description* | *Example* | *Approximate % in 1971 census* |
|---|---|---|---|---|
| | | *Non-manual occupations* | | |
| 3, 4 | I | professional | lawyers, doctors | 5 |
| 1, 2, 13 | II | managerial and lower professional | teachers, artists | 16 |
| 5, 6 | IIIn | non-manual skilled | clerks, shop assistants | 11 |
| | | *Manual occupations* | | |
| 8, 9, 12, 14 | IIIm | skilled manual | foremen, cooks, lorry drivers | 31 |
| | IV | partly skilled | busmen, postmen | 15 |
| 11 | V | unskilled | porters, labourers | 7 |
| 16 | other | | armed forces, students, unemployed | 15 |

**Table 25** Associations between social class, behaviour and disease found in various studies

| | I % | II % | IIIn % | IIIm % | IV % | V % |
|---|---|---|---|---|---|---|
| child breast feeding at 3 months[1] | 39 | 39 | 34 | 34 | 22 | 12 |
| child not immunised against polio[2] | 1 | 3 | 3 | 4 | 6 | 10 |
| family size of mothers with newborn child[3] | 1.96 | 1.82 | 1.77 | 1.92 | 2.21 | 2.10 |
| current smokers[4]: | | | | | | |
| men | 21 | 35 | 35 | 48 | 49 | 57 |
| women | 21 | 33 | 34 | 43 | 39 | 41 |
| Standardised mortality ratios[5]: | | | | | | |
| gastric ulcer | 54 | 53 | 99 | 102 | 117 | 209 |
| bronchitis | 36 | 51 | 82 | 113 | 128 | 188 |

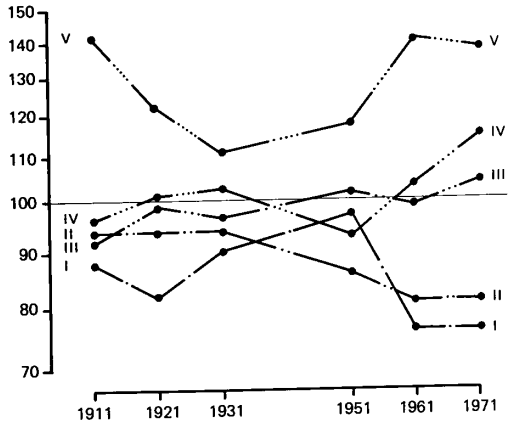
[1]Newson J and Newson E. Infant care in an urban community. London, Allen and Unwin, 1963.
[2]Douglas J W B and Blomfield J M. Children under five. London, Allen and Unwin, 1958.
[3]Cartwright A. How many children? London, Routledge and Kegan Paul, 1976.
[4]Great Britain, Office of Population Censuses and Surveys. OPCS Monitor. London, OPCS, 1981. (GHS 81/2)
[5]Great Britain, Office of Population Censuses and Surveys. Occupational mortality: decennial supplement 1970–72. London, HM Stationery Office, 1978. (Series DS no 1)

publications such as the 1971 census give both groupings.

Father's occupation has been routinely recorded on certificates of perinatal death since 1977 (OPCS monitors series DH1). Occupations recorded on all other death certificates can be linked to population denominators of occupational structure only every ten years by the census. The resulting occupational mortality analyses[3] indicate the continuing differences in death rates by social class at all ages (Figure 139).[4] Social class gradients are particularly marked in infancy (Figure 140) and in the major causes of death in adults (Figure 141, page 186).

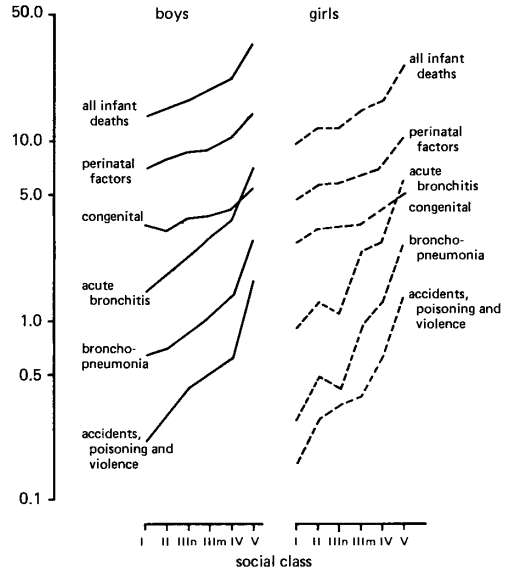
The General Household Survey (Chapter 32) shows that self-perceived short-term health problems are fairly evenly distributed in the population, but chronic ill

**Figure 139** Standardised mortality ratios in men of working age by social class, England and Wales 1911–71 (log scale)




*Source:* Great Britain, Office of Population Censuses and Surveys. Occupational mortality, 1970–72 (table 8.1). London, HM Stationery Office, 1978. (Series DS no 1)

**Figure 140** Infant mortality by social class and cause (deaths per 1000 live births, log scale)



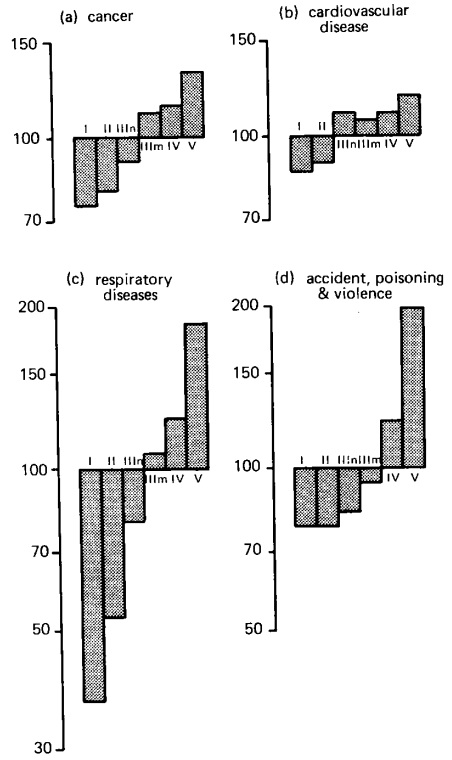

*Source:* Great Britain, Office of Population Censuses and Surveys. Occupational mortality, 1970–72 (table 7.3). London, HM Stationery Office, 1978. (Series DS no 1)

health is more frequent in working class people (Figure 142, page 186). Higher consulting rates for colds, psychoneurosis and preventive measures by middle class people, and higher rates of respiratory and locomotor diseases by working class people, were shown in the first national morbidity survey.[5] There is no routine information on hospital admissions by social class because this information has not been included on the HIPE record since 1962.

The DHSS report *Inequalities in Health*[6] has extensively documented the persisting social class differences of mortality, morbidity and health service use. The

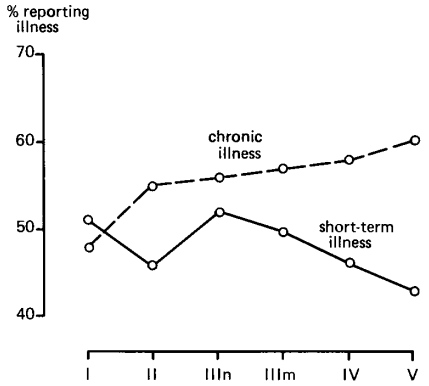
strategies to change these inequalities must aim particularly at children, through financial support and improving services. The report also recommends better coordination of the policies of different government departments, and national health goals, that could be achieved through disease prevention and health promotion.[7]

**Figure 141** Standardised mortality ratios by social class for four diagnostic groups, England and Wales 1970–72 (log scale)




*Source:* Great Britain, Office of Population Censuses and Surveys. Occupational mortality, 1970–72 (figure 4.4). London, HM Stationery Office, 1978. (Series DS no 1)

**Figure 142** Men reporting short-term and chronic illness by social class, Great Britain 1978




*Source:* Great Britain, Office of Population Censuses and Surveys. General household survey 1978 (tables 7.2 and 7.4). London, HM Stationery Office, 1980.

## MIGRATION

Migration used to be important for rapidly growing populations, and led, for example, to colonisation of North America by Europeans in the nineteenth century. Now, most governments have quite strict legal controls. In England there is a slight excess of emigration over immigration (Figure 143).

### Internal migration

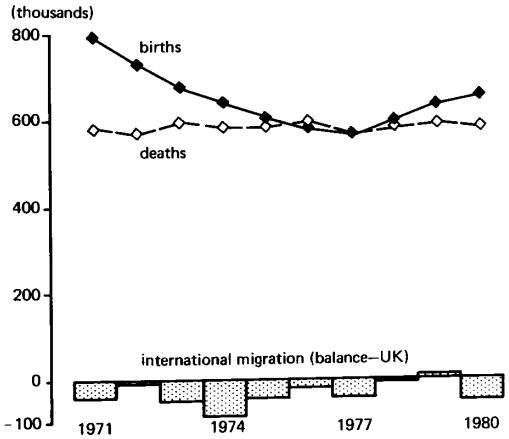
Certain towns, such as spas and seaside towns, are favoured retirement areas. They have high proportions of elderly people living at a distance from their relatives, both in their own homes and in private nursing homes.

These towns have particular needs for geriatric services and allied specialties such as orthopaedics, rheumatology, ophthalmology. In addition, the inflow of holidaymakers in the summer can throw an extra burden on general practitioner services and accident departments.

The 1950s saw the establishment of several new towns, designed to cope with an expanding national population and the overcrowding in inner cities. These towns, with large numbers of families with young children, need special provision for maternity care, paediatrics and child and adolescent psychiatry.

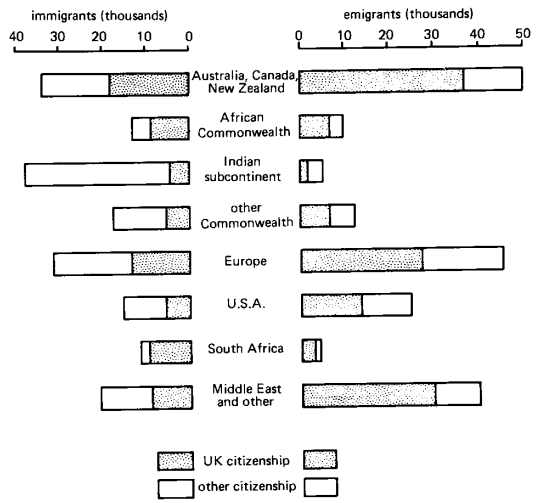
The inner boroughs of some large cities show the contrary effects of this selective migration. Although the numbers of elderly people may not be above the national average, they are more often living alone and in poor housing. There are also more younger people living in

**Figure 143** Components of population change, England and Wales 1971–80




*Source:* Great Britain, Office of Population Censuses and Surveys. Population trends vols 1 and 20 (tables 12 and 25). London, HM Stationery Office, 1975 and 1980.

**Figure 144** International migration, United Kingdom 1978




*Source:* Great Britain, Office of Population Censuses and Surveys. International migration 1978 (table 3.1). London, HM Stationery Office, 1980. (Series MN no 5)

shared flats, who may not be registered locally for GP services. The high mobility of this latter group, combined with the attraction of the anonymity of metropolitan life, may lead to a greater need and use of psychiatric services.

### External migration

Britain has exported its indigenous population for many years, particularly to the old Commonwealth countries of Canada, South Africa and Australasia, although by now immigration has nearly balanced emigration (Figure 144).[8] There have been two waves of immigration from the new Commonwealth countries — in the 1950s particularly from the West Indies, and in the late 1960s from the Indian subcontinent and East Africa. There has

also been migration from Mediterranean, Far Eastern and West African countries.

The 1971 census showed 1 360 000 people of new Commonwealth and Pakistan origin. One-third of these people were born in the UK. The 1981 estimate is about two million people.[9] The age structure is younger than the indigenous population[10], and the distribution is particularly in parts of the country where jobs in industry were available.

Immigrant communities show particularly well the effects of environment or lifestyle in producing disease. Two examples can be drawn from other countries. The world incidence of multiple sclerosis varies markedly. Migrants from Northern Europe who enter countries such as South Africa and Israel as adults have the same high incidence rates as in their country of origin. On the other hand, those who come as children under 15 have much lower incidence rates.[11]

Japanese immigrants in the United States retain the low rates of cancer of the breast that are characteristic in Japan. However, death rates for arteriosclerotic heart disease in the immigrant group are now rising to the same levels found in the rest of the United States.[12]

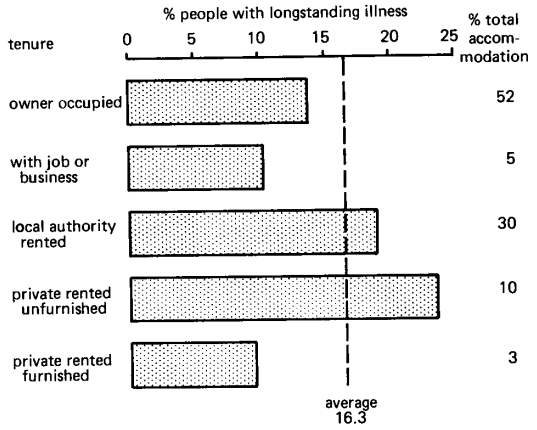
Some of the medical problems of immigrants to Britain include:

1 Genetic conditions: sickle cell disease (which needs screening before anaesthesia); thalassaemia and Tay-Sachs disease (which are preventable by antenatal diagnosis and abortion).[13]

2 Nutritional disorders: iron deficiency anaemia and rickets are more frequent in Asian immigrants.[14]

3 Psychiatric disorders: little is known about variations in prevalence; admission rates and treatments vary between different cultural groups.[15,16]

**Figure 145** Longstanding illness and housing tenure, Great Britain 1971




*Source:* Great Britain, Office of Population Censuses and Surveys. General household survey: introductory report (table 8.16). London, HM Stationery Office, 1973.

4 Infectious diseases: typhoid and malaria may occur in immigrants who have been back 'home' for a holiday without using prophylaxis; tuberculosis and worm infestations are also more common.

## HOUSING

Housing programmes and local authority housing departments grew out of the public health movement; but the relationship between housing and good health is less clear now. For example, in a study of Welsh council estates[17], respiratory illnesses in children were more frequent in families living in modern centrally heated homes than in those living in much older, traditional housing.

Mental health and poor housing have long been associated but the few detailed studies have failed to show a

causal relationship.[18-20] However, housing worries such as damp, rent or repairs may be one of the many factors leading to the high prevalence of depression in women with young children.[21]

The General Household Survey has related housing tenure to occupation by people with longstanding illness (Figure 145). Chronic illness is the usual reason given by a general practitioner when recommending special housing. However, it is the presence of handicap which determines the need for rehousing rather than the disorder itself.[22] Occupational therapists should be included in the therapeutic team considering the need for rehousing.

A recent concern has been the effect of tower blocks. These were often built to rehouse people previously living in inner-urban slums. They are disliked partly because mothers cannot keep an eye on their children out at play, partly because the lifts and stairways are more impersonal than a street and are more readily vandalised. The tower block idea was brief. It reached a peak in 1968 when almost 20 per cent of housing planned by local authorities was for 'units' higher than five storeys, but by 1973 the figure was down to two per cent.

**Figure 146** Average persons per room in households. Great Britain 1976


*Source:* Great Britain, Central Statistical Office. Social trends no 8 (table 9.16). London, HM Stationery Office, 1977.

**Table 26** Housing standards in Great Britain 1951–79

| | *Census* | | *General Household Survey* | |
|---|---|---|---|---|
| | *1951* % | *1961* % | *1971* % | *1979* % |
| lacking fixed bath or shower | 38 | 22 | 12 | 5 |
| lacking internal or external WC | 8 | 6 | ... | ... |
| lacking internal WC | ... | ... | 13 | 7 |
| lacking hot water tap | (n/a) | 22 | ... | ... |
| with central heating | ... | ... | 34 | 55 |

*Sources:* Great Britain. Central Statistical Office. Social Trends no 6 (table 9.6). London, HM Stationery Office, 1975, *and* Social Trends no 11 (table 9.13). London, HM Stationery Office, 1980.

Even so, a million or more people now live in high-rise buildings.[23]

The census provides data on housing tenure, 'density of occupation' (Figure 146), and facilities (Table 26). Local authorities are able to offer analyses of these data down to small areas such as electoral wards, and these show the clustering of poor facilities and overcrowding in private rented accommodation. Tenure is strongly correlated with income and social class and, therefore, also with differential mortality. But better housing needs to be pursued on the basis that people want it as much as for any clear benefits to physical or mental illness.

## ENVIRONMENT

### Air

Chronic bronchitis, emphysema and cor pulmonale have been common in the towns of Britain for over a century. Children from areas of high pollution are found as young adults to have colds and chest infections more frequently

than others, independently of social class.[24] In adults, pollution plays a part in producing exacerbations of acute infections and chronic bronchitis. However, the greater frequency of lung cancer in towns rather than the countryside is explained mostly by differences in smoking habits: air pollution does not seem to be a major cause.[25]

Smoke and sulphur dioxide are the main components of air pollution, and the levels of both have been falling in recent years. In large towns, concentrations of smoke are about one-fifth of that ten years ago.[26] This has been helped by clean air legislation and the trend of domestic heating from open coal fires to gas or electric heating. Whilst there is increasing production of sulphur dioxide, particularly by the energy processing plants for gas and electricity, tall chimney stacks take most of the pollutants directly into the higher atmosphere, without affecting the local communities.

Although motor vehicles increase the amount of carbon monoxide in the atmosphere, surveys of policemen and other people exposed to traffic fumes suggest that smoking is the major cause of high levels of carbon monoxide in the blood.[27] Nevertheless, the action of sunlight on petrol fumes may lead to atmospheric compounds which are intensely irritating to the eyes, and cities in the United States such as Los Angeles are introducing greater control of car exhausts.

**Water**

This traditional public health concern is now primarily the responsibility of the water authorities and local authority environmental health departments.

Water supplies with natural fluoride levels of one part per million are both beneficial in preventing dental caries, and also carry no increased risk of cancer, congenital malformations, nephritis or skeletal fluorosis.[28] The case for fluoridation of water with low natural levels is, therefore, strong.

The inverse relationship found in national studies showing soft water (low in calcium salts) to be associated with higher mortality rates of ischaemic heart disease is not borne out by other more local studies.[29] No recommendation can yet be made for changing the hardness of drinking water.

**Lead**

Lead is a potentially toxic substance, and has no known physiological function.[30] However, clinical lead poisoning is rare, and is usually associated with particular occupations at high risk. Lead is gained through ordinary food, and water piping. Lead in air (mainly from petrol) is also a contributor. Apart from damage following clinical lead poisoning, it has been suggested that raised lead levels can limit intellectual development in children.[31] The extensive research on lead has been summarised in a DHSS working party report.[32]

**Radiation**

Assessing the effects of radiation on health is a complex problem because of varying susceptibility of different organs of the body, and because of the delay in presentation of effects following exposure.[33] The general public is affected by radiation, both by natural 'background' irradiation from the earth and sky, and from man-made irradiation through medical and industrial sources. Workers in certain occupations are exposed to greater doses than the general public, and 'maximum permissible doses' of radiation have been recommended for these occupations.[34] It is a matter for debate whether the data can justify these levels of doses.

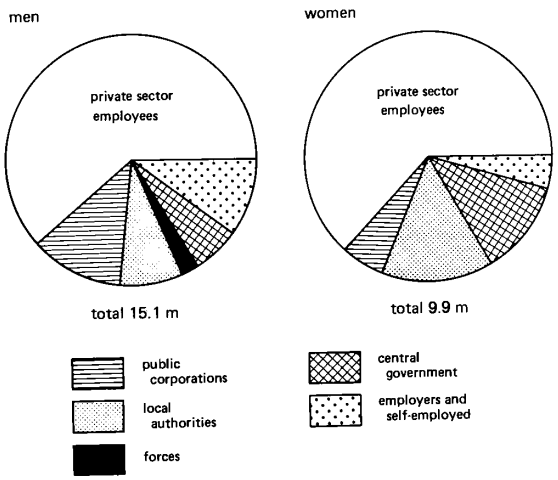
Nuclear power stations create waste which is still radioactive, and there is a major hazard in transporting and dumping this material, whether on land or at sea.

However, by far the greatest risk to the people of Britain is the government's policy to retain nuclear arms, with the perpetual risk of devastation by nuclear war.[35,36]

## EMPLOYMENT

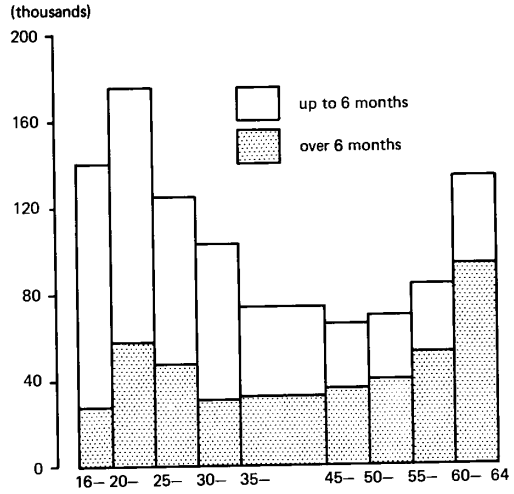
About 55 per cent of the population over 16 years old is in paid employment, 5 per cent unemployed and 40 per cent 'economically inactive' (students, housewives or retired people).[37] Just over a quarter of all workers are employed in the public services and industries (Figure 147). Unemployment, which increased rapidly in the 1970s is more common in young people and older workers (Figure 148), and there are considerable regional variations. The proportion of women working is the highest in EEC countries, but more work only part-time than in other countries.[38]

**Figure 147** Employment by sector, United Kingdom 1979




*Source:* Great Britain, Central Statistical Office. Social trends no 11 (table 5.8). London, HM Stationery Office, 1977.

**Figure 148** Unemployed men by age and duration, United Kingdom 1980




*Source:* Great Britain, Central Statistical Office. Social trends no 11 (table 5.8). London, HM Stationery Office, 1980.

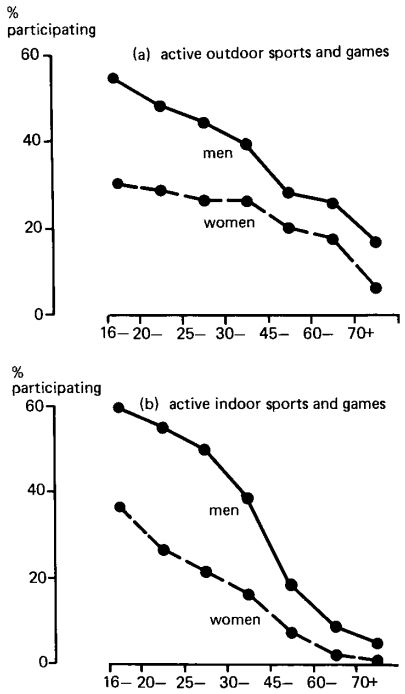
The census each decade provides data on the full occupational structure of the population. The standardised mortality rates of the various occupational groups[3] can help to identify the local health problems which affect the need for health services. For example, in mining areas there is a high prevalence of respiratory disability and also higher than average sickness absence and general practice consultation rates. In heavy engineering or oil drilling areas, special arrangements may be needed for industrial accidents.

There is no systematic information on individual work

characteristics related to health; for instance, how much energy is needed for a job or how much alcohol is consumed during working hours, although the General Household Survey has tables on work satisfaction, absence and sick pay schemes, and unemployment.

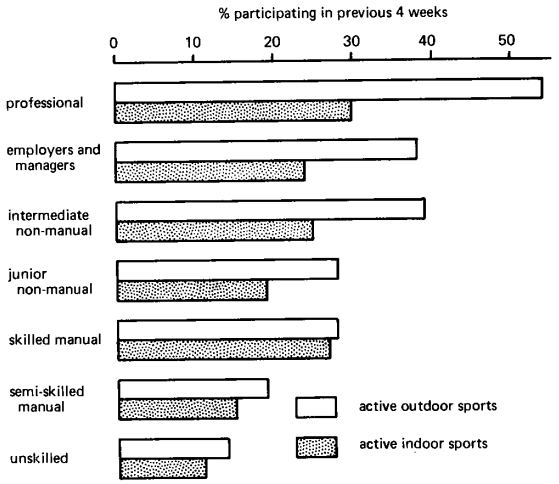
Sickness absence has increased progressively since the war, despite fluctuations in unemployment. Regional high sickness absence correlates with areas of higher unemployment.[39] This does not necessarily reflect more illness, as welfare benefits are larger for long-term sickness than for unemployment. Nevertheless, unemployment may have a direct causal relationship with ill health[40,41] and, with unemployment of unskilled workers predicted to rise in future years because of technological changes, a greater understanding of these associations is needed.[42]

**Figure 149** People participating in active games and sports by age and sex, Great Britain 1977




*Source:* Great Britain, Office of Population Censuses and Surveys. General household survey 1977 (table 7.10). London, HM Stationery Office, 1980.

**Figure 150** People participating in active games and sports by socio-economic group, Great Britain 1977




*Source:* Great Britain, Office of Population Censuses and Surveys. General household survey 1977 (table 7.22). London, HM Stationery Office, 1980.

## LEISURE

There is a growing evidence that vigorous exercise can reduce the risk of a man dying from ischaemic heart disease[43] and leisure time activities must therefore be of

considerable interest to preventive health services (Chapter 3).

The 1973 and 1977 General Household Surveys made a special study of leisure, using a wide-ranging concept which included almost any activity that was not employment or housework. The three most frequent 'activities' were watching television (93 per cent), visiting/entertaining friends or relatives (64 per cent) and listening to the radio (49 per cent).

Participation in sports is likely to be a preventive health indicator, but it is found that these activities are strongly related to age, sex and socio-economic group (Figures 149 and 150), as well as income, education and car-ownership.

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# 32 Health Information

An ideal set of information for health planning and monitoring[1-6] would reflect health needs, and health services considered as inputs, processes and outcomes. It would include numerical data and commentaries about accuracy, appropriateness and the problems reflected by the statistics. The components of this health information would be

1 Data from regular health surveys of the population. These would give: diagnosis, functional assessment, and length of time of condition in individuals, capable of being translated into service needs; a single, composite measure or 'health index' to assess the impact of services[7]; measures of health attitudes and behaviour, to guide preventive programmes.

2 Information on effective prevention or treatment for all conditions dealt with by the health services.

3 A description of the resources (finance and staff) and facilities available to the health service, and of the efficiency of their use.

4 Details of the presenting complaint, diagnosis, severity, treatment, resources used and outcome for each consultation between patient and doctor, to allow medical audit by clinicians.

5 Data about the contacts of individuals (using a unique patient identification number) with all parts of the health service, to assess how individuals and groups make use of the various services.

6 Follow-up data giving population outcomes for evaluation of the preventive and treatment services.

In practice, the information available is considerably more limited than this.[8] Most health data is distributed by the Office of Population Censuses and Surveys (OPCS) and has been reviewed in detail in two publications by Alderson.[4,9]

## MEASURES OF HEALTH

Health, in the conception of the World Health Organization, is a state of complete physical, mental and social well-being, and not merely the absence of disease or infirmity. But, it is not easy to convert the concept of positive health into precise measures. We might suggest that a healthy person should be able to run a mile or swim 400 metres — but this would include only a small fraction of our western society. We might use measures of those who fall within 95 per cent of the total range of the population — for weight or height, for example; or who have the optimum range, such as blood pressure below 140/90 or 6/6 vision in both eyes. In mental health we might expect a capacity to meet stressful situations, to fulfil social relationships and not to make excessive demands on surrounding people.[10]

The concept of health is also related to age. A man of 25 has different expectations from one of 70. Older people can still maintain fitness, and lead very active lives, if they are not affected with a chronic illness. Nevertheless, the greater prevalence of disease in the elderly tends to make more people accept limitation of function, sometimes self-imposed, which would be considered exceptional in a younger person.

Good health tends to go unnoticed until something goes wrong. Midway between the concepts of positive health, and of illness, is pre-symptommatic screening.[11] Children and, in recent years, middle-aged and elderly people, have been seen regularly by preventive medicine services to exclude developmental abnormality or development of disease. Sometimes these services are not very cost-effective, but they have helped to define the ranges of normality within the general population.

Paradoxically, however, health care is principally oriented towards disease rather than health. This is because many people in our society become aware of their health only when they lose it, and the health services are concerned with care for the many chronic diseases.

## MORTALITY

The cause of death is notified to the Registrar of Births and Deaths by the attending medical practitioner. The death certificate follows an international pattern: it is the underlying cause of death, rather than event precipitating the death itself, that is used in compiling mortality statistics. For example, a patient who develops bronchopneumonia as a terminal event in cancer would be recorded under the particular cancer rather than respiratory diseases, assuming the doctor notified both conditions.

Death certificates have been validated against both hospital records[12] and independent autopsies.[13] Discrepancies appear more frequently in older age groups, where there may be several conditions co-existing at the time of death. However, these errors may be consistent over time, so that trends in disease incidence can still be monitored.

Mortality statistics are published annually (OPCS Series DH 1-5) and analyses of deaths by age and diagnosis are distributed by OPCS through regional health authorities to districts (form SD25). Mortality rates are higher in the north and west of Britain. This may be due to differences in lifestyle (perhaps diet) and environment[14], but the causes are still unclear. Regional variations persist even when differences in social class composition are taken into account.[15]

Variations can be conveniently expressed as standardised mortality ratios (Chapter 1), which show the relative chances of dying, given as a percentage, when the age structure of the local populations is adjusted to the national structure (Figure 151). The formula used to distribute NHS money between regions takes SMRs into account, to give a weighting for regions with different health care needs.[16] For this purpose, however, SMRs are an approximation for more detailed measures of morbidity and disability.

## MORBIDITY

### Surveys

Population surveys usually record the prevalence of disease rather than its incidence. They tend naturally to find more chronic than acute conditions, although the latter can be assessed if the survey asks retrospectively about all illnesses within, say, the past month.

A survey to show self-perceived illness will yield a different response to one undertaken by physicians or trained assistants. For example, a survey in the working class area of Southwark, London, using a checklist of symptoms, found that over 90 per cent of respondents reported health complaints over the previous two weeks, and about a quarter had received either medical or nursing care.[17] There were similar results in a more recent health survey of a housing estate in Glasgow.[18]

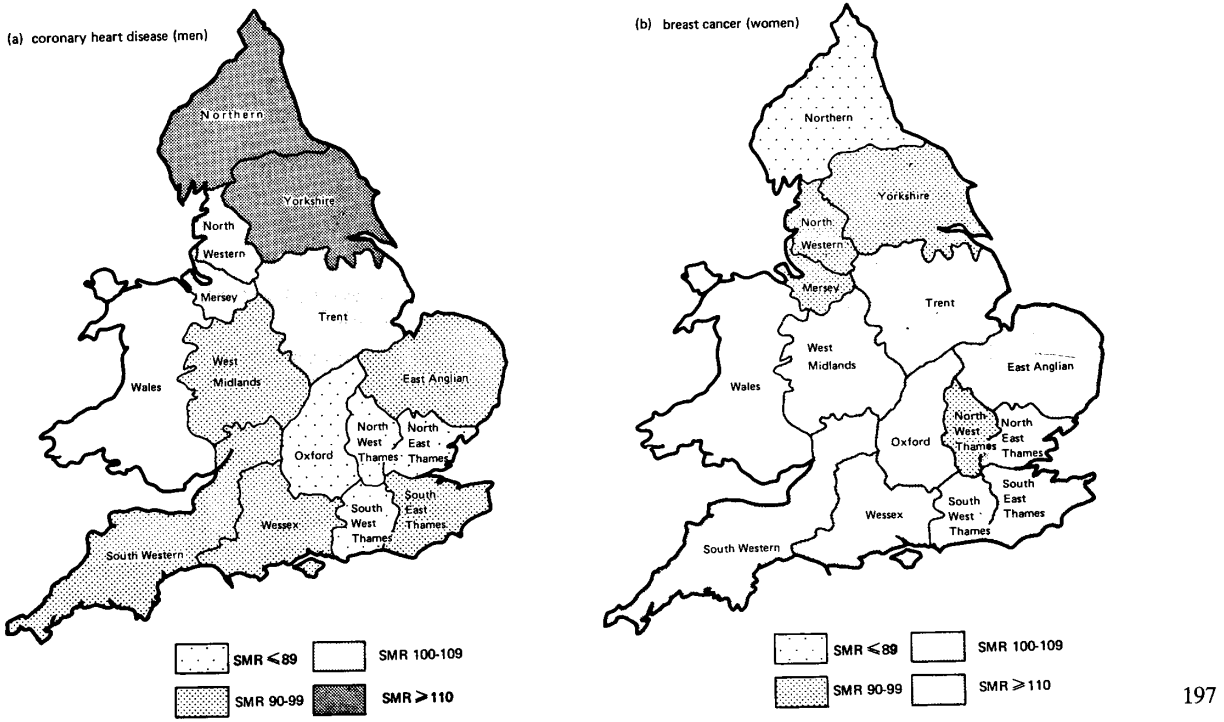
A national Survey of Sickness was started in 1946, but discontinued in 1952 for economy.[19] Since 1971, the

General Household Survey has recorded health information.[20] The General Household Survey is a continuous sample survey undertaken in different electoral wards throughout the country. Only national summary information is published but regional data are sometimes available for comparison, upon special request. The small size of the sample makes local data impossible, unless several years are added together.

From 1971 to 1976 the General Household Survey recorded perceived ill health, diagnostic group and use of health services. Just under 10 per cent reported restricted activity from an acute sickness within the previous two weeks. Long-standing illness rates were higher, about 20 per cent of the population, with two-thirds of respondents indicating limitation of activity from their illness. The questions were changed in 1977,

**Figure 151** Standardised mortality ratios for two conditions, England and Wales 1979

*Source:* Great Britain, Office of Population Censuses and Surveys. Mortality statistics: cause (tables 3.1 and 3.7). London, HM Stationery Office, 1981. (Series MB3 no 7)

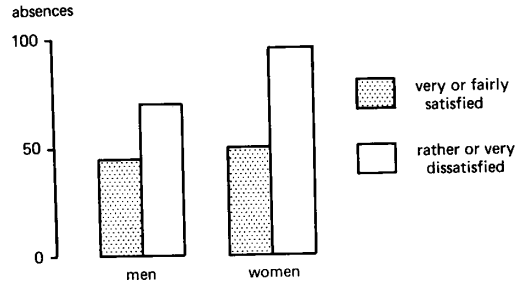


and used a checklist including problems such as varicose veins, trouble with periods or trouble with feet. Overall, 56 per cent of men and 70 per cent of women reported that they had health problems of this kind. In the whole sample, 18 per cent of men and 28 per cent of women interviewed were taking some prescribed medication all the time because of chronic health problems.[21]

There are also questions about use of services — attendances by a general practitioner, at casualty or outpatients, and inpatient admissions. Many respondents find it difficult to distinguish different professionals working in welfare services — health visitors from social workers, for instance. In alternate years, the survey also asks about smoking and drinking habits.

The main use of the health section of GHS is for research on national data, particularly by relating other sections of the survey. For example, a strong relationship of sickness absence with work satisfaction has been found (Figure 152) which could have implications for occupational health policy.

**Figure 152** Absence from work through illness or injury in a two-week period by work satisfaction, Great Britain 1971




*Source:* Great Britain, Office of Population Censuses and Surveys. The general household survey: introductory report (figure 8.8). London, HM Stationery Office, 1973. (Series SS 457)

**Registers and notifications**

Registers recording details of individual people are used for surveillance of health problems, to assess trends in the prevalence of disease and to be able to take action to help individuals in the future.[22]

In child health services, preventive medicine registers include immunisation programmes and surveillance of children (at preschool and school ages) for health problems (Chapter 26). For adults, registers of disabled people are kept by social service departments (Chapter 19). Sometimes registration carries benefits, for instance registered blind people are able to claim special financial supplements as well as services.

A different form of register is of people 'at risk'. Registers were suggested for surveillance of children with background factors likely to lead to a handicap being found: but selective surveillance misses a substantial proportion of future handicapped children.[23,24] On the other hand, follow-up of workers in rubber and dye manufacturing industries has been used successfully for bladder cancer.[25]

Each regional health authority maintains a cancer register, which includes patients treated in hospital and notifications of deaths. National reports are compiled by OPCS (Series MB1). The registers vary considerably in sophistication and completeness of coverage.[26] Data from the West Midlands register, giving incidence and survival rates, has been published in a convenient handbook.[27] Cancer registers are more useful than mortality data for surveillance of trends in incidence because about 30 per cent of cancers are not themselves the eventual cause of death. Cancer registers also provide a sampling frame for clinical follow-up studies, but lack of detailed information on treatment limits their use for evaluation.

Psychiatric case registers have been developed[28,29] using

contact with specialist services as their criterion for registration. They have been used for comparative studies of service use.[30] Registers of mentally handicapped people[31,32] can be used to define the need for service provision.

Surveillance of congenital malformations was started after realising the effects of thalidomide on pregnant mothers. Reporting is voluntary[33], and may provide an early alert to environmental changes with teratogenic effects. National statistics are published by OPCS (Series MB3).

Registers have helped to show the overall frequency of coronary heart disease in the community, rather than the selective experience of hospitals; almost half of these deaths occur before any medical care can be provided.[34] Registers for hypertension and strokes have also been established.[35]

It remains a statutory duty for doctors to notify certain infectious diseases to the local authority. The arrangements serve two purposes.

1 To act as a local signal for epidemics, particularly sources of dissemination, such as food poisoning or typhoid, for action by environmental health officers.

2 To demonstrate long-term control of infectious diseases, as a basis for vaccination and immunisation policy.

Although there is a low level of reporting for many notifiable diseases, fluctuations in the pattern against a steady proportion of cases notified can give a picture of disease trends. National statistics are published in OPCS monitors and annual reports (Series MB2).

**Sickness and invalidity benefits**

Sickness benefit is paid when a National Insurance Medical Certificate, signed by a doctor, is submitted to the local Social Security office. Invalidity benefit is paid similarly where incapacity continues for over six months. A 2½ per cent sample of the statistics is drawn in June each year and the published tables[36] give analyses by age and sex, diagnosis and regions (which unfortunately do not have the same boundaries as the present regional health authorities).[37] The information is held centrally according to the office of collection, but this local data is not published.

Although sickness absence statistics are a useful indicator of short-term trends — for example weekly returns may be the first suggestion of an influenza epidemic in the population — they are inadequate as measures of morbidity.[38] They include only insured working men and women, excluding civil servants, and therefore give no information on married women not paying contributions, children, or the retired.[39] No benefit is paid for an episode of sickness lasting less than four days. And because the claimant submits the certificate himself, the diagnostic information that the doctor writes may include euphemisms such as 'ergophobia' or 'oscillans plumbi'!

Excluding influenza epidemics and making allowances for changes in the population structure, there seems to have been a steady rise in sickness absence since the early 1960s.[40] This has been the experience of all West European countries, and England is by no means top of the league table. Over this period, there has been an increase in the more vague categories of diagnosis (Table 27, page 200). Since both unemployment, and the scales of benefits, also rose during the period, it is thought likely that changes in need, or attitude to work, account for the rise more than an increase in disability.

**General practice**

The first National Morbidity Survey in 1955/56 provided detailed information about consultations, diagnosis and

**Table 27** Changes in sickness absence diagnoses in men, Great Britain, 1953–54 to 1971–72 (per cent increase or decrease, 1953–54 = 100)

| | *Days* | *Spells* |
|---|---|---|
| *Increase* | | |
| sprains and strains | 77 | 101 |
| nerves, debility and headache | 66 | 82 |
| displaced vertebral disc | 65 | 86 |
| diabetes | 50 | 62 |
| diarrhoea and enteritis | 49 | 43 |
| arteriosclerotic heart disease | 49 | 50 |
| psychoneurosis | 38 | 38 |
| migraine | 34 | 39 |
| bronchitis | 14 | 15 |
| *Decrease* | | |
| kidney infection and cystitis | 368 | 343 |
| eczema and dermatitis | 362 | 235 |
| gastritis | 288 | 327 |
| asthma | 223 | 180 |
| septic skin disease | 213 | 283 |
| appendicitis | 187 | 187 |
| pneumonia | 167 | 158 |
| ulcers, stomach and duodenum | 153 | 214 |
| respiratory tuberculosis | 136 | 95 |
| All changes | 123 | 129 |

*Source:* Taylor P. Sickness absence: facts and misconceptions. Journal of the Royal College of Physicians, vol 8, no 4. July, 1974. pp 315–333.



referrals in over 100 practices in England and Wales.[41] With improvements in methods of collecting the data, particularly in providing information useful to the practices themselves, a second national survey was undertaken in 1970–72. The GPs were volunteer members of the Royal College of General Practitioners, so that the results are likely to reflect better than average practice. There was also no contributor from a practice in inner London.

Published data from the second survey[42,43] show consultations, episodes, and their rates by age groups and diagnosis. There are also tables on geographical variations and outpatient referral rates. Some of the practices have used the study as a baseline for continuing observations, and to mount special longitudinal studies to research particular questions.[44]

It has been possible to compare the findings of the two morbidity studies 16 years apart.[45] Although the number of episodes of illness taken to general practitioners rose from 133 to 181 per 100 population at risk, with a greater rise in women than men, the consultation rate per 100 patients registered fell from 374 to 301. This was because there were many fewer repeat consultations within a given illness episode — probably an effect initiated by doctors' changes in clinical practice and organisation (Table 28).

In analysing consultations by disease groups, there were only small changes for major conditions such as cancer, diseases of the circulatory system, and accidents, and large changes for less severe conditions such as communicable diseases, personality disorders, and ill-defined conditions.

## Hospitals

Bearing in mind that only about 5 per cent of illness episodes presented to general practitioners are referred

on to hospital, and many of these are seen only in outpatients or day care, the diagnostic information about hospital deaths and discharges still forms an estimate of 'serious' morbidity in the population.

**Table 28** Changes in consultations for selected conditions in general practice 1954–55 to 1970–71

| | *Patients consulting (at least once) per 1000 population* | |
|---|---|---|
| *Falling* | *1955* | *1971* |
| tuberculosis | 2.9 | 0.5 |
| bronchiectasis | 1.2 | 0.6 |
| peptic ulcer | 9.2 | 6.6 |
| appendicitis | 4.0 | 1.9 |
| acute cholecystitis | 2.0 | 1.4 |
| fibroids | 1.8 | 1.0 |
| prolapse | 6.4 | 3.5 |
| boils and carbuncles | 20.5 | 11.3 |
| *Rising* | | |
| acute nasopharyngitis | 81.1 | 109.5 |
| angina | 0.8 | 1.6 |
| cerebrovascular accidents | 4.9 | 5.3 |
| gout | 0.8 | 1.6 |
| dermatitis/eczema | 24.3 | 39.4 |
| scabies | 0.9 | 3.6 |
| cystitis | 10.5 | 18.0 |
| menstrual disorders | 0.9 | 3.6 |
| psychoneurosis | 45.7 | 79.3 |

*Source:* Crombie D L. Changes of patterns in recorded morbidity. In Taylor D, ed. Benefits and risks in medical care. London, Office of Health Economics, 1974.

National data of diagnosis and utilisation are available in the Hospital Inpatient Enquiry (HIPE) drawn from a 10 per cent sample of inpatient deaths and discharges. Separate information is recorded for maternity patients (OPCS Series MB4 No 8). More recently Hospital Activity Analysis (HAA) has been introduced and gives more detailed information on all admissions by hospital.[46,47] The Scottish Hospital Inpatient System (SHIPS) is similar. HAA is analysed by computer at each regional health authority, and is also used to provide the data for HIPE. A difficulty with both HAA and HIPE is delay between the events occurring and their presentation.

Increasing use is being made of HAA residence information for questions of resource allocation. In larger cities, where there are often significant cross-boundary flows, catchment populations by specialty for different hospitals can be estimated, and regions can collate HAA to show patient flow.

When the population base is known, and has been standardised for age, it is possible to look for differences in discharge rates by diagnosis.[48] These may represent differences in population morbidity, for example, respiratory disease related to smoking habits or hernias with particular occupations. More usually, however, they represent differences in the structure of services — a 'special interest' of a particular consultant or possibly a lack of facilities or manpower.

HAA is a record of deaths and discharges, not individuals. The extent to which these differ depends upon particular diseases and ages, but on average HAA discharge rates overestimate the number of persons admitted by about 15–20 per cent.[49] Using death and discharge frequencies also tends to emphasise admissions of short rather than long stay. There are some conditions — for example severe accidents, progressive neurological illnesses, some forms of mental illness — where the resource implications of treatment or care are much

greater than their relative frequency of admission. This is more clearly shown by considering total bed-days than total admissions or discharges.

The few validation studies on HAA and SHIPS[50-53] show them to be relatively accurate for administrative data, but less so for diagnosis. Naturally, a data collation system is only as good as the data fed in, and better diagnostic data is provided when clinicians make clear and accurate discharge summaries than when it is left to a clerk to identify from case records.

A separate information system is used for psychiatric hospitals. The Mental Health Enquiry is based on individual patient returns made from mental illness and mental handicap hospitals at admission and discharge. The data is processed nationally, and published by DHSS.[4]

It is possible to link individual patients over time, so that the MHE can be used to provide a continuous register of patients in hospital.[54] However, little use is made of MHE data for planning, perhaps because it is not processed by regional statistics departments.

**Administration**

Administrative statistics of all non-psychiatric hospitals, complementing HIPE, are recorded on forms SHQ (quarterly) and SH3 (annually). These statistics are prepared from nightly returns of bed occupancy by various specialties. Waiting-list numbers and throughput, and outpatient attendances are also recorded. SHQ returns are of value for hospital management because they are readily available, and can be used to compare efficiency between different units.[55] But since the data is not person-based there is no information on diagnosis. Detailed SH3 statistics are not published nationally, but some of the information is included in the annual Health and Personal Social Service Statistics.[56] More detailed summaries are available from Regional Health Authorities.

Information about the staffing and facilities of psychiatric hospitals is recorded each year. In the published statistics[57] the levels of provision, according to the number of residents in care, are compared with minimum acceptable levels given in DHSS guidelines (for example, circular DS 340/71 for mental handicap hospitals). These statistics indicate how far services are from even minimum levels of provision.

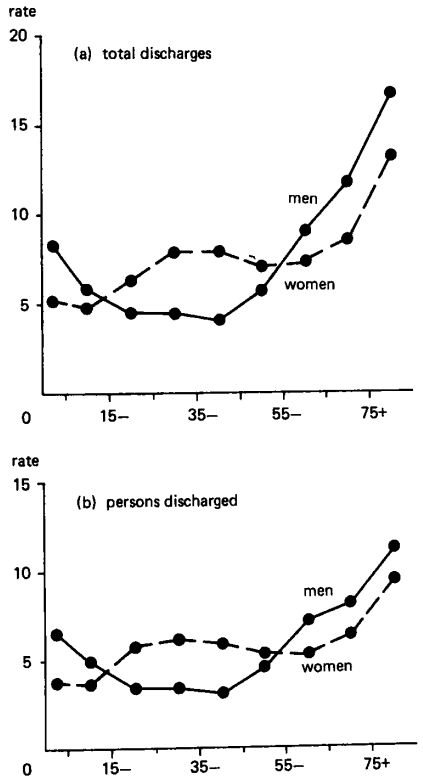
At present, detailed administrative statistics about parts of the community services are recorded in the same fashion as the former public health departments did before reorganisation, although there have been suggestions for change.[58] The data collected includes medical and nursing staffing; clinic and domicilary attendances; numbers of dental, chiropody and family planning clinic sessions; school medical and dental clinics, child guidance and handicapped children in school; and nursing homes. Specific information on certain services is also recorded, such as cervical cytology and family planning methods.

The Family Practitioner Committee is responsible for the organisation of services by doctors, dentists, pharmacists and opticians who are in contract to the NHS. Although the patients on a general practitioner's list may be widely spread, his contract is held with the FPC area within which the majority of patients reside.

FPC statistics are orientated towards the task of managing contractual services. Data is not routinely published but may be available locally on professional staff employed and list sizes. But, except where payment is made for particular services, there is no information on work by diagnosis, or facilities. Item-of-service payments for general practitioners includes maternity care, family planning, cervical cytology and immunisations.

General renumeration for GPs is assessed as a basic practice allowance plus payment *per capita* for each patient. Enhanced payments are made for patients over 65 and 75, so that this information is kept by the FPC. There is also a system giving a financial incentive to practice in under-doctored areas, and a limit is made on new practitioners in competitive areas.[59]

**Figure 153** Total hospital discharges and persons discharged (one or more episodes), Oxfordshire 1962 (age-specific rates per 100)




*Source:* Acheson E D. Medical record linkage (figure 6.3). London, Oxford University Press, 1967

The many areas of health services where information is recorded lead naturally to the thought that linking these sources together might yield much more valuable data. The potential of record linkage was described by Acheson[49] after experience of a pilot scheme in Oxfordshire, initially covering a population of one-third of a million people, and now extended to two million. Details of every birth, death, hospital admission and obstetric record are included on a single file. Within this scheme, six general practices have recorded their notes on a computer file, and for these practices there is also surveillance of the drugs prescribed.[60]

Record linkage can provide the manager and planner with better information about the use of health services. Figure 153 shows how discharge rates for certain conditions are inflated by readmissions. Linking hospitalisation and mortality data showed that only 60 per cent of the deaths occurring within a year of discharge were known to the hospital. Follow-up information on survival can be provided for individual consultants. There are also research opportunities in, for example, monitoring the effect of variations in hospitalisation between different general practices.

There are several problems in record linkage however: the unique NHS number is often not recorded on clinical notes, nor is it on birth or death certificates. Linkage must therefore be by name, which is more liable to matching errors. There are also substantial administrative costs, which compete within the NHS budget with the development of clinical services. Hospital clinicians are not widely interested as yet in the sort of review information that record linkage can provide, and the present climate of concern about confidentiality of records makes it unlikely that record linkage will be widely introduced.

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*Epidemiology and Policies for Health Planning* is a guide to health planning according to need. It describes the health measures and sources of data available in England and sets out in detail the patterns of health and disease of different health care groups in the population, and what opportunities there are for prevention and treatment.

Over 200 diagrams and tables show the range of epidemiological information available for health planning. Each chapter is fully referenced for further study. The book will be of value to all people concerned with health planning but especially health administrators, students and members of the new health authorities.

The author's interest in applying epidemiology to health planning developed while he was district community physician in North Hammersmith. He now teaches community medicine at University College, London, and, out of hours, is a keen orchestral double-bass player.

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