Australia's Health

The first biennial report by the Australian Institute of Health 1988

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1988

Australian Government Publishing Service
Canberra

ISBN 0 644 07758 1

Printed in Australia by R. D. RUBIE, Commonwealth Government Printer, Canberra

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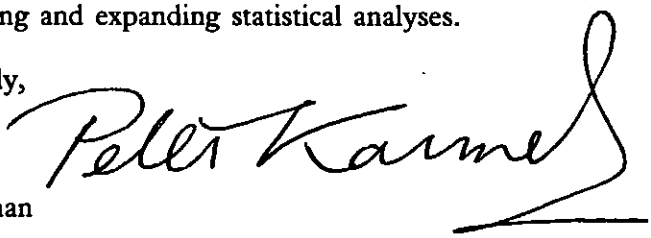
Dear Minister,

As required under Section 31(1) of the Australian Institute of Health Act 1987, the Board of the Institute is pleased to present to you *Australia's Health*, a report covering those aspects of Australia's health and health services for which data is currently being collected either nationally or in some States.

This first health report by the Institute contains a major case study on the health of the Aboriginal population. Future health reports will contain case studies on other major health issues, as well as updating and expanding statistical analyses.

Yours sincerely,



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June 1988

The Honourable Neal Blewett MP
Minister for Community Services and Health
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1 Historical overview

1.1 The first Australians

People have lived in Australia for more than 40 000 years, but litle is known about the health of the first Australians, the Aborigines, before 1788.

There is even considerable uncertainty about the size of the Australian population at the beginning of European colonisation. Previous estimates have suggested a minimum population in the neighbourhood of 300 000, but recent research indicates that the population was probably at least 750 000 (Mulvaney and White 1986).

Most early reports indicate that Aborigines were in good health, not experiencing most of the diseases common in Europe at that time. In fact, historical research suggests that they were physically, socially and emotionally healthier than most Europeans of that time (Blainey 1975). Of course, along with populations in other parts of the world in the 18th century, it is almost certain that infant mortality in Australia was very high and life expectancy very short by modern standards.

1.2 The impact of European colonisation

The European occupation of Australia had a catastrophic impact on Aboriginal wellbeing, resulting in widespread population decline.

A year after the arrival of the First Fleet in Botany Bay, a severe epidemic of a virulent infectious disease, almost certainly smallpox, ravaged the Aboriginal population, spreading to tribes within a radius of about 100 kilometres of Sydney Town, and possibly much further. Thousands of Aborigines died in the first months of the 1789 epidemic, but Europeans were not affected.

As Aborigines across the country came into contact with the settlers, tuberculosis, influenza, pneumonia and measles became major causes of death, and alcohol became a very destructive influence.

Many of the Aborigines who escaped the scourge of smallpox and other diseases fell victim to the encroachment of European settlement on Aboriginal lands, directly through warfare and

massacres, and indirectly through the disrupting effects of land dispossession on their economic and social organisation.

Cattle and sheep, introduced by the colonists, fouled waterholes, and trampled and ate the vegetation, including bush foods. As their traditional foods declined, Aborigines became dependent on food obtained from the Europeans.

The combination of introduced diseases, conflict and dispossession from their lands had an enormous impact on Aboriginal populations. By 1933, when the total Aboriginal population was estimated at 81 000, Aboriginal numbers had declined to only just over 10% of the likely 1788 population of 750 000.

Aborigines overtaken by the moving frontier of European settlement lost their political autonomy, their economic independence, and their social and cultural integrity; the seeds of the Aboriginal health problems of the 1980s (see Chapter 6) were well and truly sown (Rowley 1972).

1.3 The young colony

The history of infectious disease in early 19th century Sydney Town has been described as a story of periodic waves rising and falling with the ebb and flow of immigration and economic fortune (Curson 1985). Incidence of disease in the first few decades of the colony was closely related to the arrival of convict transport ships and the transfer of ill and debilitated convicts to land (Figure 1.1).

Although the periodic outbreaks of smallpox, plague, influenza, measles and scarlet fever were greatly feared, the majority of illness and premature death among the Europeans involved less spectacular diseases, such as gastroenteritis, dysentery, diarrhea, bronchitis, venereal disease and a variety of eye and skin infections.

The colonists' health suffered in the struggle to survive in a harsh environment which was hostile to traditional European methods of food production. Those at highest risk were convicts, the poor, the very young and the old. Mortality tended to be high in summer and (relatively) low in winter (Curson 1985).

1.4 The established colonies

For the first few decades after 1788, women and children comprised a small proportion of the population, with male convicts outnumbering females by 10 to one. From 1838 there was a big increase in the immigration of free settlers, boosted dramatically by the discovery of gold in the 1850s. During this period Sydney grew from a small town of 12 000 to a busy city of 50 000 with approximately equal numbers of women and men.

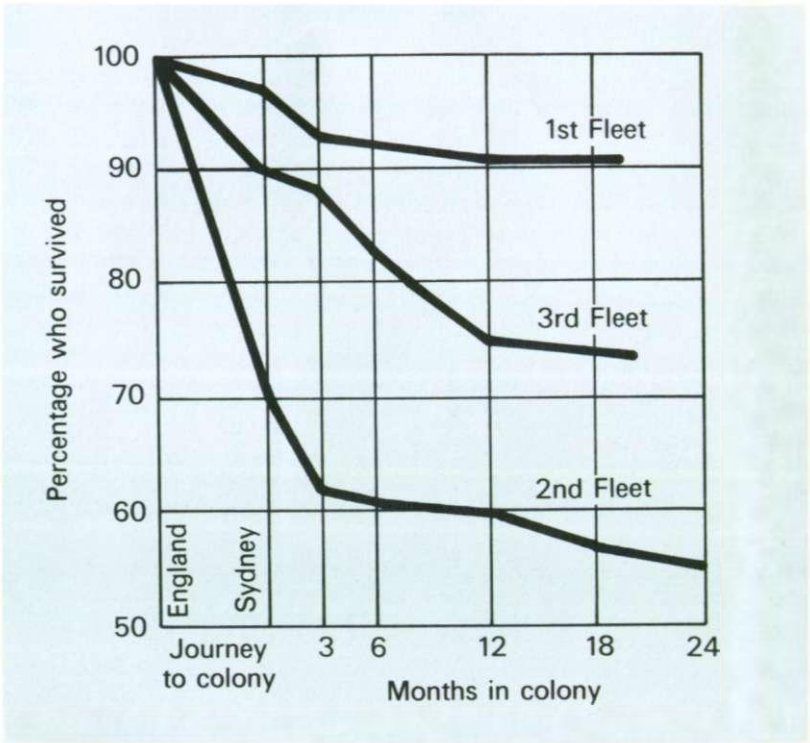


Figure 1.1: Survival of first, second and third fleeters
Source: Camm and Quilton (1987)

One consequence was a baby boom, which was soon followed by rising infant and child mortality rates. The burial register of Sydney's Camperdown cemetery for the early 1850s showed that children aged less than one year died mainly from 'natural' causes, convulsions, diarrhea, 'teething' and dysentery (Curson 1985).

Rapid urbanisation, overcrowding, poor sanitation, contaminated food and polluted water caused similar disease patterns to those of the industrial cities in Britain. Tuberculosis became a major cause of death, peaking in the 1880s.

The highest death rates in Sydney were in the inner city areas, such as the lower Rocks, where unskilled workers lived, and in industrial and swampy areas. Evidence of how the social and physical environment determines illness and premature death was emerging.

Accidents—including drownings, deaths from thirst and industrial accidents—were higher in the pioneering colony than in Britain.

Once the new settlement and food production were established, living in Australia became safer and more attractive because food was more abundant, housing less cramped, winters were less severe and the social order less rigid (Powles 1988).

The periodic epidemics of infectious disease—measles in 1867, smallpox in 1881–82, Asiatic flu in 1890–91 and bubonic plague

in 1900—killed quite small numbers of people in Sydney Town. Exceptions were the epidemics of scarlet fever in the early 1840s and the mid-1870s, which killed a large proportion of children under the age of five years (Figure 1.2). The fear of epidemics led to the demolition of slum areas. Most displaced tenants could not move to the suburbs, where housing was more expensive and there was little work, and the remaining poor districts became more overcrowded (Curson 1985).

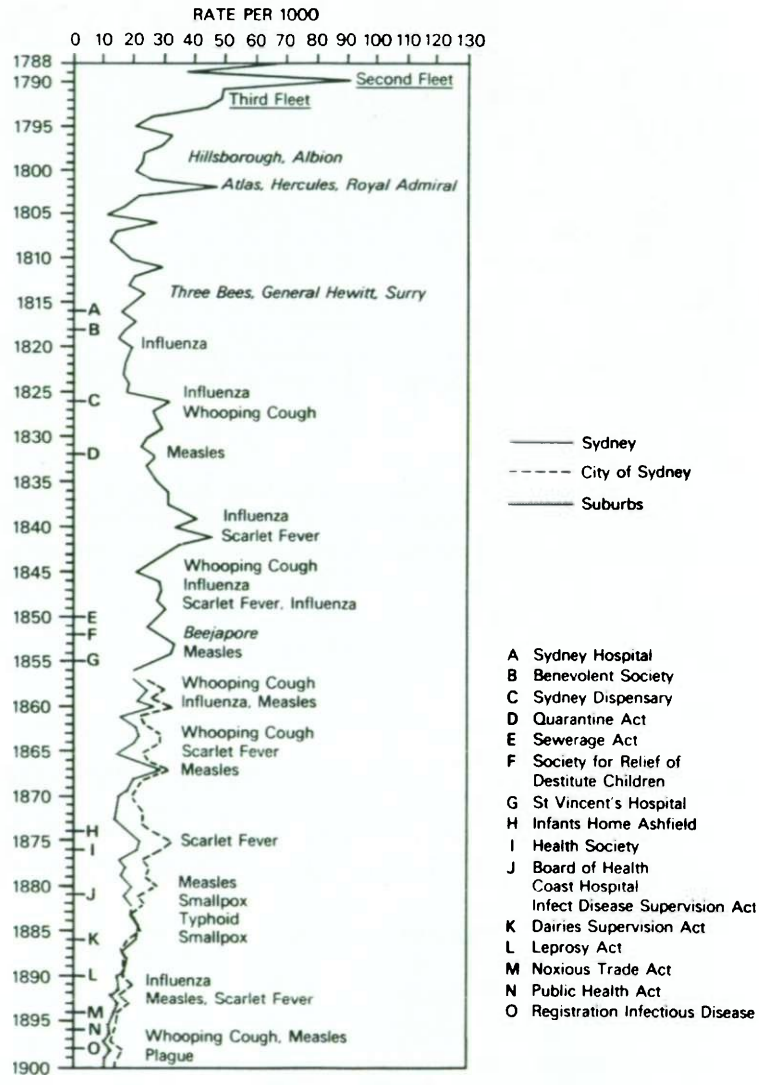


Figure 1.2: Sydney's death rate, 1788 to 1900
Source: Curson (1985)

Toward the end of the 19th century, the incidence and death rates fell for many infectious diseases for which no effective medical treatment existed. Although improvements in the milk and water supplies and in the sewerage systems must have contributed, the decline of such diseases had begun before the public health improvements became widespread. A fall in the birth rate, improved economic conditions, and possibly changes in infectivity and virulence of the diseases may also have played a part.

1.5 Health services: 1788 to 1900

The colony's first medical service was a tent hospital set up in 1788 to provide free treatment by naval surgeons. Citizens formed a Benevolent Society to help the sick and poor, and encouraged the Government to assist in financing public hospitals. These mainly served convicts and poor ex-convicts. Outpatient treatment became available in 1827 from the Benevolent Society's Sydney Dispensary. By 1861 all the colonies had public hospital systems (Hicks 1981).

The early colonial authorities did not see mental illness as a medical problem, and the mentally ill were kept in jail. Asylums were built later, but they were not considered to be hospitals.

Private medical practice grew with the arrival of free settlers. Private hospitals were first provided by religious groups for their members. Independent private hospitals appeared in the second half of the 19th century.

During most of the 19th century, patients' health may have been better served by avoiding medical treatment. Many doctors and pharmacists were self taught, and even with those who had received some kind of formal training, many of the treatments were ineffective and often dangerous. Concepts of hygiene had not been established, and antiseptics and anaesthetics appeared only toward the end of the century. Hospitals were mainly shelters for the homeless, places for treating the poor and hospices for the dying.

Friendly Societies, providing mutual aid, were formed in New South Wales in the 1830s. They were based in local communities, with membership usually drawn from working-class men who paid a small contribution for medical cover, sickness benefits and funeral benefits. Doctors were paid a capitation fee to provide medical services to the member and his family, independent of the number of services needed. The Friendly Societies, forerunners of the 20th century health maintenance organisations, grew steadily until, at their peak just before World War I, they provided medical insurance cover for more than half the Australian population (Green and Cromwell 1984).

1.6 National initiatives in the 20th century

For several decades after the six States federated in 1901 to form the Commonwealth of Australia, the national Government played a minimal role in the health area. However, it introduced several innovations in other areas which contributed to the nation's health: a national old age pension, subject to a means test, in 1909; an invalid pension, also subject to a means test, in 1910; and a maternity allowance in 1912 (Kewley 1973).

The Commonwealth Department of Health was established in 1921, primarily to meet Australia's international health obligations. (The evolution of the State health services has received little scholarly research, but a discussion is included in Appendix B.)

From the 1920s to the mid-1940s, the Commonwealth Government made several attempts to introduce national health insurance and pharmaceutical benefits schemes, but it was unsuccessful because of opposition from the British Medical Association in Australia (now the Australian Medical Association), employers, pharmacists and others. A referendum in 1946 empowered the Commonwealth to provide various social-welfare items, and '. . . sickness and hospital benefits, medical and dental services (but not so as to authorise any form of civil conscription) . . .' The clause in brackets, which was an amendment to the original text, was inserted to make it impossible for the Government to nationalise medical practice.

The 1946 referendum prepared the ground for the National Health Services Act of 1948, which gave the Labor Government power to set up and operate hospitals, to manufacture equipment, to participate in health education and to meet a proportion of doctors' fees, provided prescribed fees were set. This Act was never implemented, and subsequent national health policy focused on health insurance and financing, rather than on the provision of services.

A new Liberal–Country Party coalition Government introduced the National Health Act of 1953, which repealed the earlier National Health Services Act and strengthened legislation on hospital and medical benefits. It encompassed also the Pharmaceutical Benefits Scheme (Chapter 8), and the Pensioner Medical Service, which provided free medical treatment by a general practitioner for aged, invalid and service pensioners, widows and tuberculosis patients (and the dependants of these groups). Medical and hospital benefits were covered by a voluntary health insurance scheme, in which the Government subsidised voluntary insurance, hospitals and other institutions. The patient also paid a proportion of the bill directly. The scheme evolved through the 1950s and 1960s. A number of significant changes were recommended in 1968 by the Inquiry into Health Insurance

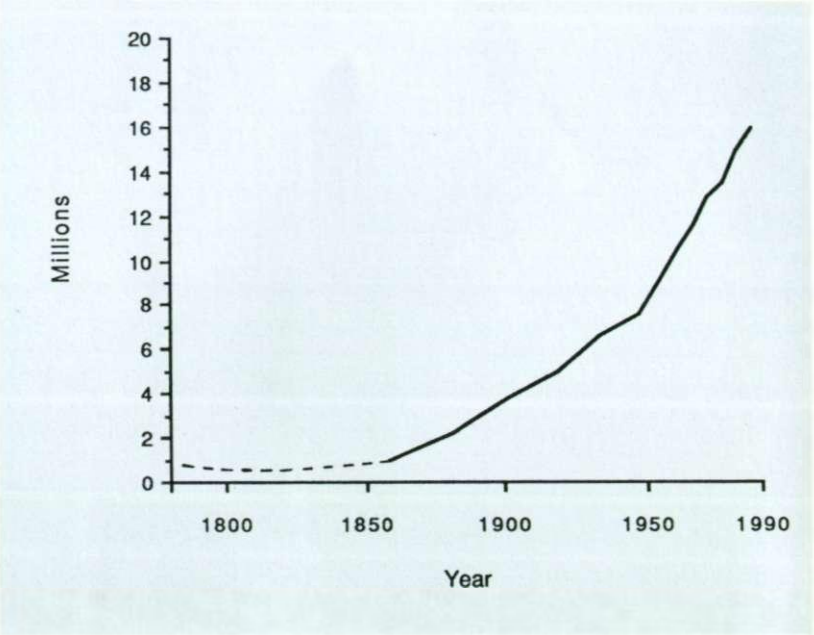


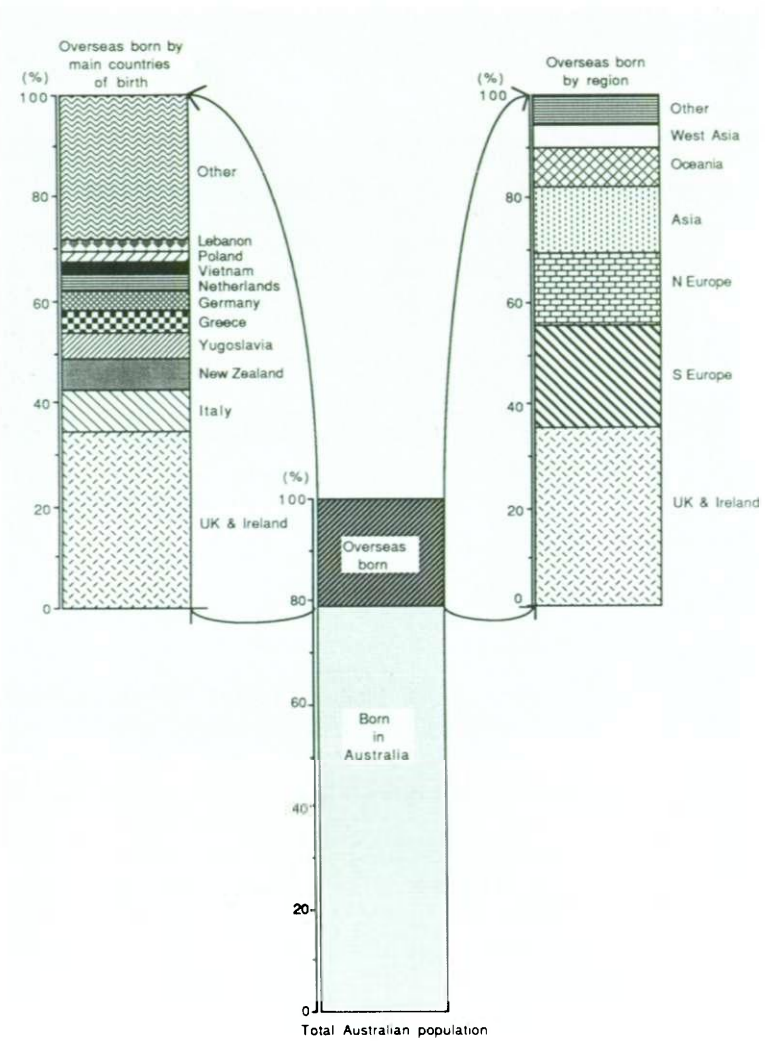
Figure 1.3: Australian population over two centuries
Source: ABS, Estimated resident population series

chaired by Justice Nimmo (Commonwealth of Australia 1969), and the coalition Government in 1970 implemented a number of recommendations from the Nimmo report, including the adoption of a common fee. This was the basis of relating benefits to fees charged by the medical profession, and meant that patients paid no more than a $5 gap when a doctor charged the common fee.

Medibank, a compulsory national health insurance scheme for the whole population, began under a Labor Government in July 1975. Doctors could bill individual patients for the full fee, or they could bulk bill Medibank and obtain 85% of the Medical Benefits Schedule fee in full payment. A patient billed directly by a doctor could obtain from Medibank a refund of 85% of the Schedule fee or, for large bills, the Schedule fee less $5. In public hospitals, patients could choose to be accommodated without charge and treated by a doctor appointed by the hospital. Alternatively, they could elect to be 'private patients', pay their doctor on a fee-for-service basis, and pay the hospital a fixed daily charge for accommodation, nursing and diagnostic services. A subsidy was paid to all eligible patients who were private patients in private hospitals. Health insurance funds could cover private hospital care, the gap between the Medical Benefits Schedule fee and the Commonwealth rebate, and other extras not covered by Medibank.

As a result of opposition from private health insurance funds and the medical profession, a Liberal–Country Party coalition Government elected in 1975 made a number of changes to Medibank over the next six years. (Hicks 1981, Sax 1984.)

Figure 1.4: Percentage distribution by birthplace of Australian population, 1986
Source: ABS, Census of population and housing 1986



The Labor Government elected in 1983 introduced the present national health insurance scheme, Medicare, in February 1984 (Chapters 7 and 8).

1.7 Australians in the 20th century

The period from Federation to World War II was marked by steady development of public health measures, including improved water supplies, pasteurisation of milk, gradual extension of sewerage systems in the major cities, and improvements in working conditions.

Other contributions to public health in the early part of the 20th century came from the provision of free compulsory

education, campaigns for cleanliness, breast feeding and better nutrition, and the introduction of pensions for the aged and poor by some State Governments and later by the Commonwealth. As these public health and welfare measures were introduced, deaths from infectious diseases continued to decline. For instance, deaths from tuberculosis dropped by half (from about 83 deaths per 100 000 to about 37 per 100 000 population) between 1910 and 1940. Immunisation campaigns against infectious diseases, introduced between the two world wars, became an important component of the public health system.

An increase in smoking by servicemen during World War I was to have a significant long-term impact on Australian males.

Penicillin made its first impact during World War II. Together with sulpha drugs, it played an important part in medical care in general in the decade after the war. Broad spectrum antibiotics came into wide use in the early 1960s (Gordon 1976).

The postwar period was marked by increasing affluence, population growth from both natural increase and high rates of immigration, a strengthening of social security, developments in medical technology and a steep increase in smoking by women. Although affluence often brought improved housing, it also brought a rapid increase in lifestyle diseases.

Since the late 1970s, new public health concepts involving health promotion and the prevention of disease have been developed, but they are still in the early stages of implementation. Some of the lifestyle diseases have declined since the late 1970s (see Chapter 5), but new infectious diseases, such as incurable AIDS, have become problems.

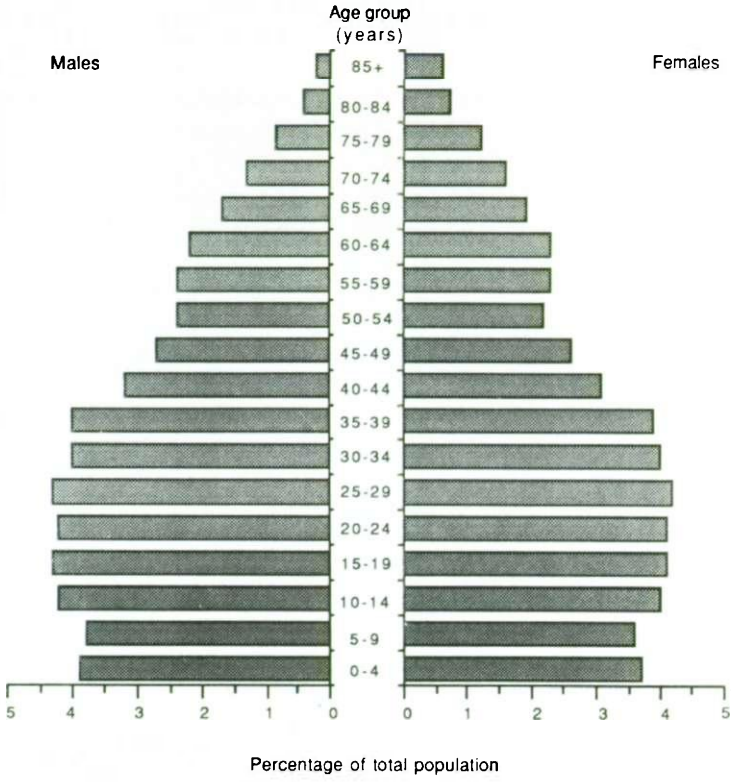
Population growth, distribution and ethnic composition

Australia is a country of low population, low mortality and fertility, and a high rate of immigration. With natural increase and with rapid immigration mostly from Europe, the population of Australia reached one million in 1858, five million in 1918, 10 million in 1959, 15 million in 1981 and 16 million by 1986 (Figure 1.3).

One in five Australian residents was born overseas (Figure 1.4). People born in Europe (including the United Kingdom and Ireland) make up about 70% of the total overseas born Australians.

At 30 June 1987 the population reached an estimated 16.25 million, comprising 8.11 million males and 8.14 million females. The median age of the population, which was 27.5 years in 1971 and 31.3 years in 1987, is projected to increase to about 37 years in the year 2021. The proportion of people aged 65 or over (Figure 1.5) is projected to increase from about 11% in 1986, to about 16% by 2021. This aging of the population will have

Figure 1.5: Age distribution of the Australian population, 1986
Source: ABS, Estimated resident population by sex and age 1986, Cat. No. 3201.0



important ramifications for the health status of the population as well as for the provision, financing and use of health services (ABS, 1985).

By any standards, Australia is a highly urbanised nation, with about 85% of the population living in urban areas. The urban population has increased rapidly over the past 50 years (from 64% in 1933) as the major cities and towns have attracted most of the population growth (Figure 1.6). The latest United Nations estimate indicates that about 42% of the world's population lives in urban areas.

Because of the urban concentration of the population, geographical access to health services has been a problem for only a small proportion of the population. For that small group in outback Australia a range of solutions to the problems of access has been developed, including mobile rural health teams, the Royal Flying Doctor Service, and the use of satellite communications.

Migrant health

Migrants are in general more healthy than the general Australian population. This partly reflects the fact that they are a selected group, both in terms of self-selection in seeking to migrate, and in terms of having to pass a medical examination to be accepted. But it also reflects the fact that for a number of groups, the health of the source country is better than that of Australia, particularly with respect to diseases of the circulatory system among southern Europeans.

The health advantage of migrants tends to diminish the longer they are in Australia. This in part results from gradual emergence of health problems in any group originally selected as healthy. Some migrant groups have very high smoking rates, and mental health problems are reported among some groups (Lee, Smith, d'Espaignet and Thomson, AIH, 1987). But it may also be a result of a move toward a less healthy, more Australian lifestyle, especially a change in the balance between saturated and unsaturated fats in the diet. It may also reflect the fact that many migrants are employed in hazardous industries.

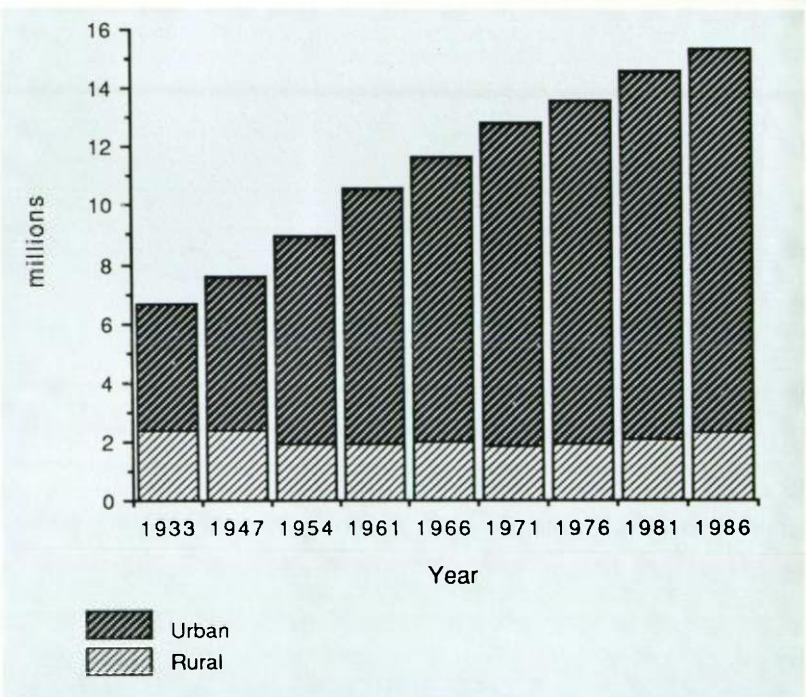


Figure 1.6: Urban distribution of the Australian population, 1933 to 1986

Source: ABS, Censuses of population and housing

Figure 1.7: Age-specific fertility rates, Australia, 1951–55 to 1986(a)

(a) 1951–55 to 1981–85: average annual rates 1986: annual rate

Source: ABS, Births Australia, Cat. No. 3301.0

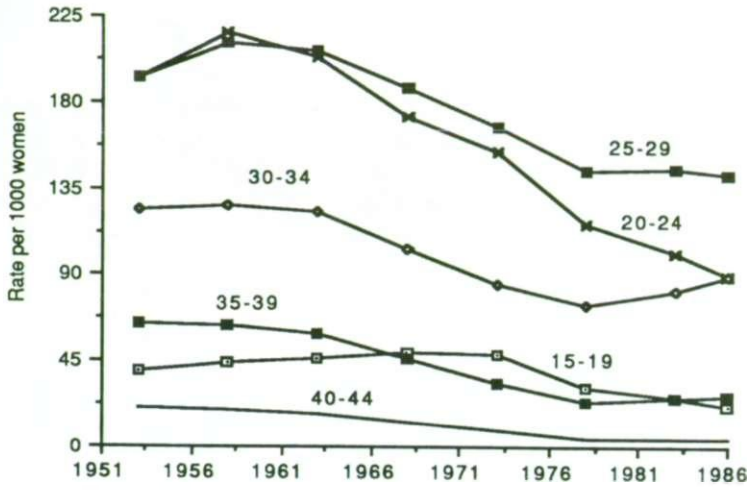
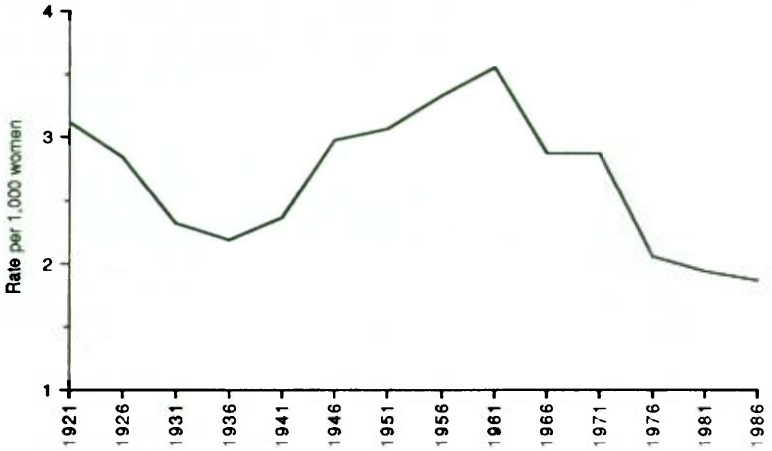


Figure 1.8: Total fertility rate, Australia, 1921 to 1986

Source: ABS, Australian demographic trends 1986, Cat. No. 3102.0 and Births Australia 1986, Cat. No. 3301.0



Fertility

Over the past 30 years, fertility rates (see Glossary) have generally fallen in all age groups (Figure 1.7). The age specific rates peaked during the 1950s and then declined consistently for most age groups, especially among women aged 20 to 24. Women aged 25 to 29 now have the highest fertility levels. Since the late 1970s, the fertility rate of women aged 30 to 39 has increased slightly, reflecting the shift in the age at childbearing from younger to older women.

A useful summary measure of fertility is the total fertility rate (Figure 1.8)—the number of live babies a woman would have if, throughout her reproductive years, she had children at the rates prevailing in the reference year. This rate is obtained by summing the age specific fertility rates for one particular year. The rate peaked in the second half of the 1950s at 3.4 births per woman and then declined consistently, to 1.9 babies per woman for 1981 to 1985. Since 1976, the fertility rate has been below the replacement level.

The pattern of fertility decline in Australia has been observed in a number of other developed countries. The reasons are complex, and include changes in the role of women, the availability of a wider range of options or choices, including increased opportunities for women to participate more fully in the paid labour force, greater availability of contraceptives, more liberal divorce laws and easier access to abortions as a method of birth limitation.

Life expectancy

Life expectancy at all ages has increased steadily in Australia during the 19th and 20th centuries, with the greatest improvements before World War II. The expectation of life at birth for females has increased from 51 to 79 years over the century to 1986, and for males from 47 to 73 years (Figure 3.3).

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2 What is health?

2.1 Health Indicators

There are a number of concepts of health and its measurement. This chapter examines them in the context of debate about health and health policy in Australia.

The World Health Organization (WHO) has defined health as a state of complete physical, mental and social wellbeing, not merely the absence of disease or infirmity. This definition is both general and idealistic, and health thus defined is not easily described by information available in Australia. WHO is in the very early stages of developing measures of wellbeing.

In the late 1970s, WHO adopted its Health for All by the Year 2000 program (see Box), which places emphasis on equity, on primary care, on the involvement of both consumers of health services and of government sectors in addition to the health sector, and on public health components within the health sector (WHO 1978, 1981a, 1981b).

In Australia, the Better Health Commission (1986) saw health as a positive concept which emphasised social and personal resources as well as an individual's physical capacities.

'We do not live to be healthy; we live better by being healthy,' it said. 'Good health implies the achievement of a dynamic balance between individuals or groups and their environment. To the individual, good health means improved quality of life, less sickness and disability, a happier personal, family and social existence, and the opportunity to make choices in work and recreation. To the community, good health means a higher standard of living, greater participation in making and implementing community health policies, and reduced health care costs'.

The commission's view involves concepts of health that are still difficult to describe in simple statistics.

The measures of health available in Australia reflect changing perceptions of health over time. The best developed indicators are those relating to death and the causes of death. Most developed countries have sets of statistics for recording vital statistics (which also include information about births). It is still common to see discussions about the health status of people in different countries compared by reference to expectation of life, infant mortality rates, and comparisons of death rates from different causes.

The next major set of indicators is derived from systems for treating illness—that is, health services information. As hospital services developed, efforts were made to record the causes of admissions to hospitals and what happened to people in hospital. Comparisons of admissions for different causes have also been used as indicators of health, although they are actually measuring illness. There are many shortcomings in using data from hospital admissions—sick people who do not have access to hospitals are not counted and people who are repeatedly admitted are counted each time. Admissions may be influenced also by the level and type of hospital provision and by medical practice, itself subject to fashion. For example, the rate of removal of tonsils has declined markedly since 1980 as a result of a move to medical rather than surgical management of tonsillitis (Learoyd 1985). However, data on sickness and disease derived from hospital admissions give some insights into illness in the community.

Information about the numbers of visits to doctors provides some guide to the need, or desire, for medical treatment by people of different age groups within Australia. But it is a very poor indicator if used across countries. For example, the use of insured medical services in West Germany over a year averages 21 a person compared with eight in Australia. This is more likely to reflect different institutional arrangements, customary patterns of behaviour and the wider variety of services classified as medical in West Germany than major differences in the health of the two populations.

The use of statistics on death rates, illness and disease, and data from health services statistics as indicators of health status arose, largely, because they were being produced for other specific purposes. As with many other areas of social research, it has been necessary for researchers to adapt available information to their particular requirements.

The Better Health Commission spoke of health of individuals as implying less disability, improved quality of life, and happier personal, family and social existence. In general these factors are not measured by any of the health status indicators described so far.

2.2 Health surveys

The development of health surveys has increased the information available about the reported health of the whole population, including those who do not enter hospital or use health services. They have allowed social and economic factors about individuals to be associated with measures of health. They have also allowed information to be collected about disabilities for which people do not seek treatment, and about emotional wellbeing. The survey approach starts to address the issue of health as a positive state and not just absence of illness.

Health surveys rely on individuals reporting on their own health and disabilities, which can introduce the possibility of bias. Interpreting exactly the meaning of some of the measures of emotional wellbeing can be difficult. There is also a lack of knowledge about what produces the level of wellbeing of individuals and how to influence levels. Clearly, people's level of income and standard of living, or whether they are employed, influence perceptions of wellbeing. Not all of these are influenced through traditional health policy.

Early attempts to evaluate health services compared the cost of one intervention with another in terms of years of life saved, and took little or no account of the quality of the life that had been saved.

Considerable work has been done on measures of quality adjusted life years (QALYs) and efforts are being made to cost health intervention in terms of dollars per QALYs saved. Attempts to bring quality of life measures into operation have had only limited success, although there is an emerging consensus about a few simple measures. But these are still largely associated with illness states rather than positive health states.

So there are, conceptually at least, ways of measuring some of the factors discussed by the Better Health Commission.

2.3 The health field concept

Many of the current directions concerning health and health policy were embodied in ***A New Perspective on the Health of Canadians***, a report by the Canadian Minister of National Health and Welfare, Marc Lalonde, in 1974. The Lalonde Report made two significant contributions to current thinking by focusing attention on health as the outcome of many separate factors, and on preventable disabilities and deaths. Little in the Lalonde Report was new, but it had a major impact on thinking about health, health services, health promotion and illness prevention.

Under the health field concept, health is represented as resulting from the interactions of biological factors (such as genetic factors), environmental factors (pollution), lifestyle (diet and smoking) and health care organisations (Figure 2.1). This has broadened the scope of health policy from the provision and financing of health (or treatment) services, which had preoccupied most developed countries in the 1960s, to broader aspects of health.

By pointing to the extent of preventable deaths from such things as car accidents, smoking, poor diet and lack of immunisation, attention was again shifted from treatment services to ways of promoting health and preventing illness.

2.4 New public health

In Australia, a major response to the WHO Health for All initiative was the publication in 1986 of a Better Health Commission report assessing the potential and tasks for health promotion, disease prevention and public health. The report echoes the main themes of the Lalonde Report and recognises also that lifestyle factors are not just individual choices, but also reflect society's impact on individuals and their behaviour.

The commission's report was followed in 1988 by ***Health for All Australians***, a report of the Health Targets and Implementation Subcommittee (of the Australian Health Ministers' Advisory Council). It summarises the evidence for inequalities in health in Australia, puts the case for a National Program for Better Health in Australia, proposes health goals, targets priorities for action, discusses the barriers, and recommends structural changes in the health system.

The approach embodied in ***Health for All Australians*** has sometimes been termed the new public health. This means a combination of new approaches to the control of old public health problems—such as infectious diseases—with a mobilisation of a population-based effort to control the current dominant health problems—diseases of the circulatory system, cancer, accidents and injuries etc.

The new public health involves health promotion and disease control aspects of primary care, public health activities within the

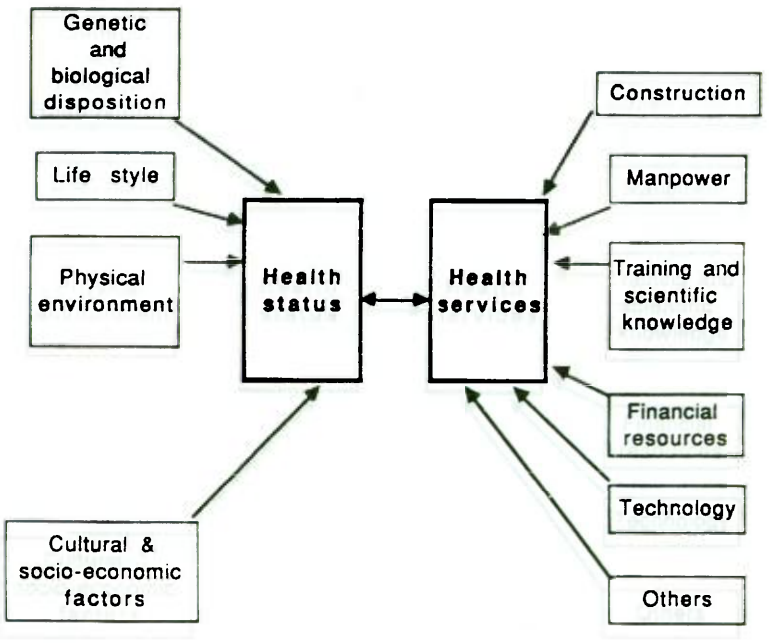

Figure 2.1: The Health Field Model—as developed in the *Health 2000 Report*, **Dutch Ministry of Health (1986)**

health sector and, especially, an attempt by the health sector to influence other aspects of public policy which impinge on health.

In Australia, Commonwealth, State and Territory governments are working on the new public health policies and have taken action to:

- target specific health problems with programs such as the national campaigns against drug abuse and AIDS (Acquired Immune Deficiency Syndrome);
- detect certain diseases earlier (the national pilot programs for screening for breast and cervical cancer);
- improve information and research on health (the establishment of the Australian Institute of Health and the National Centre for Epidemiology and Population Health at the Australian National University);
- establish health advancement and health promotion groups in health authorities at all levels of government;
- ban smoking in aircraft, and some trains, buses and offices;
- introduce unleaded petrol;
- involve consumers through district health councils in Victoria, area health boards in New South Wales, and the Consumers' Health Forum of Australia;
- introduce new taxes on tobacco products;
- emphasise equity issues;
- improve environmental and pollution controls and measures for occupational health and safety; and
- develop a national policy on Aboriginal health.

The new public health is as likely to ask how can illness be prevented as it is to ask how can it be treated. If total health care costs were not so tightly controlled, the tendency to contrast prevention and treatment might not be so strong. It will also ask how individuals can be encouraged to alter their lifestyles to improve their own health, what social changes can alter behaviour patterns to improve health, and how policies and actions outside the health sector affect health.

By broadening the definition of health to include quality of life issues and happier personal existence, the range of statistics has to be widened. Such things as unemployment, education, income distribution and suicide rates have to be taken into account. (Some of these are briefly described in this report, but Australian Bureau of Statistics publications—especially on social indicators—contain a greater range of relevant statistics.)

Health and health considerations generally receive little if any attention in the policy of the non-health sectors. However, it must be acknowledged that some of the more significant recent contributions to improvements in health—compulsory seat-belt legislation and random breath testing—were introduced outside the health sector.

To a considerable extent most operational measures of health still relate to illness, disability and handicap; and most health programs still aim at the reduction of these measures of ill health. It is the type of intervention aimed at reducing these measures that is likely to show the new public health perspective.

Continued financial constraints on the health sector are contributing to a climate more favourable to the new public health. New and existing health services are subjected to considerable scrutiny before being funded, and often it is services with a research or evaluation element that are dropped. There is now a greater willingness to provide funds for health promotion and illness prevention programs because of their potential to reduce the demand for treatment services in the future.

Consumers and patients are also influencing the health scene by demanding to be informed and consulted on their health care. There is also a clear need for education to increase people's knowledge of healthy lifestyles and of the opportunities to make healthy choices.

Health for All

The World Health Organization says:

(1) Health is a fundamental human right and a worldwide social goal.

(2) The existing gross inequality in the health status of people is of common concern to all countries and must be drastically reduced. An equitable distribution of health resources, both among countries and within countries, leading to universal accessibility to primary health care and its supporting services, is therefore fundamental to the strategy.

(3) People have the right and the duty to participate individually and collectively in the planning and implementation of their health care. Consequently, community involvement in shaping its own health and socioeconomic future, including mass involvement of women, men and youth, is a key factor in the strategy.

(4) Governments have a responsibility for the health of their people which can be fulfilled only by the provision of adequate health and other social measures. The political commitment of the state as a whole, and not merely the Ministry of Health, is essential to the attainment of health for all.

(5) Countries must become self-reliant in health matters if they are to attain health for all their people. National self-reliance implies national initiative, but

not necessarily national self-sufficiency. Where health is concerned no country is self-sufficient; international solidarity is required to ensure the development and implementation of health strategies and to overcome obstacles. Such international health solidarity must respect national self-reliance.

(6) In conformity with the recognition by the United Nations General Assembly of health as an integral part of development, the human energy generated by improved health should be channelled into sustaining economic and social development, and economic and social development should be harnessed to improve the health of people. Health for All by the Year 2000 cannot be achieved by the health sector alone. The co-ordinated efforts will be required of other social and economic sectors concerned with national and community development, in particular agriculture, animal husbandry, food, industry, education, housing, public works and communications. Ministries of Health or analogous authorities have an important role in stimulating and co-ordinating such co-ordinated action for health.

(7) Fuller and better use must be made of the world's resources to promote health and development, and thus help to promote world peace. The strategy will therefore comply with the principles of the New International Economic Order and will contribute to its establishment and maintenance once it is established. Technical and economic co-operation among countries is crucial to the attainment of health for all since it will provide the mutual support required for the development and implementation of the strategy. It is the best expression of international health solidarity that guarantees national self-reliance.

Source: World Health Organization (1981)

References and further reading

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3 Mortality

Paradoxically, the most commonly used and most useful indicator of a population's health is its death rate. Governments all over the world use information on mortality to plan and provide health services on the basis that services should be directed at health problem areas, and that death data highlight the worst health problems in a population. Mortality data are also by far the most widely available indicator of health problems.

The first Australian colony to adopt compulsory registration of deaths was Tasmania in 1839. By 1879, all colonies were also collecting information on causes of death. This means it is possible to trace historical trends on Australian mortality for more than 100 years.

3.1 Common measures of mortality

A common measure of mortality is the crude death rate which measures the number of deaths per thousand population during a specific time. This rate has fallen from 12 deaths per thousand population at the beginning of the century to 10 in 1921 and to about seven in 1986. However, the crude death rate is strongly influenced by the age structure of a population. More accurate measures of mortality that are independent of the different age

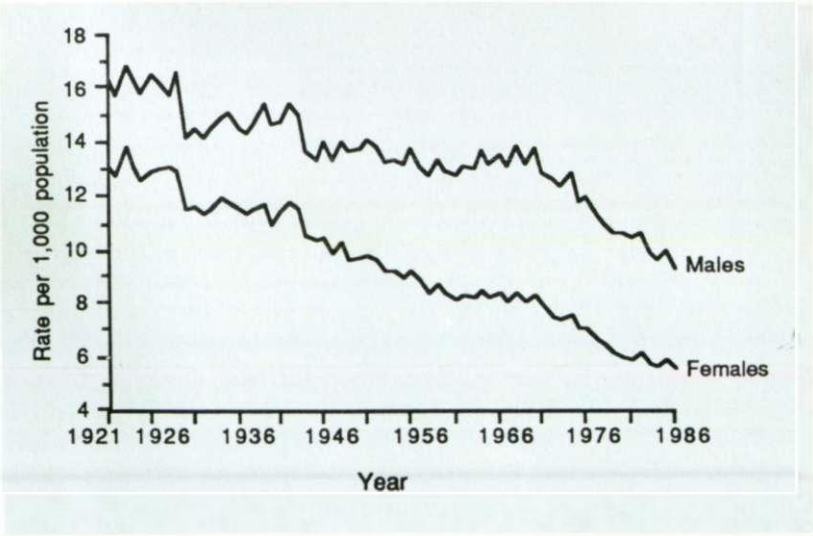
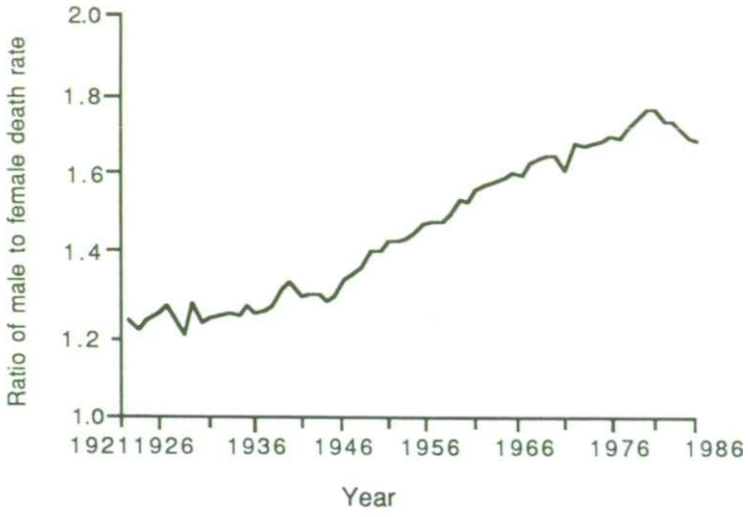


Figure 3.1: Standardised death rates, 1921 to 1986
Source: Lee and Smith, AIH (1988)

Figure 3.2: Sex ratio of age-standardised death rates, 1921 to 1986

Source: Lee and Smith, AIH (1988)



structures of populations at different points in time are the age standardised death rates and the expectation of life.

In 1921, the male and female death rates adjusted for age (standardised to the 1986 total Australian population) were 16.3 and 13.1 deaths per thousand male and female population. In 1986, the male and female rates had fallen to 9.3 and 5.5 deaths per thousand population respectively (Figure 3.1).

The mortality experience of Australia in the past 100 years can be divided into three phases. During the first phase—from the late 19th century to World War II—death rates declined steadily for both sexes. This was due mostly to the decline in deaths from infectious and parasitic diseases, especially among infants and young children. During the second phase—from the end of the war to the late 1960s—death rates declined very slowly for females while the standardised death rates for males tended to show small increases. By the mid-1960s and early 1970s, it was generally believed that mortality trends had reached bottom levels and that further gains would be minimal. The male standardised death rates recorded in 1950 remained unchanged in 1970 at 13.7 deaths per thousand population. The third phase began in the early 1970s and continues to this day with substantial declines in death rates. While the reduction in mortality before World War II was concentrated mostly among the young, the third phase is characterised by reductions in the death rates for all ages. The reasons for this major new development are not yet fully understood, but are probably related to changes in past and current lifestyle, which would have reduced the impact of known risk factors such as smoking and high cholesterol diets, and also to advances in medical technology.

Since 1921, the decline in mortality has been more rapid for females who generally experience lower death rates than males from birth onward. Despite the substantial drops in both the absolute male and female rates, the sex ratio at death increased steadily from 1.24 in 1921 to a peak of 1.77 in 1980, followed by a small decline (Figure 3.2). It appears that the reduction in the mortality gap between the sexes during the 1980s is due to a substantial decline in motor-vehicle accident deaths among young men aged between 15 and 25 years, decline in deaths from ischemic heart disease among men in their fifties and a slight increase in deaths from lung cancer among women of the same age group.

These declines in death rates are reflected also by studies of life expectancy, the years of life remaining to a person if present patterns of mortality do not change. This has improved steadily in Australia, with life expectancy at birth for females increasing from 63 to 79 years between 1921 and 1986, and for males from 59 to 73 years (Figure 3.3).

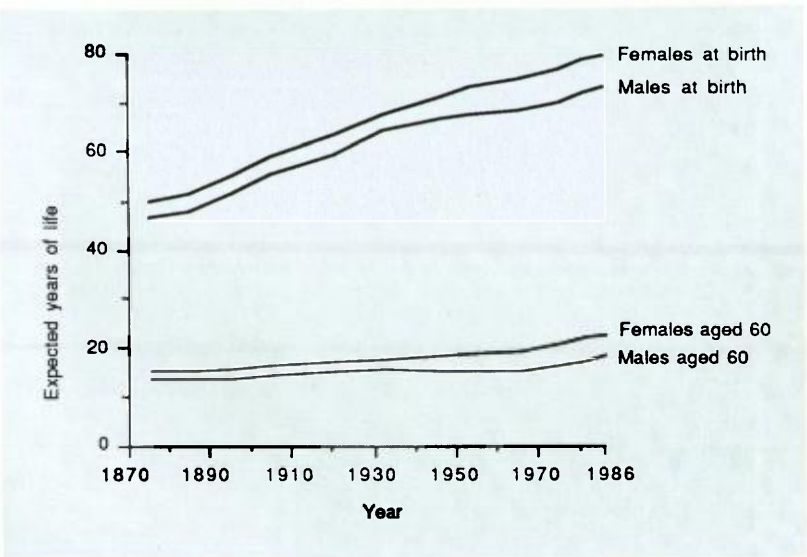


Figure 3.3: Life expectancy at birth and at age 60, 1871–81 to 1986

Sources: For period 1870–81 to 1975–77: ESCAP (1982)
For years 1978 to 1986: ABS, Cat. No. 3302.0

The widespread improvement in death rates since the early 1970s has also led to significant increases in life expectancy at the older ages. Between 1921 and 1970–72, the life expectancy of men aged 60 increased only marginally from 15.1 years in 1921 to 15.4 years, representing an improvement of 0.3 of a year in almost 50 years. By contrast, in the 15 years from the early 1970s to 1986, the expectation of life at age 60 for males increased by 2.6 years to 18 years.

For women aged 60, there was an improvement of 2.3 years, from 17.2 years in 1921 to 19.5 years in the early 1970s. In the

15 years to 1986, life expectancy of women at 60 increased by 3.5 years to 23 years.

Australians have a high life expectancy at birth for both sexes when compared with people in other countries. According to the United Nations Children's Fund (UNICEF 1988), Australian life expectancy at birth is similar to that of most developed countries although it lags slightly behind Japan, Sweden and Switzerland.

Mortality can be measured also by studying the number of potential years of life lost from premature death among the population. For example, in 1986 a man aged 35 could expect to live another 40 years. If he should die at 35 in a car accident, then about 40 years of life would have been lost needlessly. However, the calculation of the potential years of life lost needs to take account of the competing risk of death from other causes. Hence, a person saved from a car accident would then be at risk of dying from other causes. The result would be that the actual number of years of life lost would be somewhat less than the nominal life expectancy at death.

Although not all premature deaths are necessarily preventable, a large proportion should be. Changes in attitudes to risk-taking behaviour should reduce the level of accidents. Attempts to reduce exposure to known risk factors such as smoking (both active and passive), over-consumption of alcohol and saturated fats, or environmental factors such as pollution should lead to a reduction of premature deaths due to chronic diseases.

In 1986, it is estimated that diseases of the circulatory system accounted for 380 000 years of life lost for males and 278 000 for females (Figure 3.4). The corresponding figures for premature deaths due to cancer were 235 000 for males and 199 000 for females. Deaths due to injury and poisoning accounted for 206 000 years of life lost for males and 73 000 for females.

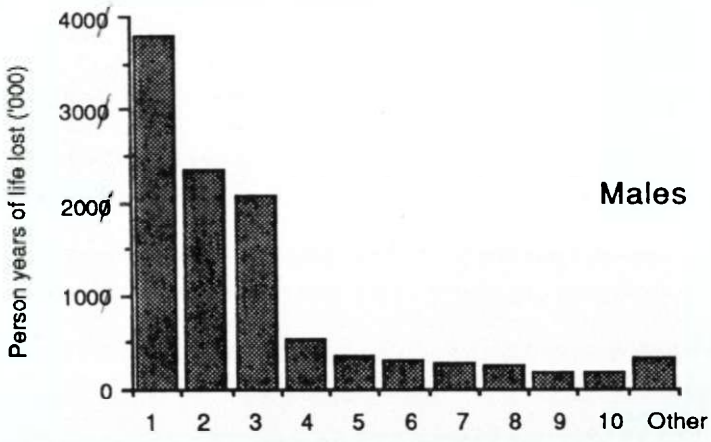
3.2 Major causes of death

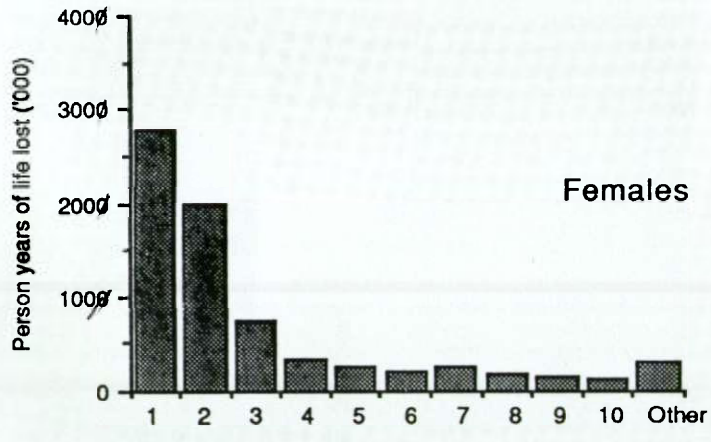
The following analysis of causes of death draws on the results of an ongoing AIH project to estimate trends in causes of death since 1921 (Taylor, AIH, 1988). The analysis has two parts. The first part involves an examination of the trends in the major causes of death between 1950 and 1986. This part involves adjusting recorded deaths to take account of the different Revisions of the International Classification of Diseases in use over the period. The second focuses in more detail on changes since 1970, the year of onset of the third phase of Australia's mortality transition. There have been no changes to the ICD since 1970. The death rates were in all cases standardised to the total 1986 Australian population, making direct comparisons of both sexes and all years possible.

Figure 3.4: Potential years of life lost from various causes, 1986

(a) Ninth Revision of the International Classification of Diseases

Source: Based on ABS data





Causes of death: ICD9(a) Chapter headings

1 Diseases of the circulatory system (VII)
2 Cancers (II)
3 Injury and poisoning (XVII)
4 Diseases of the respiratory system (VIII)
5 Certain conditions originating in the perinatal period (XV)
6 Diseases of the digestive system (IX)
7 Congenital anomalies (XIV)
8 Symptons, signs and ill-defined conditions (XVI)
9 Endocrine, nutritional and metabolic diseases and immunity disorders (III)
10 Diseases of the nervous system and sense organs (VI)

In 1950, the total male death rate was 1367 per 100 000. This first declined and then rose again to reach 1384 in 1970. Since 1970, it has been declining at an average annual rate of 2.3%, to the 1986 level of 940 per 100 000. A similar picture, at a lower level, applies to females. The rate fell from 968 per 100 000 in 1950 to 845 per 100 000 in 1970 before falling again to 554 per 100 000 in 1986, representing a decline since 1970 of 2.5% a year (Table 3.A).

Table 3.A Age specific and age standardised mortality rates from all causes by sex, 1970 and 1986

Source: ABS, Deaths Australia 1986, Cat. No. 3302.0

(per 100 000 population)

Age	*Males*			*Females*		
	1970	*1986*	*% annual change (a)*	*1970*	*1986*	*% annual change (a)*
0–24	191	111	−3.2%	115	62	−3.6%
25–34	149	132	−0.7%	80	53	−2.4%
35–44	304	181	−3.1%	199	102	−3.9%
45–54	816	479	−3.1%	464	281	−3.0%
55–64	2 207	1 415	−2.6%	1 112	727	−2.5%
65–74	5 440	3 583	−2.5%	2 973	1 959	−2.5%
75+	14 094	10 008	−2.0%	10 225	7 492	−1.8%
All ages (b)	1 384	929	−2.3%	845	554	−2.5%

(a) Exponential rate
(b) Standardised to the 1986 Australian population

In 1950, the major causes of death were diseases of the circulatory system (mostly heart and cerebrovascular disease), cancers (mostly of the digestive and respiratory systems and breast), injuries and poisonings (mostly motor vehicle accidents) and diseases of the respiratory system (Figure 3.5).

In 1986, the major causes of death remained basically the same, but all except cancer had declined. Of the 114 981 deaths registered in Australia in 1986, about 73% were due to diseases of the circulatory system (particularly ischemic heart disease and cerebrovascular disease) and cancers. As these diseases are more prevalent at older ages, they can be expected to continue to be major causes of death.

This is not to say that preventive measures will not change this situation. Already changes in lifestyle and to a lesser extent advances in medical technology have been responsible for reducing premature death from some of these diseases of older ages, especially from the diseases of the circulatory system.

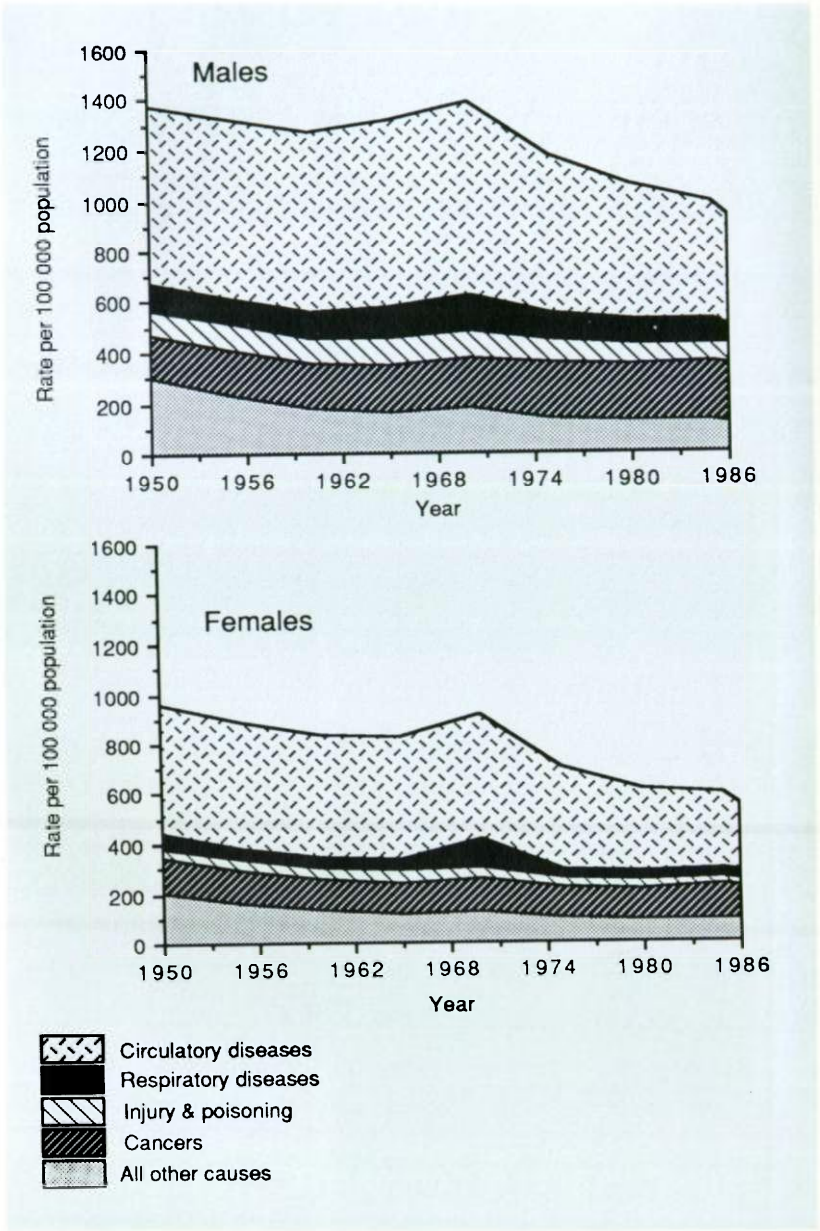
Deaths from diseases of the circulatory system

In 1950, the death rate for diseases of the circulatory system among the male population was 687 per 100 000 (Figure 3.6). The rate increased slowly during the 1950s and 1960s, reaching a peak of 762 deaths per 100 000 in 1970. It has since been declining rapidly and reached 433 deaths per 100 000 in 1986, representing a decline of more than 3% a year since 1970. Among the female population, the death rate declined only slightly between

Figure: 3.5: Standardised death rates for all major causes, 1950 to 1986

Note: Data plotted every fifth year from 1950 to 1985

Source: Based on ABS data



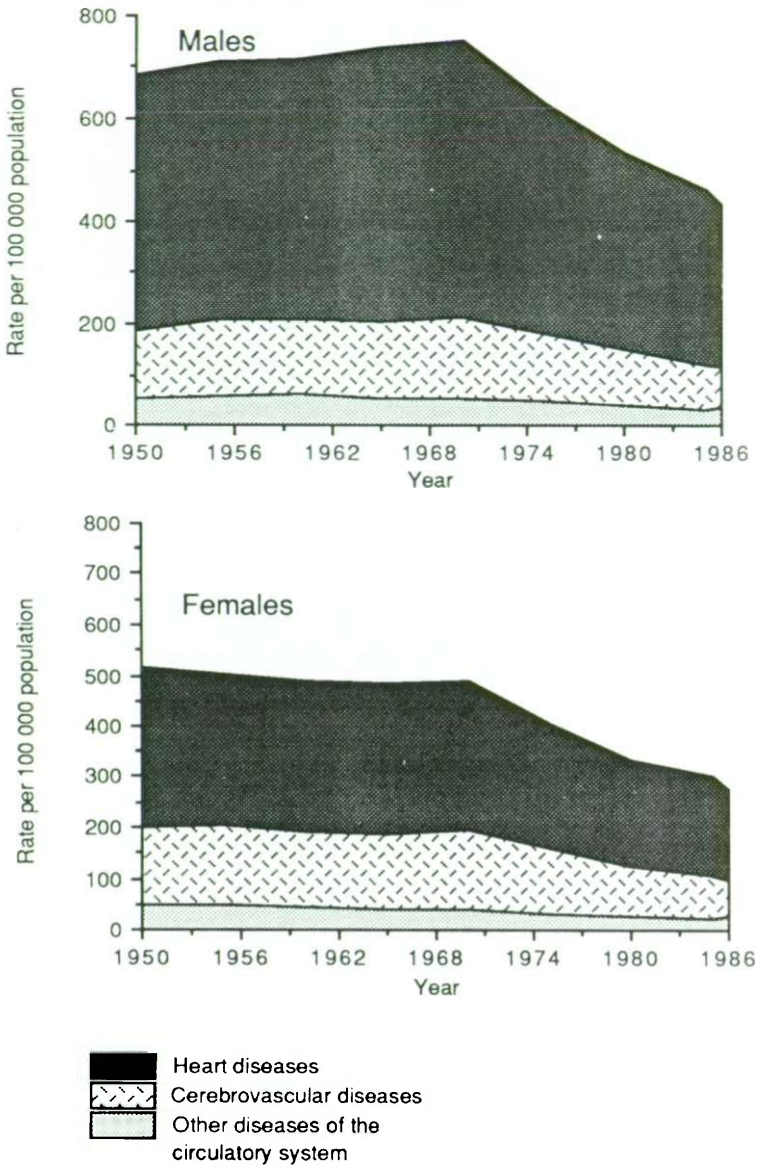
1950 and 1970, from 514 deaths per 100 000 in 1950 to 495 per 100 000 in 1970, but then also fell rapidly to 274 deaths per 100 000 in 1986, again representing a decline of more than 3% a year (Table 3.B).The declines since 1970 have been in all age groups, but have been especially marked between ages 35 and 54. The majority of circulatory system deaths were from heart and cerebrovascular disease.

The decline in deaths due to these diseases has been the major

Figure 3.6: Standardised death rates for diseases of the circulatory system, 1950 to 1986

Note: Data plotted every fifth year from 1950 to 1985

Source: Based on ABS data



factor in an increase in life expectancy among the older population in Australia since the 1970s. For males, the total improvement in life expectancy at birth was 3.4 years between 1971 and 1981. The decline in ischemic heart disease alone has been credited with contributing 1.2 years (35%) to the total improvement. For females there was a total gain in life expectancy at birth of 3.9 years, with 1.0 year (26%) attributed to the decline in ischemic heart disease (Pollard 1987).

Table 3.B Age specific and age standardised mortality rates for diseases of the circulatory system by sex, 1970 and 1986
Source: ABS, Deaths Australia 1986, Cat. No. 3302.0

(per 100 000 population)

Age	*Males*			*Females*		
	1970	*1986*	*% annual change (a)*	*1970*	*1986*	*% annual change (a)*
0–24	3	3	—	2	2	—
25–34	16	10	−2.8	12	6	−4.1
35–44	98	47	−4.3	54	15	−7.5
45–54	396	191	−4.3	164	68	−7.5
55–64	1 236	635	−3.9	531	248	−4.5
65–74	3 202	1 729	−3.6	1 863	933	−4.1
75+	8 909	5 450	−2.9	7 275	4 784	−2.5
All ages (b)	762	433	−3.3	495	274	−3.5

(a) Exponential rate.
(b) Standardised to the 1986 total Australian population.

The relationship between the decline in diseases of the circulatory system, especially ischemic heart disease, and the trends in three risk factors for that disease—namely cigarette smoking, cholesterol levels and systolic blood pressure—have been documented for 1966 to 1983 (Dobson 1987). It was found that death rates for ischemic heart disease fell by about 40% and reductions in the three risk factors alone were responsible for about 75% of the decline in deaths among women in their fifties and for 40% to 50% of the decline in men in their forties.

Deaths from cancer

Cancer, the second biggest killer of Australians, is not a single disease but rather a collection of different diseases which have an important common feature—the uncontrolled growth of body cells. Different cancers have different causes, although some have causes in common, and they require different methods of diagnosis and treatment for the many varied sites that may be affected.

Between 1950 and 1986, the standardised death rate for malignant cancers increased significantly for males, from 167 to 227 deaths per 100 000. For females, there was no change in the

Table 3.C Age specific and age standardised mortality rates for cancer, 1970 and 1986
Source: ABS, Deaths Australia 1986, Cat. No. 3302.0

(per 100 000 population)

Age	***Males***			*Females*		
	1970	*1986*	*% annual change (a)*	*1970*	*1986*	*% annual change (a)*
0–24	4	6	2.3%	7	4	−3.3%
25–34	13	13	—	17	14	−1.1%
35–44	38	37	−0.2%	60	51	−1.0%
45–54	141	147	0.2%	154	145	−0.1%
55–64	426	491	0.8%	323	329	0.1%
65–74	956	1 109	0.9%	555	612	0.6%
75+	1 748	2 114	1.1%	1 049	1 093	0.2%
All ages (b)	198	227	1.0%	137	137	—

(a) Exponential rate
(b) Standardised to the 1986 total Australian population

standardised death rates, which were 137 deaths per 100 000 females population in 1950, 1970 and 1986 (Figure 3.7). Between 1970 and 1986, the male death rate for cancer increased by 1% a year (Table 3.C). The age specific rates generally suggest cancer deaths are declining at younger ages but getting worse above age 45.

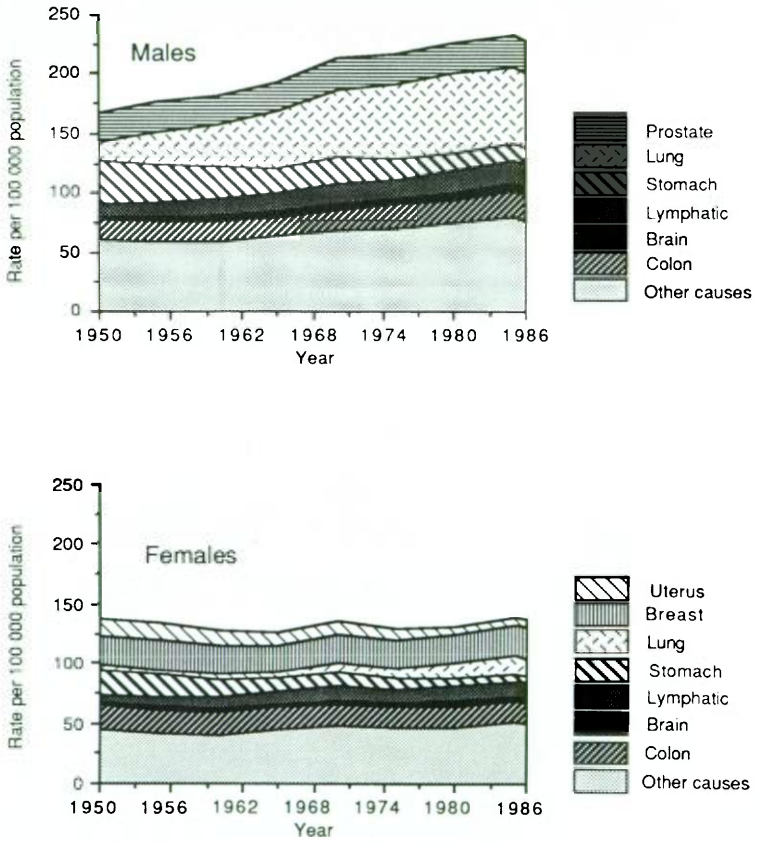
The major malignant cancers causing death among males are cancer of the trachea, bronchus and lung, cancer of the prostate and cancer of the colon. The major types of cancer causing death among females were cancer of the breast, cancer of the colon and cancer of the trachea, bronchus and lung.

Lung cancer among men has increased 25-fold since 1930 to become the predominant cause of cancer deaths (Giles, Armstrong and Smith, AACR and AIH, 1987). Between 1950 and 1986, deaths from lung cancer among males increased from 17 to 62 per 100 000 and among females from 4 to 15 deaths per 100 000. During this time lung cancer also increased as a percentage of all

Figure 3.7: Standardised death rates for cancer, 1950 to 1986

Note: Data plotted every fifth year from 1950 to 1985

Source: Based on ABS data



cancer deaths, from 10% to 27% for males and from 3% to 11% for females.

There has been some decline in deaths from cancers of some specific sites. The standardised death rate for stomach cancer, for example, declined from 37 to 13 deaths per 100 000 males and from 20 to 5 deaths per 100 000 females between 1950 and 1986. Deaths from cancer of the cervix and pediatric leukemia have also declined in recent decades.

It is estimated that one in three cancer deaths is caused by tobacco use and therefore could be prevented (Giles, Armstrong and Smith, AACR and AIH, 1987). A further third of cancer deaths could be related to diet, although this is less well established—the factors responsible have not been firmly identified and the scope for preventing premature deaths through changes in diet is less certain.

Deaths from injuries and poisonings

The category of deaths ascribed to 'injuries and poisonings' includes a variety of causes that can also be described as all external causes of death. It includes accidents, murders, suicides, drug overdoses and burns.

In 1950, the standardised death rates for all these causes were 103 and 36 deaths per 100 000 male and female populations respectively. During the 1950s and the 1960s, these rates remained relatively constant for males, but for females increased steadily, with the rates in 1970 being 106 per 100 000 and 46 per 100 000 for females. They have since declined to 71 and 28 deaths per 100 000 male and female populations in 1986 (Figure 3.8). This represents an annual decline since 1970 of 2.4% a year for males and 2.9% a year for females. The decline occurred at all ages, but was significantly lower between ages 15 and 34 (Table 3.D).

The male death rate for motor-vehicle accidents has declined from 39 per 100 000 in 1950 to 28 per 100 000 in 1986.

Table 3.D Age specific and age standardised mortality rates for injuries and poisonings by sex, 1970 and 1986

Source: ABS, Deaths Australia 1986 Cat. No. 3302.0

(per 100 000 population)

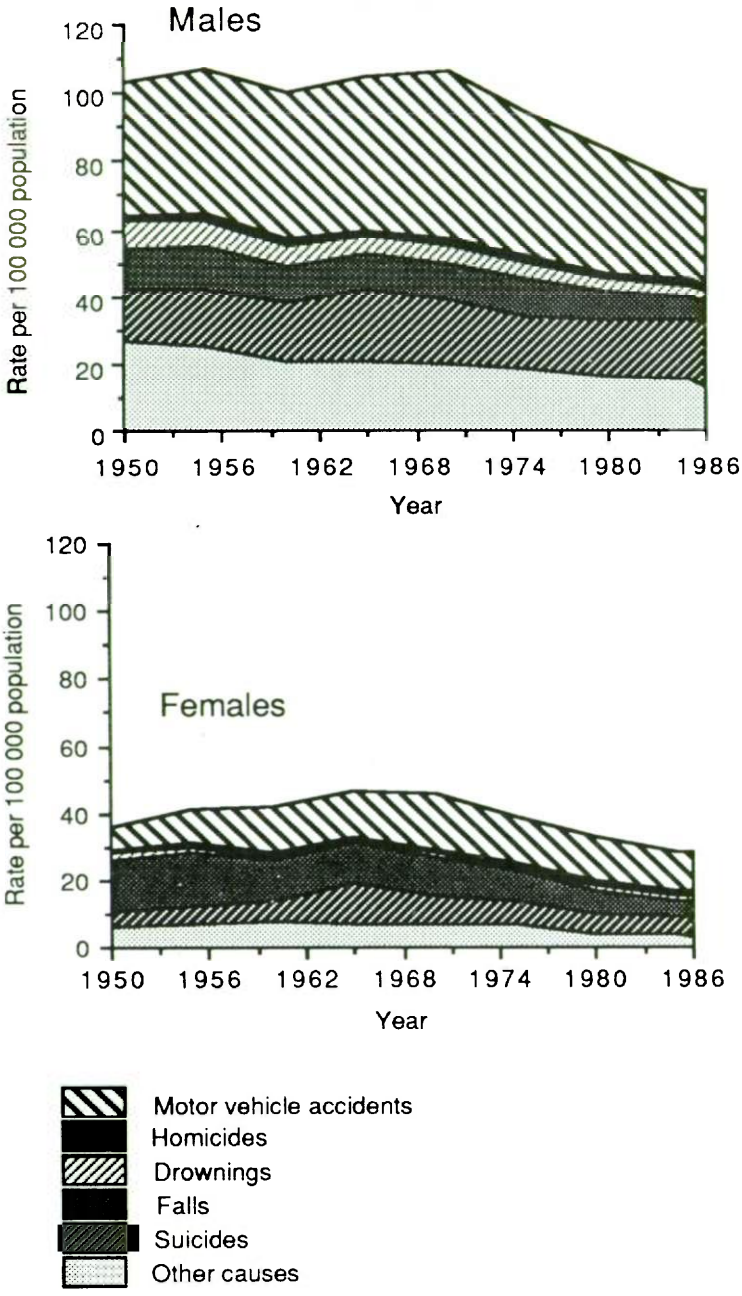
Age	*Males*			*Females*		
	1970	*1986*	*% annual change (a)*	*1970*	*1986*	*% annual change (a)*
0-14	31	18	−3.2%	21	11	−3.8%
15-24	136	101	−1.8%	34	30	−0.7%
25-34	94	84	−0.7%	25	23	−0.5%
35-44	101	63	−2.8%	32	19	−3.1%
45-54	116	66	−3.3%	45	25	−3.5%
55-64	121	66	−3.6%	54	27	−4.1%
65-74	143	88	−2.9%	79	43	−3.6%
75+	351	196	−3.4%	309	153	−4.1%
All ages (b)	106	71	−2.4%	46	28	−2.9%

(a) Exponential rate
(b) Standardised to the 1986 total Australian population

Figure 3.8: Standardised death rates for injury and poisoning, 1950 to 1986

Note: Data plotted every fifth year from 1950 to 1985

Source: Based on ABS data



However, the proportion of deaths resulting from motor-vehicle accidents has remained unchanged at about 40% of all external causes for males in 1950 and in 1986. By contrast, the rate for females increased from 7 deaths per 100 000 in 1950 to 11 per 100 000 in 1986. Because of the decline in the overall death rate for external causes, the proportion of deaths from motor-vehicle accidents has increased from 18% of deaths from external causes in 1950 to 37% in 1986.

According to the Federal Office of Road Safety (1988), there was an average of eight deaths a day from road accidents in 1987. This premature loss of life and damage to property costs the Australian community about $5.7 billion a year. Based on 1985 estimates, each fatality was assessed at an average of $300 000 representing a community cost of $881 million for that year.

Generally, older people were at higher risk of death from external causes. In 1986, the death rate of 196 per 100 000 for men aged 75 years and over was almost twice the rate of 101 per 100 000 for men aged between 15 and 24 years. The risk of death from injuries for women aged 75 and over was more than five times higher than for any other age group of females under 65 years. Deaths from external causes also accounted for a relatively large proportion of the deaths of young children (mostly from drownings and motor-vehicle accidents) and adolescents and young adults (mostly from motor-vehicle accidents). In 1970, external causes accounted for 22 deaths per 100 000 for children aged between one and 14 years and for 85 per 100 000 for adolescents and younger adults aged between 15 and 24.

During the 1970s and 1980s, various levels of government introduced a number of measures aimed at reducing accidental deaths. However, the measures, which include standards for toys and the compulsory fencing-off of swimming pools, differ among States and Territories and are not uniformly applied around Australia. A campaign to upgrade the quality of roads and highways, more stringent control on roadworthiness of vehicles and the issue of driving permits, lower speed limits, and legislation for compulsory wearing of seat-belts and to control drink-driving have helped reduce motor-vehicle accidents and fatalities, especially among young adults.

Deaths from diseases of the respiratory system

Between 1950 and 1986, the standardised death rate for diseases of the respiratory system fell for males from 107 to 76 per 100 000 and for females from 63 to 31 per 100 000 (Figure 3.9). While the female rates fell consistently during most of that period, the male rate experienced a major increase during the 1960s, rising to 143 per 100 000 in 1970, before registering substantial declines during the 1970s and 1980s (Table 3.E). The proportion

Figure 3.9: Standardised death rates for diseases of the respiratory system, 1950 to 1986

Note: Data plotted every fifth year from 1950 to 1986, except for 1968 to 1972

Source: Based on ABS data

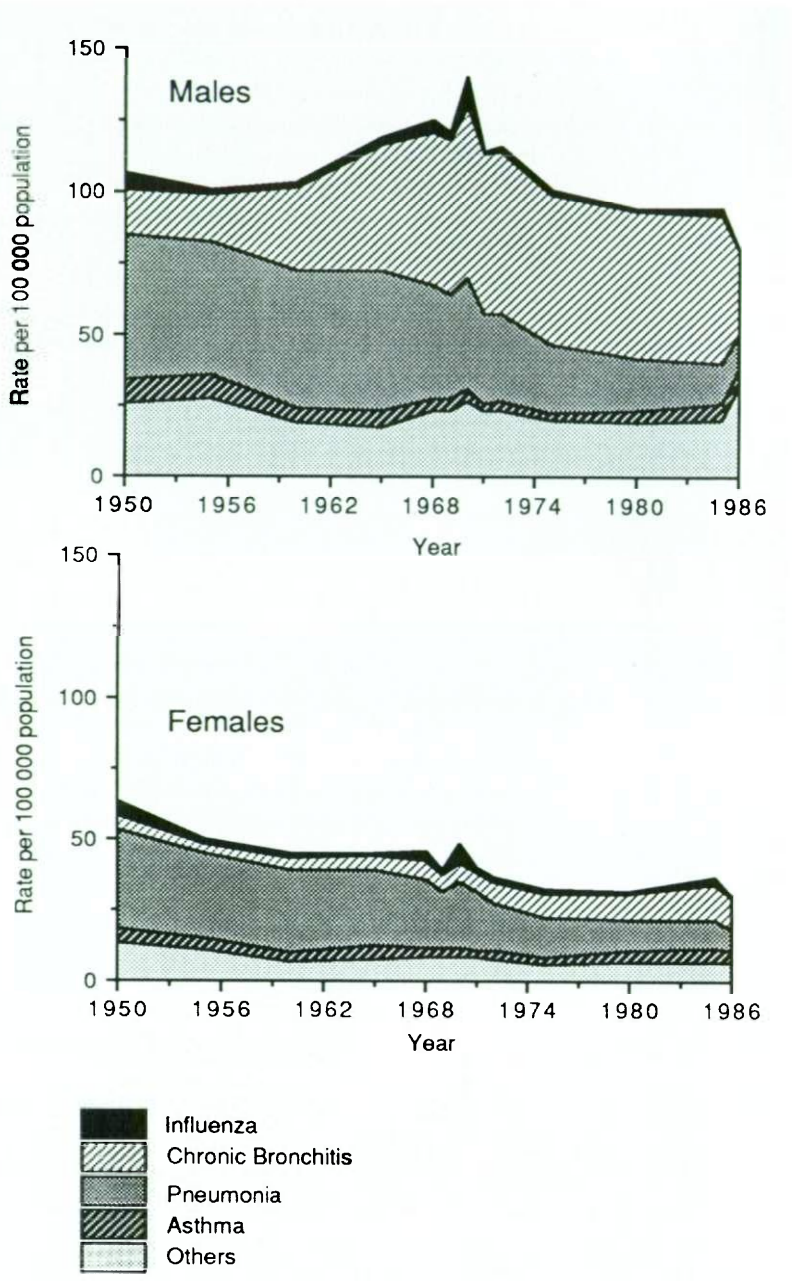


Table 3.E Age specific and age standardised mortality rates for diseases of the respiratory system by sex, 1970 and 1986

Source: ABS, Deaths Australia 1986, Cat. No. 3302.0

(per 100 000 population)

Age	*Males*			*Females*		
	1970	*1986*	*% annual change (a)*	*1970*	*1986*	*% annual change (a)*
0-24	15	3	-9.5%	11	2	-10.0
25-34	7	2	-7.4%	6	2	-6.5
35-44	15	6	-5.4%	13	4	-6.9
45-54	53	17	-6.7%	25	12	-4.3
55-64	184	83	-4.7%	56	41	-1.8
65-74	597	328	-3.5%	143	124	-0.8
75+	1 683	1 082	-2.6%	606	405	-2.4
All ages (b)	143	76	-3.7%	49	31	-2.7

(a) Exponential rate
(b) Standardised to the 1986 Australian population

of deaths from pneumonia declined from 47% of all male deaths from diseases of the respiratory system in 1950 to 14% in 1986. A similar pattern was observed for females—from 54% in 1950 to 28% in 1986. The rise in male deaths in 1970, and the slowing of the fall in female deaths, were related to an influenza epidemic in 1970.

The changes between 1970 and 1986 represent an annual rate of decline of 3.7% for males and 2.7% for females (Table 3.F). There was a decline for all age groups for both sexes, with especially steep falls at young ages. The decline for women aged 65 to 74 years was much less than for all other age groups. For the whole period 1950 to 1986 the overall declines were substantially lower—just under 1% a year for males and just under 2% a year for females.

After a slight fall in death rates for asthma during the 1950s and 1960s, there appears to have been a moderate increase during the 1970s and 1980s. The increase is not uniform across all ages and the older age groups and the 30–39 year group show the greatest increases (NH&MRC 1988). There may have been an increase at younger ages, but the numbers of deaths are too small to allow firm conclusions to be drawn. The increase among 30–39 year-olds seems to be a real one, but the greater increase in asthma deaths among those 60 and over may be due, at least partly, to changes in doctors' recording of the cause of death on the registration certificate.

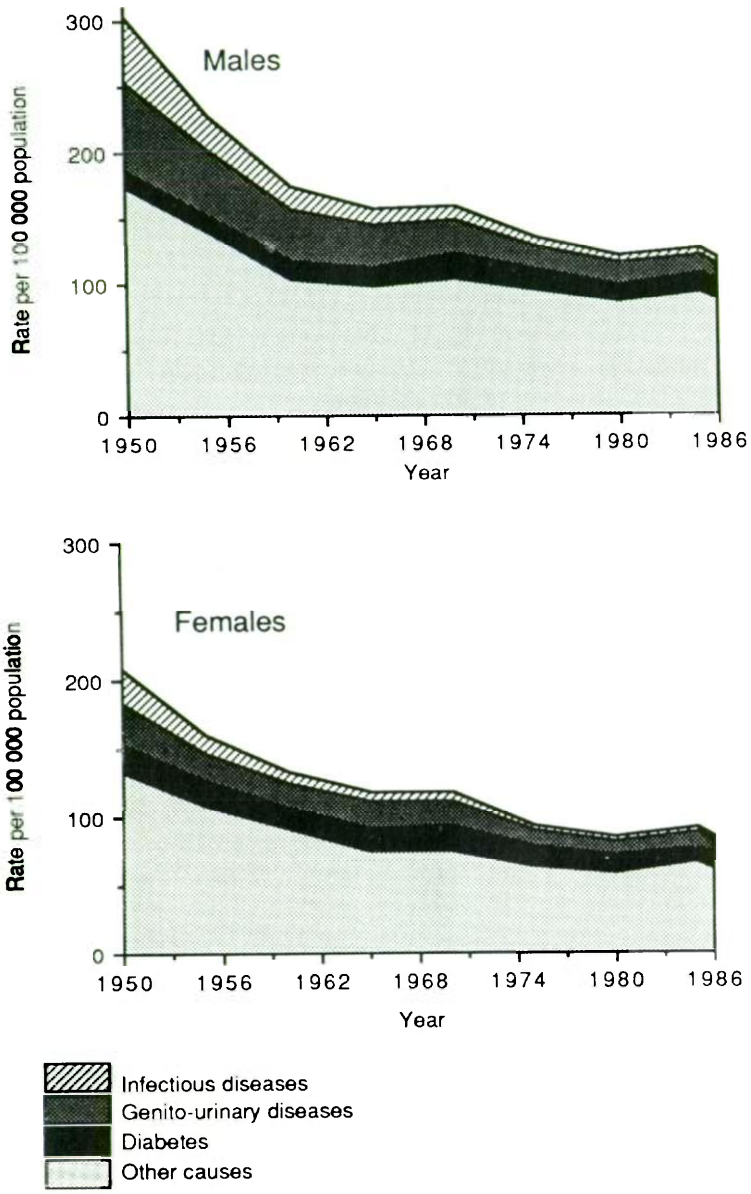
All other causes of death

Between 1950 and 1986, the standardised death rates for all remaining causes declined from 303 to 110 per 100 000 for males and from 234 to 85 per 100 000 for females (Figure 3.10). Among the major causes of death in this category in 1986 were diabetes and diseases of the genito-urinary system. The standardised death rate for males from infectious and parasitic diseases fell from 50 per 100 000 in 1950 to 5 per 100 000 in 1986. The female rate fell from 25 to 3 per 100 000 in the same period. The main

Figure 3.10: Standardised death rates for all other causes, 1950 to 1986

Note: Data plotted every fifth year from 1950 to 1985

Source: Based on ABS data



reason for this spectacular decline was a fall in the death rate for tuberculosis.

Between 1970 and 1986 the standardised death rates for all other causes of death fell at an annual rate of 2.2% for males and 2.0% for females (Table 3.F). There was a decline at all ages except for males 25–34 and females 75 and over.

Table 3.F Age specific standarised mortality rates for all other causes of death by sex, 1970 and 1986

Source: ABS, Deaths Australia 1986, Cat. No. 3022.0

(per 100 000 population)

Age	*Males*			*Females*		
	1970	*1986*	*% annual change (a)*	*1970*	*1986*	*% annual change (a)*
0-24	99	47	-4.4%	69	35	-4.0%
25-34	18	22	1.2%	20	9	-4.7%
35-44	51	28	-3.5%	40	13	-6.6%
45-54	111	59	-3.7	76	31	-5.3%
55-64	240	143	-3.0	147	84	-3.1
65-74	541	336	-2.8	334	253	-1.6
75+	1 402	1184	-1.0	985	1 075	0.5
All ages *(b)*	174	119	-2.2	119	85	-2.0

(a) Exponential rate
(b) Standardised to the 1986 total Australian population

3.3 Age at death

Death rates vary with age, being lowest between five and 15 years and highest for older age groups (Figure 3.11). The only exception is for infants where the death rate is higher than for any other age group under 55 years. There was a general decline in death rates for all ages between 1951 and 1986 (Figure 3.12). Before the 1970s, gains in life expectancy were due almost entirely to declines in infant mortality. However, in the past 15 years, the gains in life expectancy have been due to the declines in death rates for all age groups.

The following section presents a snapshot for different age groups of the major causes of death. Except for infants, it focuses on the 1986 death rates in Australia for six broad age groups. The death rates for each group, except for the infants, were standardised to the 1986 total Australian population. Because the infant mortality rate is used as a sensitive indicator of socioeconomic and health conditions in a society, a review of the long-term trends and international comparisons is presented.

Figure 3.11: Age specific death rates(a), 1986

(a) Deaths per 1000 population of each age group and sex

Source: ABS, Deaths Australia 1986, Cat. No. 3302.0

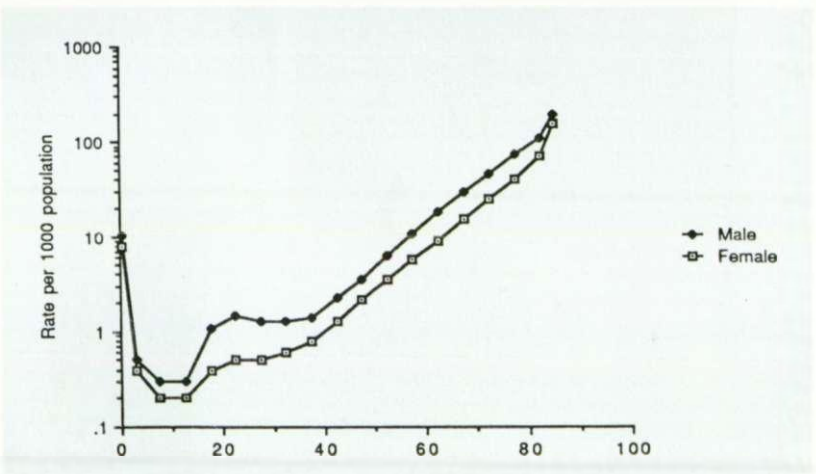


Figure 3.12a: Male age specific death rates, 1951 to 1986
Source: ABS, Deaths Australia 1986, Cat. No. 3302.0

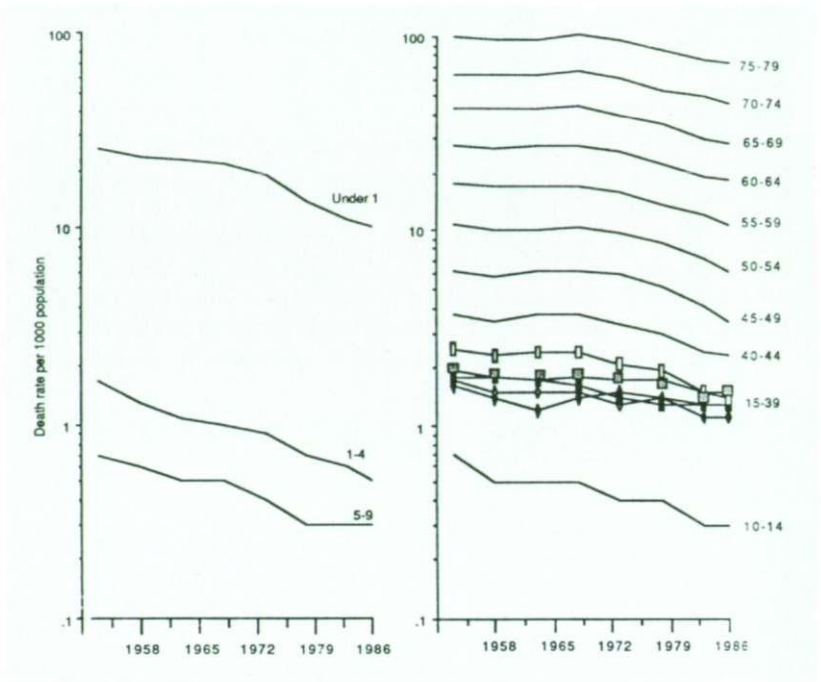
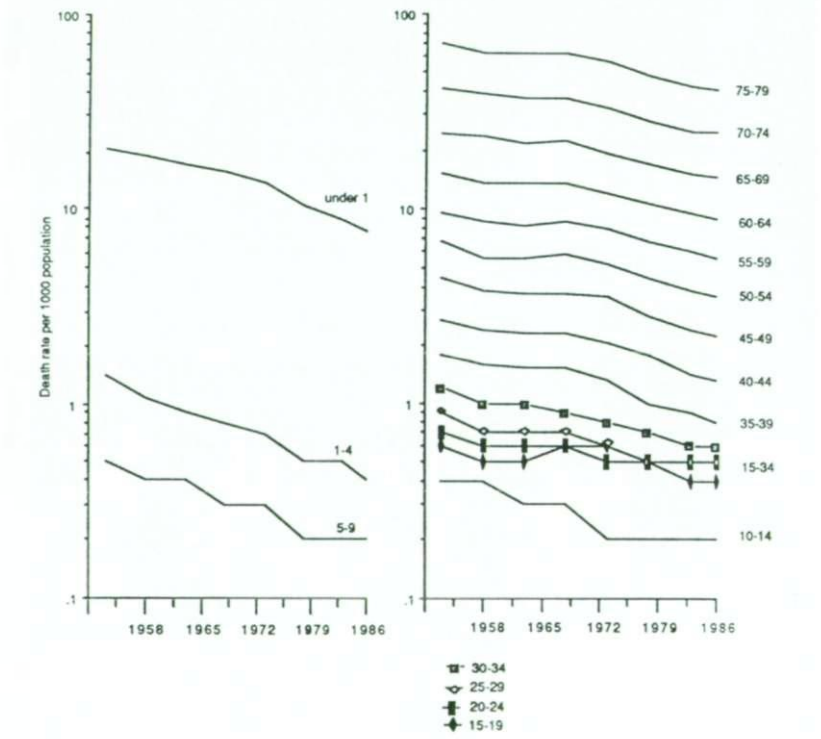


Figure 3.12b: Female age specific death rates, 1951 to 1986
Source: ABS, Deaths Australia 1986, Cat. No. 3302.0



Infants (birth to one year)

The infant mortality rate, which measures deaths in the first year of life, was just under 60 deaths per thousand live births in the early 1920s, with a male rate of 64.2 and a female rate of 51.2 (Figure 3.13). These rates have declined steadily to reach 10.0 male deaths and 7.7 female deaths per thousand live births in 1986. Although the absolute difference between the rates for the two sexes has declined from 13.0 to 2.3, the relative difference between the two rates has not been reduced. Between 1921 and 1925, the male rate was 25% greater than the female rate. In 1986 it was 30% higher.

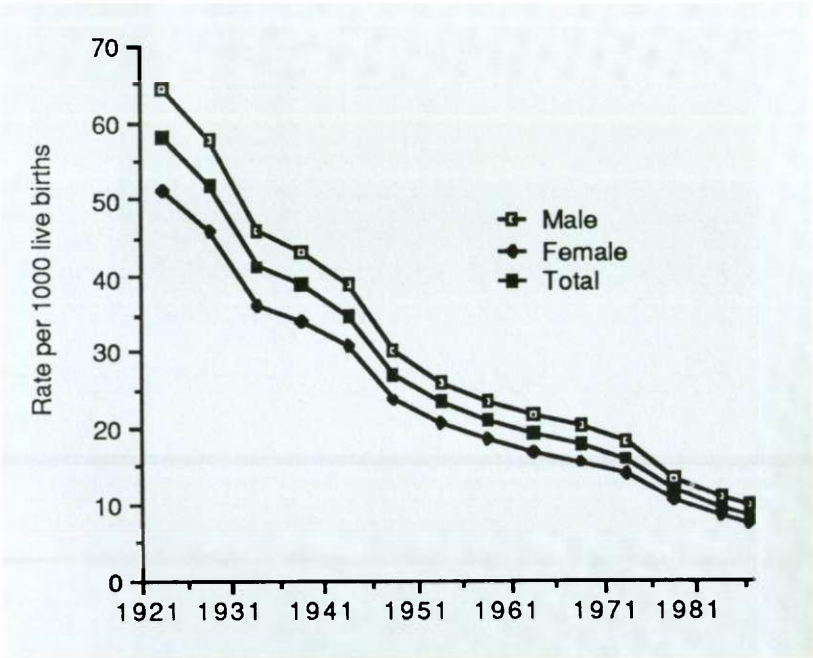
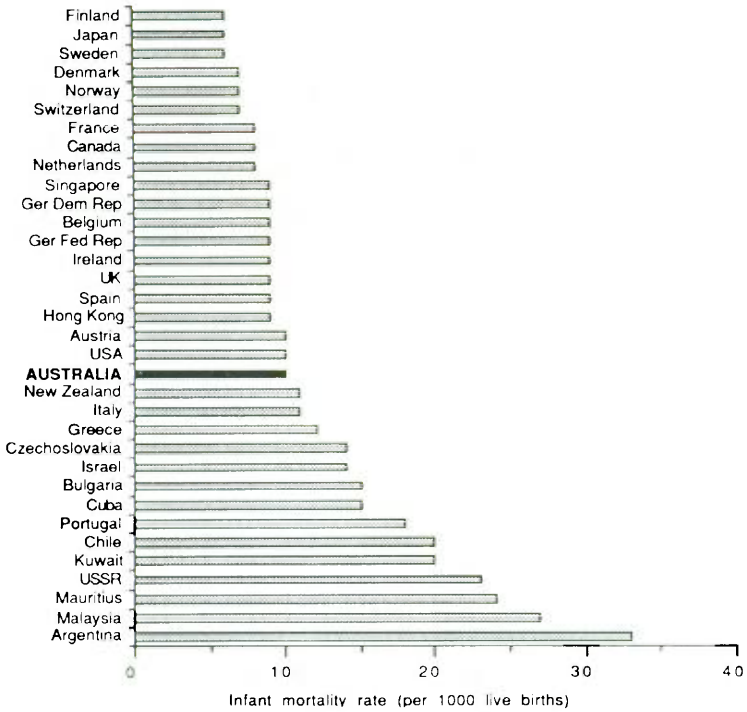


Figure 3.13: Australian infant mortality rates, 1921-25 to 1986
Source: ABS, Deaths Australia 1986, Cat. No. 3302.0

Despite the substantial decline in Australia's infant mortality, it does not compare favourably with other equally developed countries, among which Australia ranks 18th. Japan, Singapore and most European countries have lower rates (Figure 3.14). In the 1920s, Australia's infant mortality rate of about 60 per thousand live births was about half of the Japanese rate of 140 per thousand. By contrast, the Japanese rate in 1986 was six deaths per thousand live births compared with the Australian rate of nine.

The infant mortality rate is usually divided into two further rates: one covering the first four weeks of life (neonatal) and the other covering the rest of the infancy to the end of the first year of life (postneonatal). Neonatal deaths result mostly from the circumstances of the confinement or to prenatal conditions resulting in disabilities existing at birth, such as congenital malformations, birth injuries and prematurity. The major causes of postneonatal

Figure 3.14: Infant mortality rates for various countries, 1986
Source: UNICEF (1988)



deaths are related to infections, respiratory disorders, accidents and, in the past 20 to 30 years, to an increase in deaths ascribed to sudden infant death syndrome (cot deaths).

Infant mortality is usually analysed separately for these two periods.

From 1921 to 1925, the two rates were roughly equal at about 28 per thousand live births (Figure 3.15). By 1941–1945, the neonatal rate had fallen only slightly from 29 to 24 per thousand live births while the postneonatal rate fell by more than half from 28 to 11 per thousand (d'Espaignet and Stevenson, in press).

The decline in infant mortality rates in Australia from the early 20th century until at least the late 1960s was due mainly to reductions in the postneonatal mortality rate. This has been largely attributed to improvements in the physical and social infrastructure—better food, housing and sanitation, maternal and child health services, education and so on. In many developing countries, where these basic services are not adequately provided because of the lack of economic development, the postneonatal mortality rate remains very high compared with the neonatal rate. In Australia, the value of the infant mortality rate as an index of social and public health conditions is clearly illustrated by Aboriginal infant deaths where the postneonatal mortality rate is higher than the neonatal mortality rate.

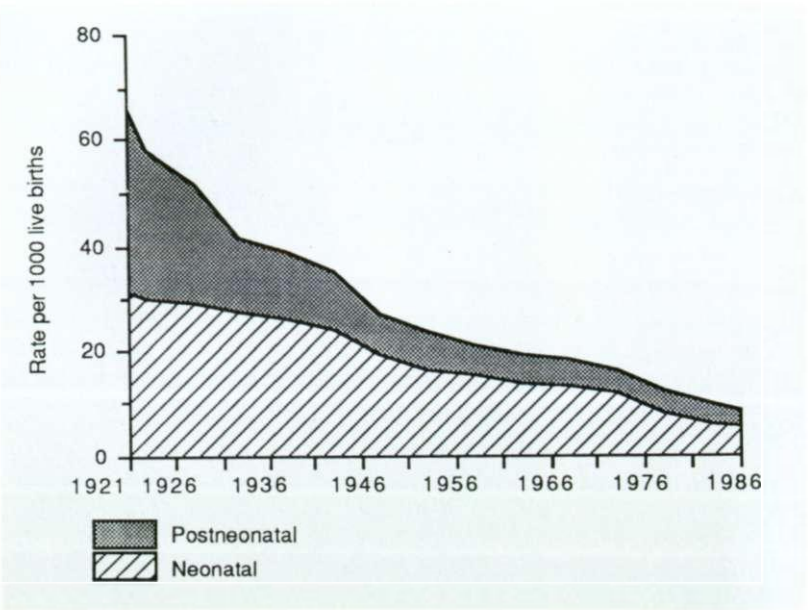


Figure 3.15: Neonatal and postneonatal mortality rates, 1921 to 1986
Source: ABS, Deaths Australia 1986, Cat. No. 3302.0

Childhood (1 to 14 years)

In 1986, 1022 children (614 boys and 408 girls) aged between one and 14 years died. This gave standardised death rates of 35 boys and 24 girls per 100 000 children (Figure 3.16). The age specific death rate for children aged one to 14 is very low and generally on a par with the rates prevailing in other developed countries. There was a sex ratio of 150 boy deaths for every 100 girl deaths. About 50% of the deaths were attributed to injury and poisonings, half of these from motor-vehicle accidents.

Of road-accident victims, 45% were passengers, 35% pedestrians and 12% cyclists (Figure 3.17). Many accidental deaths could have been prevented by using child restraints in motor vehicles and adhering to safety-belt regulations.

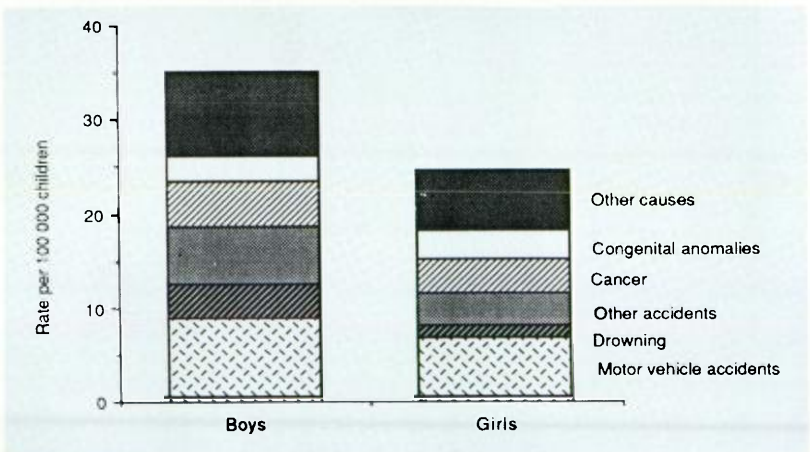
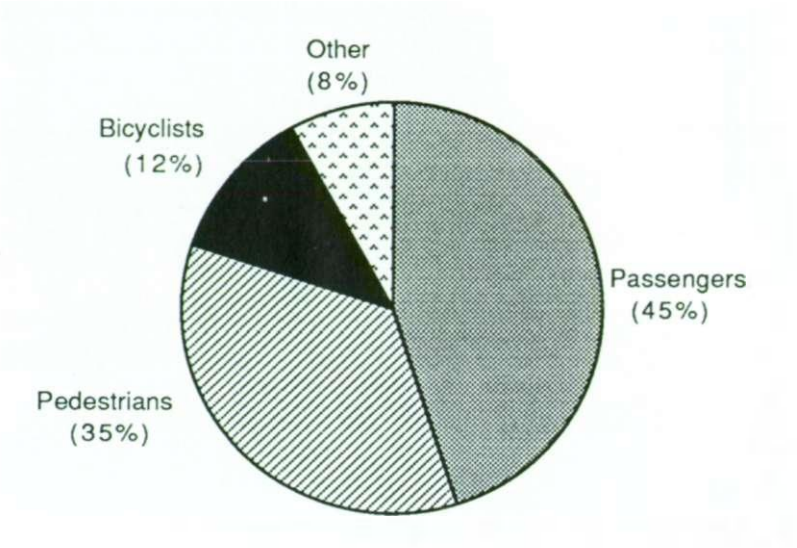


Figure 3.16: Standardised cause specific death rates for children age one to 14 years, 1986
Source: ABS, Deaths Australia 1986, Cat. No. 3302.0

Figure 3.17: Road-user related death rates for children aged 0 to 16 years, 1987

Source: Department of Transport and Communications

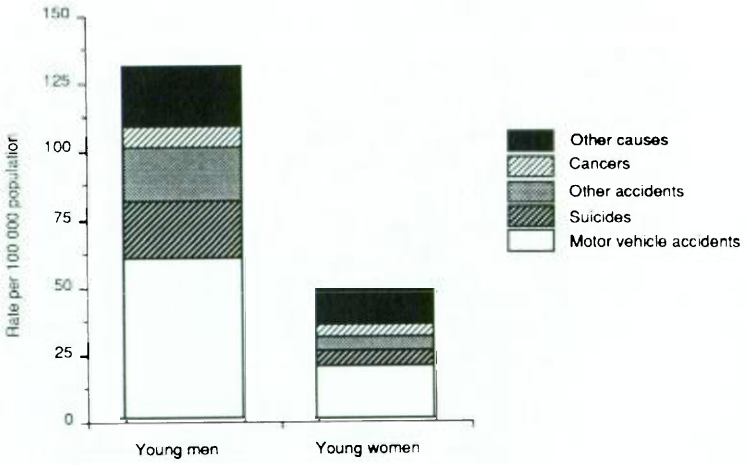


Adolescence to early adulthood (15 to 24 years)

In 1986, 1772 young men and 626 young women died, producing standardised death rates of about 129 deaths per 100 000 for men and 48 per 100 000 for women (Figure 3.18). The sex ratio at death was 283 young men for every 100 young women. Injuries and poisonings were the most significant causes of death, accounting for 1769 (74%) of all deaths. Of these deaths, 1040 (59% of all deaths related to external causes) were linked to motor-vehicle accidents, for which there were three male deaths for every female death. In this age group, 78% of male and 62% of female deaths were due to external causes.

Figure 3.18: Standardised cause specific death rates for young adults aged 15 to 24 years, 1986

Source: ABS, Causes of Deaths Australia 1986, Cat. No. 3303.0



According to the Federal Office of Road Safety (1988), 988 adolescents and young adults aged between 17 and 25 years died as a result of road accidents in 1987 (Figure 3.19). Nine in 10 were drivers and/or passengers of motor vehicles, including motorcycles. Despite the introduction (and partial success) of a number of measures aimed at curbing the number of road deaths, such as lower speed limits and random breath testing, the number of road deaths is still high and remains a major public health problem among the young.

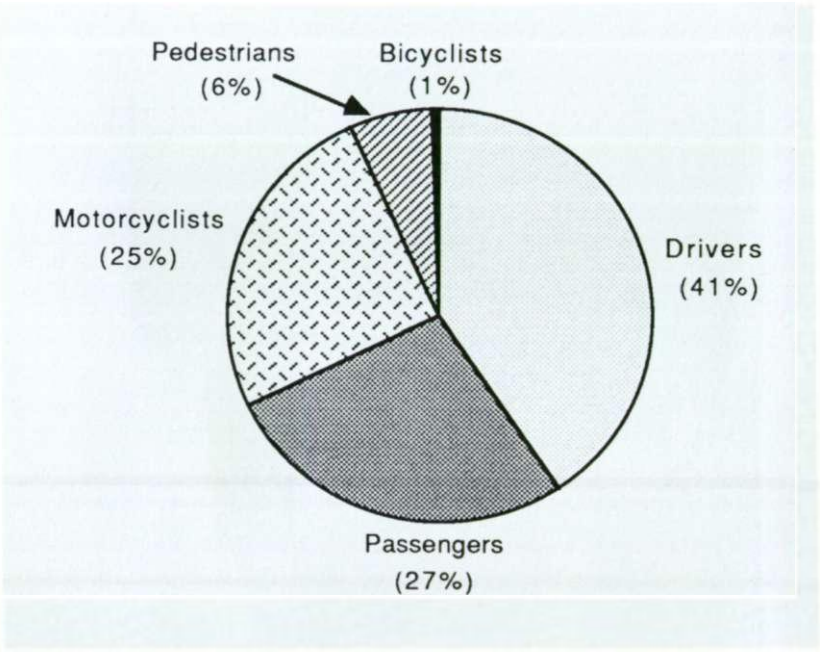


Figure 3.19: Road-user related death rates for persons aged 17 to 25 years, 1986

Source: Department of Transport and Communications

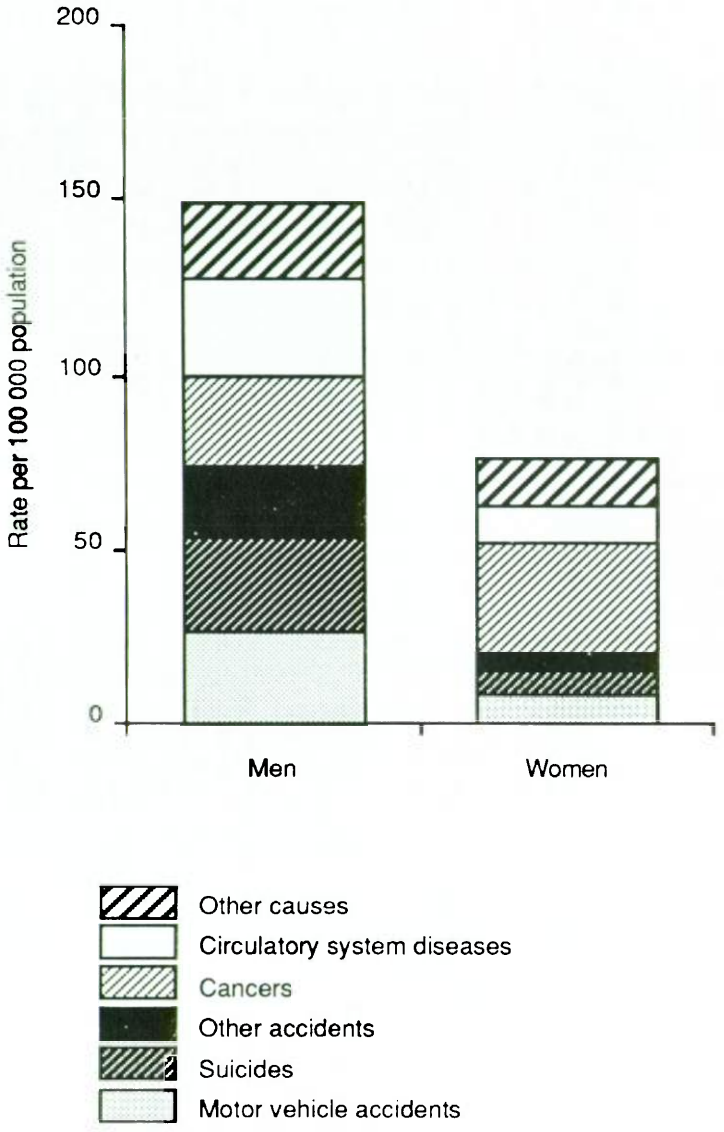
Young adult to early middle age (25 to 44 years)

In 1986, 5664 people (3834 men and 1830 women) aged between 25 and 44 years died, producing standardised death rates of 150 per 100 000 for males and 77 per 100 000 for females (Figure 3.20). The sex ratio at death was 210 men for every 100 women.

Injuries and poisonings accounted for 2355 (42%) of all the deaths. Only 36% (853) of deaths for this age group in the accident category were related to motor-vehicle accidents compared with 59% for the earlier age group. The male death rate for motor-vehicle accidents was 27 per 100 000 compared with eight per 100 000 for females. The male death rate of 26 per 100 000 for suicide was almost equal to the death rate for motor-vehicle accidents. From this age onward, cancers and diseases of the circulatory system begin to play an important role. Cancers were

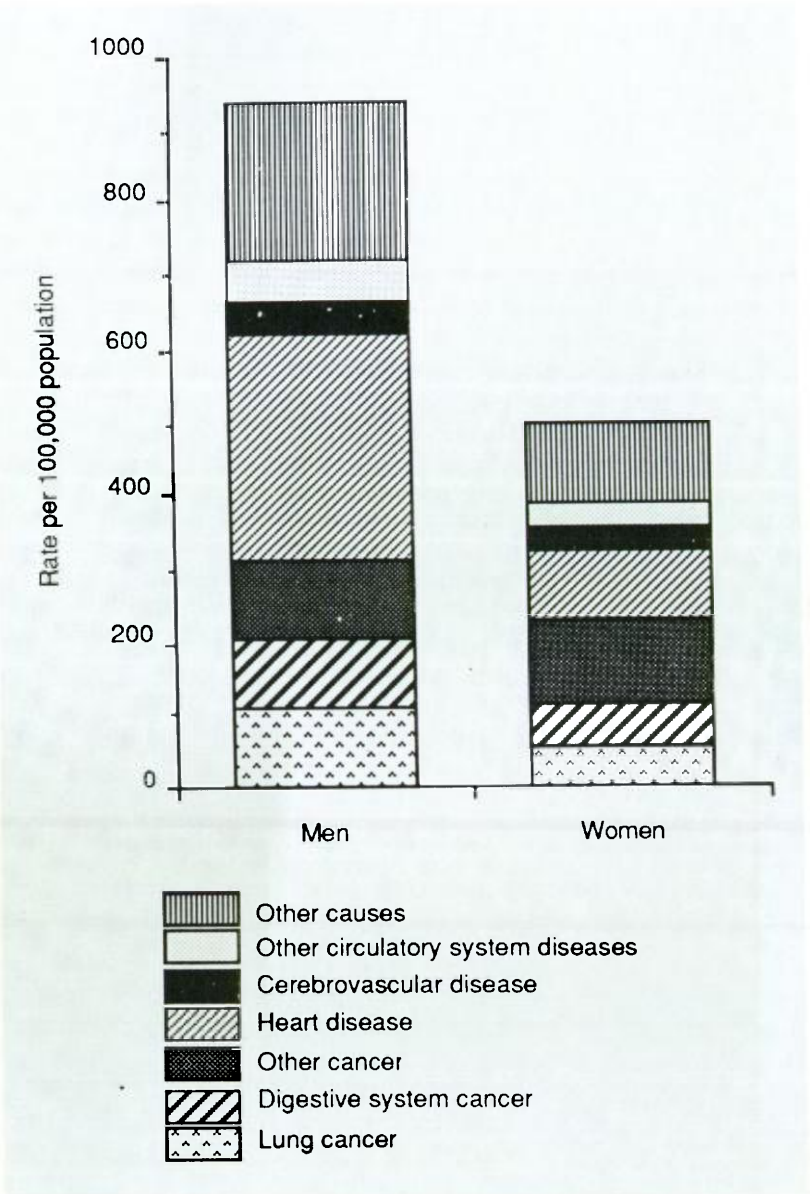
Figure 3.20: Standardised cause specific death rates for persons aged 25 to 44 years, 1986

Source: ABS, Causes of Death, Death Australia 1986, Cat. No. 3303.0



responsible for 1348 deaths (24% of all deaths) in 1986. The death rate was higher for females at 32 deaths per 100 000 compared with 25 per 100 000 for males. The most common cancers were those of the breast for women and those of the respiratory and intrathoracic organs for men. About 17% of deaths were due to diseases of the circulatory system.

Figure 3.21: Standardised cause specific death rates for persons aged 45 to 64 years, 1986
Source: ABS, Causes of Death, Death Australia 1986, Cat. No. 3303.0



Middle age (45 to 64 years)

In 1986, 21 830 people (14 301 men and 7529 women) aged between 45 and 64 died, giving a sex ratio of 190 male deaths for every 100 female deaths (Figure 3.21). The standardised death rate for males was 935 deaths per 100 000 compared with 495 per 100 000 for females.

Just under 80% of deaths were related to the diseases of the circulatory system (39% of all deaths) and to cancers (38% of all deaths).

Of the deaths due to diseases of the circulatory system, 70% were attributed to acute myocardial infarctions and other ischemic heart diseases. The sex ratio for these was 330 male deaths for every 100 female deaths. In contrast, the sex ratio for cerebrovascular diseases was 138 male deaths for every 100 female deaths.

The main cancers causing death among men continued to be those of the respiratory and intrathoracic organs, with about one in three male cancer deaths related to the respiratory system. For women, the main fatal cancers were those of the breast (24% of female cancer deaths) and of the digestive system (26%). The probability of a woman dying of cancer was 50% higher than of dying from a disease of the circulatory system. For men, the relative risk was in the opposite direction with a 30% higher risk of death from diseases of the circulatory system than cancer.

The proportion of people dying from injuries and poisonings continued to decline, accounting for only 6.5% of all deaths.

The elderly (65 years and over)

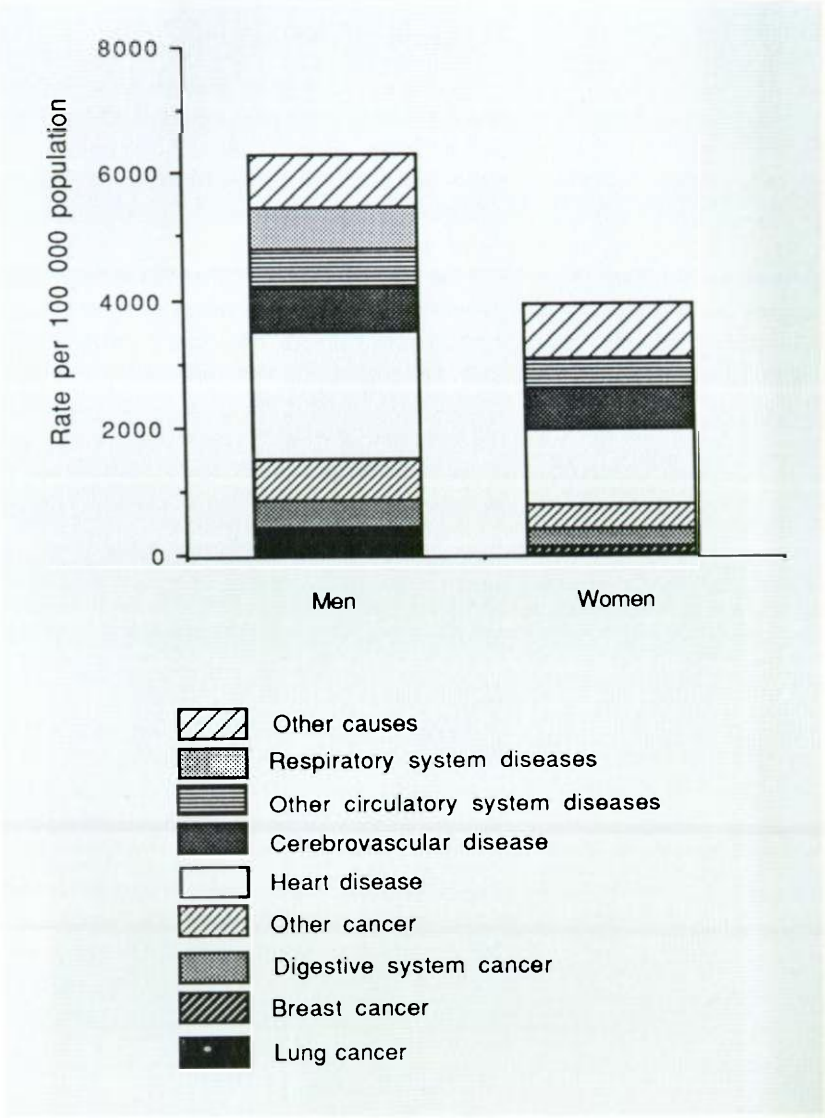
In 1986, 81 896 people (40 430 men and 41 466 women) aged 65 years and over died (Figure 3.22). However, since there are more women than men in this older age group (because of the consistently higher numbers dying at younger ages), the male standardised death rate is still higher at 6281 deaths per 100 000 compared with 3923 per 100 000 for females.

Diseases of the circulatory system were the major causes of death, accounting for 45 637 people (56% of all deaths). Acute myocardial infarction and other ischemic heart disease remained the major types of circulatory disease responsible for death. The male death rate for ischemic heart disease was 1990 per 100 000 compared with 1182 per 100 000 for females. The rates for cerebrovascular disease also increased, accounting for 24% of all deaths from circulatory diseases compared with 15% in the age group 55 to 64 years. The male standardised death rate for cerebrovascular disease was 673 deaths per 100 000 compared with the female rate of 633 deaths per 100 000.

Cancer of respiratory and intrathoracic organs remained the major cause of cancer-related deaths for men, accounting for 29% of all cancer deaths. The major causes of cancer deaths among women were breast (15%), genito-urinary organs (14%), and respiratory and intrathoracic organs (11%).

Figure 3.22: Standardised cause specific death rates for persons aged 65 years and over, 1986

Source: ABS, Causes of Death, Death Australia 1986, Cat. No. 3303.0



Measuring mortality

At face value, the production of statistics on deaths would seem simple enough, since death is an easily definable and certain event. However, studies throughout the world have shown that accurate collection of data is difficult and that the quality of data varies.

The three most common and most important items used in mortality analysis are the sex of the deceased, age at death and cause or causes of death. The sex of the deceased is the easiest and most accurate data collected. Information on age—like some other sociodemographic variables such as occupation and education—is sometimes less than perfect because it is usually provided by a close relative or friend of the deceased during an emotionally disturbing period. Cause of death, probably the most commonly used indicator of health status, is usually obtained from a death certificate completed by a registered medical practitioner. In Australia, the eight State and Territory Registrars of Births, Deaths and Marriages use the standard World Health Organization recommended format for death certificates, which provides for recording both the direct and underlying causes of death. There are two major difficulties associated with the use of the cause(s) of death as recorded on death certificates. The first is physician subjectivity in attributing causes of death, and the second relates to the associated problem of interpreting and classifying recorded causes. In Australia, this task is undertaken by the Australian Bureau of Statistics from the records held by the Registrars. The causes of death are classified according to WHO's International Classification of Diseases (ICD), which is periodically revised. Since 1950, the ABS has used the following ICDs to classify, code and tabulate causes of death in Australia.

Period	ICD Revision in use
1950-57	Sixth Revision, WHO, Geneva, 1948
1958-67	Seventh Revision, WHO, Geneva, 1957
1968-78	Eighth Revision, WHO, Geneva, 1967
1979-	Ninth Revision, WHO, Geneva, 1977

The Ninth Revision comprises 17 'chapters' on diseases and injuries based on the direct and predisposing causes of diseases and their mode of operation.

Chapter

I	Infectious and parasitic diseases
II	Neoplasms
III	Endocrine, nutritional and metabolic diseases, and immunity disorders
IV	Diseases of the blood and blood forming organs
V	Mental disorders
VI	Diseases of the nervous system and sense organs
VII	Diseases of the circulatory system
VIII	Diseases of the respiratory system
IX	Diseases of the digestive system
X	Diseases of the genito-urinary system
XI	Complications of pregnancy, childbirth and the puerperium
XII	Diseases of the skin and subcutaneous tissue
XIII	Diseases of the musculo-skeletal system and connective tissue
XIV	Congenital anomalies
XV	Certain conditions originating in the perinatal period
XVI	Symptoms, signs and ill-defined conditions
XVII	Injury and poisoning

These chapter groupings from the Ninth Revision are used throughout this report.

The various Revisions of the ICD have made it very difficult to construct long time series of causes of death. However, in an ongoing project, the Australian Institute of Health is developing a series of conversion tables which will allow deaths classified under earlier Revisions of the ICD to be reclassified so as to be broadly compatible with the Ninth Revision (Taylor, AIH, 1988). These conversion tables have been used in this report to produce the time series back to 1950.

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4 Sickness and disease

To gain a full picture of the nation's health it is necessary to go beyond death statistics, and look at morbidity statistics which indicate the prevalence of sickness and disease in the population. This chapter is based on Australia-wide data, where available, in an attempt to give a national perspective to the extent that Australia's limited health statistics allow. It focuses on self reports of health problems in the 1977–78 Australian Health Survey conducted by the Australian Bureau of Statistics (ABS), reports of reduced activity and consultations with health professionals from the 1983 ABS Australian Health Survey, and statistics on general-practitioner consultations, hospital admissions and cancer incidence.

4.1 1977–78 Australian Health Survey

The 1977–78 Australian Health Survey (AHS) surveyed more than 40 000 people, comprising a representative sample of all ages from all States and Territories (ABS 1981). It was the first representative national health survey, and is the only national one to examine acute, chronic and emotional conditions in the same survey. Information for the AHS was collected by interview only and comprised self-reported health status and use of health services, and the social, demographic and economic characteristics of the respondents.

The 1977–78 AHS data makes it possible to examine the population's health problems at different levels of concern. Other morbidity statistics such as hospital inpatient statistics and general-practitioner surveys, focus only on those who seek medical attention. Apart from the 1977–78 and 1983 AHSs, information on those who have health problems but do not seek medical help is largely unavailable.

Reported health problems

Three types of health measures were used in the 1977–78 AHS: the number and types of self-reported acute medical conditions present in the previous two weeks (acute symptoms); the number and types of physical illnesses present for at least six months (chronic conditions); and the number of emotional health problems, as measured by the General Health Questionnaire (Goldberg 1972).

Table 4.A: Proportion of persons aged 20–64 reporting no health problems or one, two or all three types of health problems

Source: 1977–78 Australian Health Survey ABS unpublished data

		Men	*Women*
		%	%
No health problems		20	16
One type only	Acute symptoms	16	13
	Chronic illness	8	8
	Emotional health problems	4	3
Two types only	Acute and chronic	21	24
	Acute and emotional	10	10
	Chronic and emotional	2	2
Acute, chronic and emotional		19	24
		100	100

The results of the 1977–78 AHS show that acute symptoms were more common than chronic illnesses, which were in turn more common than emotional health problems in the ratio 7:5:4 (Table 4.A). Four out of five men and five out of six women had at least one condition and one in five men and one in four women had symptoms of acute, chronic and emotional conditions.

For both sexes, emotional health problems were most likely to be reported in conjunction with other conditions, and acute symptoms were least likely to occur in conjunction with other conditions. Most people reporting one type of symptom also reported at least one other. The AHS data must be interpreted with caution because people vary in their propensity to report symptoms.

Reported acute symptoms and chronic illnesses increased with age (Figures 4.1 and 4.2). The increase with age was greater for chronic illnesses, both in terms of having at least one condition and the average number of conditions reported.

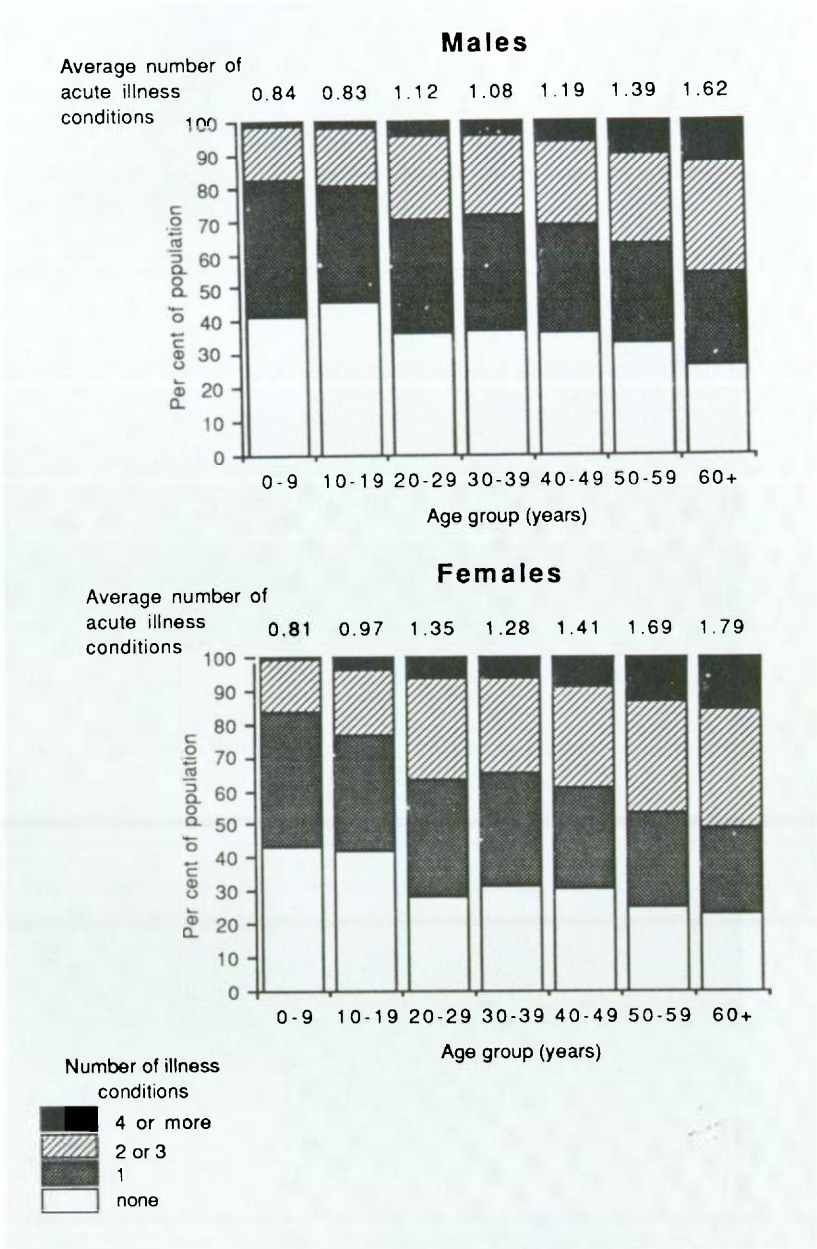
Females reported more acute symptoms and chronic illnesses than males in all age groups except 0–9 years. The sex difference in sickness and disease is more pronounced in those aged 20 and over: when the figures are age standardised to take account of the proportion of the population in different age groups, 50% of men and 58.1% of women reported at least one chronic illness. This may be due in part to a reluctance by men to report symptoms because of social conditioning, to women having more illness or to more of women's life experiences being interpreted as illness by professionals and thus by the rest of the community.

Up to five acute symptoms and chronic illnesses were recorded for each AHS respondent. Data are presented on diagnoses for any mention of an acute or chronic condition for the five most common conditions and for diseases of the genital organs (Figures 4.3 and 4.4).

The main causes of acute conditions were similar for males and females: respiratory diseases (including bronchitis, emphysema and asthma), mental disorders (neuroses, nervous tension,

Figure 4.1: Average number of acute illness conditions and the proportion of persons with particular number of conditions, 1977–78

Source: 1977–78 Australian Health Survey
ABS unpublished data

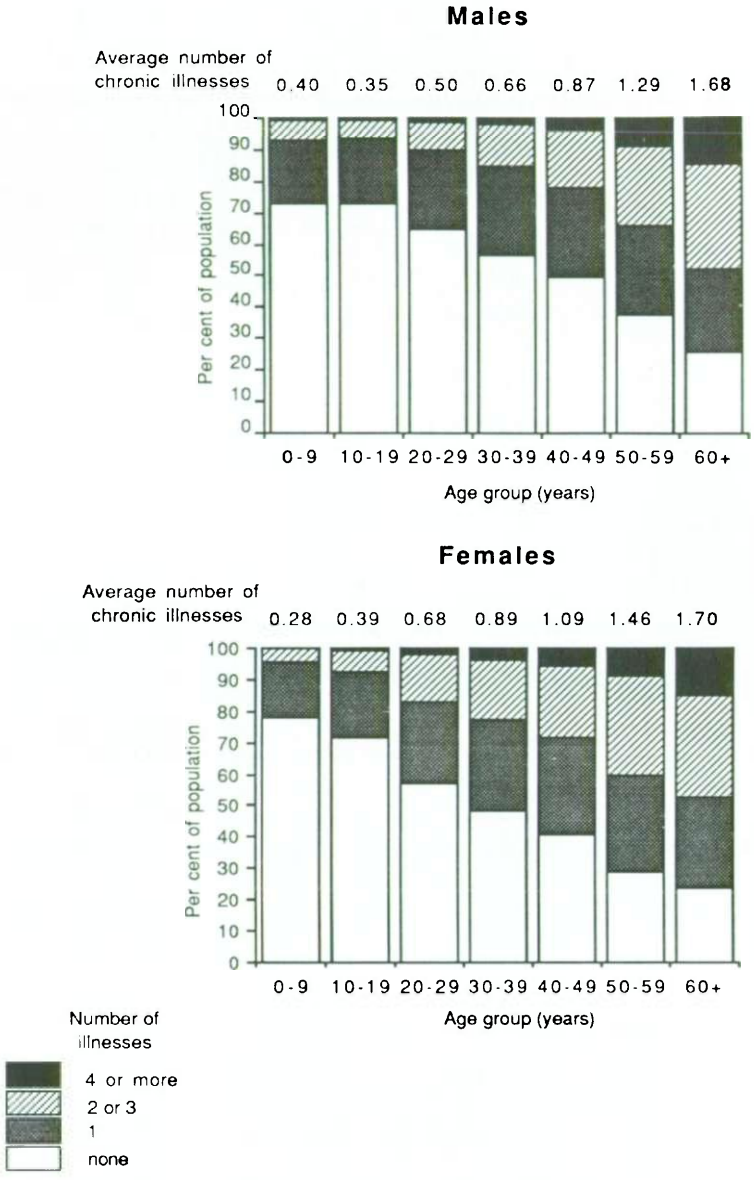


nervousness, depression and insomnia), musculo-skeletal diseases (arthritis and rheumatism), nervous system and sense organ disorders (migraine so described), and injuries and poisoning.

The prevalence of respiratory diseases and injuries was higher for males, while that of mental disorders and nervous system disorders was higher for females. Musculo-skeletal diseases are equally common among males and females.

Figure 4.2: Average number of chronic illnesses and the proportion of persons with particular number of chronic illnesses, 1977-78

Source: 1977-78 Australian Health Survey
ABS unpublished data



Only 17% of males with acute symptoms consulted a doctor, compared with 21% of females. Consultation rates were highest for injuries (33% for males and 38% for females) and lowest for mental disorders (6% for males and 13% for females). The fact that only a small minority of reported conditions led to a doctor consultation suggests that data on doctor consultations can give only a limited view on health problems.

Respiratory diseases, musculo-skeletal diseases, nervous system diseases (which were also listed for acute conditions), circulatory diseases and skin diseases were the five most common causes of chronic illnesses (Figure 4.4). They were equally common among males and females except for circulatory diseases, where the prevalence was higher for females (12%) than males (8%), mainly because of the higher prevalence of varicose veins in women.

Figure 4.3: Persons reporting acute symptoms, classified by cause and whether a doctor was visited, 1977–78 (age standardised)

Source: 1977–78 Australian Health Survey
ABS unpublished data

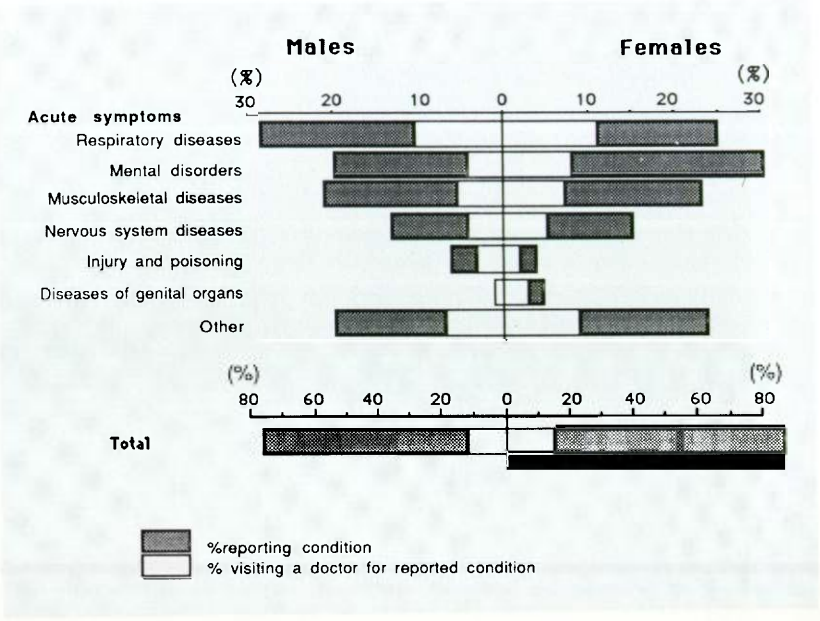


Figure 4.4: Persons reporting chronic illnesses, classified by cause and whether a doctor was visited, 1977–78 (age standardised)

Source: 1977–78 Australian Health Survey
ABS unpublished data

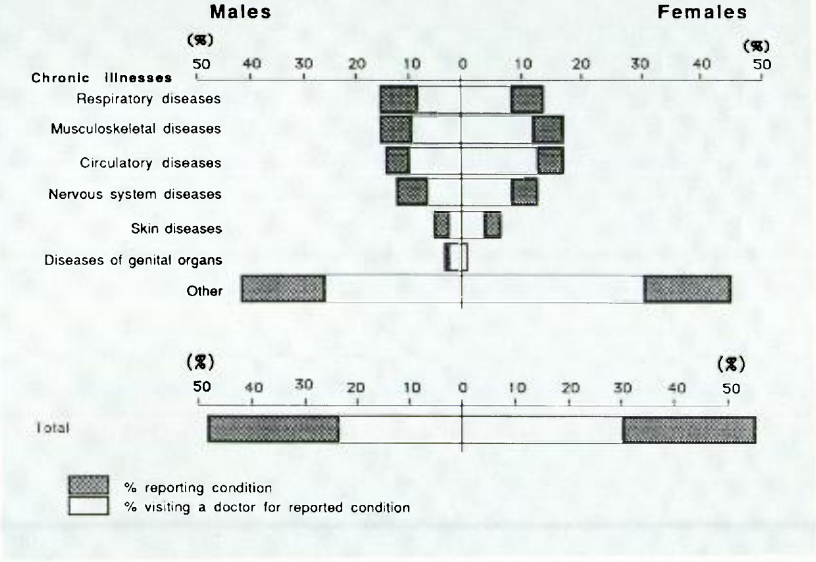
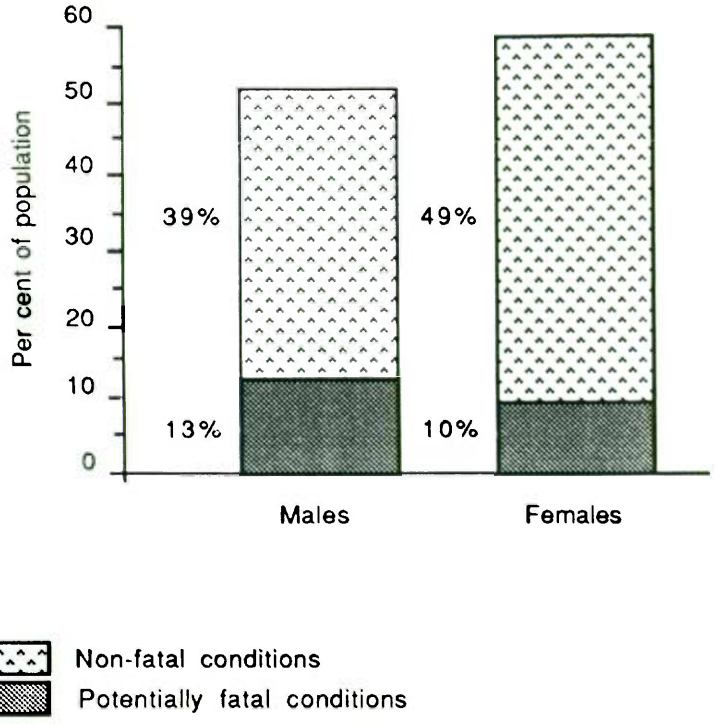


Figure 4.5: Persons reporting at least one potentially fatal chronic illness and those reporting only non-fatal chronic illnesses, 1977–78
Source: 1977–78 Australian Health Survey
ABS unpublished data



Chronic illnesses can be classified into two groups: those which can cause death (including neoplasms, heart disease, cerebrovascular disease, hypertensive disease and respiratory disease) and milder conditions. Although women reported more chronic illnesses, men reported 30% more potentially fatal chronic conditions—13% of men compared with 10% of women (Figure 4.5).

Doctor consultation rates were much higher for chronic illnesses than for acute symptoms. This is probably because of the potentially greater disability associated with chronic illnesses as well as the self-limiting nature of many acute conditions. About half of those who reported chronic illnesses had consulted a doctor: 48% for males and 56% for females. Consultation rates were highest for circulatory illnesses, 70% for males and 64% for females.

Measuring emotional health

In the 1977–78 AHS, the emotional health of people aged 20 years and over was measured by an abbreviated 12-question version of the General Health Questionnaire (GHQ). The GHQ measures self-reported feelings and behavioural problems, and its results relate only loosely to specific psychiatric disorders. This

should be considered when interpreting the frequency of emotional health problems in relation to symptoms of acute and chronic conditions.

To detect psychiatric disorders by survey, much more detailed information would have to be collected than was possible in the AHS. Many people with severe psychiatric problems were not included because the survey did not cover institutions.

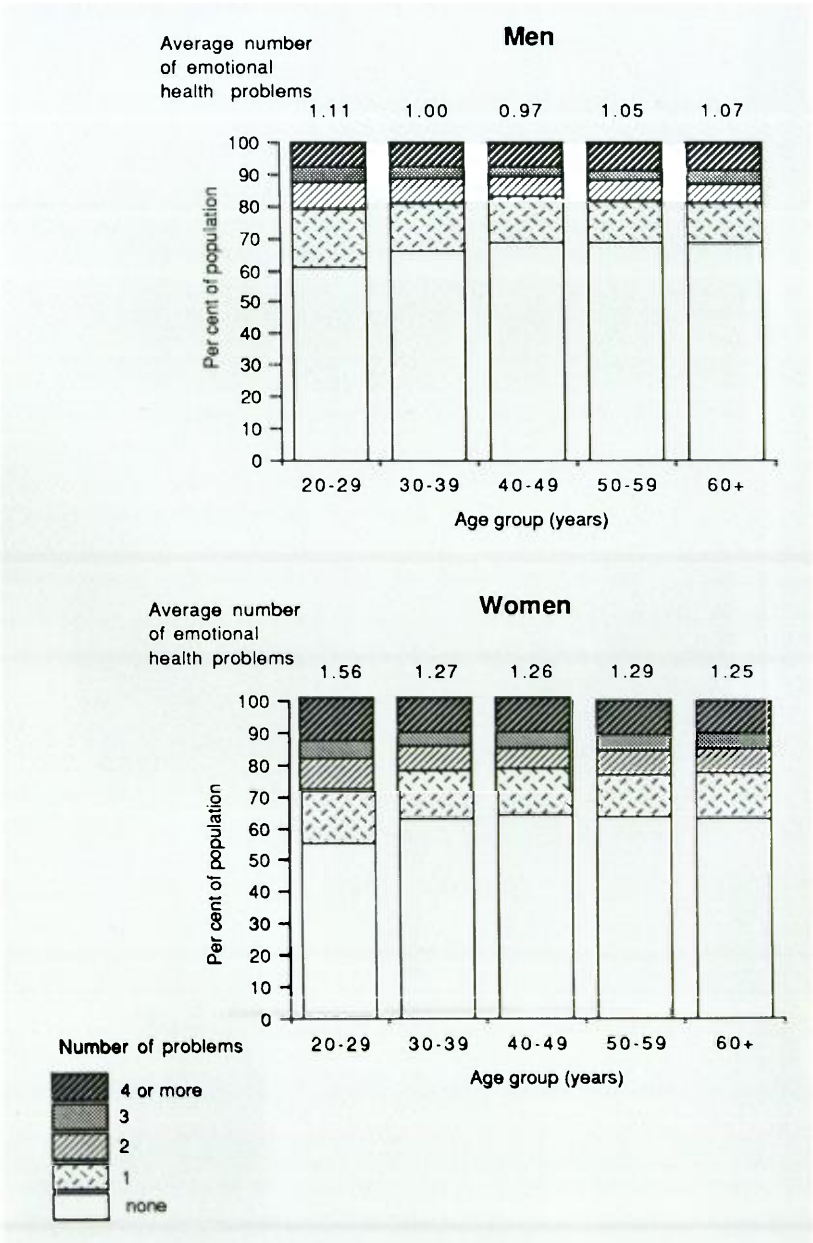


Figure 4.6: Average number of emotional health problems and the proportion of persons with particular number of emotional health problems, 1977–78

Source: 1977–78 Australian Health Survey
ABS unpublished data

Generally women at all ages reported slightly more negative changes in their emotional health than men. On average, men reported less than one emotional health problem (0.93), whereas women reported slightly more than one (1.15) (Figure 4.6). Emotional health as measured by the GHQ shows a slight improvement with age.

4.2 Data from Medicare

Consultations with general practitioners which were claimed on Medicare give a guide to relative health status across ages and sexes, but allowance must be made for the fact that many consultations are for advice and support, health check-ups and contraception. Statistical data generated by Medicare show that during 1986, on average each male consulted a GP three times compared with five times for females (Figure 4.7). This subject is treated more fully in Chapter 8.

The number of consultations falls steeply from birth to age 14, and then rises throughout life. Below age 15, males and females have similar consultation rates and then the rate is greater for females in all age groups. This difference is roughly uniform across all age groups except between 15 and 35 years, where females have substantially more consultations. This is largely because of conditions related to childbirth and contraception. Medicare does not receive data on the reason for GP consultations.

Figure 4.7: Average number of general practitioner services claimed, 1986
Source: Health Insurance Commission unpublished data

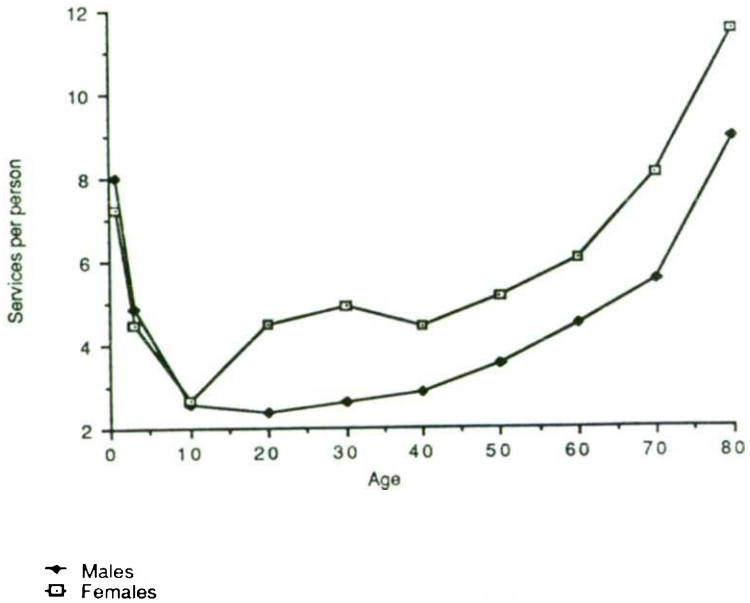
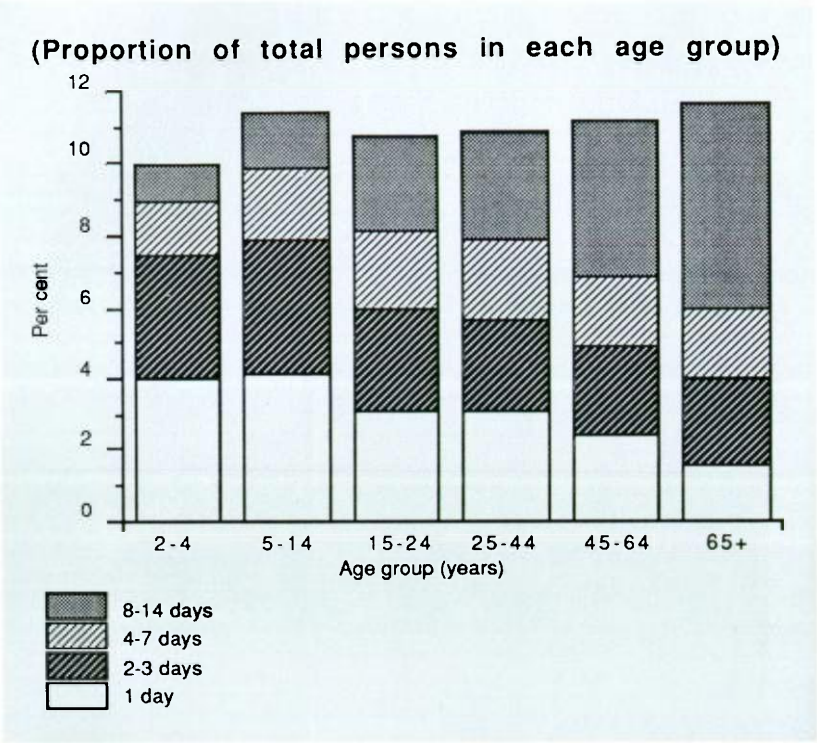


Figure 4.8: Persons reporting one or more days of reduced activity in a two-week period, 1983

Source: ABS, Australian Health Survey 1983, Cat. No. 4311.0



4.3 1983 Australian Health Survey data

The Australian Bureau of Statistics conducted its second Australian Health Survey in 1983. It focused on some health-related behaviour (reduced activity, medication, doctor and dentist consultations and hospital episodes).

Reduced activity was defined as hospitalisation or days in bed. About 10% to 12% of people in every age group reported at least one day of reduced activity in the preceding two weeks (Figure 4.8). With increasing age there was a rise in the proportion of people with longer periods of reduced activity. However, with increasing age the proportion of people with periods of reduced activity up to seven days declined. This paradox could be due to illness episodes becoming longer and more frequent with increasing age, but the need for reduced activity becoming less as the usual level of activity becomes less.

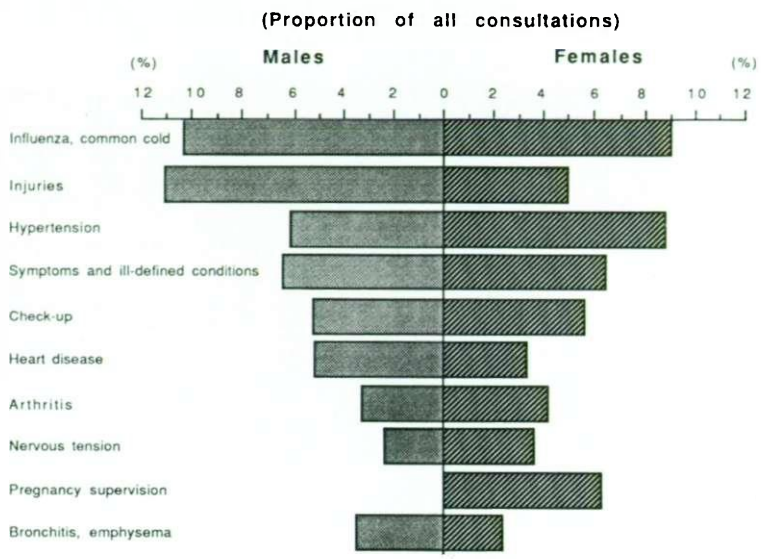
For both sexes combined, viral upper-respiratory tract conditions (influenza and common cold) were the most common reasons for consulting a doctor (Figure 4.9). Next came injuries (higher for men), circulatory disease (represented by hypertension and heart disease), followed by symptoms and check-ups. It is noteworthy that the conditions listed in Figure 4.9 mirror closely those found to be most common in the 1977–78 AHS.

The 10 most common conditions reported account for only 53% of doctor consultations for males and 55% for females,

Figure 4.9: Ten most common reasons for consulting a doctor, 1983

Note: Not adjusted for age

Source: ABS, Australian Health Survey 1983, Cat. No. 4311.0



highlighting the diversity of conditions presented to doctors, particularly general practitioners.

About 7% of the respondents consulted a health professional other than a doctor or dentist compared with about 18% consulting a doctor. Pharmacists, chiropractors and physiotherapists were the most popular, accounting for two-thirds of the consultations with other health professionals (Figure 4.10).

4.4 Data from hospital admissions

An indication of the number and type of serious health problems in Australia is given by the reasons why people are admitted to hospital, the length of stay and surgical treatment.

The 1983 Australian Health Survey found that in the 12 months before interview, 10% of males and 15% of females had been hospitalised.

No national collection of hospital admissions data exists in Australia. Collections are undertaken in all States and Territories except Tasmania, but they vary greatly in completeness (Table 4.B). Data available in only some States have been taken to illustrate the national situation, but because of variations among the States, these data may not be representative.

Hospital admission data show that in 1985 females in the Australian population spent on average 1.6 days in an acute hospital a year and males 1.2 days (Mathers and Harvey, in press).

Table 4.B: Scope of the hospital morbidity collections in 1985

Source: Mathers and Harvey, AIH (1988)

	N.S.W.	Vic.	Qld	S.A.	W.A.	A.C.T.	N.T.	Tas
Public hospitals	+	+	+	+	+	+	+	o
Private hospitals	+	o	+	+	+	o	—	o
Repatriation hospitals	+	o	+	o	+	—	—	o
Nursing homes	+	o	o	o	o	o	o	o
Psychiatric hospitals	+	o	o	o	o	—	—	o
Rehabilitation hospitals	+	o	+	o	+	—	—	o

\+ included in collection
o excluded from collection
— no institutions of this type

Admissions increase with age

Data collected by the States and Territories on hospital use show that admission rates, bed-day use and average length of stay all increase substantially with age (Figure 4.11). People aged 65 and over comprise 10% of the population and account for 22% of hospital admissions and 43% of total bed-days.

More hospital episodes involve females than males. In 1983, females accounted for 57% of all episodes of care compared with 43% for males. The age-standardised admission rates for Queensland acute hospitals and South Australian public hospitals (the only two States for which 1983 data has been published by age, sex and diagnosis) were 185 per thousand males and 222 per thousand females. When normal delivery and complications

Figure 4.10: Consultations with a health professional other than a doctor or dentist in a two-week period, 1983

Note: Not adjusted for age

Source: ABS, Australian Health Survey 1983, Cat. No. 4311.0

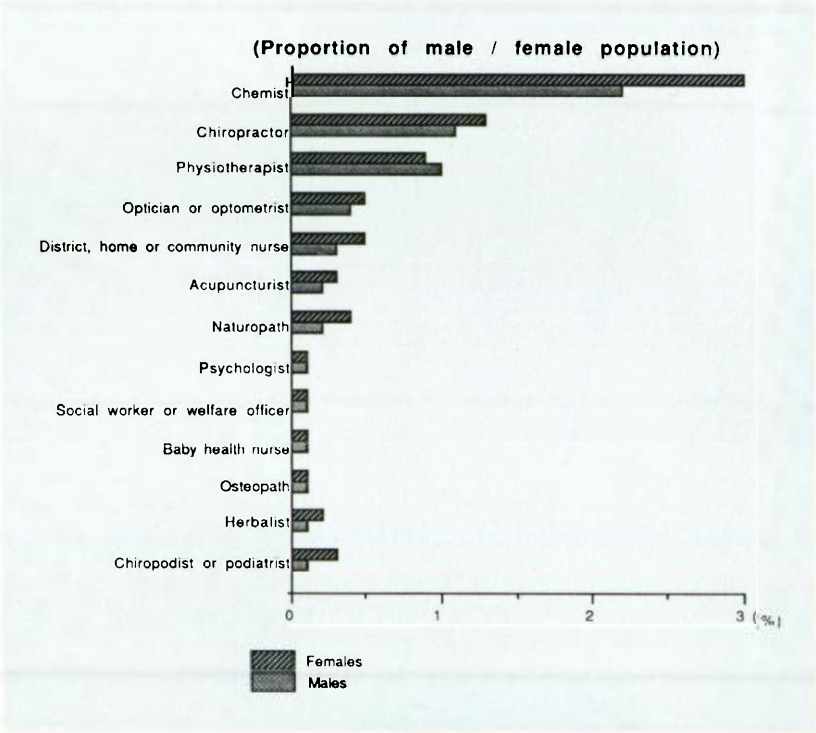
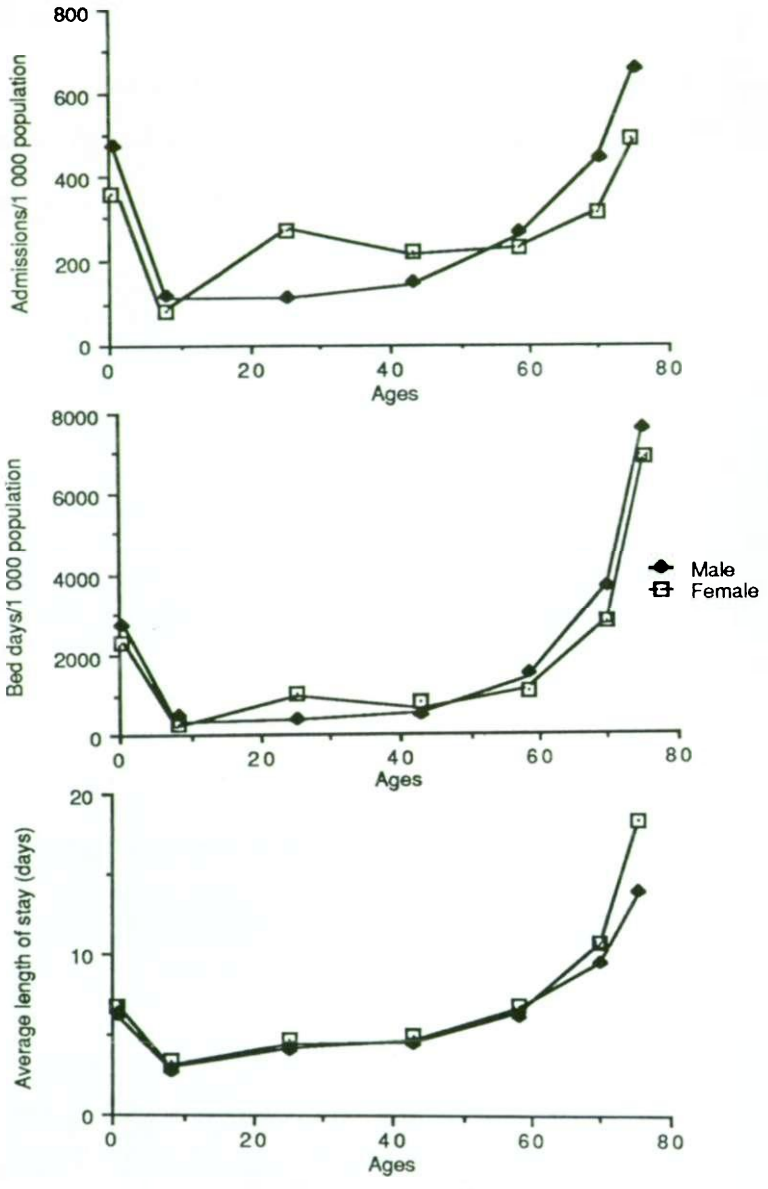


Figure 4.11: Admission rates, bed-day use and average length of stay for acute hospitals, 1985(a)

(a) Estimated for all Australian acute hospitals in 1985 using data for private hospitals in all States (1985), public hospitals in all States except Tasmania (1985 data for New South Wales, South Australia and Western Australia and 1984 data for Queensland, the Northern Territory and the ACT)

Source: Mathers and Harvey, AIH (1988)



of pregnancy and childbirth, and genito-urinary cases are excluded, the age-standardised admission rates become 176 per thousand males and 151 per thousand females.

Major causes of hospitalisation

Injury and poisoning were the most common causes of hospital admissions for males in 1983, representing 13.8% of all male hospital admissions. Other disease classes responsible for large

numbers of hospital episodes for males were diseases of the digestive system (11.4%), diseases of the circulatory system (10.7%), diseases of the respiratory system (10.2%), and neoplasms (6.5%) (Figure 4.12).

The most frequent causes of hospital episodes for females were normal delivery, complications of pregnancy and childbirth (19.8%) and diseases of the genito-urinary system (11.6%) (Figure 4.12). The three other main categories for females were digestive diseases, circulatory diseases, and injury and poisoning. Figure 4.12 can only suggest differences in the pattern of reasons for hospitalisation among males and females because limitations in the available data prevent adjustment for the differing age distributions of the male and female populations. It is noteworthy that the relative importance of different categories of disease varies greatly, depending on whether acute symptoms, chronic illness or hospital admissions are considered (Table 4.C).

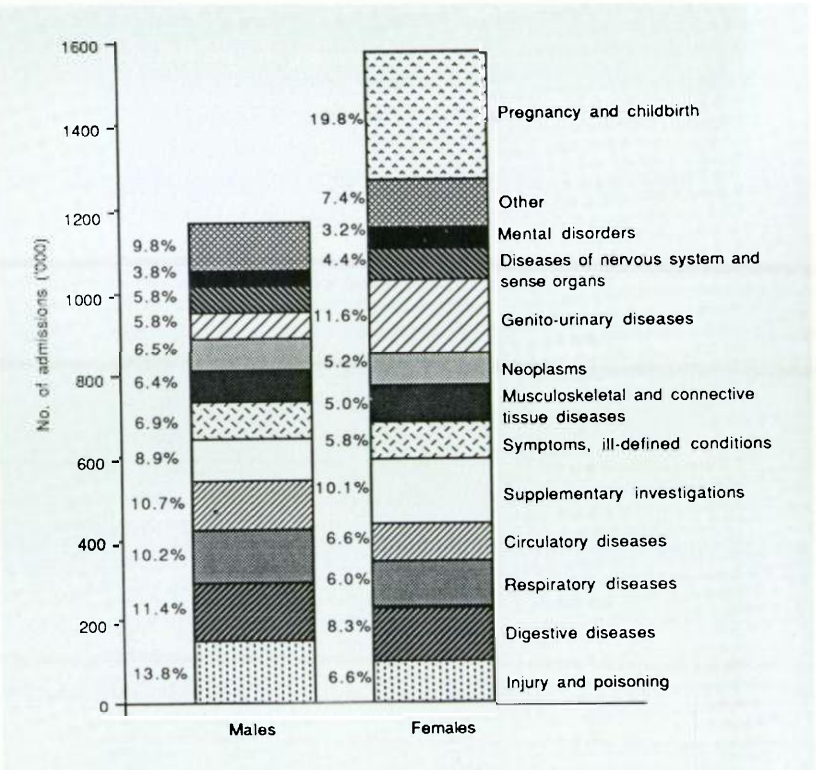


Figure 4.12: Number of male and female admissions to acute hospitals(a) by principal diagnosis, 1983

(a) Public hospitals (except those in Tasmania) plus private hospitals (expect those in Victoria, South Australia and Tasmania)

Note: Not adjusted for age

Source: Mathers and Harvey, AIH (1988)

Table 4.C Ranking of five most common disease categories for males and females—from the most common (top) to least common (bottom)

Males		
Acute symptoms	*Chronic illness*	*Hospitalisation*
Respiratory	Respiratory	Injury/poisoning
Musculo-skeletal	Musculo-skeletal	Digestive
Mental	Circulatory	Circulatory
Nervous system	Nervous system	Respiratory
Injury/poisoning	Skin	Musculo-skeletal
Females		
Acute symptoms	*Chronic illness*	*Hospitalisation*
Mental	Circulatory	Pregnancy/childbirth
Respiratory	Musculo-skeletal	Genito-urinary
Musculo-skeletal	Respiratory	Digestive
Nervous system	Nervous system	Circulatory
Genito-urinary	Skin	Injury-poisoning

Note: Listings from figures 4.3, 4.4 and 4.12. Due to limitations in the method used to identify most common conditions, these rankings are indicative only.

A large proportion of female episodes (10%) were attributed to supplementary conditions such as special investigations and examinations, contraceptive management and, in some States, admission of healthy mothers with sick infants.

Age distribution

Diseases of the respiratory system were the single most common cause of hospitalisation for males and females under 15 years, accounting for approximately 25% of all admissions in this age group. Other reasons for hospitalisation of children were investigations, diseases of the nervous system and sense organs and diseases of the digestive system (Figure 4.13).

Accidents and poisoning were the most common single cause of hospitalisation in males aged between five and 44 years, but were common for females only between the ages of one and 14 years. The most common causes of hospitalisation for young adult women were obstetric causes and normal delivery especially between the ages of 15 and 34 years, diseases of the genito-urinary system (ages 15 to 44) and investigations (ages 35 to 64).

In people aged 45 years and over, diseases of the circulatory system, neoplasms and diseases of the digestive system account for the largest number of hospital episodes, with men also having a high rate for diseases of the respiratory system and women also having a high rate for accidents, poisoning and violence.

External causes leading to hospitalisation

Injuries resulting from accidents, poisoning and violence accounted for around 10% of hospital admissions in the reporting States in 1983. More than 60% of the patients were male and predominantly from the younger age groups. The main causes for such admissions for both males and females were accidental falls followed by motor and other vehicle accidents (Figure 4.14).

Figure 4.13: Proportion of hospital admissions(a) by principal diagnosis category, age and sex, 1983

(a) Admissions to public and private hospitals in Queensland and to public hospitals in South Australia

Source: Mathers and Harvey, AIH (1988)

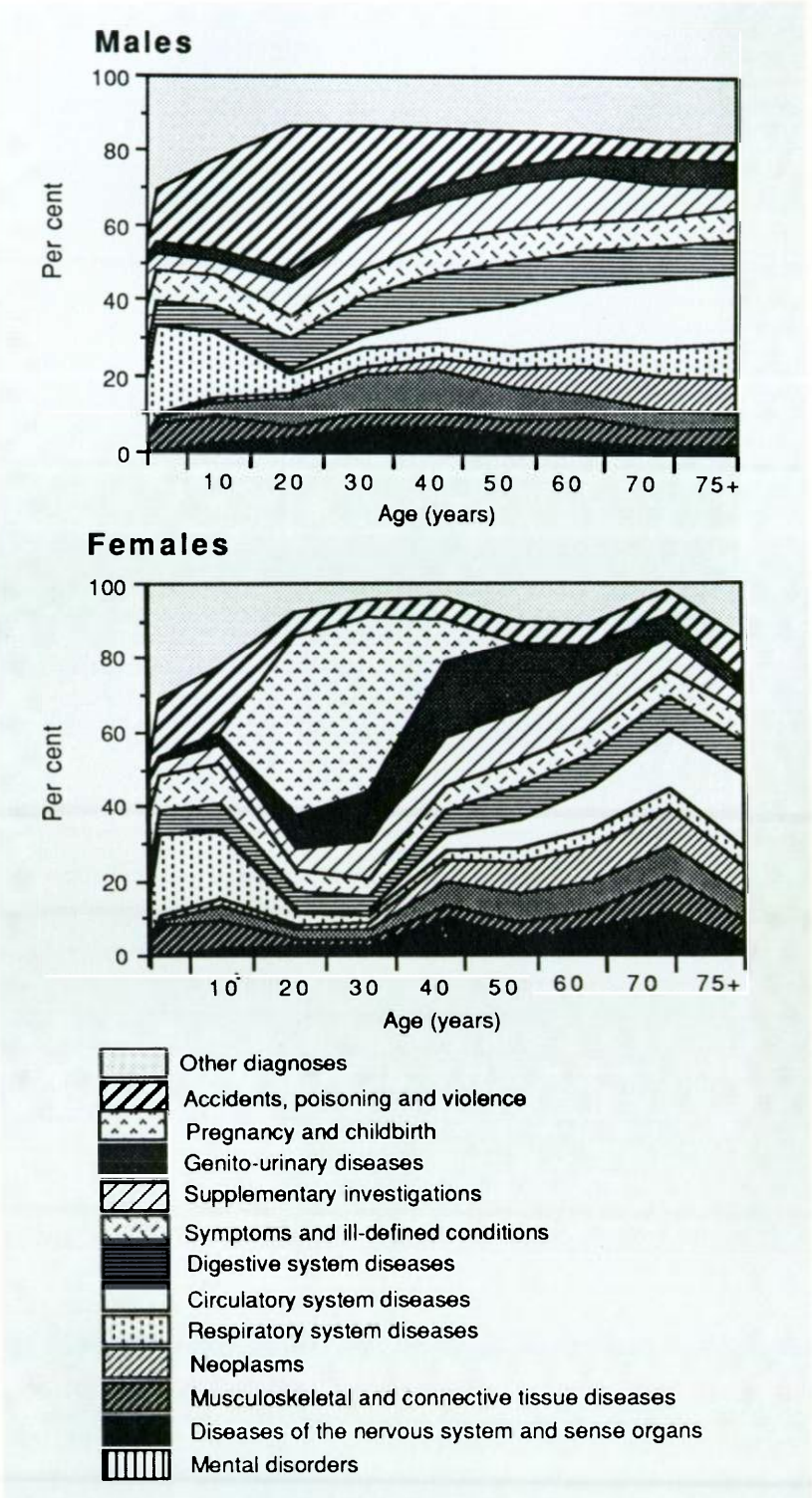
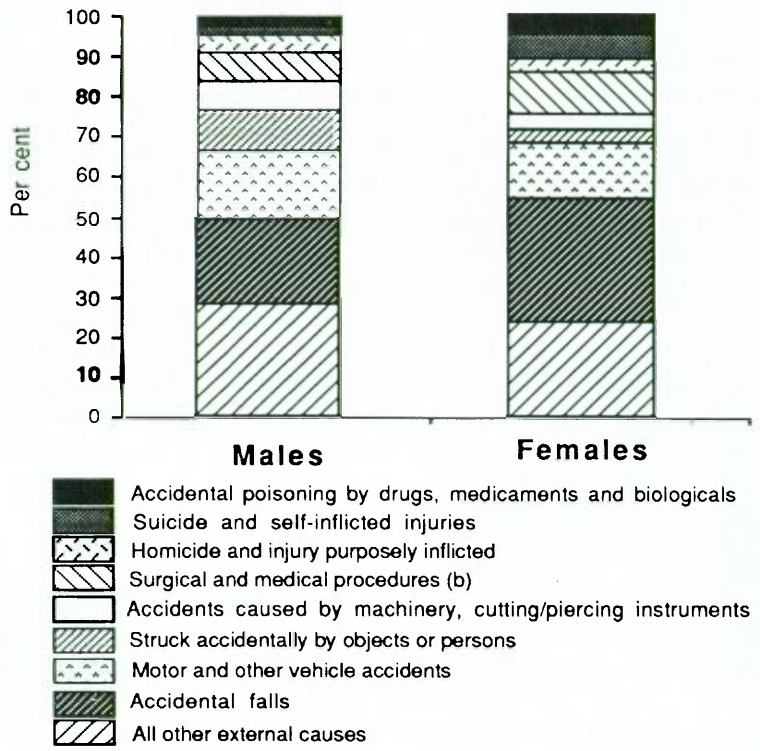


Figure 4.14: Inpatient admissions(a) with a principal diagnosis of accident, injury or poisoning in the mid-1980s

(a) Admissions to public hospitals in Queensland, Western Australia and South Australia (1983) and private hospitals in 1983 (Victoria, Queensland and South Australia) and 1985 (Western Australia)
(b) Includes misadventures to patients, abnormal reactions and later complications
Note: Not adjusted for age
Source: Mathers and Harvey, AIH (1988)



Admissions to public hospitals

The three most common specific causes of public hospital admissions in the mid-1980s for males were kidney dialysis (6.5 admissions per thousand males per year), asthma (3.8 admissions per thousand) and acute myocardial infarction (2.5 admissions per thousand). These rates are based on admissions to public hospitals in 1985 for New South Wales, Victoria, Western Australia and South Australia and in 1984 for Queensland, Northern Territory and the ACT (Figure 4.15).

These three causes accounted for 9% of all public hospital admissions for men. The average length of stay was less than one day for kidney dialysis, 3.4 days for asthma and 10.7 days for acute myocardial infarction, accounting for 4.4% of total bed-days for men in public hospitals in Australia (excluding Tasmania).

The majority of males admitted for asthma were less than 15 years old, most males admitted for dialysis were aged 40–75 and males admitted for acute myocardial infarction were mostly over 50 years.

The three most common specific causes of hospitalisation for females were normal childbirth (10.8 admissions per thousand females per year), kidney dialysis (6.7 admissions per thousand) and asthma (3.4 admissions per thousand). They accounted for 12% of all public hospital admissions for women in 1985 (data for Queensland, Northern Territory and ACT relate to 1984). The average length of stay was 5.5 days for normal childbirth, less than one day for dialysis and 3.0 days for abdominal and pelvic symptoms accounting for 6.2% of total bed-days for women in public hospitals in Australia (excluding Tasmania).

Almost all admissions for childbirth were among women aged 15–39 years, admissions for dialysis were predominantly for women aged 45–69 and females of all ages over five were admitted for abdominal and pelvic symptoms at roughly similar rates across all age groups.

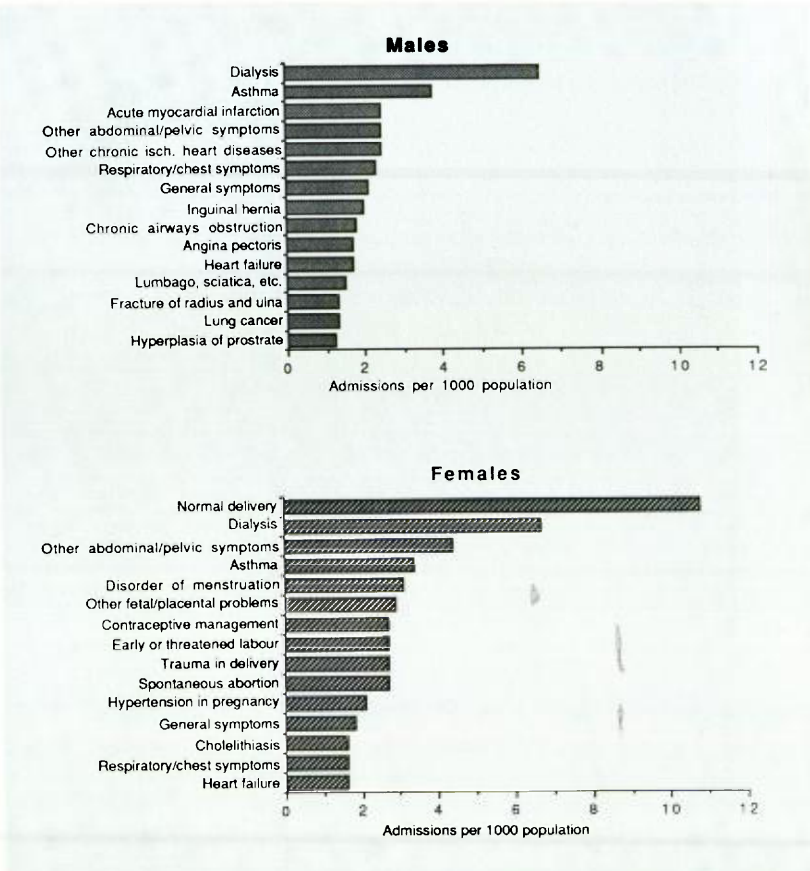


Figure 4.15: Fifteen most common principal diagnoses for admissions to public hospitals in the mid-1980s(a)

(a) 1984 admissions for Queensland, the Northern Territory and the ACT; 1985 admissions for New South Wales, Victoria, Western Australia and South Australia

Note: Not adjusted for age

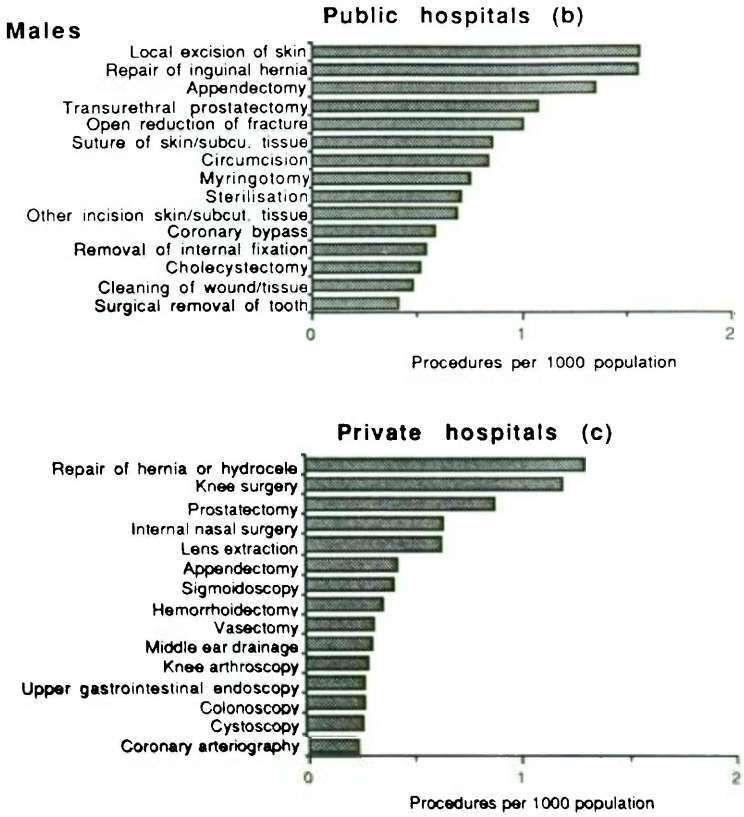
Source: Mathers and Harvey, AIH (1988)

Figure 4.16: Fifteen most common surgical procedures performed on males in acute hospitals in the mid-1980s(a)

(a) 1984 admissions for Queensland, the Northern Territory and the ACT; 1985 admissions for New South Wales, Victoria, Western Australia and South Australia
(b) Procedures classified according to the International Classification of Procedures in Medicine, WHO (1978)
(c) Procedures classified according to the Medicare Benefits Schedule Book

Note: Not adjusted for age

Source: Mathers and Harvey, AIH (1988)



Surgical procedures

The 15 most common principal surgical procedures carried out in public and private hospitals in 1985 are shown in Figures 4.16 and 4.17. In many cases it is not possible to combine these public and private hospital data because of differences in coding: procedures in private hospitals have been coded using the Medicare Benefits Schedule while those in public hospitals have been coded using the International Classification of Procedures in Medicine.

In spite of the coding differences, it appears that the three most common surgical procedures for men are repair of groin hernia (2.9 per thousand per year), prostatectomy (2.0 per thousand) and appendectomy (1.8 per thousand).

For females the three most common surgical procedures are dilation and curettage of uterus (10.2 per thousand per year), Cesarean section (4.7 per thousand) and episiotomy (5.0 per thousand). Hysterectomy has a rate of about 2.7 per thousand.

Figure 4.17: Fifteen most common surgical procedures performed on females in acute hospitals in the mid-1980s(a)

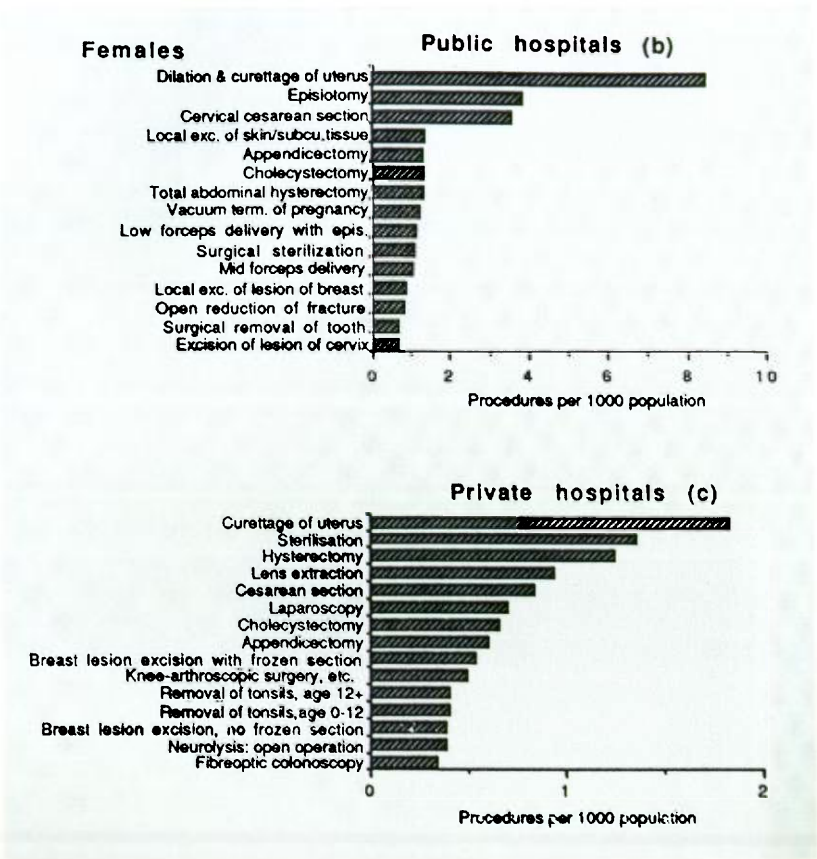
(a) 1984 admissions for Queensland, the Northern Territory and the ACT; 1985 admissions for New South Wales, Victoria, Western Australia and South Australia

(b) Procedures classified according to the International Classification of Procedures in Medicine, WHO (1978)

(c) Procedures classified according to items in the Medicare Benefits Schedule Book

Note: Not adjusted for age

Source: Mathers and Harvey, AIH (1988)



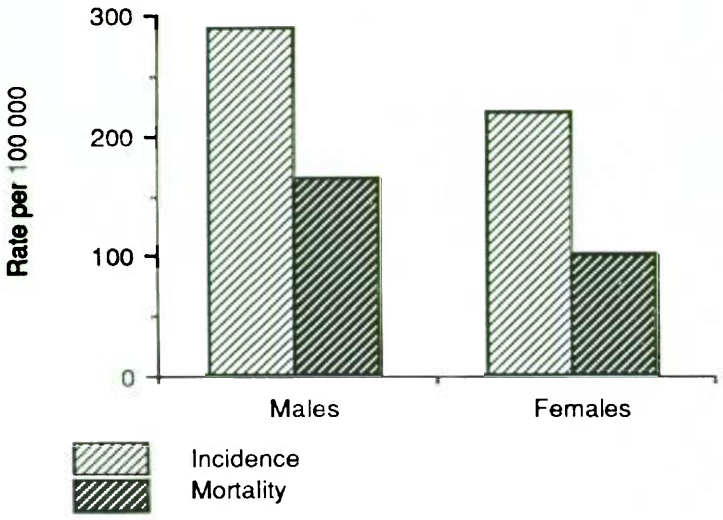
4.5 Data from cancer registries

Since 1982, almost all cancers occurring in Australia have been recorded in State and Territory based cancer registries and comprehensive national data is now available from 1982. This has provided an unequalled opportunity in Australia to monitor, in detail, the patterns in the population of a major group of diseases. These data provide a glimpse of the kinds of data which could be provided on the health of Australians for other conditions if sufficient resources were available.

Cancer is important because it is the second most common cause of death (after circulatory diseases), it is the only major cause of death which is increasing and much of it could be prevented. It is estimated that approximately two-thirds of cancer deaths may be caused by tobacco smoking and diet.

While cancer can occur at any age, it is predominantly a disease of the elderly. The incidence rate increases ten fold between the

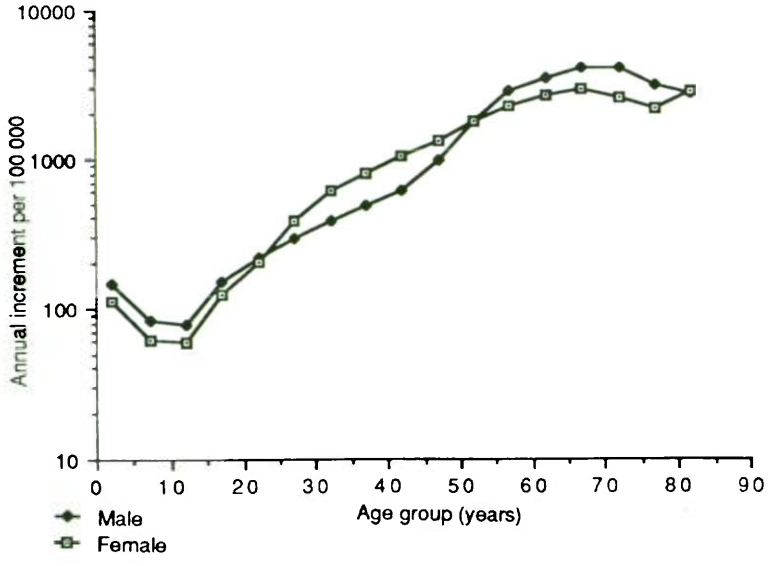
Figure 4.18: Incidence and mortality rates for cancer, 1982 (age standardised)
Source: Giles, Armstrong and Smith, AACR and AIH (1987)



ages of 10 and 40, and increases six fold between the ages of 40 and 60 (Figure 4.19). It is noteworthy that between the ages of 25 and 44, cancer occurs more commonly among females than among males, while before age 20 and after age 55 cancer is more common among males.

Using the 1982 data and calculating cumulative rates to age 75, it is estimated that one in three males and one in four females will develop cancer by age 75, and that one in five males and one in nine females in Australia will die from cancer by age 75.

Figure 4.19: Cancer incidence rates by age and sex, 1982
Source: Giles, Armstrong and Smith, AACR and AIH (1987)



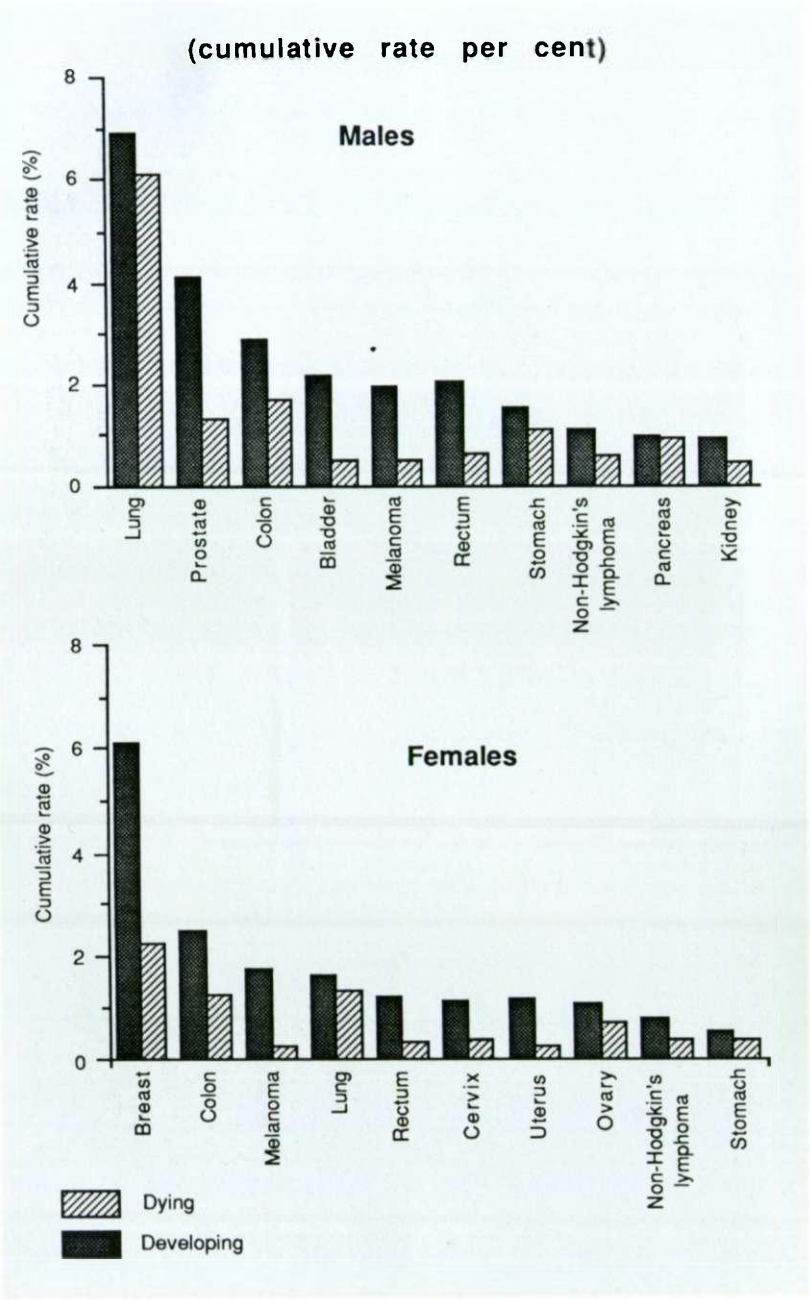


Figure 4.20: Probability of developing and dying from cancer before age 65 for the 10 most common cancers for each sex, 1982

Source: Giles, Armstrong and Smith, AACR and AIH (1987)

The cumulative rate per cent may be interpreted as the chance of an individual developing cancer had he or she had a risk of developing (or dying from) cancer at each age which was equal to that which applied to the respective individual age groups in 1982. Thus, it can be (very) loosely interpreted as the chance of someone developing or dying of cancer before age 75.

Cancer occurs more frequently in males than females (38% excess), and is even more likely to kill males than females (62% excess) (Figure 4.18). Males tend to develop forms of cancers which are more often fatal, especially lung cancer. This is shown by South Australian data, which indicate that people diagnosed with cancer between 1977 and 1985 had five-year relative survival rates of 43% for men and 56% for women. (Relative survival is the chance of surviving if all other causes of death are removed.)

The risk of developing and dying from different types of cancer varies widely, even among the 10 most common types (Figure 4.20).

By comparing the cumulative rate per cent for incidence and mortality, it is possible to infer the chance of dying from each type of cancer once it has developed. While nearly all lung cancer is fatal (in both males and females), the outlook for breast and prostate cancer is more favourable.

4.6 Disabilities

A significant proportion of the Australian population has some kind of disability or handicap.

It has been estimated from the 1981 ABS survey of handicapped persons that 13.2% of Australians (1.9 million) have a disability

Figure 4.21: Primary disabling conditions, 1981
Source: ABS, Social Indicators 1984, Cat. No. 4101.0

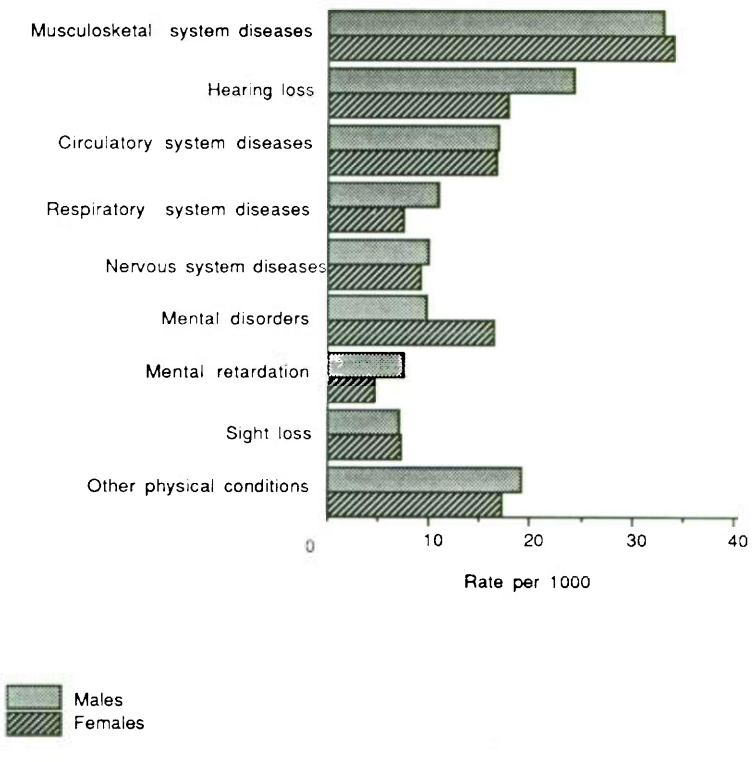
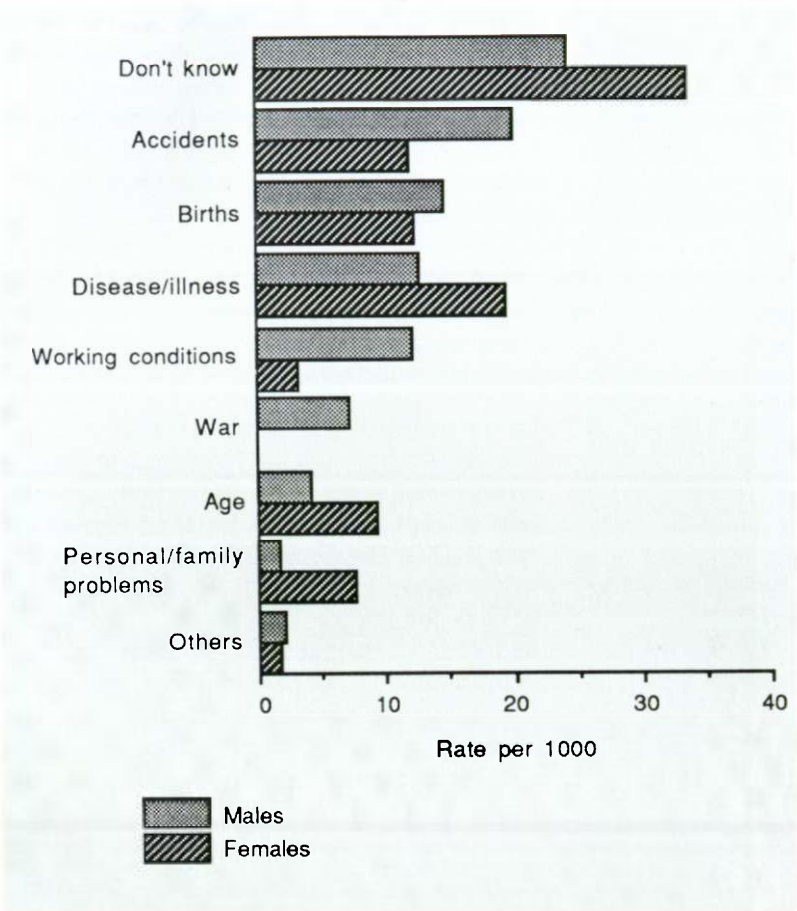


Figure 4.22: Primary causes of disabling conditions, 1981
Source: ABS, Social Indicators 1984, Cat. No. 4101.0



(unable to perform an activity in a normal manner). Of these, 65.2% (1.3 million) have a disability resulting in a handicap (a restriction in performing daily activities). ABS described 514 000 people over the age of five years as having a severe handicap, 271 000 of them under 65.

The Department of Social Security's 1986–87 Annual Report identified 333 667 people with a disability who did not meet the age-pension criteria but were receiving other benefits. Of these

- 289 160 people were receiving an invalid pension;
- 10 559 people were receiving a sheltered employment allowance;
- 2 887 people were receiving a rehabilitation allowance;
- 31 061 parents were receiving a handicapped-child allowance.

The figures did not include people with a disability who might be counted in long-term sickness benefits, special benefits or unemployment benefits, people ineligible for income support and people who did not apply because they were married, employed or unaware of eligibility etc.

Physical conditions account for the majority of disabilities for both sexes with diseases of the musculoskeletal system, hearing loss and diseases of the respiratory and circulatory systems all having rates greater than 10 per thousand population (Figure 4.21). The most common known causes of disabilities are accidents, disease or illness, conditions present from birth and working conditions (Figure 4.22).

The majority of handicapped people do not receive support under the Commonwealth's Disability Services Program. Instead, they receive support through more general Federal, State and Local government programs, non-departmental funded agencies and from informal carers such as families and friends.

Commonwealth-funded services

The legislative base for the Disability Services Program changed during 1987 with the introduction of the ***Disability Services Act 1986*** to replace the ***Handicapped Persons Assistance Act 1974*** and Part VIII of the Social Security Act.

The new Act permits funding of a wide range of support services for people with disabilities with the focus on addressing the needs of people with disabilities in the areas of employment, accommodation support and community participation. Approved classes of services include rehabilitation, accommodation support, advocacy, competitive employment training and placement, independent living training, information, print disability, recreation, respite care and supported employment services.

4.7 AIDS—Acquired Immune Deficiency Syndrome

AIDS has not been mentioned in the preceding data even though it is of great community concern. This is because cases of AIDS and the resulting deaths are still very uncommon in relation to the total burden of illness and death.

However, AIDS is important because it is both fatal and incurable and because it is spread by common types of human behaviour it has the potential to affect a significant proportion of the population.

AIDS is a disease complex caused by the Human Immunodeficiency Virus (HIV). It was first recognised and documented in New York City and the State of California in the United States in 1981. AIDS has since been reported on all continents.

The first case of AIDS in Australia was diagnosed in May 1982. By 11 April 1988, a total of 813 AIDS cases including 426 deaths had been reported from all the States/Territories in Australia.

There has been a steep increase in the number of AIDS cases and deaths since 1982 (Figure 4.23). The slight reduction in the

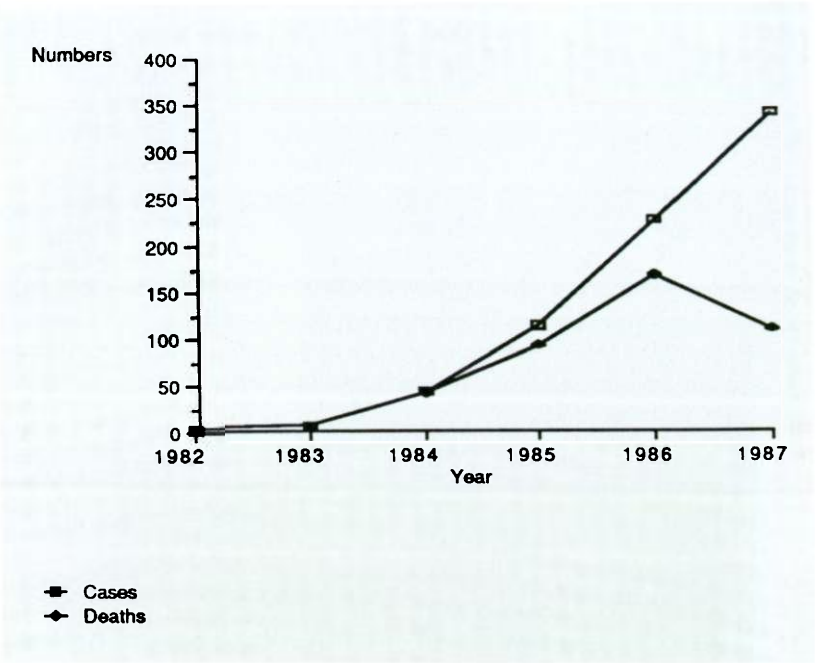


Figure 4.23: Annual number of cases and deaths from AIDS, 1982 to 1987

Source: Acquired Immune Deficiency Syndrome (AIDS) Cumulative Analysis of Cases in Australia, 11 April 1988, NH&MRC special unit in AIDS epidemiology and clinical research

number of deaths from 1986 to 1987 could be due to early detection or to the life-prolonging effect of Zidovudine AZT treatment.

The incubation period of HIV infection ranges from a few months to 10 years or more, with a median of about seven years.

Infection with HIV produces a spectrum of disease syndromes, ranging from inapparent infection without symptoms or positive tests through to acute HIV infection with influenza-like symptoms, enlargement of lymph glands, AIDS-related complexes with unexplained fever, chronic diarrhea and weight loss, and central and peripheral nervous diseases.

The late stage of AIDS has manifestations of so-called opportunistic infections such as ***Pneumocystis carinii*** pneumonia, and cancerous growths such as Kaposi's sarcoma. These two diseases account for about 90% of AIDS cases in Australia. Neurological disease alone accounted for about 1.5% of cases. However, as the neurological effects of HIV infection become better understood and recognised, the proportion may rise.

Knowledge of the modes of transmission of HIV is essential for successful prevention and control. Epidemiological studies have established that HIV is transmitted from HIV-infected persons to susceptible persons through:

- Sexual transmission
  - homosexual
  - bisexual
  - heterosexual

- Parenteral transmission
  - transfusion of HIV contaminated blood and blood products (has been contained in Australia by excluding high risk groups for HIV from blood donation, and the introduction of HIV blood testing)
  - sharing of unsterile needles and syringes used by drug users,
  - needle stick injuries in workplaces.
- Perinatal infection where infants are infected before, during or after birth by infected mothers.
- Receipt of infected human tissues such as sperm and corneal grafts. (This has been contained by the introduction of HIV testing.)

Although HIV is found in saliva and tears, there is no epidemiological evidence to suggest that HIV can be transmitted by casual social non-sexual contact, by sharing of utensils and meals, or by insects.

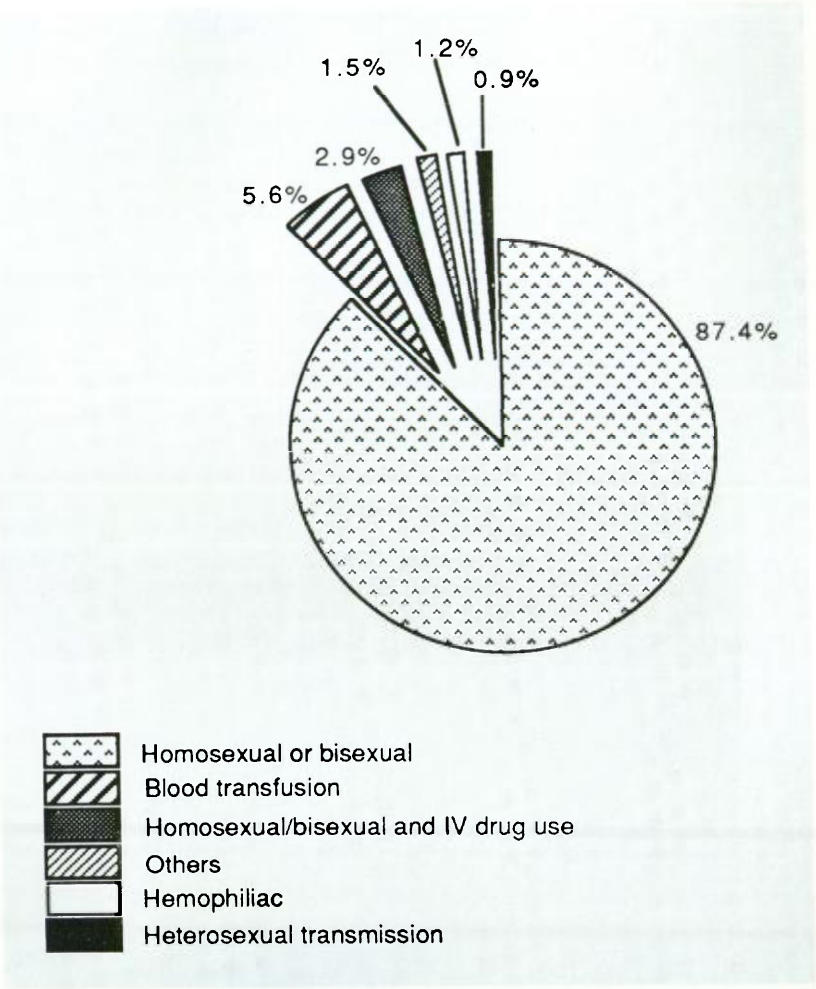
AIDS can be diagnosed by blood testing for antibodies to HIV virus, but up to three months may elapse from when a person was infected to when their blood test becomes positive. The period during which a person with AIDS could infect another person is very long, stretching from a few weeks after infection until their death. Infectiousness tends to increase with time and the progress of the disease process.

In Australia, about 87% of AIDS cases to date have been transmitted by homosexual or bisexual activities in the absence of intravenous drug use (Figure 4.24). A further 3% were related to homosexual or bisexual activities in association with intravenous drug use. Of the remaining 10%, half were associated with blood transfusions before the introduction of screening procedures. The remaining 4% of cases includes those involving intravenous drug use not associated with homosexual or bisexual behaviour, and a small number involving heterosexual transmission. There is concern, however, that heterosexual transmission may increase substantially, particularly from those high-risk groups which are the main reservoir of sexually transmitted diseases. Frequent sexual contact with multiple partners, failure to use barriers such as condoms, and the presence of vaginal trauma or untreated ulcers will tend to increase the spread of HIV infection among heterosexuals.

Apart from basic data concerning AIDS cases, data on the epidemiology of HIV infection and AIDS in Australia is not very clear for various reasons—poor notification, standardisation, co-ordination and communication, together with confidentiality and ethical problems. Such data are essential if resources to control AIDS are to be employed effectively and efficiently.

Figure 4.24: Mode of transmission for AIDS cases as of April 1988

Source: Acquired Immune Deficiency Syndrome (AIDS) Cumulative Analysis of Cases in Australia, 11 April 1988, NH&MRC special unit in AIDS epidemiology and clinical research



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5 Impact of environment, society and lifestyle

5.1 Causes of illness and death

The physical environment, individual lifestyles and social and cultural factors all have a major impact on health. Health hazards of the physical environment include dangerous workplaces, noise and chemical pollution of air, water and food, while health hazards of the social environment include unemployment, poverty and lack of social support. Environmental hazards are not readily changed by individuals and often require concerted actions by government, industry and consumer/community groups.

In trying to prevent illness and promote good health, there has been a tendency to focus on individual lifestyles—for instance, reducing smoking, alcohol consumption and dietary fat. But even these are influenced strongly by powerful forces such as social roles, cultural norms, advertising and education. So collective as well as individual action is often needed to change individual lifestyle hazards. For instance, individuals may give up smoking more readily if it is regarded as socially unacceptable and is banned in enclosed areas (such as restaurants, public transport, lifts) and in the workplace (as in the Australian Public Service).

Rates of sickness and disease and death vary among different social and economic groups. Research helps identify disadvantaged groups in need of prevention programs and indicates how much such programs could reduce sickness and disease. It also helps identify causes of disease.

In the 1977–78 Australian Health Survey (AHS), men and women with higher levels of income reported fewer acute conditions and emotional health problems (Figure 5.1). Chronic illnesses decreased with increasing income among men only.

In the interest of consistency (since some factors such as occupation apply only to working age groups) analyses in Figures 5.1, 5.2 and 5.3 are limited to people of working age (20–64 years).

The relationship between higher levels of education and fewer health problems appears to be much stronger for women than men. The relationship between higher levels of income and fewer health problems appears to be stronger for men. The weak

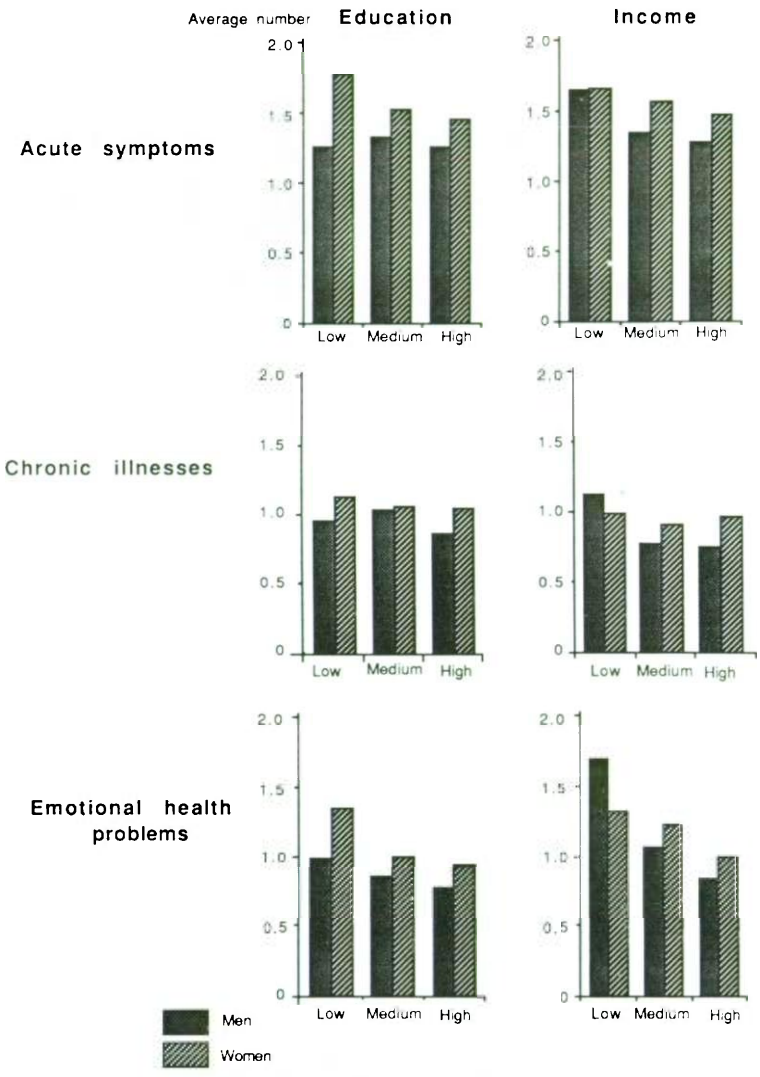


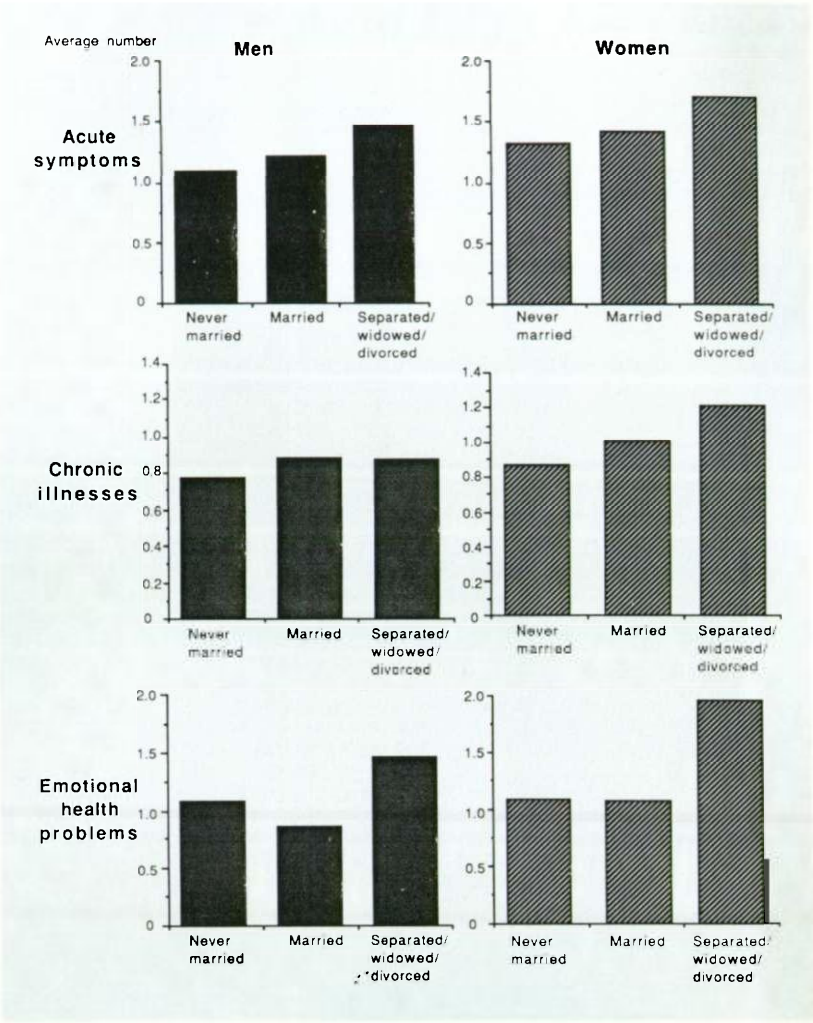
Figure 5.1: Conditions reported by persons aged 20 to 64 by education and income, 1977–78 (age standardised)
Source: Lee, Smith, d'Espaignet and Thomson, AIH (1987)

relationship between income and health problems among women could be because personal income is a poor measure of a woman's socioeconomic status, since household income for a significant proportion of women (particularly those at home) will be largely determined by the husband's income.

Emotional health problems, however, show a stronger relationship to income, for both men and women.

Acute, chronic and particularly emotional health problems vary according to marital status (Figure 5.2). After adjusting for age, men and women who were separated, widowed or divorced reported more health problems. These data highlight the

Figure 5.2: Conditions reported by persons aged 20 to 64 by marital status, 1977–78 (age standardised)
Source: Lee, Smith, d'Espaignet and Thomson, AIH (1987)

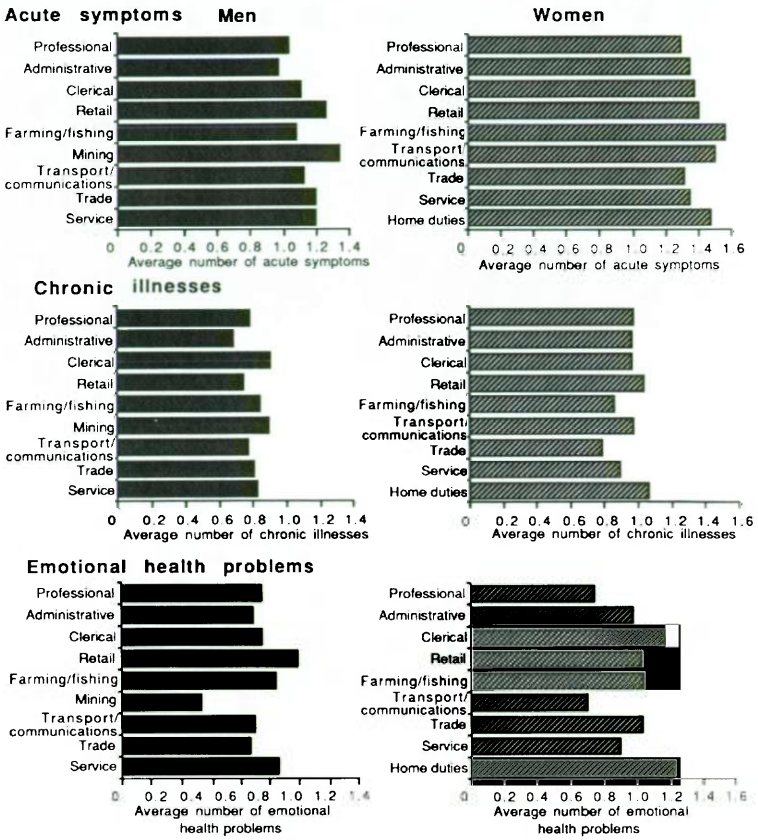


significance of social relations and social support to health, as well as the influence of social class and economic status.

The average number of acute symptoms varies among occupations by about 30% for men and about 20% for women (Figure 5.3). For chronic illnesses, it varies about 25% for both sexes. Emotional health problems also vary with occupation. For men, the variation is more than two-fold, while for women the highest (home duties) is about 75% higher than the lowest (transport/communications).

Men in administrative jobs generally report fewer acute and chronic health problems compared with men in other occupations. Professional men report few acute symptoms compared with other

Figure 5.3: Conditions reported by persons aged 20 to 64 by occupation, 1977–78 (age standardised)
Source: Lee, Smith, d'Espaignet and Thomson, AIH (1987)



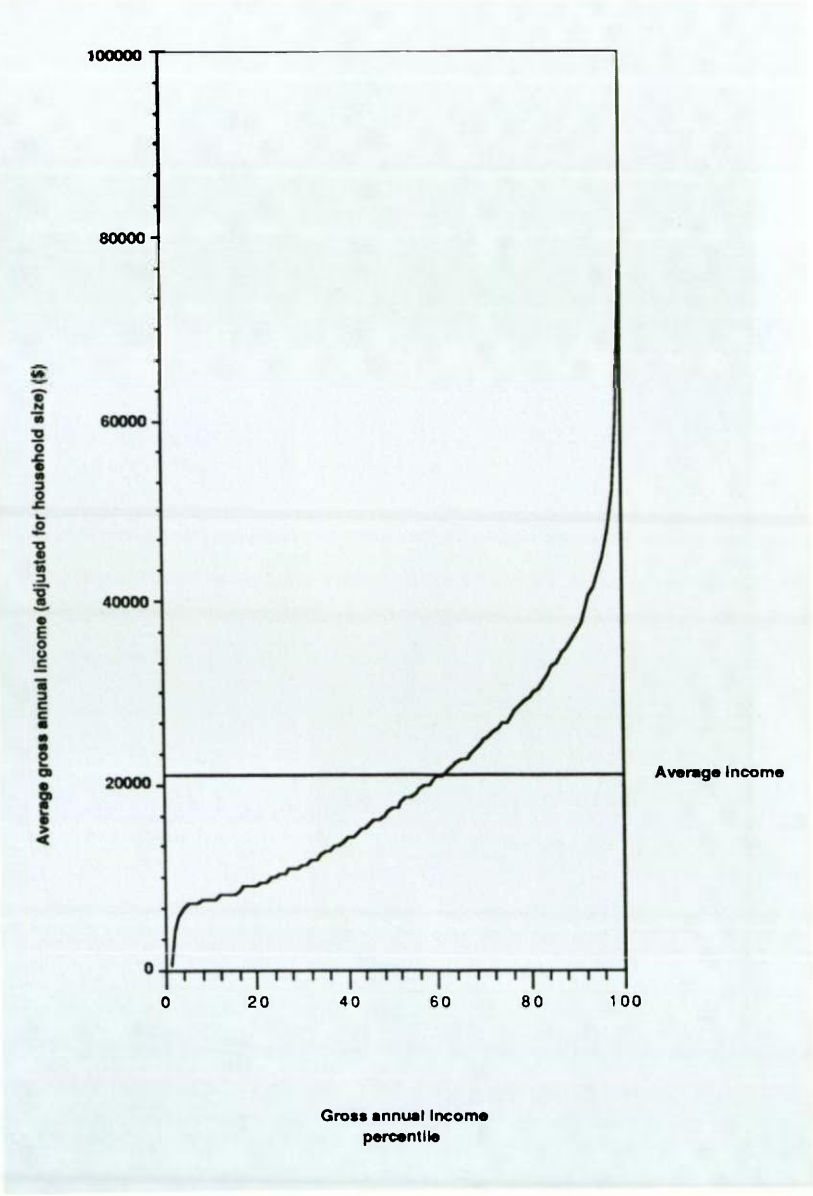
occupations, but are in the middle of the range for chronic illnesses. Women in trade and service occupations tend to report fewer acute symptoms and women in home duties and transport tend to report more. Similar variations can be seen for chronic illnesses, but the ordering of occupations is different. Though these variations may be due in part to direct occupational hazards, other factors such as education and income are more likely causes.

With the exception of home duties for women, there appears to be little commonality between occupations with high numbers of acute and chronic conditions and those with high numbers of emotional health problems. Women employed in home duties reported the highest average number of chronic and emotional problems and the third highest number of acute symptoms, suggesting that much more attention should be given to the health of women at home. Those variations may mean either that employment in particular occupations causes emotional health problems or that people with emotional health problems are more likely to work in particular occupations.

The relationship between physical and emotional health and occupation, education, income and marital status is very complex. To illustrate, having a low income may cause health problems: thus health problems may limit education, employment and therefore income; and physical health problems may limit income and cause mental health problems. The importance of low income and poverty to illness is heightened by the large variation in household income in Australia (Figure 5.4).

Figure 5.4: Household income distribution, 1984

Source: ABS, Household expenditure survey, 1984: average annual equivalent income



5.2 Mortality data

Death rates vary among social classes in a similar way to variations in sickness and disease among different occupations. Death rates are higher for men in lower social classes (Figure 5.5).

Social class has been established on the basis of the Congalton scale, which allocates people to one of four social classes by occupation. Occupations with the highest prestige are allocated to class A and those with the lowest to class D.

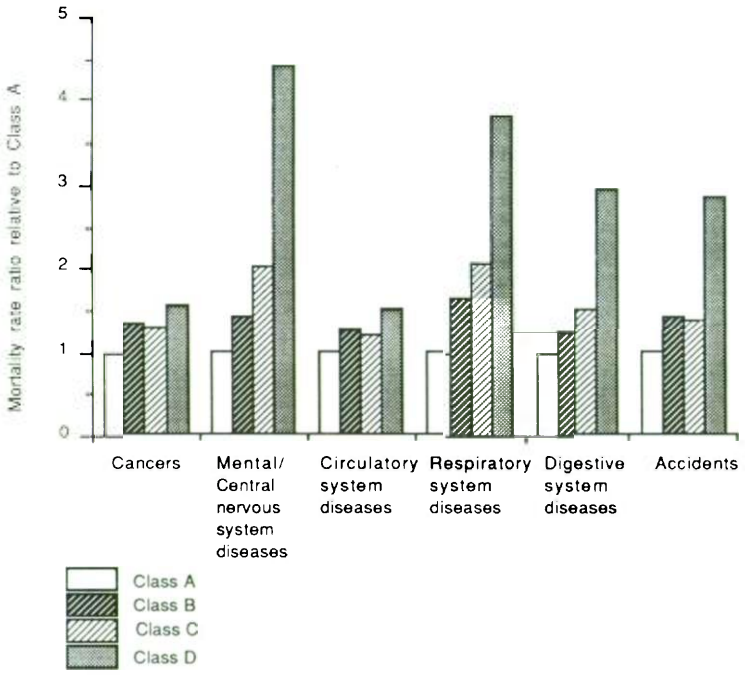


Figure 5.5: Male mortality rate ratios by social class, 1970 to 1977

Note: Social classes determined on the Congalton scale which allocates people to one of four social classes based on the prestige of their occupations Occupations with the highest prestige are allocated to Class A and those with the lowest to Class D

Source: McMichael (1985)

There is a 50% higher mortality rate for class D compared with class A for diseases of the circulatory system. Although workplace hazards may play some part in this excess, it has been found that the direct effects of working environments account for only 20% of the variation in death rates among different occupations (Fox and Adelstein 1978). Research in Britain has also found very poor health and high death rates among unemployed people. Much of this poor health is directly attributable to the effects of unemployment (Smith 1985; Turtle and Ridley 1983), again emphasising that social supports and sufficient financial resources are key factors in health. (See The Black Report 1982 for a full discussion of these issues.)

Figure 5.6: Ischemic heart disease mortality rates for males by occupational group, 1969 to 1978 (age standardised)
Source: Dobson, Gibberd, Leeder and O'Connell (1985)

In recent years there has been a substantial decline in death rates for ischemic heart disease in all social classes. However, substantial differences remain in death rates for ischemic heart disease among different occupations (Figure 5.6).

At least half of the decline in ischemic heart disease mortality is due to reduced risk factors (Dobson, Gibberd, Leeder and O'Connell 1985). The greater decline in the professional group may be because those in higher socioeconomic groups are more responsive to health information.

Marital status is also related to variations in death rates (Figure 5.7). Those in the married/separated category have the lowest death rate, for both males and females, again highlighting the importance of social supports to good health, although the high mortality among the never married category is partially due to the fact that people in poor health are less likely to marry.

A recent study in Brisbane (Siskind, Najman and Copeman 1987) which compared infant mortality rates in different suburbs has found a striking relationship between the suburb's socioeconomic status and infant mortality (Figure 5.8). Infant mortality is higher for those of lower socioeconomic status, in all classifications.

In Brisbane, relevant health services are free and readily accessible, which suggests that providing institutional services alone is unlikely to reduce health differentials.

Figure 5.7: Mortality rates by marital status and sex, 1981 (age standardised)
Source: Lee, Smith, d'Espaignet and Thomson, AIH (1987)

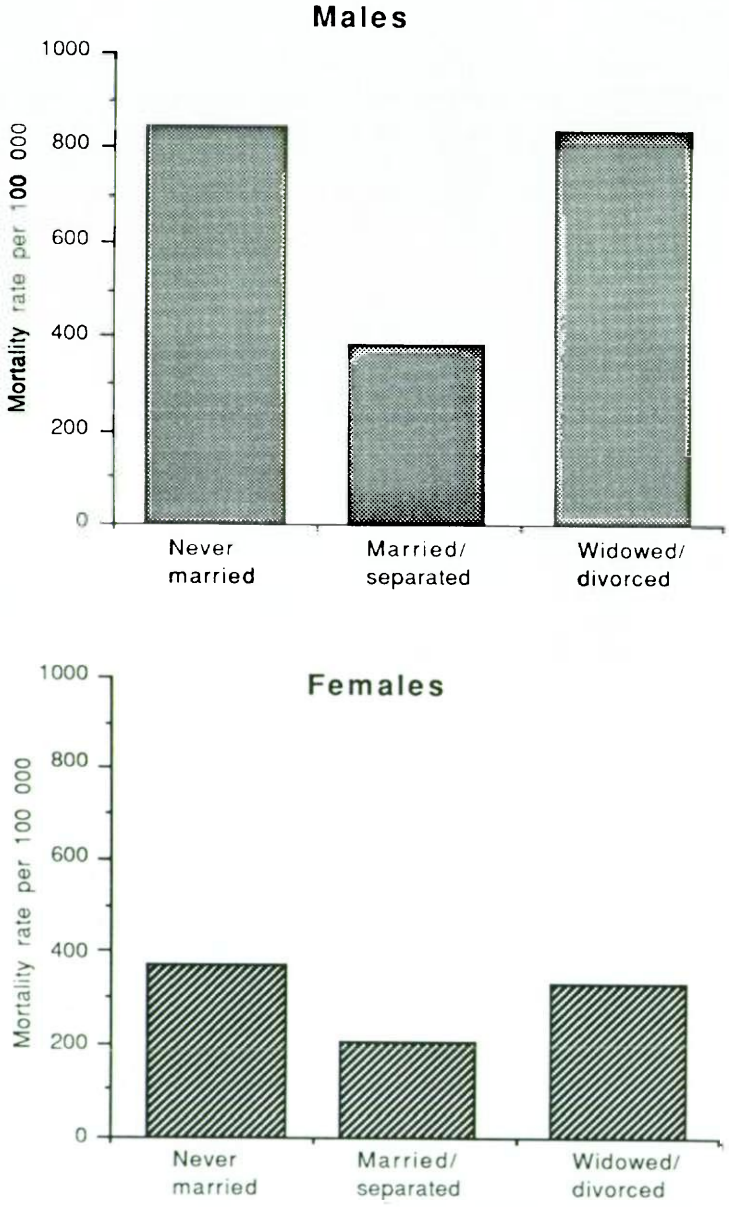
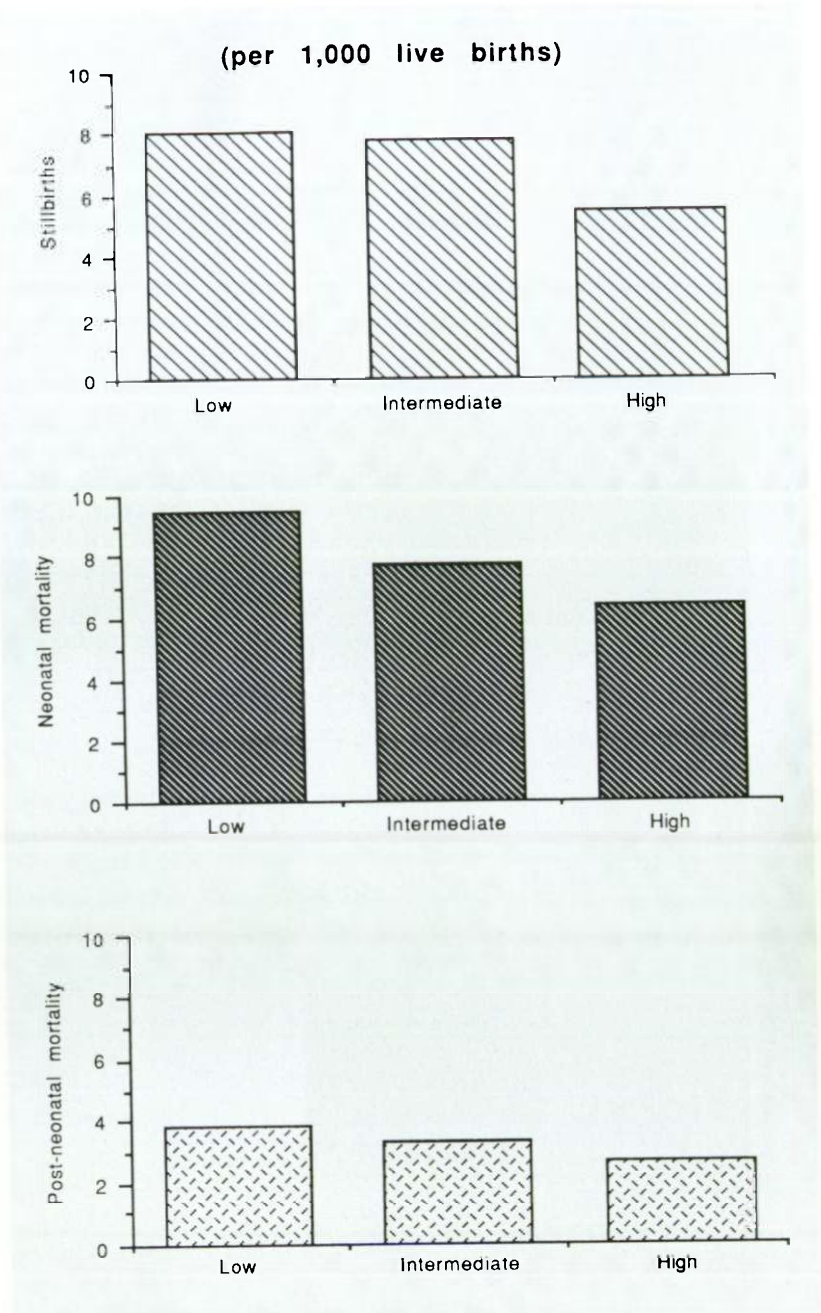


Figure 5.8: Stillbirths, neonatal mortality and postneonatal mortality rates for suburban groupings of Brisbane according to socioeconomic status scores, 1976 to 1979

Source: Siskind, Najman and Copeman (1987)



Major causes of death, sickness and disease and their associated risk factors

Cause	Factors influencing risk
Coronary heart disease	Smoking, hypertension, blood lipid levels, diet, exercise, relative weight
Stroke	Hypertension, diet(?), smoking(?), oral contraceptives plus smoking (young women)
Lung cancer	Smoking, occupational exposures
Breast cancer	Reproductive history, body weight, diet
Cancer of the cervix	Sexual activity (especially genital viral infection), smoking(?)
Cancers of digestive system	Diet, alcohol and smoking (upper alimentary tract)
Malignant melanoma and skin cancers	Patterns of sunlight exposure
Motor vehicle accidents	Alcohol consumption, driver's skill, vehicle safety and road conditions
Other accidents, poisoning and violence	Alcohol, social and psychological factors, environmental conditions at home, work and leisure
Suicide	Social and psychological factors
Chronic lung disease (bronchitis, emphysema etc.)	Smoking, occupational exposure to dusts, fumes etc.
Diabetes mellitus (adult onset)	Diet, relative weight, physical inactivity
Gallstones	Diet, reproductive history, oral contraceptive usage
Osteoporosis (occurs predominantly in women)	Dietary calcium deficiency, other dietary imbalances, physical inactivity
Infertility, pelvic infection	Casual sexual activity by men or women

Source: Based on Better Health Commission, Volume 1, page 31 (1986)

5.3 Risk factors

A great deal is known about the risk factors responsible for major diseases and injuries and death (see Box on risk factors). Risk is the chance an individual has of developing or dying of a particular illness or injury, and a risk factor is a set of circumstances which increases this risk. Risk factors are identified by epidemiological research and some (such as smoking) may themselves be causes of disease; others (such as body weight for breast cancer) may be correlated with known or unknown causes of disease.

The number of deaths in each age-sex group attributable to a risk factor can be estimated by using data on the number of

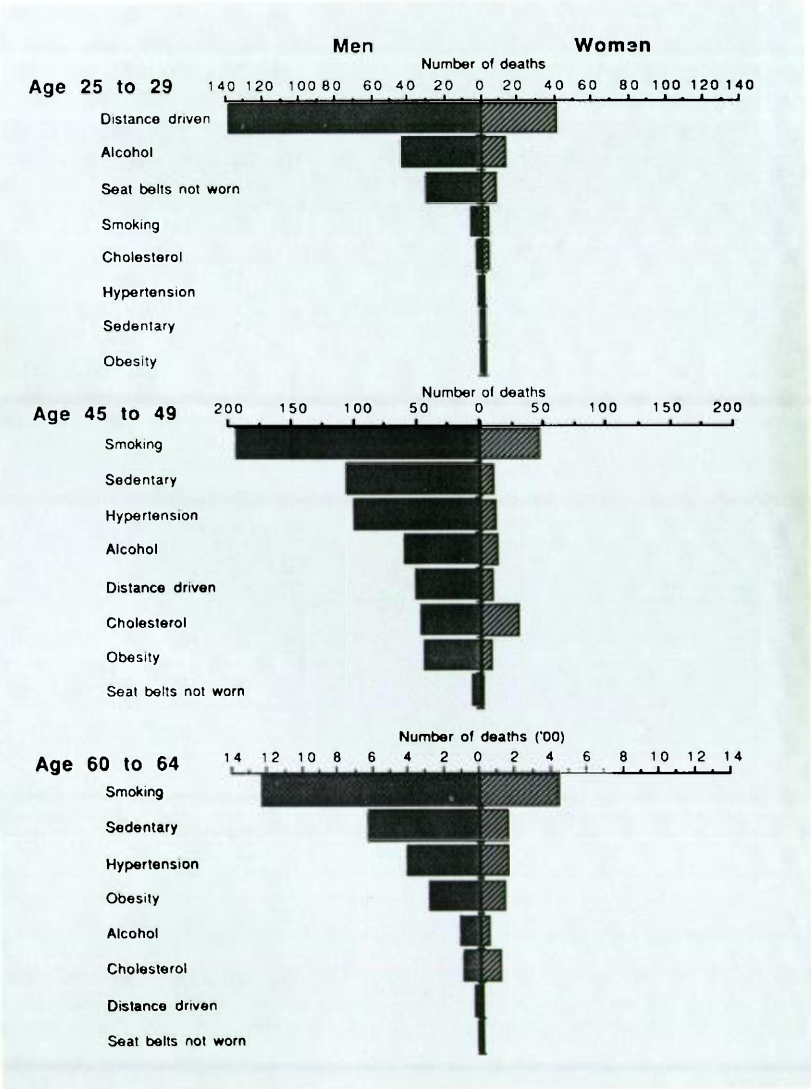


Figure 5.9: Estimated number of deaths attributable to eight important risks for three age groups, 1986

Source: Data from ABS, Causes of Death 1986, Cat. No. 3303.0 Method from Milsum and Jones (1987)

deaths, the increased risk of death from each cause for each risk factor (the relative risk) and the proportion of people in each age-sex group who possess the risk factor (Figure 5.9). (The data in Figure 5.9 should be regarded as indicative only, since they are based in part on overseas relative risk data and some overseas risk-factor prevalence data. However, these data do identify those risk factors which are important causes of death.) Throughout

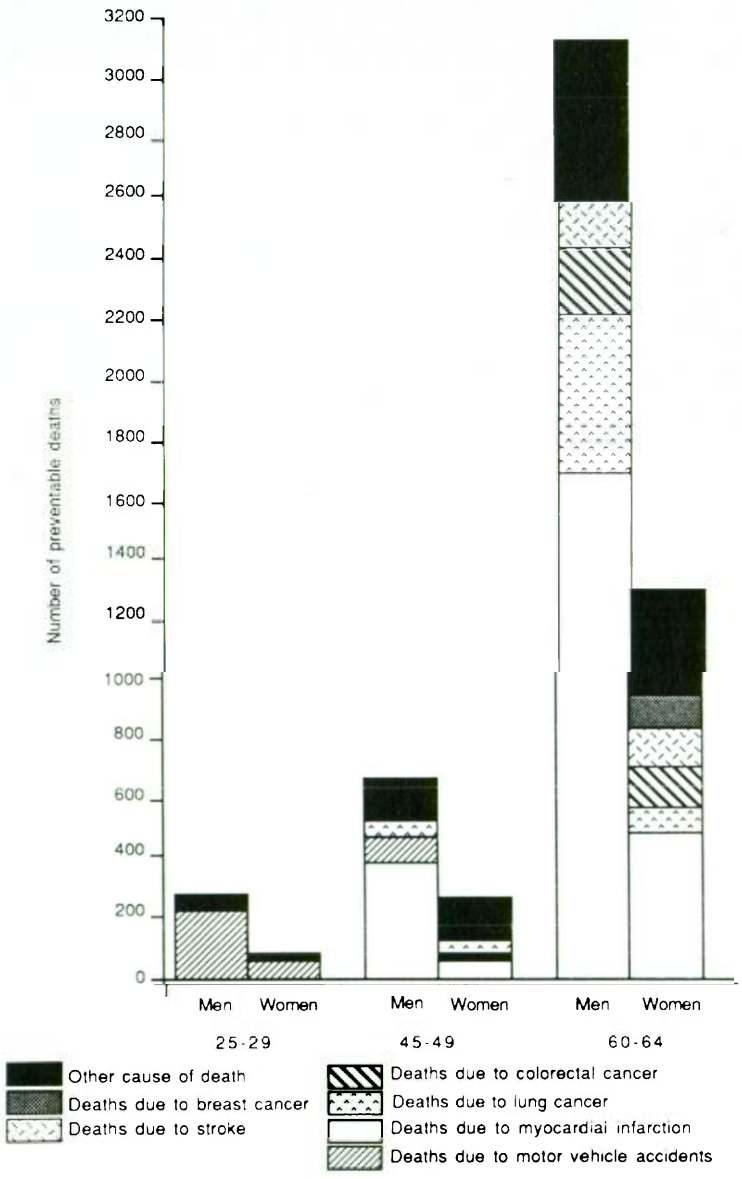


Figure 5.10: Estimated number of potentially preventable deaths by cause of death, age and sex or three age groups, 1986
Source: Data from ABS, Causes of Death 1986, Cat. No. 3303.0
Method from Milsum and Jones (1987)

adult life, deaths directly attributable to eight major risk factors are more common in men than women. This is largely due to the risk factors being more common among men.

In the 25–29 year age group, alcohol, seat belts not worn and distance driven are the major contributors to preventable deaths (Figure 5.9), which are mostly from motor-vehicle accidents (Figure 5.10). In the 45–49 age group, the risk factors for circulatory disease (smoking, obesity, sedentary lifestyle, hypertension and cholesterol) are the major causes of preventable deaths, which are mainly due to acute myocardial infarction (heart attack) and lung cancer.

In the 60–64 age group, the number of potentially preventable deaths is much greater, with smoking a much greater risk factor. This does not mean that all the preventable deaths in this age group were necessarily caused by smoking between the ages of 60 and 64, although some will have been. Many of these deaths will have been caused by smoking at younger ages. Although the

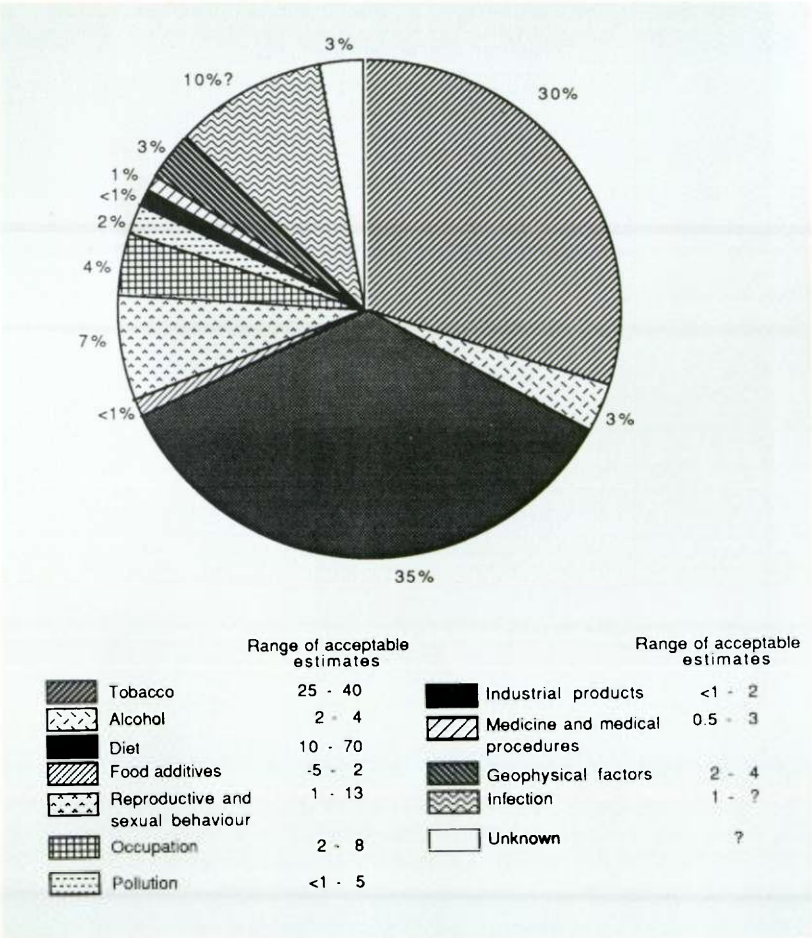


Figure 5.11: Estimated proportions of cancer deaths attributed to various risk factors
Source: Doll and Peto (1981)

number of deaths from heart attacks due to smoking can be calculated, it is not possible to identify which deaths were due to smoking among those smokers who died of heart attacks. Only the probability that the person's death was due to smoking can be calculated.

Proportions of cancer deaths can be attributed to various factors, as in a recent study based on data from the United States (Figure 5.11). The proportions are likely to be very similar for Australia. It should be noted that for many of the risk factors presented, the range of acceptable estimates is quite wide. Similar studies for circulatory, digestive and other diseases would be useful.

Table 5.A: Tobacco-related deaths in Western Australia, 1979 to 1983
Source: Holman and Shean (1986)

Principal condition/external cause	*Males*	*Females*
Cancer		
Lip	**1**	**1**
Mouth	**45**	**11**
Pharynx	**42**	**11**
Oesophagus	**94**	**31**
Stomach	**64**	**16**
Pancreas	113	**27**
Larynx	53	**4**
Trachea, bronchus and lung	1 465	**238**
Uterine cervix	—	**40**
Bladder	**96**	**24**
Kidney and other unspecified urinary organs	**26**	**6**
Ischemic heart disease	2 065	**970**
Diseases of the pulmonary circulation	**38**	**23**
Heart failure and ill-defined descriptions and complications of heart disease	160	**151**
Cerebral ishemia, infarction and hemorrhage	252	**462**
Peripheral vascular disease	415	**360**
Chronic bronchitis and emphysema	1 009	**191**
Low birth weight	29	15
Accidents caused by fire and flames	6	3
Total deaths in Western Australia attributable to tobacco	**5 973**	**2 586**
Total deaths in Australia	**23 502**	**17 391**

An extraordinary number of diseases, particularly cancers, are caused by tobacco consumption (Table 5.A), and it is the cause of many deaths throughout Australia (Table 5.B). The proportion of deaths from tobacco is lower among women because smoking has been less common among women. The lower proportions of deaths for the Northern Territory and the ACT are most likely due to the lower average age in these Territories: smoking tends to kill those in late middle age and old age.

The chances of an individual smoker dying from smoking vary according to the age at commencement and the amount smoked. On average, the chances of dying from smoking are high among 45-year-old men smoking a pack a day—about one in 12 will die before 65 and one in five before 85 (Figure 5.12). Equivalent trends of risk from other hazards such as toxic chemicals or machinery would be totally unacceptable to the majority of Australians. As a cause of death and lost years of life, tobacco is

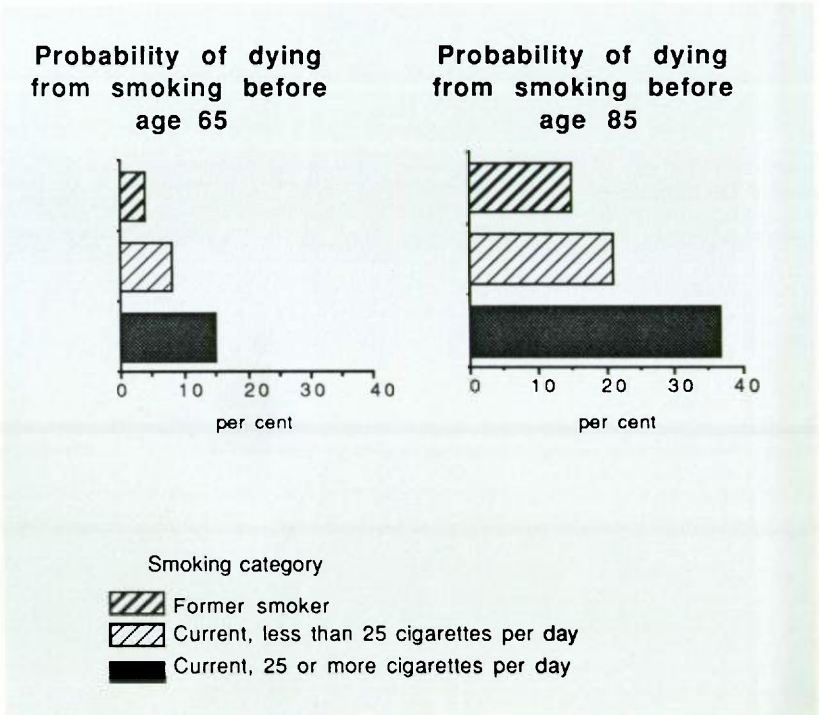
Table 5.B Tobacco related deaths: Proportion of total deaths and number of deaths due to tobacco between ages 15 and 69 in Australian States and Territories, 1984

Source: Based on Holman and Shean (1987)

	Male deaths		*Female deaths*	
	Tobacco related		*Tobacco related*	
	Number	*%*	*Number*	*%*
New South Wales	5 563	58%	2 842	54%
Victoria	4 098	58%	2 139	59%
Queensland	2 474	56%	1 153	50%
Western Australia	1 265	61%	557	54%
South Australia	1 434	60%	692	56%
Tasmania	522	57%	251	50%
Northern Territory	52	23%	23	15%
Australian Capital Territory	111	40%	63	37%
Total	15 519	58%	7 720	54%

Figure 5.12: Probability of male smokers aged 45 years dying from smoking

Source: Mattson, Pollack and Cullen (1987)



far ahead of other drugs, both legal and illegal. Alcohol, which is second, and other drugs are relatively more significant causes of lost years of life than of death because they tend to cause death earlier in life than tobacco (Figure 5.13). Motor vehicle deaths where alcohol is involved are more likely to occur in early adult life, whereas deaths from heart attack and, particularly, from lung cancer from smoking occur in middle and old age (Figure 5.13).

Alcohol contributes to numerous deaths each year, being responsible for 3456 deaths in Australia in 1985 (Figure 5.14). Alcohol has many other deleterious effects (see Box).

Figure 5.13: Deaths and years of life lost before age 70 through drug use, 1985

Source: Department of Community Services and Health. Alcohol: The facts (1987)

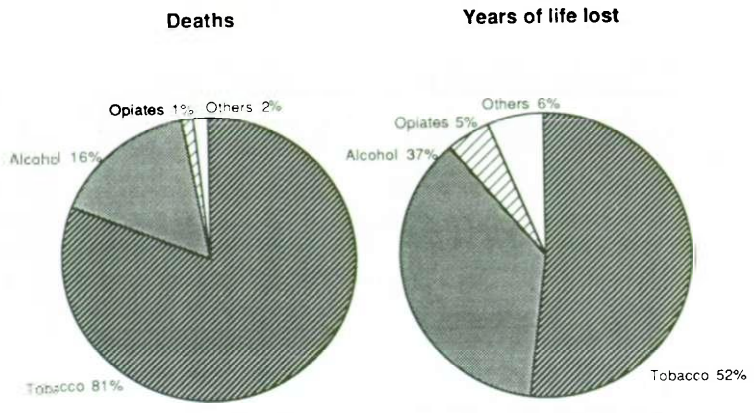
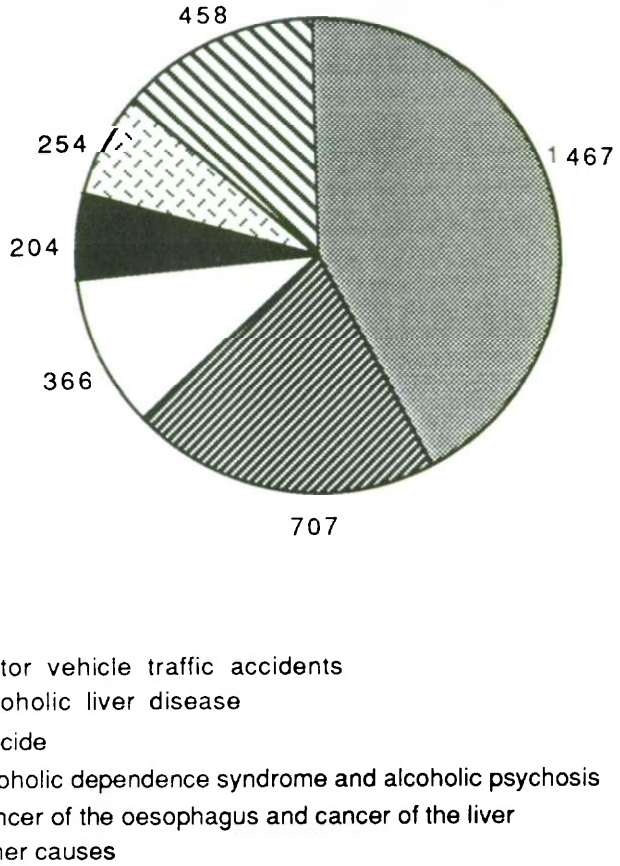


Figure 5.14: Number and proportion of deaths attributable to alcohol-related conditions, 1985

Source: Department of Community Services and Health. Alcohol: The facts (1987)



Summary of effects of alcohol in Australian society

- Alcohol has been a major causal factor in the deaths of over 30 000 Australians in the last 10 years.
- Deaths from cirrhosis of the liver rose 75 per cent during 1965-76, while average individual consumption of alcohol rose 30 per cent.
- Over 250 000 Australians are alcoholics.
- 1 200 000 Australians are affected personally or in their family situations by the abuse of alcohol.
- One in every five of our hospital beds is occupied by a person suffering from the adverse effects of alcohol.
- Two in every five divorces or separations result from alcohol-induced problems.
- Problems directly related to alcohol, including industrial accidents and absenteeism, cost the national economy about $1 billion a year.
- Alcohol is associated with half the serious crime in Australia. Three-quarters of the men who commit a violent crime have been drinking before the crime.
- Alcoholism among the young is increasing dramatically and as many as 10 per cent of school children between the ages of 12 and 17 get 'very drunk' at least once a month.

Source: Hetzel and McMichael (1987) page 133

Illegal use of drugs

Little reliable evidence is available to estimate the number of illegal drug users in general, or users of any particular illegal drug (such as heroin). Nor can a firm estimate be made of the quantities of illegal drugs being used.

In November 1985, as part of the National Campaign Against Drug Abuse, a national survey was conducted on behalf of the then Commonwealth Department of Health among people aged 14 years and over to establish attitudes to a range of social issues in Australia, including drug use (Table 5.C).

Taking into account the result of various inquiries, surveys and statistics on drug-related deaths and treatment programs, it can be conservatively estimated that Australia has some 30 000 to 50 000 frequent, regular dependent heroin users and at least 60 000 irregular, 'recreational', non-dependent heroin users.

Table 5.C: Proportion of population who have tried drugs, type of drug, sex, age, Australia 1985 (per cent)

Source: Commonwealth Department of Health (1985)

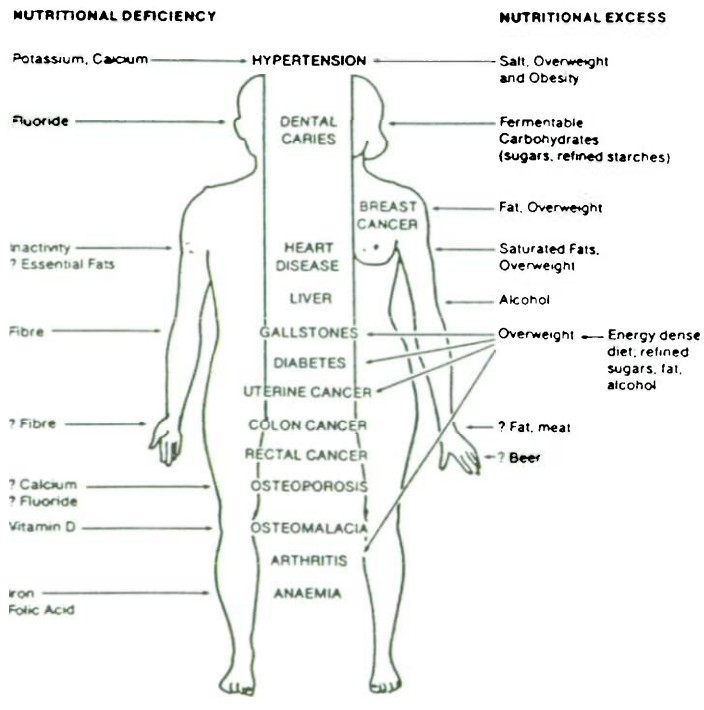
Drug type	Males 14-19 years	Males 20-39 years	Males 40+ years	Females 14-19 years	Females 20-39 years	Females 40+ years
Marijuana	31	57	13	30	40	3
Heroin		8		1	2	
Barbiturates	1	12	9	4	6	12
Tranquillisers	4	23	30	8	26	40
Glue/Petrol/Solvent	7	8	2	7	1	
Amphetamines	6	15	7	6	9	3
Cocaine	3	8	1	1	4	1
Hallucinogens	9	16	3	6	9	

Imbalances in diet are also responsible for a wide range of diseases (Figure 5.15). These diseases result from both nutritional deficiencies and nutritional excesses. It is widely believed that in Australia, as with other developed countries, most disease related to diet arises from overconsumption, not insufficient consumption, with the notable exception of dietary fibre. This is suggested by data in Figure 5.9, which show the estimated number of deaths due to obesity and high blood cholesterol.

Obesity results from over consumption of energy relative to energy needs, and high blood cholesterol is associated with over consumption of fats, oil and cholesterol. Next to dietary fibre, probably the most serious deficiency is that of the vitamin thiamin

Figure 5.15: Conditions linked to diet

Source: James (1985)



in the diets of some people with high levels of alcohol consumption. Thiamin deficiency can cause Wernicke-Korsakoff Syndrome, a form of brain damage, and this has led to recent moves to fortify flour and some types of alcoholic beverages with thiamin.

It has been estimated that between 10% and 70% of cancer could be due to diet (Figure 5.11), but few data are available which quantify the impact of imbalances in the food diet on the population. This is surprising, given the importance of diet in disease and the availability of the data needed for such calculations from the 1983 National Heart Foundation Risk Factor Prevalence Study.

5.4 Distribution of risk factors

How can the observations of large differences in health among different socioeconomic groups and groups with different levels of social support be linked with the substantial health impact of individual lifestyles? This question has led to examination of the differences in lifestyles of people in different socioeconomic groups. Figure 5.16 provides very suggestive evidence of the links. Smoking and high use of alcohol are less common among women. Among both men and women, lower status occupations are associated with a higher proportion of smoking and undertaking less exercise. This ties in with higher mortality and morbidity

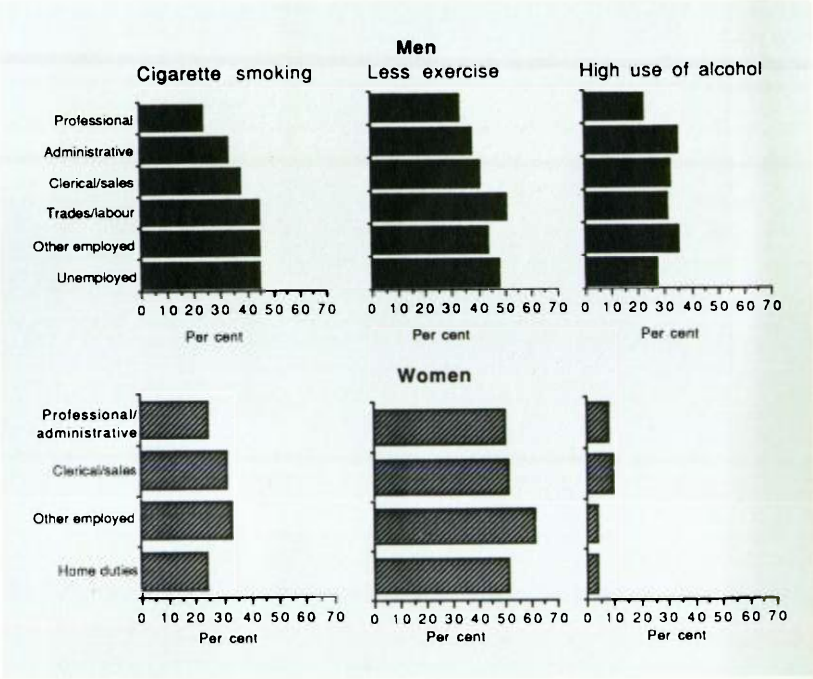


Figure 5.16: Risk factor prevalence among persons aged 25 to 64 years in capital cities by occupational group, 1980

Source: Hetzel and McMichael (1987) based on the National Heart Foundation Risk Factor Prevalence Study No. 1 (1980)

rates among those in lower status occupations (Figure 5.5).

Except for cigarette smoking, however, there seem to be few consistent gradients with occupational status.

Smoking for men and women is lowest among those married, and highest among those separated, widowed or divorced (Figure 5.17). Among men, alcohol consumption is lowest for those married and highest for those separated, widowed or divorced. There is little relationship between alcohol consumption and marital status among women.

This is consistent with married men and women having fewer health problems (Figure 5.2), and married or separated men and women having lower death rates (Figure 5.7). Similarly, higher smoking and drinking rates correlate with higher numbers of health problems among those separated, widowed or divorced. However, those widowed or divorced have slightly lower death rates than men and women who never married.

Variation in known risk factors explains only part of the variation in health among different socioeconomic groups. These conclusions

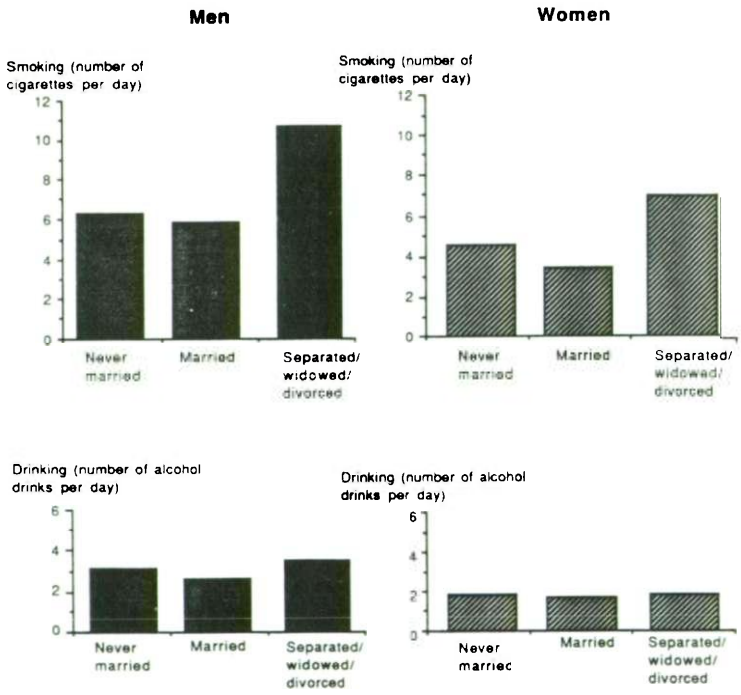


Figure 5.17: Smoking and drinking patterns according to marital status and sex, 1983
Source: Lee, Smith, d'Espaignet and Thomson, AIH (1987)

have been reached in rigorous studies, where correcting for all known causal factors still leaves variations in the risk of heart disease which cannot be explained (Marmot, Rose, Shipley and Hamilton 1978). This has important implications for the prevention of ill-health, in so far as efforts to improve health need to address social and economic factors, not just individual risk factors.

5.5 Implications for prevention

Clearly, the identified risk factors are important causes of death and disease, and every effort should be made to bring them under control. A leading British epidemiologist, Sir Richard Doll, has said:

> 'The type of action that is most likely to be effective can be taken only by central government or one of its agents. Government cannot, however, be expected to act, nor should it in a democratic society, until the ground has been prepared and the public is likely to approve its actions. When it is, government can influence behaviour both by regulation and by modifying the balance of incentives. No disincentive is as powerful as cost, and no single measure would contribute more to the prevention of disease than increased taxation to reverse the trends of the past 30 years that have made tobacco and alcohol progressively cheaper in terms of the labour required to buy them. More difficult to achieve, but in the long run perhaps even more important, is the use of tax and subsidy to encourage the consumption of a healthy diet.' (Doll 1983)

This perspective has led to growth in health promotion programs as well as restrictions on advertising and selling alcohol and tobacco, legislation and police campaigns to reduce drink driving and enforce the wearing of seat belts, and special taxes on alcohol and tobacco. But a great deal remains to be done, particularly in the areas of: health education (especially of children); controls on the advertising of alcohol, tobacco and food; improved labelling of food (for example, sodium content); improved food production technology to reduce saturated fat content; and an improved level of informed community debate on important public health issues.

An example of the inadequate level of community understanding is provided by a 1985 survey commissioned by the Commonwealth Department of Health (Social Issues in Australia). This found that 40% of people thought alcohol was the most serious drug problem in the community, followed by heroin (33%), marijuana (8%) and tobacco (6%). There is clearly a discrepancy between these perceptions and data on numbers of deaths and years of life lost from different drugs, as shown in Figure 5.13.

Knowledge about different risk factors has led to guidelines for people to reduce their personal risks (see Table 5.D as an example of dietary risk-factor guidelines).

One of the great strengths of the risk-factor perspective is that it enables people who have access to relevant information to substantially alter their personal risk profiles themselves. This has taken place most among middle and upper social class adults, and

Table 5.D: Major sets of dietary goals or guidelines

Source: Better Health Commission. Looking forward to better health, Volume 2, page 138 (1986)

Medical guidelines on people's food in the Scandinavian countries	*Dietary goals for the United States (US Senate Select Committee)*	*Dietary guidelines for Australians*	*Nutrition and your health—dietary guidelines for Americans (US Departments of Agriculture and Welfare)*
The supply of calories in the diet should in many cases be reduced to prevent overweight.	Prevent or treat overweight by reduced energy intake and increased expenditure.	Promote breast feeding.	Eat a variety of foods.
The total consumption of fat should be reduced from the present 40% to 25-35% of total calories.	Increase consumption of complex carbohydrates and naturally occurring sugars from about 28% to 48% of energy.	Choose a nutritious diet from a variety of foods.	Maintain ideal weight.
The use of saturated fat should be reduced and the consumption of polyunsaturated fat should be increased simultaneously.	Reduced refined and processed sugars (by about 45%) to 10% of total energy.	Control your weight.	Avoid too much sugar, saturated fat and cholesterol.
The consumption of sugar and products containing sugar should be reduced.	Reduce overall fat from about 40% to 30% of energy.	Avoid eating too much fat.	Eat foods with adequate starch and fibre (wholegrain breads and cereals, fruits and vegetables, legumes and nuts)
The consumption of vegetables, fruits, potatoes, skimmed milk, fish, lean meat and cereal products should be increased.	Reduce saturated fat, 10% energy each from saturated, mono-saturated and polyunsaturated fats.	Avoid eating too much sugar.	Avoid too much sugar.
	Reduce dietary cholesterol to about 300mg/day.	Eat more bread and cereals (preferably wholegrain), vegetables and fruit.	Avoid too much sodium.
	Limit sodium by reducing NaCl to about 5g/day.	Limit alcohol consumption.	If you drink alcohol, do so in moderation.
		Use less salt.	

is continuing. Social and economic incentives are also required to reduce risk factors through mechanisms such as food policies, restrictions on advertising, restrictions on availability and taxation. The importance of socioeconomic disadvantage to health has been emphasised in the first half of this chapter. The following passage (Siskind, Najman and Copeman 1987) sums up this relationship and its implications eloquently:

> Poverty, especially chronic poverty, may lead to a lifestyle and an environment which is generally detrimental to survival. Thus the poor simply lack the resources to deal successfully with the bureaucratic structures they encounter, they are only able to engage in pleasures which require modest financial resources, often their pleasures are life threatening (such as cigarette smoking, driving poor quality cars often unsafely) and they are forced to live in physical environments which are more hazardous and less aesthetically desirable.

> The present state of knowledge does not permit a comprehensive description of the consequences of chronic social and economic deprivation; however, it is pertinent to emphasise the structural basis of the problem. While economic inequality persists at its present level, specific interventions, however well meaning, may not substantially reduce the higher stillbirth and infant mortality rates experienced by the lowest class in our community. Poverty may need to be addressed directly before we see a decline in the health consequences of inequality.

The same applies to all areas of health, not just stillbirth and infant mortality.

Governments could have their greatest impact on health by reducing socioeconomic disadvantage through programs that reduce unemployment and improve social security and community support services. These should be co-ordinated with health policies in an intersectoral approach to health improvement. Such interventions are likely to be more effective if aimed at groups and communities, rather than individuals. In this context, the Federal Government's recently announced assistance package to families, its pledge to eliminate child poverty, and the reduction in unemployment that has occurred in the past five years are particularly significant. It would be very worthwhile to examine the impact that these interventions have on levels of risk factors, sickness and disease and deaths over the next few years.

Clearly, both the behavioural/individual perspective and the socioeconomic perspective must be used to develop strategies to improve health. What is needed is greater effort in correcting the well-known major risk factors and improving the socioeconomic status of disadvantaged groups. The very important roles that health professionals can play are to educate the population and decision-makers about the issues raised in this chapter, to strengthen efforts to reduce risk factors, to conduct more research into the effects of socioeconomic status on health and to evaluate the effects on health of social trends and government programs in areas which may not, at first glance, appear to have direct health implications. Such efforts have the potential to produce substantial and long-lasting improvements in the health of Australians.

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6

Aboriginal health—a case study

Aborigines and Torres Strait Islanders are the least healthy identifiable sub-population in Australia. Although there have been some improvements since the 1970s, the conclusion of the House of Representatives Standing Committee on Aboriginal Affairs in 1979 that their standard of health would not be tolerated if it existed in the population as a whole remains true today.

The health problems of Aborigines and Torres Strait Islanders vary across the country, reflecting the different circumstances of communities. Although communities in more remote areas have not seen the improvements in their physical environment experienced by other Australians, many have managed to maintain some social and cultural integrity in their lives—their health problems reflect their very poor physical environment. At the other extreme, the health problems of the many Aborigines and Islanders living in urban and less remote areas resemble those of other socioeconomically disadvantaged Australians, with an extra component reflecting their adverse social environment.

Although the health problems differ, the overall standard of health is low throughout the country. For almost all disease categories, rates for Aboriginal and Torres Strait Islanders are worse than for other Australians; death rates are up to four times higher, and life expectancy is up to 22 years less. The causes of the lower health status are complex, but the social and economic inequality of Aborigines and Islanders is clearly of central importance.

In this chapter, 'Aborigines' generally will be used to mean both Australian Aborigines and Torres Strait Islanders (see Glossary).

6.1 The Aboriginal population

The Aboriginal population has grown from an estimated low of 81 000 in 1933 to 227 648 in 1986 (1.5% of the total population), according to census figures (Table 6.A).

Reflecting their higher fertility and, to some extent, mortality, the Aboriginal population is relatively young compared with the total Australian population (Figures 6.1 and 6.2). About 40% of

Table 6.A Aboriginal population by States and Territories, 1986
Source: Australian Bureau of Statistics

State or Territory	*Population*		
	Australian Aborigines	Torres Strait Islanders	Total Aborigines
New South Wales	55 670	3 343	59 013 (1.1)
Victoria	10 745	1 866	12 611 (0.3)
Queensland	48 101	13 167	61 268 (2.4)
Western Australia	37 109	680	37 789 (2.7)
South Australia	13 295	997	14 292 (1.1)
Tasmania	5 832	884	6 716 (1.5)
Northern Territory	34 198	541	34 739 (22.4)
ACT	1 162	58	1 220 (0.5)
Australia	206 112	21 536	227 648
	(1.3)	(0.2)	(1.5)

Note: Numbers in parentheses are percentages of the total State/Territory populations.

Aborigines are less than 15 years, compared with 23% of the total population. Only 4% of Aborigines are 60 or over, compared with almost 15% of the total population.

About 66% of Aborigines live in urban areas (centres with a total population of 1000 or more), compared with 86% for non-Aborigines. Of the remainder, about 25% live in remote areas of

Figure 6.1: Age distribution of Aboriginal population, 1986
Source: ABS, Census of population and housing, 1986

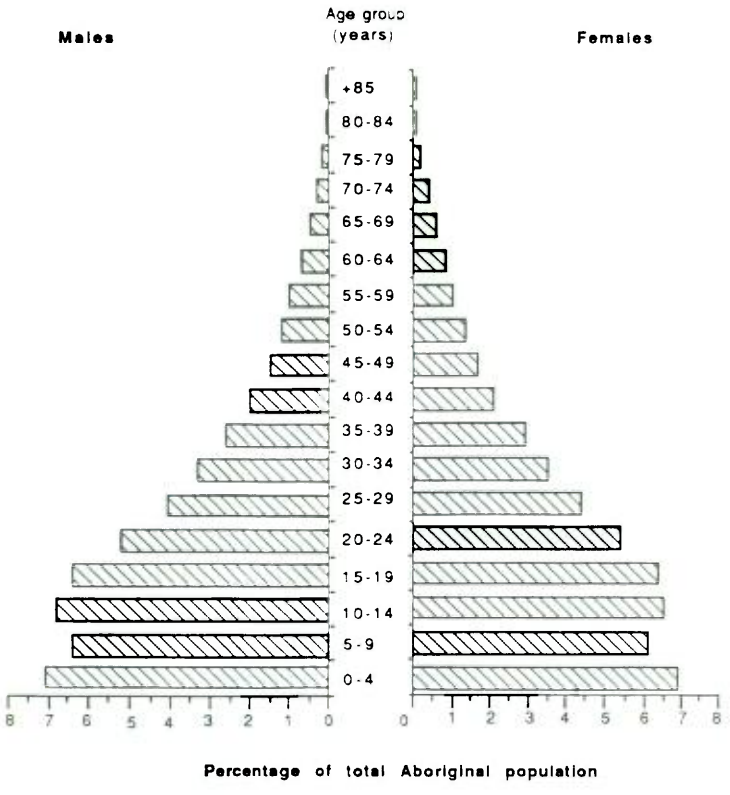

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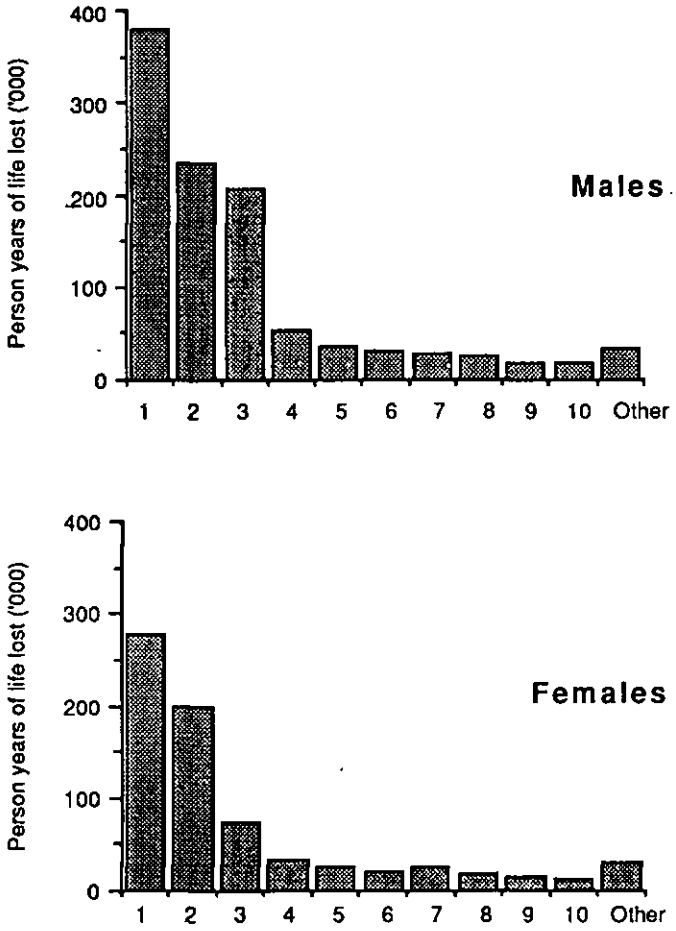
Figure 3.4. "Y" axis should be in 100 000s not 1000 000s



Causes of death: ICD9(a) Chapter headings

1 Diseases of the circulatory system (VII)
2 Cancers (II)
3 Injury and poisoning (XVII)
4 Diseases of the respiratory system (VIII)
5 Certain conditions originating in the perinatal period (XV)
6 Diseases of the digestive system (IX)
7 Congenital anomalies (XIV)
8 Symptoms, signs and ill-defined conditions (XVI)
9 Endocrine, nutritional and metabolic diseases and immunity disorders (III)
10 Diseases of the nervous system and sense organs (VI)

ERRATA Page 107

Figure 6.2 label should read "Percentage of total non-Aboriginal population"

Australia: probably about 5% in small groups on outstations in traditional homelands, and the rest in Aboriginal towns and settlements on Aboriginal lands and reserves.

In the mid-1970s, the annual growth of the Aboriginal population was thought to be about 3%, but the growth rates where birth and death data are available indicate that from 1976 to 1986 the rate has been closer to 2%. This is consistent with the decline in Aboriginal fertility over the past decade and is parallel to the decline in fertility in the Australian population. Despite their higher fertility, the current growth of the Aboriginal population is very similar to that of the non-Aboriginal population, for which the lower fertility is supplemented by migration.

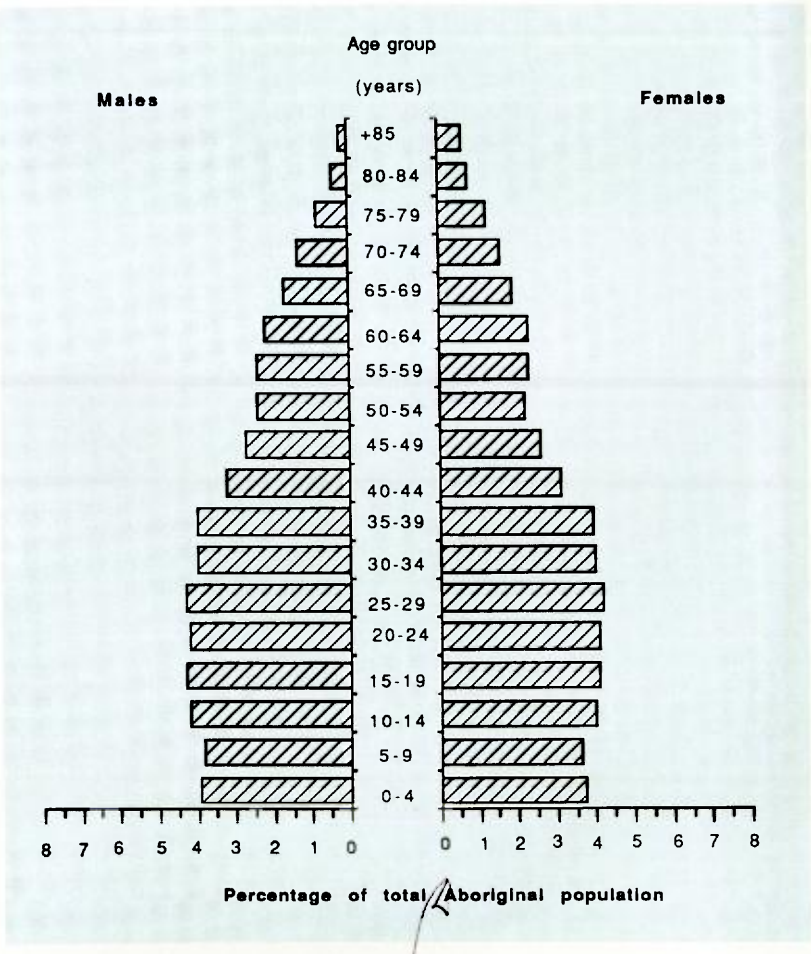


Figure 6.2: Age distribution of non-Aboriginal population, 1986
Source: ABS, Census of population and housing, 1986

6.2 Health status

Assessing current Aboriginal health status is restricted by the limited availability of even the most basic statistics, even though the need for comprehensive Aboriginal health statistics has been recognised for many years.

For example, in 1986 birth and infant mortality data were available only for 83 000 of Australia's 227 648 Aborigines (37%). Comprehensive data on Aboriginal deaths are not routinely available for any State or Territory, and hospitalisation data, while potentially available for Aborigines in all States and Territories except Tasmania, are not routinely published and their accuracy has not been established. Perinatal collections are improving, but reliable detailed data are published only by Western Australia, and to a lesser extent South Australia. A number of other statistical collections, such as some of those for notifiable diseases and cancer, provide for Aboriginal identification, but little reliable information is produced.

There is virtually no information available for Aborigines on the important individual health risk factors such as smoking, alcohol consumption and diet.

The patchy information from these basic data collections has been supplemented by numerous individual studies, but their comparability is often limited as many have not used standard criteria and procedures. Most studies have focused on specific disease conditions and some have studied aspects of mortality. Little attention has been paid to disabilities or risk factors.

Even so, the available vital and other statistics, and individual studies show that Aboriginal health falls well below that of the rest of the population.

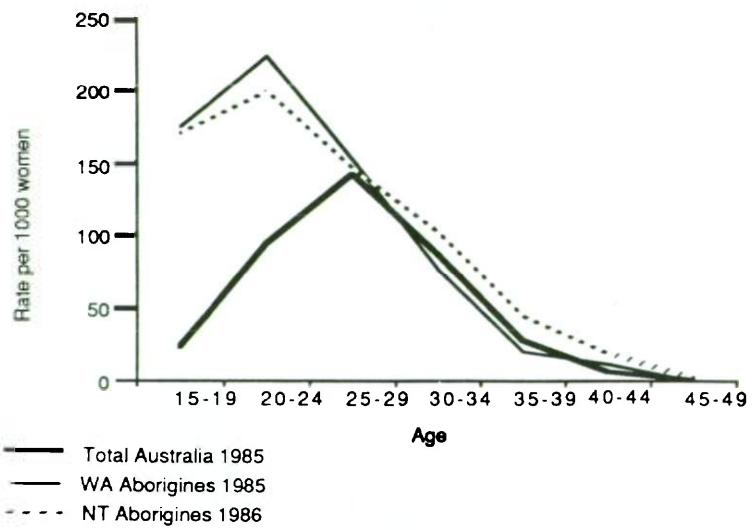


Figure 6.3: Age specific fertility rates for the Aboriginal and non-Aboriginal populations, 1985 and 1986

Sources: Western Australian Department of Health; Northern Territory Department of Health; ABS, Births 1985, Cat. No. 3301.0

6.3 Fertility

The most reliable recent estimates of fertility, for Aborigines in Western Australia and the Northern Territory, reveal rates roughly twice those of the total population. The main excess in Aboriginal births occurred to mothers aged 24 years or under (Figure 6.3). Similar patterns of births have been noted for Aborigines in South Australia and the north coast of New South Wales.

The relative youth of Aboriginal mothers, their generally smaller stature and poorer nutritional status, less antenatal care, and the higher prevalence of several risk factors, including cigarette smoking and alcohol consumption, exert a major influence on the birthweight distribution of babies.

The percentage of babies weighing less than 2500 grams is particularly significant. These low birthweight babies have higher risks of illness and death, and generally less than optimal growth in infancy and childhood. The available data on Aboriginal births show a much higher percentage of babies of low birthweight (Figure 6.4). Compared with about 6% for non-Aborigines, the most reliable data for Aborigines, for Western Australia (1983 to 1985) and the Northern Territory (1986), show that 13% to 15% of babies were of low birthweight. Other data for Aborigines, for New South Wales (1978 to 1981) and South Australia (1983 to 1985), confirms the much higher percentage.

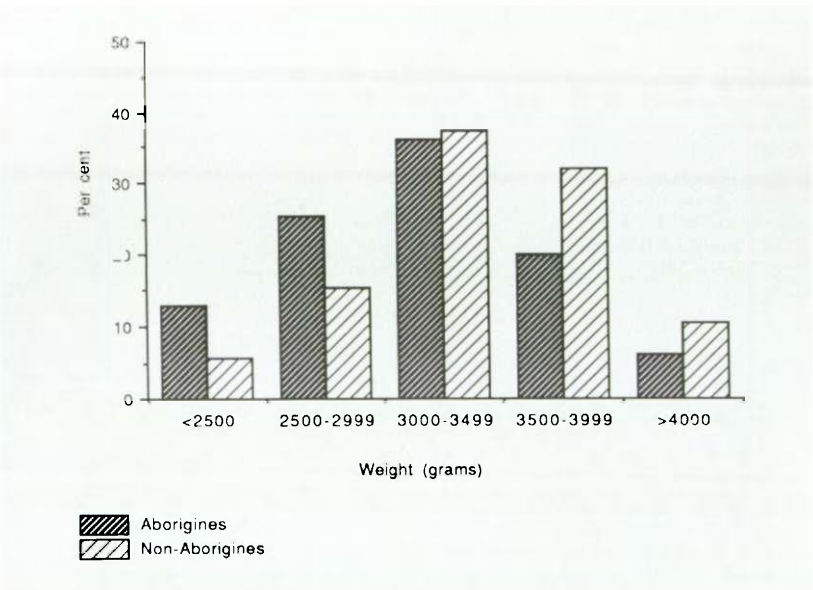


Figure 6.4: Aboriginal birthweight distribution (singleton births)

Note: Figures relate to New South Wales 1978–81, South Australia 1983–85, Western Australia 1983–85, Northern Territory 1986

Sources: New South Wales Department of Health; Western Australian Health Department; South Australian Health Commission; Northern Territory Department of Health and Community Services

6.4 Mortality

After adjusting for differences in the age structures, Aboriginal death rates range from twice that of the total Australian population (for Aborigines in the Kimberley region of Western Australia) to about four times as high (for Aborigines living in country areas of New South Wales). Death rates are about three times that of the total population for Aborigines on Queensland reserve communities, the north-west South Australian communities and the Northern Territory.

Estimates of life expectancy at birth for Aborigines also vary, with the best levels—61 years for males and 65 years for females—being documented for Kimberley Aborigines in 1983 to 1984 (Lee, Smith, d'Espaignet and Thomson, AIH, 1987). In contrast, Aboriginal males in country areas of New South Wales in 1980 to 1981 had a life expectancy of only 51 years, and Aboriginal females, 59 years (Thomson and Smith 1985). While these figures represent an improvement in the Aboriginal life expectancy of 50 years estimated by the National Population Inquiry (1975), they are most unfavourable when compared with those of the total Australian population in 1985: 73 for males and 79 for females.

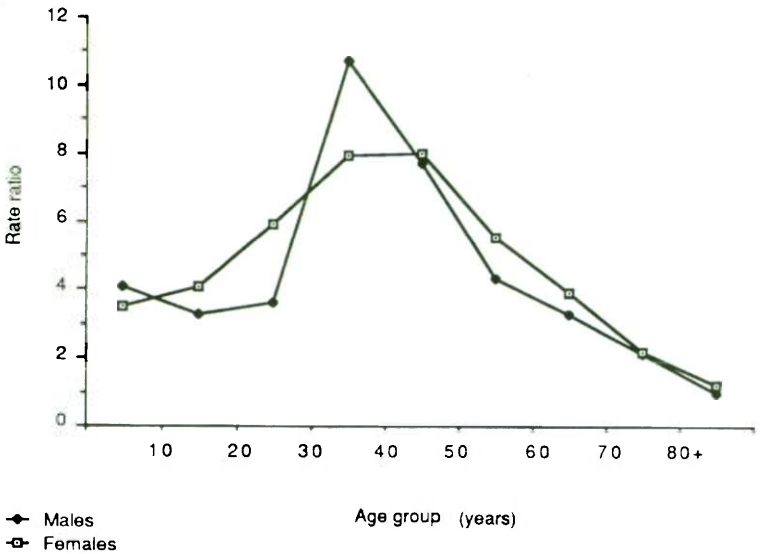


Figure 6.5: Ratio of age specific mortality rates for Aboriginal to non-Aboriginal populations (SA, WA and NT), 1985

Sources: Aboriginal Health Organisation of South Australia; Western Australian Health Department; Northern Territory Department of Health and Community Services

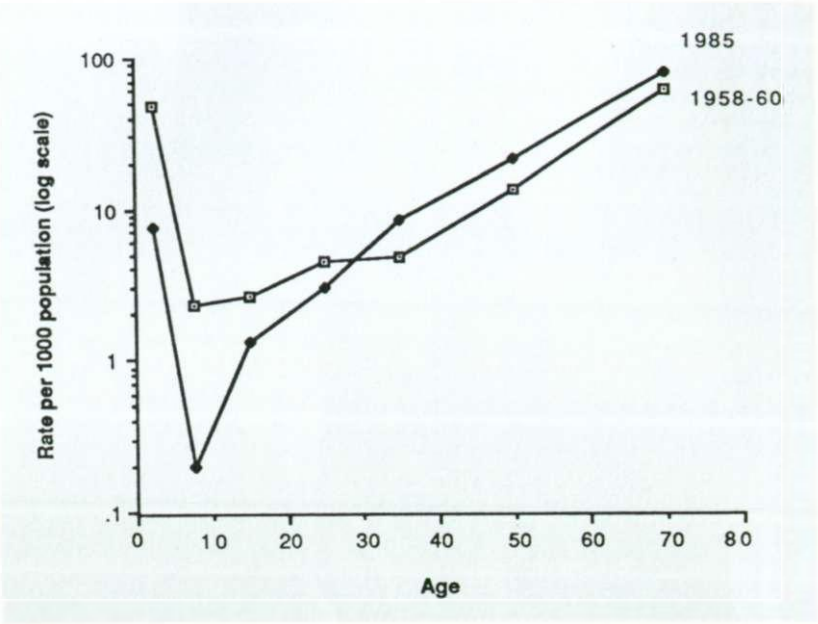


Figure 6.6: Age specific mortality rates for Northern Territory Aboriginal population, 1958–60 and 1985

Source: Northern Territory Department of Health and Community Services

The much lower life expectancy is due mainly to the higher death rates for young and middle-aged Aboriginal adults (Figure 6.5). In fact, the limited available data suggest that the death rates for these ages have increased over the past 20 to 30 years. For Aborigines in the Northern Territory (Figure 6.6), recent estimates of age-specific death rates for all age groups beyond 30–39 years are higher than those estimated for 1958 to 1960 (Australian Institute of Health unpublished data; Moodie 1973). For country areas of New South Wales (Figure 6.7), the deterioration appears even greater, with death rates for all age groups from 20–29 years being almost one and a half those estimated for 1955 to 1964 (Thomson and Smith 1985; Moodie 1973).

These trends are no doubt reflected in the regional differences: the lowest level of mortality and highest life expectancy having been reported for Aborigines living in the remote Kimberley region, and the highest mortality and lowest life expectancy reported for those living in the long-settled areas of New South Wales.

The major causes of death for Aborigines in all areas are diseases of the circulatory system, including heart disease. The Aboriginal death rates of 2.9 per thousand for males and 2.0 per thousand for females are about twice the expected rates of 1.4 and 1.0 (Figure 6.8). The next most frequent causes of death were injury and poisoning (mostly injuries resulting from accidents and violence), diseases of the respiratory system and neoplasms.

Figure 6.7: Age specific mortality rates for NSW Aboriginal and total populations

Sources: Moodie (1973); Thomson and Smith (1985)

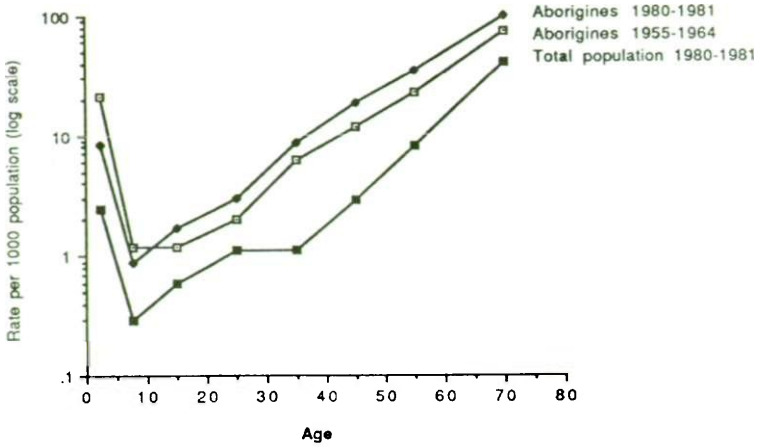
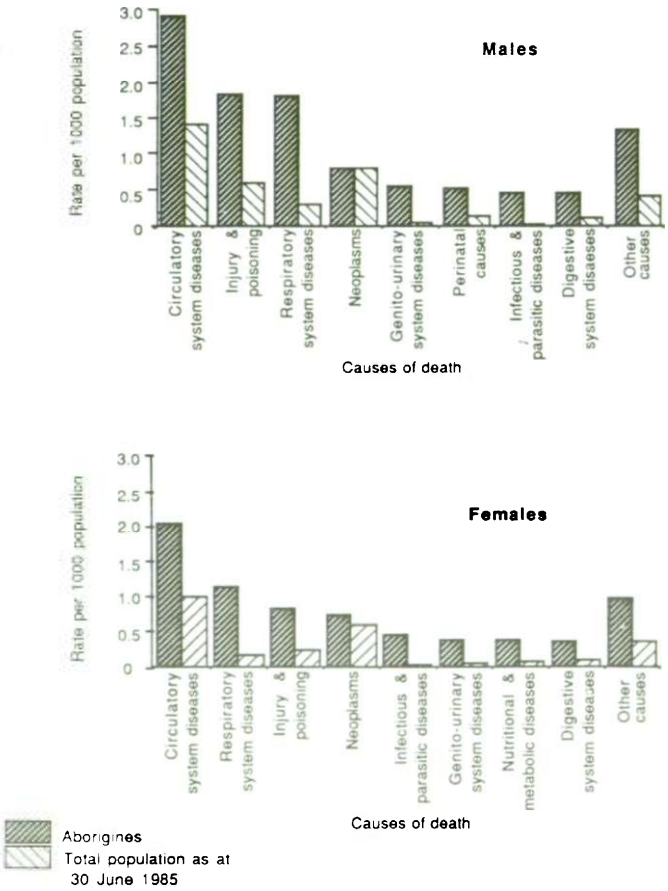


Figure 6.8: Aboriginal and total population cause specific death rates.

Note: Aboriginal data relate to the Northern Territory 1983, Western Australia 1983 and South Australia 1985

Sources: Aboriginal Health Organisation of South Australia; Western Australian Health Department; Northern Territory Department of Health and Community Services



Infant mortality

Despite substantial reductions in Aboriginal infant mortality over the past 30 years, from an estimated rate of 143 infant deaths per thousand live births for the Northern Territory in 1958 to 1960 (Moodie 1973), the Aboriginal rate remains three times higher than that of the total Australian population (Table 6.B and Figure 6.9).

In contrast to overall mortality, the Aboriginal infant mortality rate is highest in the more remote areas, such as the Kimberley region and the Northern Territory, where it is about 33–34 infant deaths per thousand live births. In country New South Wales and the south-west of Western Australia, the rate is between 21 and 25.

Maternal deaths

The first period for which separate national figures for Aborigines were available was 1970 to 1972. Since then there has been a substantial decline in Aboriginal maternal death rates, both direct and total (Figure 6.10). These rates, which are based on the female population of reproductive age rather than on confinements, exaggerate the differences between Aborigines and non-Aborigines. However, after allowing for the higher birth rate among Aborigines, the Aboriginal maternal death rate was still three to five times higher than that of other Australians in 1982 to 1984 (NHMRC, in press).

Table 6.B Aboriginal and total Australian fetal and infant mortality rates and rate ratios, 1984 to 1986

Sources: State/ Territory health authorities, ABS

Mortality index	*Aboriginal rate*	*Total Australian rate*	*Rate ratio*
Stillbirth	18.4	6.4	**2.9**
Neonatal	13.4	5.3	**2.5**
Postneonatal	14.3	3.6	**4.0**
Infant	27.7	9.3	**3.0**
Perinatal	31.6	11.7	2.7

Note: Definitions for the various mortality indices are given in the Glossary.

Figure 6.9: Infant mortality rates for Aboriginal and total populations 1972–74 to 1984–86

Sources: Queensland Department of Health; Western Australian Health Department; Northern Territory Department of Health and Community Services

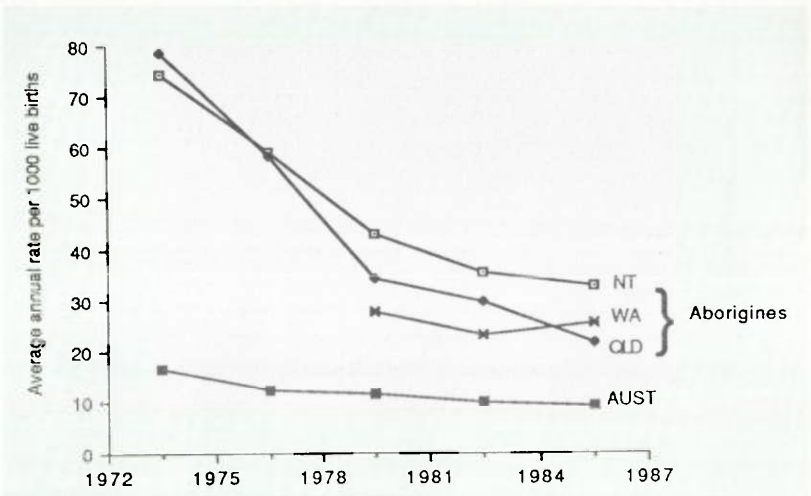
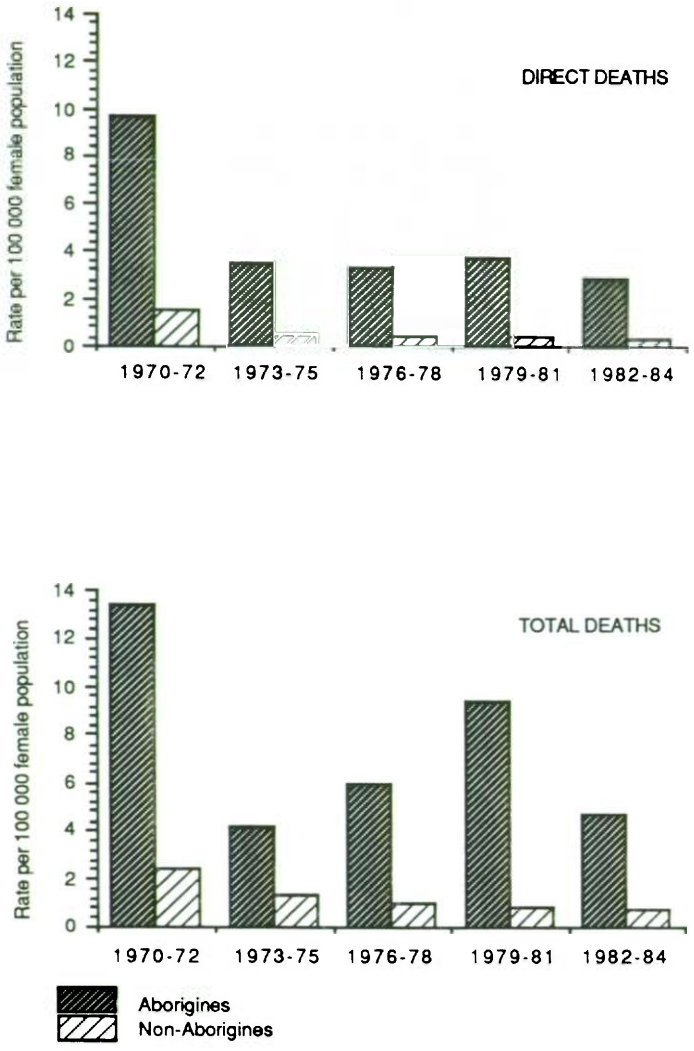


Figure 6.10: Maternal mortality rates for Aboriginal and non-Aboriginal populations, 1970–72 to 1982–84

Source: National Health and Medical Research Council reports on maternal deaths in Australia



6.5 Sickness and disease

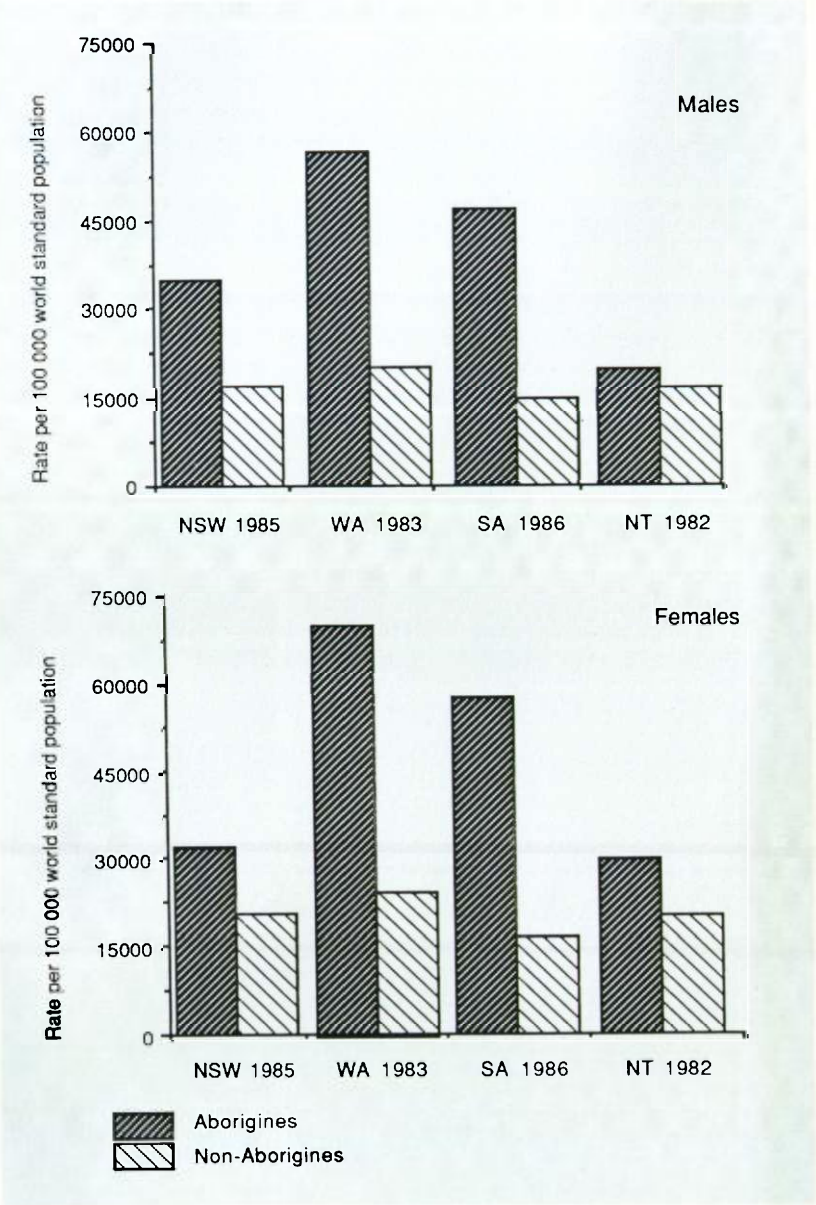
The rate of hospitalisation of Aborigines provides some indication of the excess sickness and disease experienced by Aborigines. However, hospitalisation rates are influenced by other factors, such as regional differences in hospitalisation practices and accessibility of hospitals.

Aboriginal hospitalisation rates are generally much higher than those of non-Aborigines (Figure 6.11). In recent years, Western Australia and South Australia had the highest rates—about three times that of non-Aborigines. For the Northern Territory, Aboriginal rates were considerably lower and closer to the non-Aboriginal rates, but the Aboriginal figures, at least, are likely to

Figure 6.11: Hospitalisation rates(a) for Aboriginal and non-Aboriginal populations

(a) Standardised on world standard population

Sources: New South Wales Department of Health; South Australian Health Commission; Western Australian Health Department; Northern Territory Department of Health and Community Services



reflect the more limited geographical accessibility of hospitals. The New South Wales data underestimate the Aboriginal rates to a significant but uncertain extent (Manning and Sewell 1984).

The leading specific cause of hospitalisation for Aboriginal males and females in Western Australia and South Australia, excluding admissions for normal pregnancies, was respiratory disease. In the Northern Territory, again excluding admissions for normal pregnancies, external causes were the leading reason for hospitalisation.

The growth of infants and children provides an index of their overall wellbeing, and a recent Western Australian study confirms the relative disadvantage still experienced by Aborigines (Gracey, Murray, Hitchcock, Owles and Murphy 1983).

Aboriginal babies, characteristically weighing less than non-Aboriginal babies, have been documented as having 'normal' growth over the first four to six months followed by a fall-off in growth until about three years of age. There is a similar pattern of head growth. Some say the pattern of body growth, with significant numbers of Aboriginal children below non-Aboriginal standards, is a genetic characteristic, but this is refuted by studies which have demonstrated much better growth in Aboriginal children living in conditions similar to those experienced by most non-Aboriginal Australians (Cockington 1980).

The Western Australian study, in which 14% of the infants and 22% of the children examined were underweight, confirmed the persistence of widespread mild to moderate undernutrition. This pattern is likely to be true for other parts of Australia.

The undernutrition seems to persist until early adulthood. After this, many Aborigines become overweight and a significant number, particularly women, obese (Phillips and Kubisch 1985). In a study of 235 people in central Australia, 51% of females and 22% of males aged 25 or more were obese. This level of obesity clearly has implications for a number of dietary-related diseases, particularly diabetes and hypertension.

Respiratory disease was the most frequent cause of male hospitalisation for Aborigines in Western Australia in 1983 with a rate five times that of non-Aborigines. After pregnancy related admissions, it was the second most frequent cause of female hospitalisation with a rate more than six times that of non-Aborigines. Respiratory disease was also the most frequent specific cause of Aboriginal hospitalisation in South Australia in 1986. Several surveys have confirmed the high frequency of respiratory disease across Australia.

Ear disease, particularly otitis media, is a major problem for Aboriginal children. Recent surveys indicate a prevalence of tympanic membrane perforation generally greater than 10%, and of hearing loss generally greater than 15% (Thomson 1984). The prevalence of deafness among non-Aboriginal children has been reported at 4.7%.

Diarrheal diseases, despite recent significant declines in frequency and severity, remain a significant threat to Aboriginal infants and children. An analysis of Western Australian hospital admissions from 1971 to 1978 for gastroenteritis for children under five years showed that Aborigines, although only 3.7% of the State's population in that age group, accounted for 42% of

admissions to hospital and 58% of the bed occupancy for that disease (Berry and Gracey 1981). It is believed that the figures have improved, but a large Aboriginal excess persists.

Eye diseases are another major cause of concern. From 1976 to 1979, the National Trachoma and Eye Health Program (RACO 1980) examined 62 116 Aborigines and 38 660 non-Aborigines in rural and remote Australia. It found the prevalence of blindness among Aborigines in those regions to be 15 per thousand, compared with a rate of between one and four per thousand for non-Aborigines. Trachoma was identified as a major contributing factor in 42% of Aboriginal blindness. The overall prevalence of trachoma among the surveyed populations was 38% for Aborigines and 1.7% for non-Aborigines. A reassessment in 1985 of a number of the communities originally seen in 1976 to 1977 showed a significant overall decline in the prevalence of follicular trachoma, particularly the severe form, and in the prevalence of scarring (Trachoma and Eye Health Program 1985).

Leprosy was first reported in Australia in the late 19th century and has been primarily a disease affecting Aborigines. For the five years from 1982 to 1986, 19 new cases were reported for the Northern Territory (0.11 cases per thousand population a year), and 31 for the Pilbara and Kimberley regions of Western Australia (0.46 cases per thousand a year). Except for refugees from South-East Asian countries leprosy is virtually non-existent in other Australian residents.

Between 1983 and 1985, 169 new cases of tuberculosis were reported among Aborigines, 34.8 per 100 000 population a year, five times the non-Aboriginal rate. However, because of the differences in the age structures of the Aboriginal and non-Aboriginal populations, and the fact that in recent years about half of all new cases of tuberculosis were among recent arrivals to Australia, particularly those from South-East Asia, these rates grossly underestimate the difference in incidence of tuberculosis. After allowance has been made for these factors, the rate of tuberculosis among Aborigines in 1984 was almost 20 times higher than that of other long-term Australian residents (Penny and Thomson 1987).

Although Hepatitis B virus (HBV) has long been known to be more prevalent in some Aboriginal communities, its full extent is only now being recognised. Serological surveys around Australia reveal that at least a third of Aborigines, in some cases up to 90%, have been infected with the virus, generally without symptoms (Thomson and Honari 1988). A substantial number have been confirmed as chronic carriers, placing them at risk of the long-term sequelae: chronic active hepatitis, cirrhosis and primary liver cancer, particularly hepatocellular carcinoma. Even the lowest documented levels of HBV carrier state among

Aborigines, about 3% to 4%, are well above the level documented for Sydney blood donors (0.07%). Chronic carrier prevalence rates between 7% and 10% are widespread, with a number of communities having rates of more than 20%.

With such high carrier rates, international evidence suggests that a high incidence of hepatocellular carcinoma could be expected. The incidence of such cancers has been reported as six times higher for Aborigines than for non-Aborigines in Western Australia, but the actual incidence of about 2.6 per 100 000 is well below that of other populations in Asia and Africa with high carrier rates.

To break the chain of HBV infection, the 1986 Federal Budget provided funds to enable all newborn babies in groups identified as having a carrier rate of 5% or more to be given Hepatitis B immunoglobulin and Hepatitis B vaccination. This would include Aborigines, and most States and Territories are implementing such programs.

Other infectious diseases causing concern in Aboriginal communities are the sexually transmitted diseases, principally syphilis and gonorrhea, and skin infections and infestations which, though reducing, are still much more common and more serious among Aborigines than non-Aborigines. Only a few Aborigines are known to have been infected with the virus causing AIDS, but there is considerable concern that the disease could have a disastrous effect if it became established in the Aboriginal community.

While the infectious diseases give the impression of a Third World pattern of health, the 'lifestyle' diseases more associated with the developed countries have become major causes of Aboriginal sickness and disease (Thomson 1984). This applies particularly to hypertension and diabetes mellitus type 2 (non insulin dependent). The prevalence of diastolic hypertension among Aborigines in the west Kimberley region of Western Australia has been noted to be more than twice that of non-Aboriginal Australians. Other surveys in South Australia, New South Wales and the Northern Territory have also found a higher prevalence of hypertension among Aborigines.

Based on new standard diagnostic criteria, the likely prevalence of diabetes mellitus among Aborigines is 7.5% to 16%, compared with a non-Aboriginal prevalence of 3.4%. Aboriginal hospitalisation for diabetes has been documented at up to 15 times that of non-Aborigines in rural New South Wales.

The studies on hypertension and diabetes mellitus have noted the frequent correlation of these disorders with obesity, and have suggested that the obesity is largely due to poor diet associated with poverty.

The prevalence of serious mental disorders, particularly psychoses, among Aborigines is probably equivalent to that of

non-Aborigines (Thomson 1984). Although hard data are limited, there is no doubt that alcohol abuse is a major problem for Aborigines. A 1976 inquiry concluded that alcohol was 'the greatest present threat' to Aborigines in certain parts of Australia. In 1977 and 1978, the rate of public hospital separations for Aborigines in rural New South Wales for directly alcohol-related problems was about 10 times that of non-Aborigines. In 1980 and 1981, for the same areas, 34% of male and 15% of female death reports had alcohol noted as a 'significant medical problem'.

Although not widespread, the abuse of kava, a mood-altering beverage introduced from the South Pacific, is causing concern in some Aboriginal communities in northern Australia, particularly in Arnhem Land.

The extent of petrol inhalation (or sniffing) is not known, but it has become a major problem for children and young adults in some Aboriginal communities, particularly remote communities in Arnhem Land, Central Australia (including the southern areas of the Northern Territory, the north-west regions of South Australia and the Warburton Ranges area of Western Australia), and the eastern goldfields region of Western Australia.

A recent Senate inquiry concluded that more than 9% of Aboriginal communities were having problems with petrol inhalation and that the problem had increased considerably over the past 10 years (Senate Select Committee on Volatile Substance Fumes 1985). In some communities, it could well be true that 'an entire generation of young Aboriginal people is in danger of being overwhelmed' by petrol inhalation.

Dental disease also appears to be significantly worse among Aborigines. Dental caries, while varying from community to community, now tends to be more prevalent and more severe for Aborigines, and the level of restorative work is low. Periodontal disease has become a major problem among adult Aborigines. The combination of dental caries, periodontal disease and the low level of restorative work results in a high level of tooth loss - as high as 75% for 50 year olds.

6.6 Medical and health services for Aborigines

Australia's primary health care system should be able to cope with the diseases experienced by Aborigines. However, many Aborigines have found the system wanting in terms of disease treatment mainly because of the lack of accessibility and/or acceptability. Because of such shortcomings, a number of developments have occurred since the early 1970s. Special Aboriginal health programs have been funded from Federal sources, primarily through the Department of Aboriginal Affairs, and, until 1984, lesser amounts through the then Commonwealth Department of Health. Since December 1984, the Department of

Aboriginal Affairs has been responsible for the funding and administration of all Commonwealth programs relating to Aboriginal health.

State Aboriginal health programs

In addition to a few specific State-funded programs, since the early 1970s the Commonwealth has provided special funds to assist the States in addressing Aboriginal health problems. Under a system of States' Grants, substantial funds have been channelled through the Department of Aboriginal Affairs to the six State authorities responsible for health. Of the total 1987–88 funds of $12.9 million, Western Australia received $7.2 million, Queensland $4.9 million, South Australia $0.8 million and Tasmania $44 400. Although no estimate of the current Northern Territory allocation for Aboriginal health programs is available, the amount for 1978–79 was estimated at $9.3 million (updated to 1987–88 dollars). Since 1984–85, New South Wales has progressively taken over funding of its program, allowing the redirection of more than $2 million of Federal funds to the Aboriginal-controlled medical services in that State.

The individual programs are determined by the States, but generally they aim to improve Aboriginal health mainly through preventive measures, including health and nutrition education, while encouraging and assisting Aborigines to use existing medical services. The Northern Territory program, closely linked to general services, has a prominent focus on the provision of care in addition to the preventive component. The major anomaly of the States' Grants scheme is the actual allocation of funds between States, which is based neither on numbers nor on need, but rather on the extent of the individual States' programs when the scheme was initiated.

Even though these programs are funded by the Federal Government there is little real Federal assessment of their achievements. The limited material published by the States shows that several indices of health have improved, but whether this is due to the programs or other factors is not entirely clear. Such improvements are exceedingly complex and difficult to explain.

Aboriginal-controlled services

Since 1971, almost 60 Aboriginal-controlled community-based Aboriginal Medical Services (AMS) have been established. The first service, in the inner Sydney suburb of Redfern, was established in July 1971 in response to severe Aboriginal alienation from the basic medical system. Similar services have since been established in all mainland States and in the Northern Territory. There are also 10 Aboriginal-controlled dental services and 48 alcohol rehabilitation units. Although the services concentrate on clinical-curative work, they also emphasise prevention, including nutrition

programs, health education, detailed health screening and liaison with alcohol rehabilitation programs.

Substantial amounts are being spent on Aboriginal health services. The Department of Aboriginal Affairs' 1987–88 appropriation for Aboriginal-controlled services was $27.9 million, $23.5 million for AMS (including dental services) and $4.4 million for alcohol rehabilitation units. Additional funding to the AMS is by donation from both individuals and organisations, national and international.

Although there is some evidence that AMS have contributed to the decline of childhood hospitalisation, there have been few attempts to comprehensively assess the impact on the health of communities served.

Because Aborigines control and direct the AMS, the program provides a significant vehicle for Aboriginal community development, an aspect which is likely to be crucial for real improvement in Aboriginal health.

Aboriginal health workers

The widespread international movement towards the use of community-based health workers is reflected in Australia in the emergence of Aboriginal health workers. Although Aborigines have worked as medical assistants in the Northern Territory since the late 1960s, the first training program was developed there in 1973. Today all mainland State health authorities train and employ Aboriginal health workers, but their role is still most developed in the Northern Territory. The Aboriginal Medical Services also employ Aboriginal health workers, most of whom receive some of their training through the State training programs. Since 1982, several training programs have been established by the Aboriginal Medical Services.

The Northern Territory emphasises basic medical care, but also recognises community health and the role of Aboriginal health workers as 'culture brokers' between Western-oriented medical services and their communities. The emphasis for Aboriginal health workers in the State Aboriginal health programs appears to be more on prevention, consistent with their overall approach. There is only one detailed statement about Aboriginal health workers in the States and their programs appear to be much less developed than those in the Northern Territory. Those involved with the AMS see the role of Aboriginal health workers as much more general and this is reflected in the broad curriculum of the nine-month training course run by the Victorian Aboriginal Health Worker Education Program, which includes attention to topics such as community organisation and the politics of health, as well as medically oriented material.

In the Northern Territory in 1986, the Department of Health and Community Services and the AMS employed 287 Aboriginal

health workers. The estimated numbers in the States were Queensland 116, New South Wales 63, Western Australia 92, South Australia 72 and Victoria 27.

The homelands movement

A specific response to the social and emotional stresses of settlement and mission life has been the return by some Aborigines to homeland centres (or outstations). The House of Representatives Standing Committee on Aboriginal Affairs (1987) defined these as 'small decentralised communities of close kin established by the movement of Aboriginal people to land of social, cultural and economic significance to them'.

These homeland centres usually comprise 10 to 50 people, though there is considerable fluctuation and a tendency for some to grow much larger. In 1986, the House of Representatives Committee identified 588 homeland centres with a combined population of 9500, and noted that at least some of a further 111 communities (combined population 3900) should also be identified as such.

No detailed assessment of the health effects has been published, but a number of observers have reported that homeland communities appear healthier than settlement communities, and that some centres provide a better and more varied diet than nearby settlements (Meehan 1982, Flannery 1987). Reduced alcohol consumption is another positive benefit of the centres.

6.7 Conclusions

In 1988, after almost 20 years of special Aboriginal health programs and services, the health status of Aborigines remains well below that of other Australians. This is despite the substantial improvements that have occurred—infant and maternal deaths have each declined by more than 60%, the health of children appears to be substantially better and the impact of the infectious diseases, in general, has been markedly reduced. However, the reduced impact of the infectious diseases has, to some degree, been offset by a worsening of the non-infectious lifestyle diseases, particularly cardiovascular disease and diabetes mellitus.

In contrast to the substantial improvements that have occurred in infant and childhood survival, adult mortality has deteriorated to such an extent that age-specific death rates for young and middle-aged adults are worse than those documented in many developing countries. As a result, it appears that the life expectancy of Aborigines in many areas of Australia has increased only marginally over the past 20 years: the worst levels are comparable with levels recorded for India, Haiti, Ghana and Papua New Guinea (UNICEF 1988).

It was partly in response to the persisting poor health status of Aborigines that the combined Commonwealth, State and Territory Ministers for Health and Aboriginal Affairs agreed in December 1987 to establish a Ministerial Forum on Aboriginal Health. The meeting agreed also to convene a working party to develop a national Aboriginal health strategy for the consideration of the Ministerial Forum. Such a strategy is long overdue as Aboriginal health programs and services have tended to be fragmented and poorly co-ordinated. The Forum should also be able to provide a mechanism for integrating these programs and services with broader initiatives aimed at Aboriginal advancement.

Without the long-term commitment embodied in the Ministerial Forum it is unlikely that the standard of health of Aborigines will ever be raised to that of the general Australian community.

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7 Health care financing

The costs, use and resources of health services providing treatment and care to individuals in Australia are discussed in this and the next two chapters. In general, the services included are those provided through institutions (such as hospitals, both acute and psychiatric, and nursing homes) and by professionals (such as doctors, nurses, dentists, pharmacists and others) who are generally required to register with Boards established by State and Territory Governments. The cost of prescription drugs and a range of over-the-counter medicines is included, as well as certain types of research, direct health promotion costs, disease prevention activities such as immunisation programs and administrative costs.

There are many types of services which are not included, such as naturopathy, homeopathy and osteopathy, the costs of most health foods and herbal remedies, most weight-loss activities, fitness clubs, and most alternative therapies.

What is included is largely defined by what governments have traditionally funded or registered and what were, 20 years ago, considered conventional health services. There are many other activities which influence health but are not considered conventionally to be health services (Table 7.A). As has been suggested earlier, the most important determinant of health is the general prosperity of individuals and the community in which they live. So, to the extent that about $20 billion is paid out in social security payments, some of these payments could be seen as contributing to better health.

Table 7.A: Intersectoral approaches to better health not included in health function

Service or action	*Some expected health improvements*
Ban smoking in all trains, buses, aircraft	Fewer cases of lung cancer, bronchitis, heart disease; fewer fires; fewer accidents
Improve public transport and build inter-city freeways	Fewer motor vehicle accidents
Introduce compulsory use of seat belts	Less serious injury and fewer deaths
Control exhaust emissions from motor vehicles	Less respiratory disease from air pollution
Remove lead from petrol	Less lead poisoning and possibly improved intelligence in children
Improve water quality (e.g. by roofing small reservoirs and reducing chemical pollution of the Murray River)	Reduction of bacterial diseases and possibly cancer from trihalomethanes

Health promotion and disease prevention

The definition of 'health promotion and illness prevention' (Table 7.D) comprises expenditure on programs concerned primarily with preventing the occurrence of diseases and mitigating their effects, and includes such activities as immunisation and vaccination, control of communicable diseases (including AIDS), hygiene and nutrition, sanitation regulation, human quarantine, campaigns against cancer, smoking and drugs, and other programs to increase public awareness of disease symptoms and health hazards. But this list by no means exhausts the concerns of the new public health, as a glance at the intersectoral activities listed in Table 7.A will show. The cost of the health component of intersectoral activities, and the health promotion work performed by individuals in the course of treating their patients, is not readily dissected out. Therefore, even though a variable proportion of expenditure on hospitals, medical services and community health services is health promoting in nature, it is not included in expenditure for health promotion and disease prevention.

Only a small proportion of the concerns of the new public health activities are included. Major intersectoral activities are not counted (see Box).

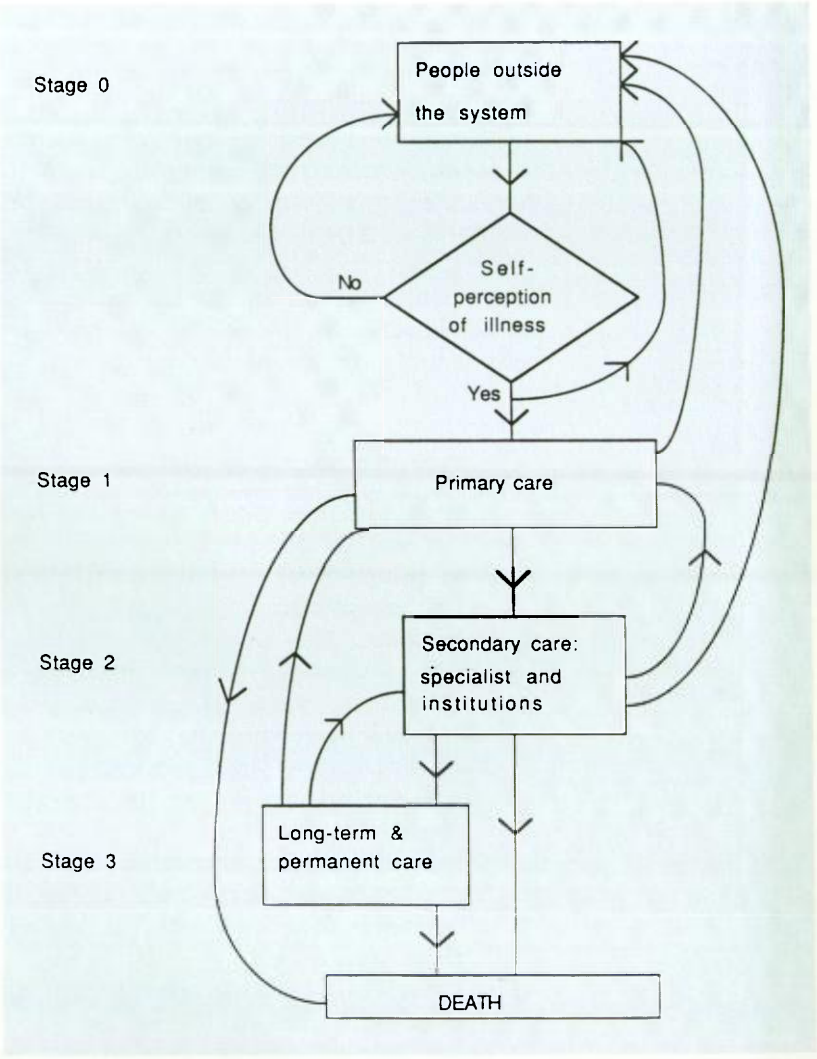
Statistics on health services in this chapter and the next one are based on the health sector, or 'health function' as it is called in Commonwealth Budget Papers. At the Commonwealth level, it includes health spending by departments with the functions of health, community services, Aboriginal affairs and veterans' affairs, but excludes social security, welfare, housing, transport, energy and education. The classification is similar for the States.

7.1 Model of health care system

In a simplified view of the health care system (Figure 7.1), people perceive themselves to be ill or well (Stage 0). Such perceptions are conditioned by a range of cultural, social and other factors. (Information on these perceptions has been obtained from the ABS Australian Health Surveys.) According to their perceptions of illness and their attitudes to professional intervention, people may either do nothing, elect some form of self-management, or seek some form of primary care (Stage 1), such as visiting a

private medical practitioner or other health professional, a pharmacist, a community health centre (Australian Community Health Association 1986) or a hospital outpatient service. Stages 0 and 1 are not completely independent; through advertising and education, people may visit a primary health care practitioner without having a clear perception of illness (they may be seeking reassurance, immunisation, a prescription for a contraceptive, or an investigation) and without making a really independent decision. Some information on the use and costs of Stage 1 can be gained from Medicare statistics (see Section 8.1), but these do not provide

Figure 7.1: How people may pass through the health services system



information on health promotion or alternative medicine. The use of pharmaceuticals also provides information about Stage 1 (see Section 8.4).

If the person fails to improve after primary care or requires more specialised treatment, or if the primary practitioner orders further investigation or treatment, the consumer of health services may be passed on to secondary health care (Stage 2), to a medical specialist or to a public or private hospital. Information on hospitals is available from Medicare statistics (see Section 8.1) or from the Hospital Utilisation and Costs Study carried out by the Australian Institute of Health on behalf of the Australian Health Ministers' Advisory Council (see Chapter 8). From Stage 2, people may either exit from the health services system, or return to primary care, or move on to tertiary health care (Stage 3), which is long-term or permanent care, or die.

There is not necessarily any correlation between the stages of the health services system and the health status of people in the system. People in Stage 2 may be in hospital for relatively simple procedures from which recovery is complete, while some in Stage 1 may suffer from chronic conditions for which there is no cure but for which treatment ameliorates the condition or slows the decline. Passage from one stage to another does not imply that health status is improved.

Questions about the system

A number of questions about the health care system are currently under public discussion. They include:

- **The relative roles of the public and private sectors in the system;**
- **Whether the system would operate more economically, without loss of quality, if more emphasis were placed on primary (Stage 1) instead of secondary (Stage 2) health care;**
- **To what extent the promotion of health and the prevention of illness can reduce the need for treatment services;**
- **Whether health promotion and illness prevention are cheaper than care. And if they are not, whether they can offer a higher quality of life than treatment;**
- **The effect of deinstitutionalisation and the adequacy of community support facilities.**

Data which might shed light on these social, economic and political questions are presented in this and the next two chapters.

Health services are provided and paid for in Australia by three major groups—the Commonwealth Government, State and Territory Governments, and the private sector.

Local Government is involved in providing many services important to health such as clean water and garbage disposal, but most of its functions are not counted as health services. It also provides immunisation, which is a small, though very important, preventive service.

Under the Australian Constitution the primary responsibility for providing health services is with the State Governments. In particular, they have traditionally played the major role in the provision of hospital services. As is discussed in Chapter 8, the majority of hospital services are provided by State-owned hospitals. State and Territory Governments also regulate the role of private hospitals. They are also responsible for providing almost all psychiatric hospital services. The Commonwealth Government makes no contribution to the costs of the latter, but it shares with the States and Territories the costs of providing acute hospital services.

The States and Territories also provide a wide range of community and public health services, including school health, dental health, maternal and child health, occupational health and disease control activities. A variety of health inspection functions are provided by State and local governments.

All registered health professionals are controlled through registration boards that operate under State and Territory legislation. States also run a number of major nursing homes and regulate the standards of private nursing homes.

The Commonwealth Government provides very few services itself. Its main involvement is in subsidising the provision of services by State and Territory Governments and the private sector. The Commonwealth Government's major outlays on health include the provision of subsidies towards the costs of medical services by private medical practitioners, contributing toward the cost of hospital services in public hospitals (through Medicare), the provision of nursing home subsidies, and the subsidisation of pharmaceutical drugs (through the Pharmaceutical Benefits Scheme). The major direct provision of health services by the Commonwealth is hospital services for veterans.

A summary of the organisational structures and legislation relating to Commonwealth, State and Territory health services is given by Grant and Lapsley (1987).

The private sector provides a wide range of health services, especially in the area of hospitals where there is a large private sector consisting of both for-profit hospitals and hospitals owned and operated by religious and charitable groups. Almost all ambulatory medical services and a large proportion of hospital

services are provided by private medical practitioners. Most dental services are also provided by private dental practitioners and there is almost no public subsidy towards private dental costs. There are also increasing numbers of private practitioners in such areas as physiotherapy, occupational therapy and chiropractic.

There are many private organisations, some subsidised by governments, involved in the provision of health and related welfare services. Among the non-government organisations involved in the promotion of health and the prevention of illness are the National Heart Foundation and the anti-cancer councils.

According to an estimate by the Better Health Commission (1986), there are also about 30 000 community groups in Australia involved in health promotion or health problems. Many of these groups exercise some degree of influence on decisions and policy on health services by belonging to federations or networks of community organisations. Recently, the Consumers' Health Forum of Australia was formed to give users of health services and community groups in general a strong voice at the national level (see Box). The forum has a representative on the board of the Australian Institute of Health.

The Consumers' Health Forum

Established in December 1986 as the result of consultations between consumer groups and the Commonwealth Minister for Health, the Forum provides an opportunity for community groups and users of the health system to contribute to decision and policy making by the Commonwealth Department of Community Services and Health. The Forum is partly funded by a grant from the Department, but operates independently of the Department.

It is governed by a General Committee which was composed of the following community organisations in 1987 and 1988:

ACROD (Australian Council for Rehabilitation of the Disabled);
Australian Community Health Association
Australian Consumers' Association
Australian Conservation Foundation
Australian Council of Social Service
Australian Council on the Ageing
Australian Federation of Consumer Organisations
Australian Pensioners' Federation
Australian Women's Health Network
Collective of Self Help Groups;

Disabled Peoples International Australia;
Federation of Ethnic Communities Councils of Australia;
Health Issues Centre;
National Aboriginal and Islander Health Organisation;
Victorian Mental Illness Awareness Council;
Youth Affairs Council of Australia.

The aims of the Forum include:

- **Provision of a means of maximising the participation of consumer and community groups in national policy, planning and service decisions which affect the health of consumers.**
- **Promoting a public and preventive health approach which recognises the health impact of other government policy areas.**
- **Encouraging the development of health services which are:**
  - **effective in enhancing the capacity of people to participate as fully as possible in community life;**
  - **responsive to consumer needs and preferences;**
  - **community based and managed;**
  - **respectful of human rights;**
  - **culturally relevant;**
  - **universally accessible;**
  - **cost effective.**

7.2 Health expenditure in Australia, 1985–86

In 1985–86, Australia spent $18 172 million on health—$16 815 million on recurrent expenditure and the remaining $1 357 million on capital expenditure.

Total health expenditure, which has been studied by the Australian Institute of Health (1988), can be classified into Commonwealth Government, State and Local Government, and private components (Table 7.B). The Commonwealth component comprises funding which is specifically allocated for health at the Commonwealth level. It currently includes the Medicare compensation grants which the Commonwealth contributes to the States for their hospitals. The Commonwealth Budget Papers show that, over the past several years, Commonwealth spending on health has been about the same as on defence. The major component of Commonwealth expenditure on health was paid out through the Medicare program.

Table 7.B: Health expenditure in 1985–86 in $m, (current prices) by source of funds

Source: AIH, Health expenditure studies

	Commonwealth Government	*State/Local Government*	*Private*	*Total*	*Percentage of recurrent expenditure*
Publicly funded hospitals	1 435	4 606	485	6 526	38.81%
Private hospitals	168	0	810	978	5.82%
Nursing homes	1 086	72	306	1 464	8.71%
Medical services	2 693	0	406	3 099	18.43%
Dental and other profesaional services	94	70	1 212	1 376	8.18%
Pharmaceuticals	702	0	613	1 315	7.82%
Other expenditure	698	737	622	2 057	12.23%
Total recurrent expenditure	6 876	5 485	4 454	16 815	100.00%
Capital consumption	43	361	0	404	
Capital expenditure	51	450	452	953	
Total health expenditure	6 970	6 296	4 906	18 172	

Source: AIH, Health expenditure studies

State expenditure includes expenditure by the Northern Territory and a small Local Government contribution. Most of the State expenditure is derived from general payments from the Commonwealth to the States at the Premiers' Conference.

Spending by the private sector includes most of the expenditure on private hospitals and dental (and other professional) services, and nearly half the expenditure on pharmaceuticals. Data on private health expenditure are obtained from such sources as the health insurance funds, the ABS and the Health Insurance Commission (Compiled AIH, in press).

Medicare is a health care financing and insurance scheme introduced by the Commonwealth Government in February 1984. It covers 85% of the Medicare Benefits Schedule fee for a specified range of services by medical practitioners. It also provides free accommodation in a public hospital and free treatment there by a hospital-appointed doctor. Hospital care is funded through agreements between the Commonwealth and the States, and the Medicare compensation grants paid by the Commonwealth to the States under these agreements comprise another major component of Medicare. The cost of Medicare is met from income tax and from the compulsory Medicare levy, which is currently 1.25% of taxable income above a specified threshold (see Table 7.C). The levy does not finance the entire Medicare program, but rather the difference between Commonwealth expenditures before and after the program was introduced. To some extent, Medicare subsidises the poorer from the contributions of the wealthier, who are often healthier (see Chapters 3 and 4), and so it adds an equity component to normal insurance.

Table 7.C: Medicare: services, outlays and receipts

Sources: Health Insurance Commission, Annual Reports; Commonwealth Budget Papers

	1984–85	*1985–86*	*1986–87*
Services:			
No. of medical services processed (millions)	113	121	129
Outlays:			
Value of benefits ($m)	2 280	2 609	2 882
Management expenses ($m)	108	131	132
TOTAL	2 388	2 740	3 014
Sources:			
Medicare levy ($m)	1 150	1 335	1 715
General revenue	1 238	1 405	1 299
TOTAL	2 388	2 740	3 014

Note: Medicare compensation grants to the States for hospitals are not included in this Table.

7.3 Trends in sources of funds

The variations in Commonwealth, State and private sector components of expenditure (Figure 7.2) reflect to a large degree the changes in the health insurance system (see Chapter 8).

Between 1974–75 and 1975–76, there was a substantial increase in health expenditure, which was essentially all Commonwealth

Figure 7.2: Total Australian health expenditure: source of funds in average 1984–85 prices

Source: AIH, Australian health expenditure studies

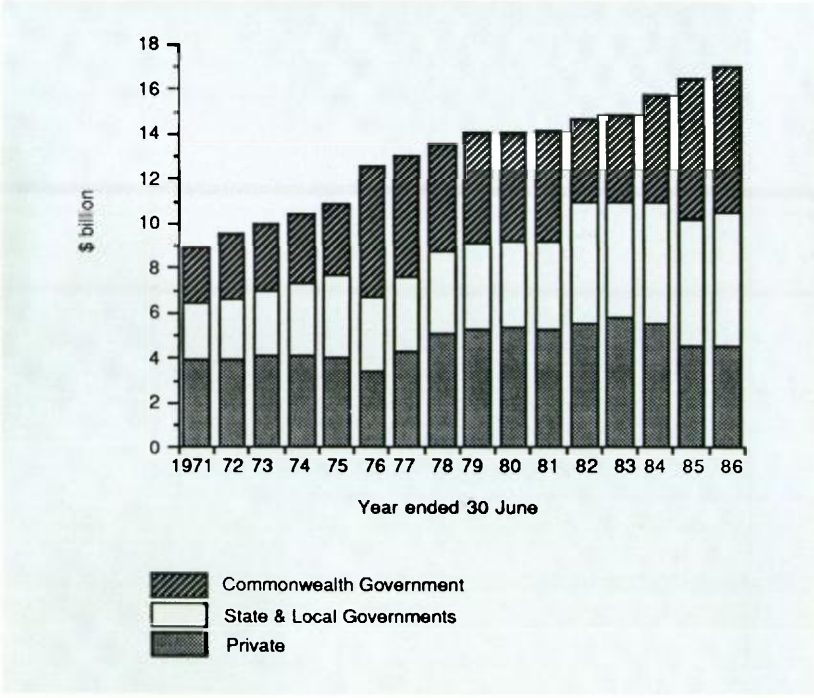
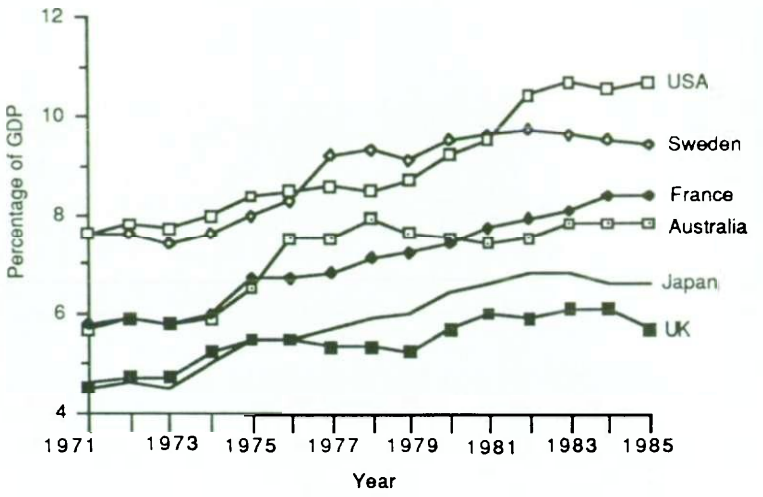


Figure 7.3: Total health expenditure for six countries as a percentage of gross domestic product, 1971 to 1985

Notes: Based on latest available data
Overseas data for calendar years
Australian data for years ended 30 June

Sources: AIH and OECD



expenditure, associated with the introduction of Medibank in July 1975. The increase was due to:

- an increased use of services due to the universal availability of services;
- pensioner beneficiaries gaining access to private specialist services;
- increased payments to doctors previously rendered in public hospitals on an honorary basis and for treating pensioners at higher rates;
- changed accounting conventions adopted by States as a result of cost sharing options; and
- more medical services being paid for in the year than were provided (as Medibank paid claims at a faster rate than under the previous private insurance arrangements).

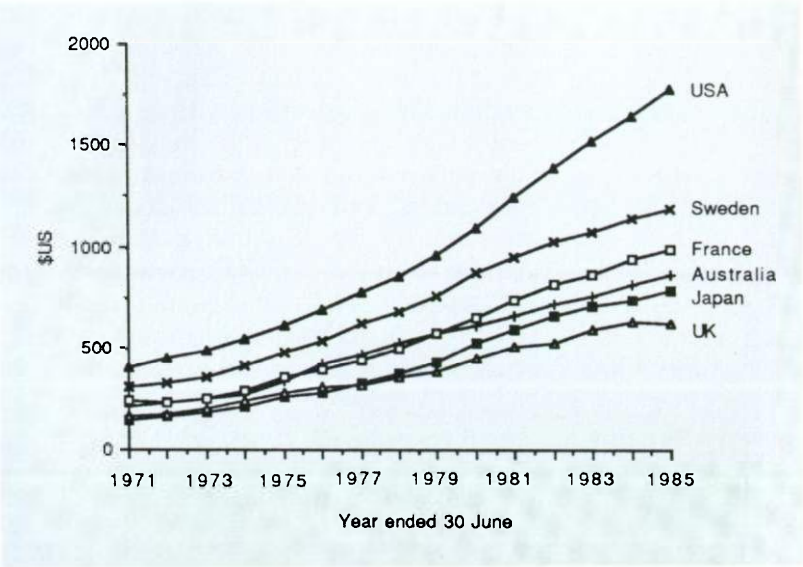
Between 1975–76 and 1982–83, real expenditure on health continued to grow, but at the relatively low rate of 2.4% on average. Since 1982–83 there has been a renewed increase in the rate of growth of health expenditure, reflecting renewed growth in the economy as a whole (Figure 7.2).

Expressed as a percentage of the gross domestic product, total Australian health expenditure has remained virtually constant over the past decade, lying within the range 7.4% to 7.8% (Figure 7.3). During the same period, health expenditure as a percentage of GDP in selected Organisation for Economic Cooperation and Development (OECD) countries rose at first, especially in the United States (where the proportion rose from 8.6% to 10.8% over the decade) but later levelled off.

Figure 7.4: Health expenditure per person for six countries, purchasing power parity conversion, 1970–71 to 1984–85 ($US)

Notes: Based on latest available data
Some overseas data for calendar years
Purchasing power parity conversion is defined in the Glossary

Source: AIH, Australian health expenditure studies



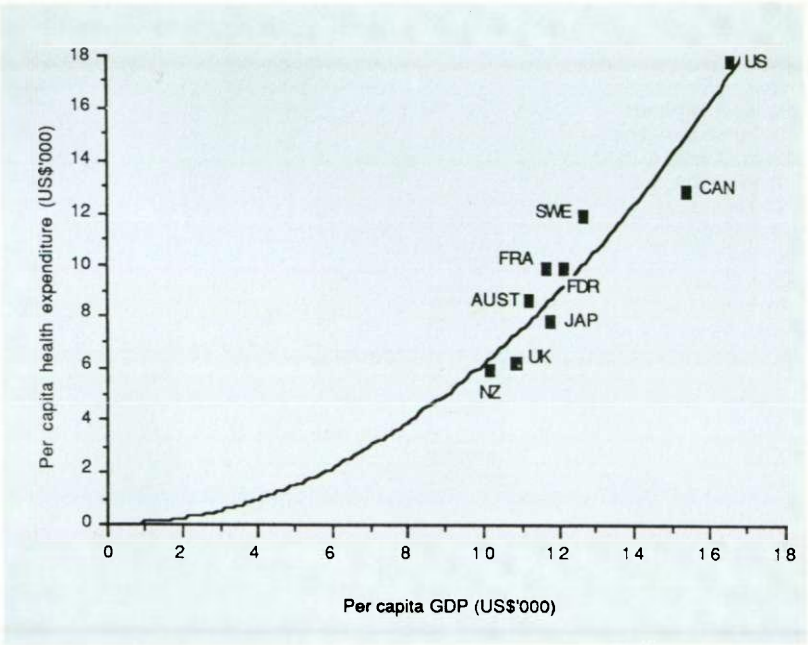
Australia's per capita health expenditure in the early 1980s was the 10th highest of the 21 OECD countries studied, below such countries as the United States, Sweden, Canada, West Germany and France (Figure 7.4).

International experience is that there is a tendency to spend more per capita on health services as GDP increases. Australian expenditure is consistent with this trend (Figure 7.5).

Figure 7.5: Health expenditure and gross domestic product per head of population for nine countries, 1985(a)

(a) Exchange rate conversion

Source: AIH, Australian health expenditure studies



There is no simple relationship between the proportion of GDP spent on health and whether the health care system is predominantly public (United Kingdom and Sweden) or predominantly private (the United States). Australia, with 73% of health care spending in the public sector in 1985–86 (Figure 7.2), falls between the two extremes of the United Kingdom (about 90% public) and the United States (about 41% public), both as measured by the degree of involvement of the public sector and the proportion of the GDP spent on health care.

Ultimately, it is not expenditure alone, or even in relation to GDP, which counts, but what people get for each dollar spent on health care.

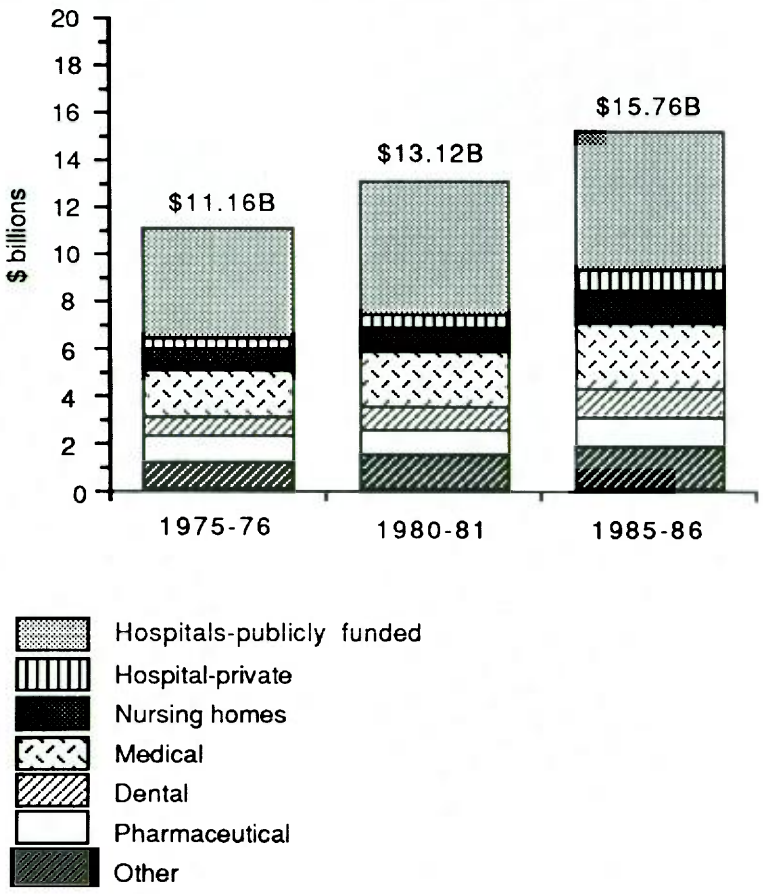


Figure 7.6: Recurrent health expenditure in Australia at average 1984–85 prices

Notes:

(a) $1B = $1 billion = $1000 million

(b) Publicly funded hospitals comprise recognised public short-stay hospitals, public psychiatric hospitals and repatriation hospitals

(c) The main areas of institutional expenditure (hospitals and nursing homes) and non-institutional expenditure (medical, dental, pharmaceutical services) are each grouped together

(d) Pharmaceutical drugs provided in hospitals are not included in pharmaceutical expenditure

Source: AIH, Australian health expenditure studies

7.4 Allocation of health care funds

The total (Commonwealth, State and private) health expenditure can be broken down into institutional (hospitals and nursing homes and the ambulance facility servicing them) and non-institutional (Figure 7.6 and Table 7.D). It should be noted that medical services by private doctors to private patients in institutions are not classified here as institutional expenditures.

Table 7.D: Recurrent health expenditure (1984–85) prices

Source: AIH, Australian health expenditure studies

Expenditure in $m

	1975–76	*1980–81*	*1985–86*
Publicly funded hospitals (a)	4 653	5 563	6 145
Private hospitals	506	632	921
Nursing homes	833	1 098	1 376
Other institutional	154	244	280
TOTAL INSTITUTIONAL	6 146	7 537	8 723
Medical services	2 019	2 251	2 879
Dentists	756	951	1 263
Pharmaceuticals	1 084	1 052	1 242
Health promotion and illness prevention (b)	141	69	146
Other non-institutional (c)	1 015	1 265	1 509
TOTAL NON-INSTITUTIONAL	5 015	5 588	7 038
TOTAL RECURRENT	11 161	13 125	15 761

(a) 'Publicly funded hospitals' comprise recognised public short-stay, repatriation and public psychiatric hospitals.
(b) See box on health promotion
(c) Includes research, administration, national drug programs etc.

These categories can be broken down further for the financial year 1985–86 (Figures 7.7 and 7.8). These graphs, the tabulated data upon which they are based (Table 7.D) and the Hospital Utilisation and Costs Study of the Australian Institute of Health (Mathers and Harvey, AIH, 1988) show that:

- The largest proportion of the health dollar goes into hospitals (44.6%); the second largest category comprises medical expenditures (18.4%).
- In real terms, between 1975–76 and 1980–81, institutional costs rose steeply (by 4.2% a year) but much less rapidly (by 3.0% a year) between 1980–81 and 1985–86 (Table 7.D). The initial substantial increase in real terms was due predominantly to increases in public hospital expenditures, which occurred mostly between 1975–76 and 1977–78 (see Chapter 8).
- Hospitals, particularly public hospitals, dominate the institutional costs (Figure 7.7).
- Non-institutional costs rose more slowly than institutional costs between 1975–76 and 1980–81 (by 2.1% a year in real terms), but faster between 1980–81 and 1985–86 (by 4.7% a year in real terms) (see Table 7.D).

- Expenditure on doctors and pharmaceuticals dominate the non-institutional costs (Figure 7.8).
- Labour costs dominate health costs. For example, in 1985–86, salaries and wages comprised over three-quarters of recurrent expenditure on public hospitals (Mathers and Harvey, AIH, 1988).

The sources of funds and the recipients of health expenditure in 1985–86 are shown in broad terms in Figure 7.9.

Figure 7.7: Institutional recurrent health expenditure at current prices, Australia, 1985–86

Source: AIH, Australian health expenditure studies

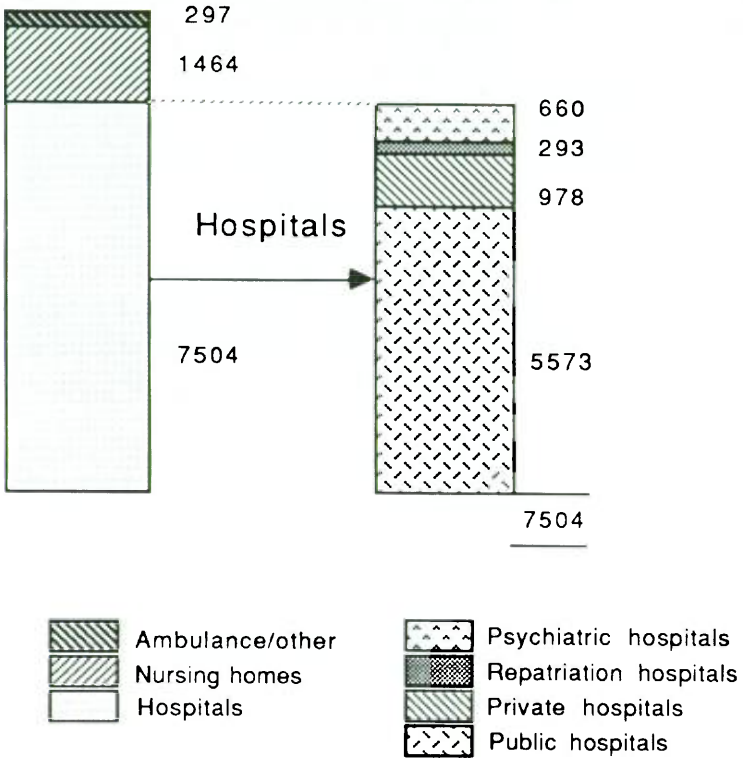


Figure 7.8: Non-institutional recurrent health expenditure, Australia, 1985–86

Source: AIH, Australian health expenditure studies

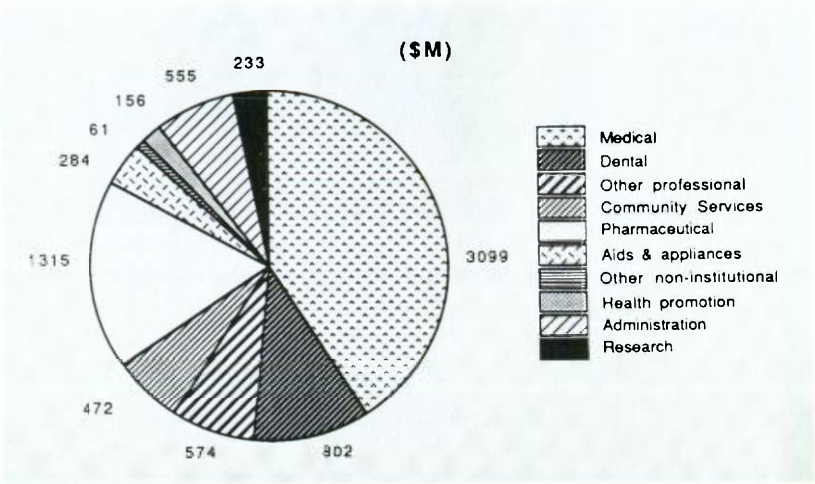
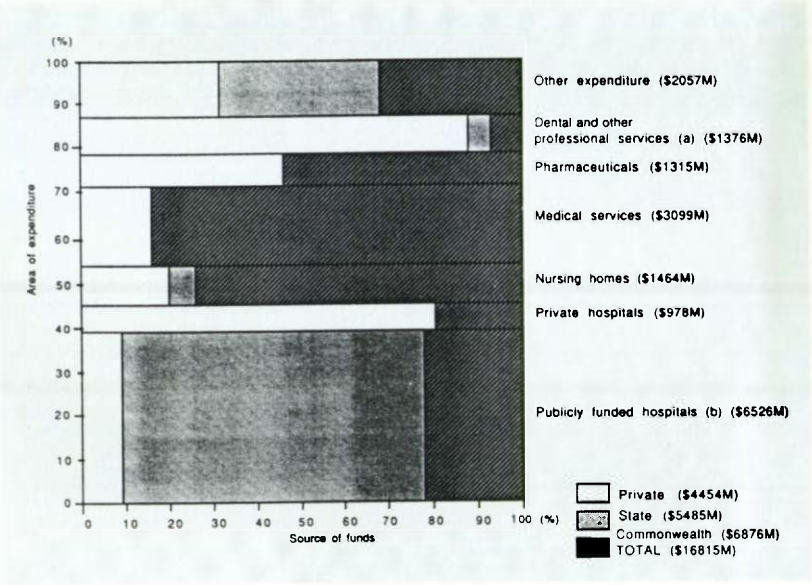


Figure 7.9: Recurrent health expenditure at current prices, Australia, 1986

(a) Other professional services include physiotherapy, dietetics, chiropractic, etc.

(b) Publicly funded hospital comprise recognised public short-stay hospitals, public psychiatric hospitals and repatriation hospitals

Source: AIH, Australian health expenditure studies



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8 Use of health services

The major emphasis throughout this chapter is on the national picture of health insurance and the use and costs of the major items of health services expenditure in hospitals, nursing homes, medical services and pharmaceutical drugs.

Factors such as technology, Commonwealth funding policies, and similarities in demography across the States and Territories, are all strong factors working toward uniform outcomes. But this national focus should not obscure the fact that there are significant differences between the States and Territories in the organisation and delivery of institutional health services (see Appendix B).

8.1 Health insurance

Insurance against the costs of medical and hospital services has been heavily subsidised since the passage of the Commonwealth National Health Act in 1953. Since 1971, the number of people contributing to private health insurance funds has fluctuated as various health insurance schemes have been set up by different Commonwealth Governments (Figure 8.1).

Medibank, a compulsory universal health insurance scheme introduced in July 1975, was subsequently modified by gradual removal of its universality and by changes to the proportions of the services to fee paid by the insurance contributors in 1976, 1978, 1979 and 1981.

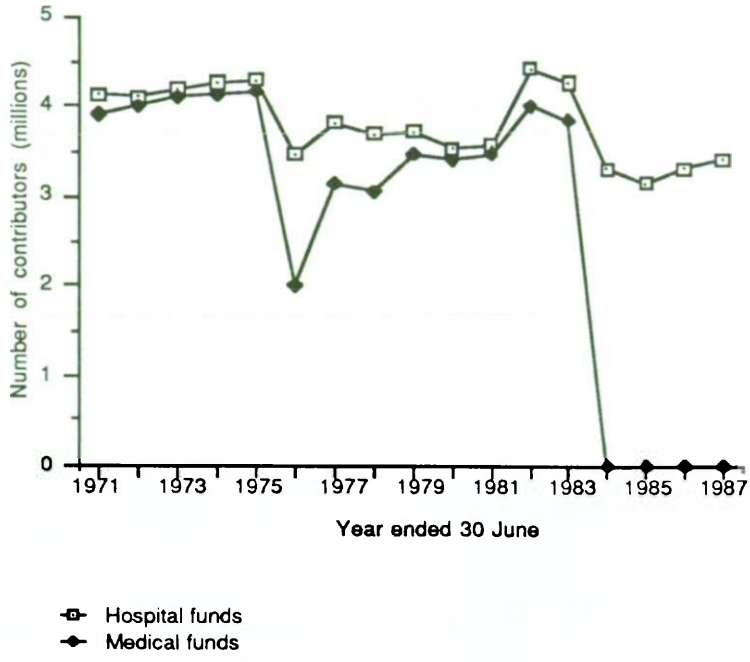
8.2 Use of medical services

Despite difficulties in comparing statistics from different countries, it appears Australians have relatively few doctor visits by international standards. However, little information is available about the number of services provided to inpatients or outpatients by doctors employed by hospitals. There has been a long-term trend toward increased use of private medical services. From 1960–61 to 1972–73, the average number of medical services increased from 3.3 services per person to 4.9 services per person—an increase of about 3.4% per person per year (Deeble 1978). From 1975–76 to 1986–87, the use of services increased from 5.6 services per person to about 8.4 services per person

Figure 8.1: Contributors to registered health insurance organisations

Note: From 1977 to 1987, figures relate to membership of basic table

Source: Annual reports to Parliament on the operations of registered health insurance organisations except for 1971 which was taken from the Commonwealth Department of Health Annual Report



(including an estimate for workers compensation and motor third-party insurance) or about 3.8% per person per year.

Almost all Australian statistics on use of medical services relate to medical claims processed by public and private insurers. For the years between 1975–76 and 1986–87, the frequent changes in health insurance arrangements make estimation of the use of medical services more difficult.

These increases in medical service are due to three major factors: changes in medical science, technology and practice; increases in the number of doctors; and the aging of the population. The increase due to aging accounts only for about 10% of the recorded increase (Mathers, Harvey and Gillett, AIH, 1987).

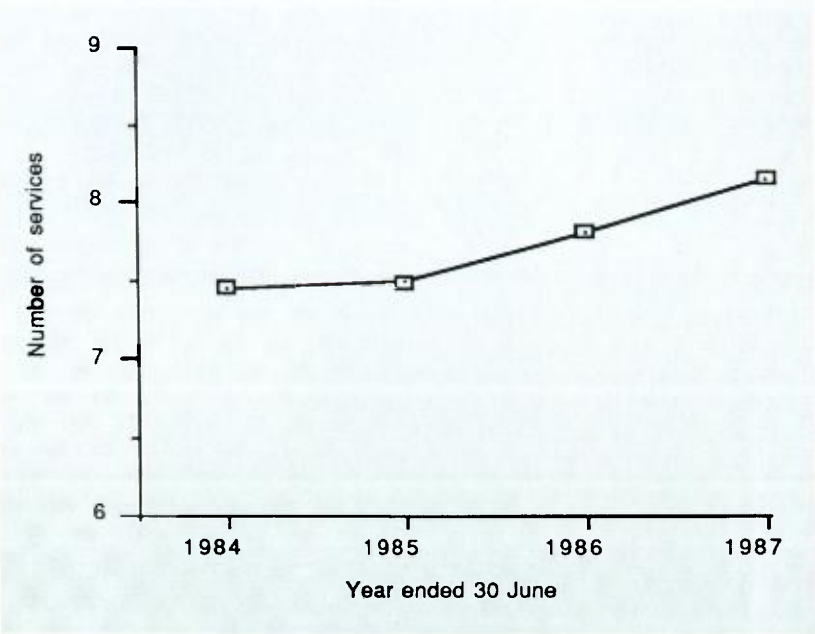
Since 1984–85, the year of introduction of Medicare, the number of private medical services per capita claimed each year under Medicare, by private insurance organisations, and for the Department of Veterans' Affairs has continued to rise (Figure 8.2). Medicare statistics have been examined in detail by Deeble (1987); some of the advantages and problems of Medicare have been set out by the Health Issues Centre (1987).

About half the medical services for which a Medicare rebate is paid are bulk billed—that is, the doctor sends the patient's bill directly to Medicare for payment (Health Insurance Commission 1987). In dollar values of services, 42% is bulk billed and, of this

Figure 8.2: Number of medical services(a) processed per capita per annum, 1984 to 1987

(a) Services comprise Medicare services and services to war veterans, health cardholders and privately insured people

Source: AIH, Australian health expenditure studies



amount, about half is for pensioners and cardholders (Figure 8.3). Bulk billing has financial advantages for the Government and consumers of health services, but results in reduced payments to doctors, although there are also some cost savings for doctors.

In 1986–87, services paid by Medicare accounted for almost 95% of all private medical services rendered in Australia. The pattern of use of medical services derived from Medicare statistics gives a good picture of the overall use of services.

Bulk billing

There is concern that bulk billing may be encouraging abuse of Medicare by increasing the number of services delivered and thereby increasing the total payments to doctors by Medicare.

A study of Medicare statistics by a health economist has shown that in general there is no relationship between bulk billing and increased medical incomes (Richardson 1987a). However, there is one group of doctors, 'GP specialists'—specialists who are registered as GPs, but who earn less than 70% of their income from GP consultations—who do show higher incomes for those who bulk bill. This group appears to consist primarily of doctors who are earning income from pathology and in some cases from radiology.

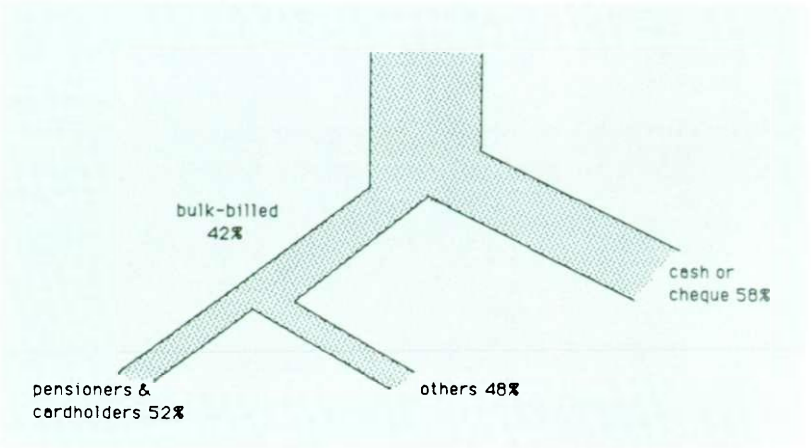


Figure 8.3: Medicare expenditure 1985–86: method of payment
Source: Health Insurance Commission

Females have the greatest call on Medicare benefits for medical services, both in terms of numbers of services per capita processed annually—9.5 for females compared with 6.1 for males in 1986–87—and value of benefits processed per capita—$212 for females compared with $138 for males (Figure 8.4).

A large part of the peak for women aged between 20 and 34 involves births and other obstetric interventions. There may be opportunities for reducing this peak, without any loss of quality in care. The National Health and Medical Research Council (1988) stated that 'women should be able to make their own choice about place of birth depending on their geographic region, factors relating to their pregnancy and the professional and support

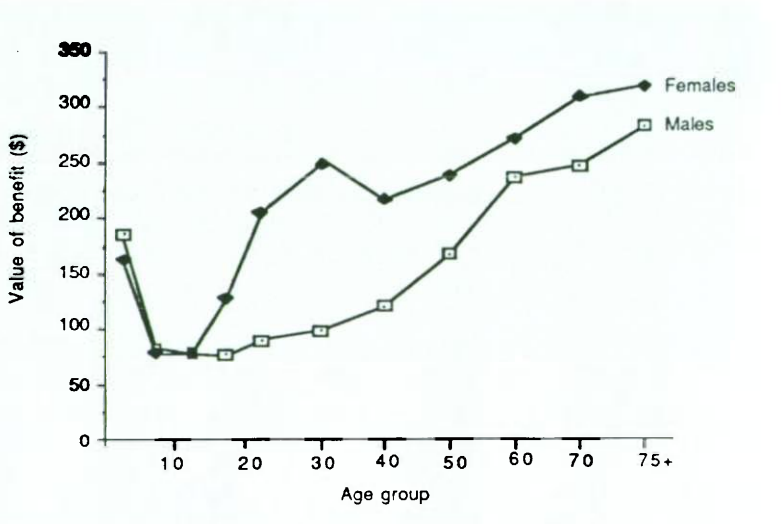


Figure 8.4: Average value of Medicare benefits processed per enrolled person by age and sex of patient, 1986–87
Source: Health Insurance Commission, Annual Report 1986–87

services available to them'. Council added that 'an extensive review of the literature did not substantiate the expressed concern about the safety of homebirths'.

Although women tend to have higher levels of illness and medical interventions, in most age ranges men use more hospital services. For both women and men, the receipt of Medicare benefits increases steadily with age, apart from a drop for women in the later childbearing years. As the Australian population ages, an increased demand for medical and other health services is likely, but this should not be overstated because

- only a small proportion of the aged have a high demand for health services (see Chapter 4); and
- the projected increase in the use of health services due to aging alone is only 0.2% a year, compared with the long-term average growth of 3.0% a year (Mathers, Harvey, Gillett, AIH, 1987).

Medicare covers only medical treatments listed in the Medicare Benefits Schedule when they are carried out by or referred by a registered medical practitioner, as well as some optometrical procedures and a few dental procedures.

Medicare funds various types of medical services (Figure 8.5). The largest category is for GP services, accounting for 35.5% of benefits processed in 1986–87. Visits to specialists, pathology, surgical operations and radiology account for a large proportion.

With the exception of a limited range of services such as cervical cytology (Pap smears) and immunisations, the Medicare Benefits Schedule does not cover health promotion and the prevention of disease (unless it is part of a general practitioner consultation), or treatments by other health professionals (such as

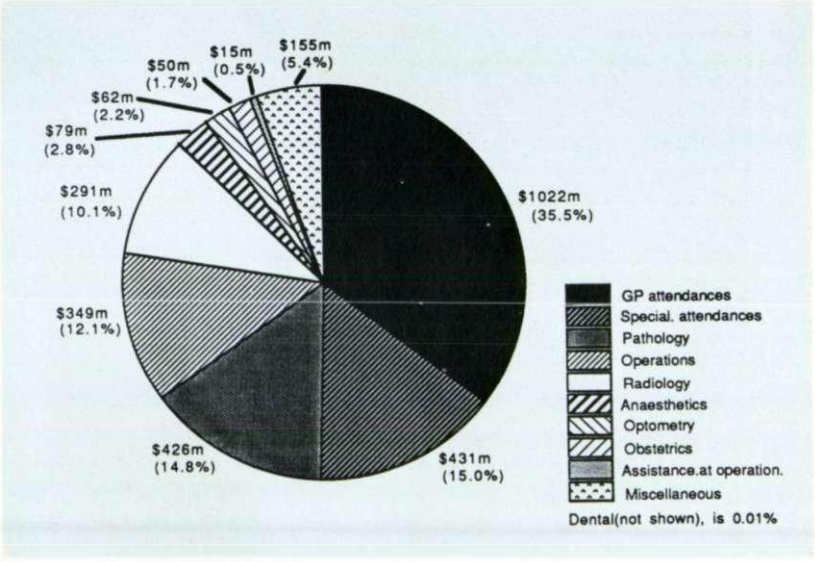


Figure 8.5: Value and percentage of Medicare benefits processed by broad type of services, 1986–87

Source: Health Insurance Commission Annual Report 1986–87

physiotherapy or counselling by psychologists and social workers) which have not been referred by a medical doctor. Nor does it cover alternative medicine, such as homeopathy and naturopathy. An exception is acupuncture when carried out by a registered medical practitioner.

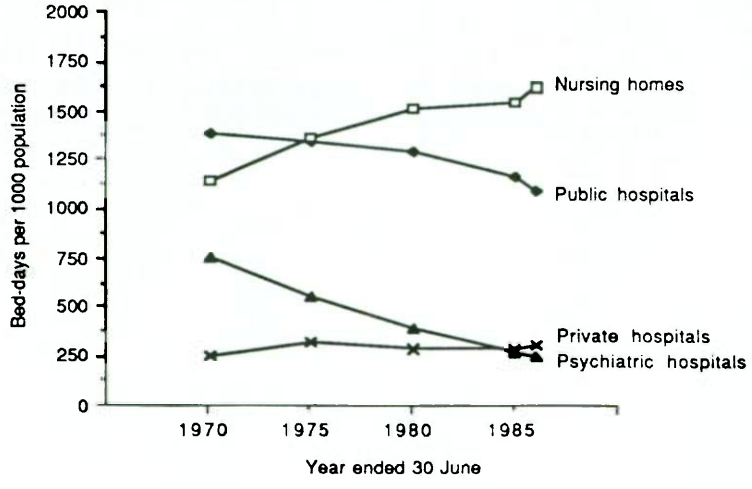
The introduction of Medicare in February 1984 changed the health insurance scheme and eliminated all private medical insurance (Figure 8.1). In September 1985, private insurance to cover the gap between the Medicare payment (75% of the Schedule fee) and the Schedule fee for medical services performed in hospitals was introduced. (However, the actual fee charged by the doctor may be higher than the Schedule fee.)

Private insurance is still available for a variety of hospital benefits packages, such as charges for accommodation in public hospitals (for patients who do not use hospital doctors) and charges to private patients in private hospitals. It also covers a wide range of ancillary services, such as dentistry and physiotherapy.

8.3 Use of hospitals and other institutions

Hospital provision remains the largest item of expenditure and the most contentious health services issue in Australia. Data collected by the Hospital Utilisation and Costs Study, carried out by the Australian Institute of Health for the Australian Health Ministers' Advisory Council, sheds some light on the basic issues (Harvey and Mathers, AIH, 1988). This study collected data from acute hospitals and long-stay institutions. The acute hospitals—comprising public short-stay hospitals, repatriation hospitals and private short-stay hospitals—provide services mostly

Figure 8.6: Bed-day use for health care institutions
Source: Harvey and Mathers, AIH (in press)



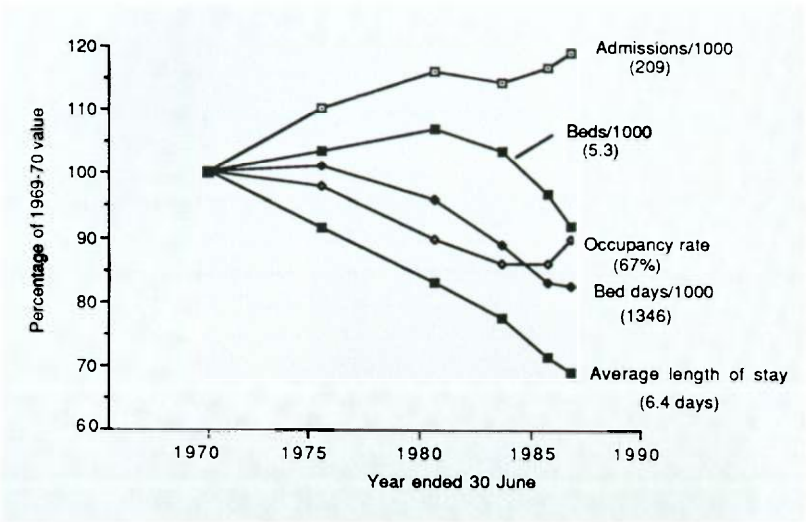


Figure 8.7: Use and bed supply for all acute hospitals, 1969–70 to 1985–86

Note: 1985–86 levels shown in brackets

Source: Harvey and Mathers, AIH (in press)

to inpatients with temporary or acute illnesses. The long-stay institutions comprise psychiatric hospitals, nursing homes and hostels. (For more detailed definitions of the various types of health care institutions, see the Glossary.)

The per capita bed use from 1969–70 to 1985–86 in public and psychiatric hospitals has declined, but has increased in nursing homes and private hospitals (Figure 8.6).

Use of acute hospitals

The AIH study also considered indicators of acute hospital use other than bed-days (Figure 8.7). These indicators for acute hospitals throughout the 1970s and 1980s show

(a) The peak in per capita hospital use, as measured by total bed-days per thousand population, occurred in 1974–75. It has been declining throughout the 1980s at an average annual rate of 2%. (Private hospitals accounted for 16% of all acute bed-days in 1969–70, increasing to 21% in 1985–86.)

(b) The average length of stay for acute inpatients has also fallen steadily by more than 2% a year. (For public hospitals in particular, average length of stay has decreased from 10.3 days in 1965–66 to 6.7 days in 1985–86. Data for private hospitals are less reliable but indicate that average length of stay has fallen from 8 days to 5 days over the same period. Differences in case mix make it difficult to compare lengths of stay in public and private hospitals.)

(c) Admission rates have grown from 176 per thousand in 1969–70 to 209 per thousand in 1985–86. The rate of growth of the total admission rate has slowed in the 1980s, averaging only 0.7% a year.

(d) Average occupancy rates for acute hospitals fell during the 1970s and most of the 1980s, although they have risen from 64% in 1984–85 to 67% in 1985–86. (Occupancy rates of public hospitals declined from 76% in 1969–70 to 69% in 1979–80 and since then have increased slightly. The average occupancy rate for public hospitals in 1985–86 was 71% and for private hospitals, 62%.)

The substantial and continuing decline in average length of stay over the past 16 years has more than compensated for the recent decrease in acute bed supply at a time when admission rates have continued to increase. The overall bed-day use per capita has declined by 18% since 1969–70, whereas the acute bed supply per capita has declined by only 8%.

The overall supply of acute beds in Australia rose throughout the 1970s to 6.4 per thousand in 1979–80 and then fell in the 1980s to 5.8 beds per thousand in 1984–85 and 5.3 per thousand in 1985–86 (Figure 8.7). This reduction has taken place entirely in public hospitals (Figure 8.8). The supply of private hospital beds has been almost constant throughout the 1980s at 1.3 beds per thousand.

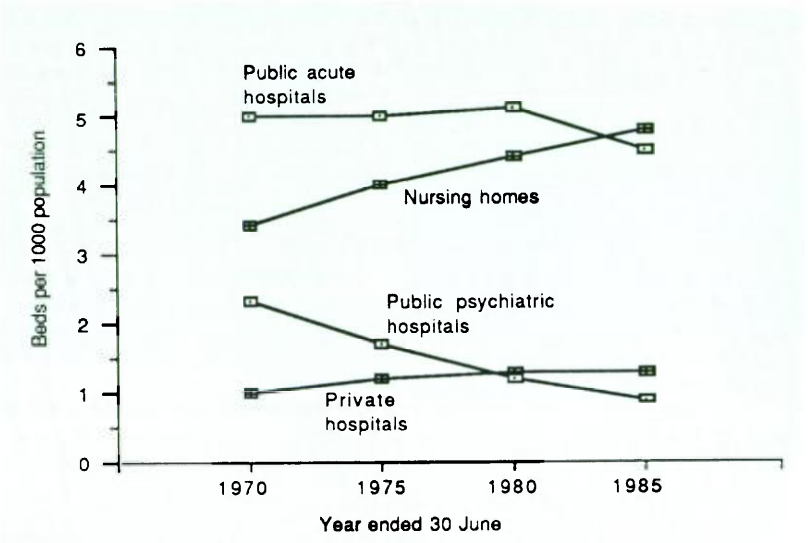


Figure 8.8: Bed supply, 1969–70 to 1984–85
Source: Harvey and Mathers, AIH (in press)

The explanation for the fall in average length of stay is not because the demand for beds is exceeding the supply. Average occupancy rates have not risen significantly and average length of stay has been falling at a similar rate in States with quite different hospital systems and bed supplies.

Occupancy rates for private hospitals remain similar to those existing during the various health insurance schemes from 1975 to 1983. There is no apparent increase in bed-day use of the

public sector associated with decreased levels of private insurance under the first two years of Medicare (Figure 8.1). There has been considerable concern in the past year or two about excessive waiting times and waiting lists for elective surgery in public hospitals. There is evidence that staff shortages in metropolitan hospitals have resulted in some bed closures, which have contributed to the waiting-list problem, but other factors are also involved.

The total supply of hospital beds in Australia is high by the standards of many developed countries. However, bed supply is much higher in the country than in the city, where it varies from area to area and between private and public hospitals. Furthermore, the availability of medical services varies between hospitals of the same type and from sector to sector—medical staff may be unwilling or unavailable to work in particular hospitals. Some services are not available in country hospitals because it is difficult to find specialist staff willing to work in the country, while other services are not available in public hospitals in the city because some specialist groups, such as orthopedic surgeons and ophthalmologists, have virtually withdrawn their services from them. The availability of nursing staff has also limited the public's access to hospital services. Privately insured people living in major cities generally have little difficulty in obtaining the services that they desire.

The most widely used type of acute hospital is the public hospital (Figure 8.6). The total volume of bed-days per thousand in Australian public hospitals has fallen by 10% over the seven years to 1985–86. But there has been a 45% increase in outpatient services over the same period, representing a very substantial shift

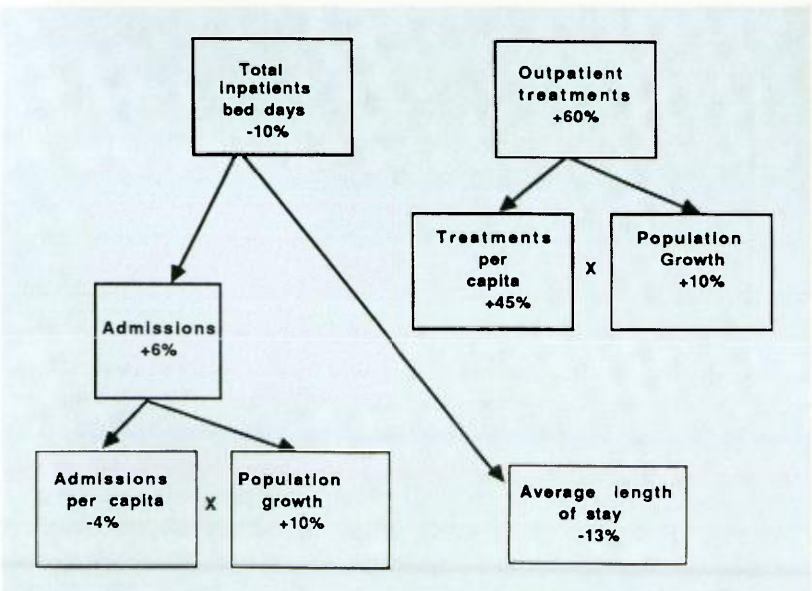


Figure 8.9: Components of the change in use of public hospitals, 1978–79 to 1985–86
Source: Harvey and Mathers, AIH (in press)

Commonwealth use of resources

The Commonwealth Government has a policy, which has not been accepted by some States, of reallocating resources from intensive residential care to hostel settings or to improved community services, in the hope of enhancing quality of care for the aged.

It has decided that accommodation for the aged should be in total 100 beds per thousand people aged 70 and over. Within that provision the long-term aim is to provide 60 hostel beds and 40 nursing-home beds per thousand people aged 70 and over, which effectively reverses the current balance of 34:66. The strategy provides for an increase of 11 585 hostel beds between 1986–87 and 1988–89, or some 35 000 beds over the next decade.

The population aged 70 and over is projected to increase from 1.1 million in 1987 to 1.6 million in 2001. The existing nursing-home bed stock will exceed the Commonwealth target until well into the next century. It is planned to stop nursing-home growth and to restrict them increasingly to people requiring extensive nursing care. The Commonwealth is providing more funding for the hostel sector and it is intended that frail-aged people needing personal care rather than extensive nursing care will live in hostels. But if the number of hostels does not expand at a sufficient rate, there will be increased pressure on domiciliary-care services and on the nursing home and acute hospital sectors.

in the inpatient/outpatient mix of Australian public hospitals, and significant changes in health insurance and medical technology, practice and policies. Part of this increase represents a greater use of day surgery.

There appears to have been a shift of use of acute hospital beds from the public sector to the private sector. Admissions per capita to private hospitals have grown by 33% in the 1980s, while admissions to public hospitals have fallen by 4% (Figure 8.9). The proportion of acute bed-days accounted for by private hospitals has grown from 18% in 1979–80 to 21% in 1985–86 (Harvey and Mathers, AIH, 1988).

There is a trend in Australia to develop health service systems that use fewer acute hospital beds than are currently in use. There are currently about 5.3 acute hospital beds per thousand population, although several States are planning to reduce this to 4.0 to 4.3 beds per thousand. In Canada, the supply target is 2.9 to 4.0

beds per thousand while England and New Zealand already use less than four beds per thousand. Some health maintenance organisations in the United States are planning about two beds per thousand.

Trends in use of long-stay institutions

The aged make a large use of long-stay institutions, but, proportionately, few elderly people are dependent upon such institutions. According to the 1981 census, 89.5% of persons aged 65 and over lived in private housing (Figure 8.10). Of the minority who did not live in private housing, 40% were in nursing homes, 16% in homes for the aged, 14% in public (non-psychiatric) hospitals and 4.4% in boarding houses and private hotels. The remainder were split up among quite a large number of accommodation categories with low use, including private hospitals, mental institutions, convents, Aboriginal settlements, prisons and caravan parks.

Nursing homes are institutions which qualify for the Commonwealth nursing-home bed subsidy. They are owned primarily by private organisations, of which about half are profit seeking. They provide long-term care involving regular basic nursing care to the chronically ill, the frail or people with disabilities. State governments have limited involvement in nursing homes.

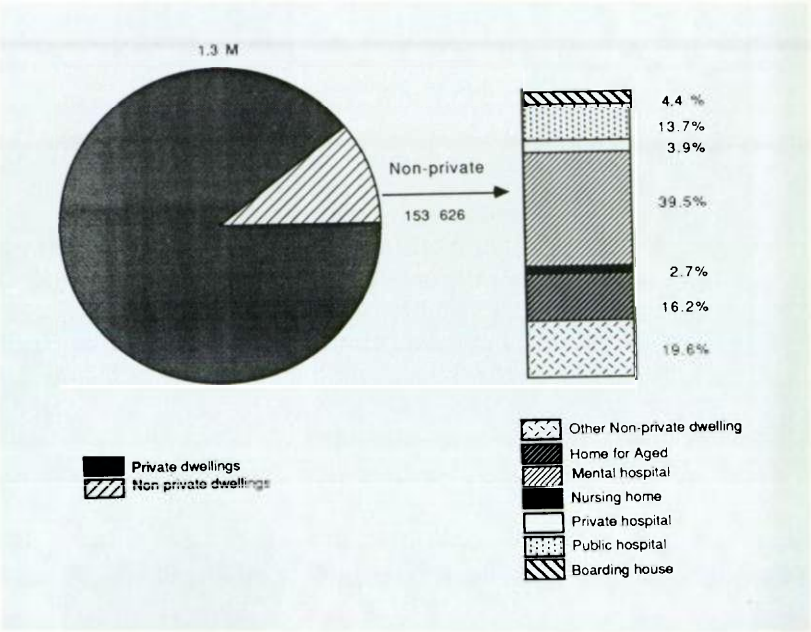


Figure 8.10: Number of people over 65 in various types of dwellings, 30 June 1981

Notes: Other non-private dwellings includes hotels, motels, caravan parks and campers; convents, staff quarters and residential colleges; detention centres and prisons; family group homes; Aboriginal settlements

The institution 'hostels' of the health sector does not appear explicitly in the Census categories used in the figure

Source: ABS, Census of population and housing, 1981

Hostels are residential establishments for aged or disabled persons who cannot live independently but do not require nursing care. Hostels may receive Commonwealth subsidies.

The 40% increase in nursing-home bed-day use per capita (Figure 8.6) reflects a steady rise in the supply of nursing-home beds over the past 15 years from 3.4 per thousand in 1969–70 to 4.8 per thousand in 1984–85 (Figure 8.8). The Commonwealth Department of Community Services and Health has pointed out that there is a high use of nursing homes in Australia. The 1970s saw a rapid growth in Commonwealth funding for self-contained units which usually formed part of a retirement village or complex of units, hostel and nursing home. There was a trend for people to leave their homes and their place in the community, and move into institutional care.

There were 37 046 subsidised hostel beds in Australia at the end of 1986, corresponding to about 33 subsidised hostel beds per thousand population aged 70 and over. The number of unsubsidised hostel beds is unknown.

Public psychiatric hospital bed supply and use in Australia has declined by 60% since 1970, reflecting moves in all States toward reducing the acute and long-term psychiatric care provided by institutions, and the integration of psychiatric patients within the acute hospital system (Figure 8.8). There has been some public concern that these changes are taking place before adequate community support facilities have been developed.

Private psychiatric hospitals provided 0.2 beds per thousand population in 1985–86 compared with about 1.0 per thousand in the public sector.

8.4 Expenditure on hospitals and other institutions

Public hospital costs

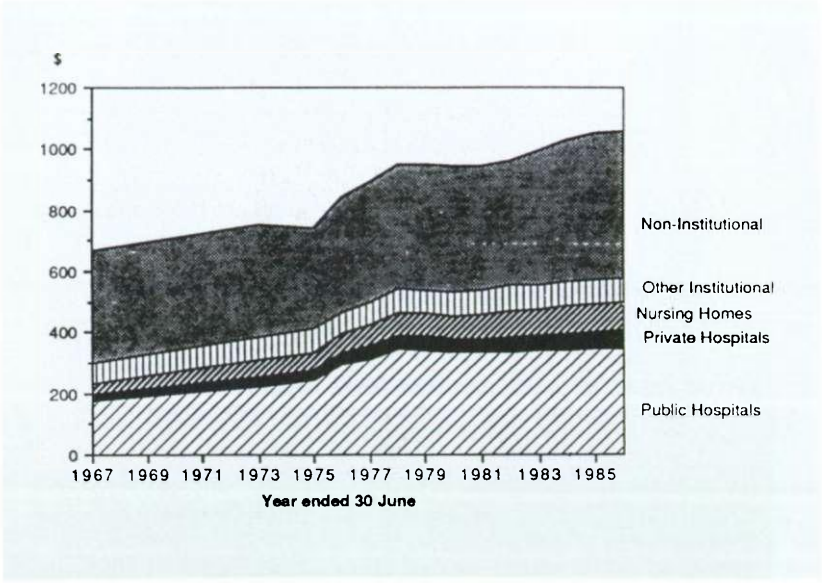
Public hospital expenditures in Australia increased substantially in real terms between 1975–76 and 1977-78 (see Chapter 7; Table 7.D, Figure 7.6 and Figure 8.11). After this period the Commonwealth imposed limitations on its identified health grants to the States, and States limited their hospital budgets, rationalised the provision of hospital services and reduced beds by closing hospitals and wards.

This resulted in a dramatic change in the growth of real public hospital expenditure per person, from an average increase of 7.6% a year during 1975–76 to 1979–80 to a decrease of 0.4% a year during 1980–81 to 1984–85. In contrast, the real expenditure on private hospitals, nursing homes and other institutions has continued to grow during the 1980s at rates similar to or higher than those of the second half of the 1970s. The effects of price inflation have been allowed for by deflating expenditures to constant 1985–86 dollars using the IPD1 deflator (see Glossary).

Figure 8.11: Recurrent health expenditure per person by sector, 1966–67 to 1985–86, at average 1985–86 prices

Note: Data from 1967 to 1973 has been interpolated

Source: Harvey and Mathers, AIH (in press)



The estimated real cost per inpatient has decreased by 9% over the seven years from 1978–79 to 1985–86, whereas the estimated real cost per bed-day has increased by 8%. Two major factors account for these changes in real costs (Figure 8.9):

Average length of stay has declined by 13% in the seven years, from 7.8 days in 1978–79 to 6.7 days in 1985–86.

Outpatient treatments per thousand population have increased by 45% from 1600 in 1978–79 to more than 2300 in 1985–86. (Outpatient services form an increasingly important component of total services in public hospitals; in 1985–86 there were about two outpatient services for every bed-day of inpatient care. But very few public hospitals in Australia explicitly cost outpatient and inpatient services separately. Therefore, outpatient treatments have been expressed in terms of a cost-equivalent number of occupied bed-days, by equating 5.75 outpatient treatments to one inpatient bed-day, following guidelines established in the 1970s (Hospitals and Allied Services Advisory Council 1971). It is particularly important to adjust for outpatient services when analysing time trends in public hospital inpatient costs since outpatient treatment rates have been rising relative to the admission rates over the past decade.)

The rapid growth in average cost per bed-day during the mid-1970s has given way to a very small average growth in real terms in cost per bed-day of less than 1% a year in the 1980s. Because average length of stay has been declining at an average of 2% a year in this period, there have been decreasing real costs per inpatient (at an average decline of 2% a year).

In contrast to public hospital expenditure, which has been decreasing in real terms for both cost per capita and cost per patient in the 1980s, expenditure per capita on other health care institutions has been increasing at 5% to 6% a year in real terms (Harvey and Mathers, AIH, in press). Real total institutional spending has been increasing at an average annual rate of 1.5% in the 1980s, in contrast to the second half of the 1970s where it increased at an average rate of more than 5% a year. Real growth in health care institutional expenditure has been slowed, largely as the result of stringent budgetary controls on public hospitals and substantially shorter average lengths of stay.

Private hospital costs

Direct information on private hospital costs in Australia is not available. But, using data from the former Commonwealth Department of Health and Medibank Private, the Hospital Utilisation and Costs Study has estimated that the total average revenue of private hospitals in Australia was $205 a bed-day in 1985–86 (Harvey and Mathers, AIH, 1988).

Medical fees for patients in private hospitals in Australia averaged $81 a bed-day for 1985–86. In comparison, the average medical expenditure for private patients in public hospitals in 1985–86 was estimated to be $55 a bed-day. The estimated total hospital and medical expenditure per private hospital bed-day was $286 in 1985–86. This expenditure includes a component to cover capital costs (interest repayments) and profit or surplus. It was also estimated that the average capital cost for private hospitals in 1985–86 was $45 a bed-day. Thus the total recurrent expenditure per private-hospital bed-day was estimated to be $241, not much less than the $257 per inpatient bed-day for public hospitals.

A few private hospitals in Australia offer a wide range of specialty procedures based on expensive high technology. But the great majority of private hospitals do not provide a comprehensive range of acute services or teaching and research, and are mainly limited to less complex surgical and/or medical procedures. The estimated recurrent expenditure per bed-day is almost identical for the public and private systems, which would seem to indicate that once adjusted for the different case mixes the expenditure per bed-day is higher in private hospitals.

To establish this it would be necessary to classify the medical procedures carried out in both sectors into diagnosis related groups (see Glossary) and to compare the costs of various mixes. However, better information on private hospital charges and costs is needed.

8.5 Drug use

Historical

Humans have used drugs for thousands of years to treat sickness and to alter states of consciousness. Early drugs were generally plant extracts or naturally occurring substances and chemicals. Some traditional medicines were potent and effective drugs: for example, penicillin, digitalis and oral contraceptives were all used in some form before the 20th century. There was no clear distinction between the use of drugs for magical purposes or for scientific treatments.

The scientific approach to the manufacture and use of drugs is a product of the late 19th and the 20th centuries. The development of the synthetic chemical industry in the late 19th century led to the production of a few effective drugs in the early 1900s. But it was not until the 1930s, with the development of sulphonamides and the transition of penicillin from a laboratory curiosity to a life-saving drug widely used in the community, that terms such as 'wonder drugs' and the 'drug revolution' came into use.

Since the early part of this century, governments in Australia have regulated the distribution and use of drugs. Some drugs, which were widely used in medicinal preparations in the last century, such as opium, have been declared illegal; other drugs are available only from pharmacists on the prescription of a medical practitioner, and some non-prescription drugs can be sold only by pharmacists.

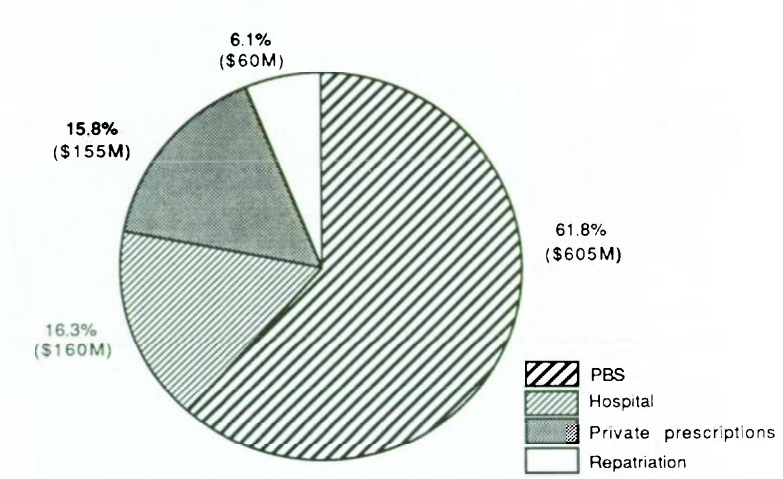
The high prices of some of the life saving wonder drugs led Australian Governments of both political parties during the 1940s and 1950s to develop schemes to provide free or subsidised drugs. The Pharmaceutical Benefits Scheme (PBS) was the final form (see Box).

Use and costs of prescription drugs

Prescription drugs are available in Australia from retail pharmacies or from hospitals and their pharmacies. Prescriptions dispensed through retail pharmacies may be dispensed under the Commonwealth Government's Pharmaceutical Benefits Scheme (PBS), or as non-subsidised prescriptions. Information on the use and expenditure on prescriptions, except for PBS items, has been poor.

The main source of information on the trends in prescription drug use comes from the PBS. In 1982–83, total expenditure on prescription drugs at retail prices was $980 million, of which $605 million (62%) was on PBS and about 16% provided through public hospitals (Figure 8.12, Industries Assistance Commission 1986). By 1985–86 expenditure on PBS drugs was $860 million, an increase of 13% a year since 1982–83. This rate of growth was almost twice as high as the rise in consumer prices generally and reflects, in part, increases in the use of drugs.

Figure 8.12: Expenditure on pharmaceutical drugs, 1982–83
Source: Australian Pharmaceutical Manufacturers Association in IAC Draft Report on Pharmaceutical Products (1985)



Expenditure on drugs has fallen from 19% of total recurrent health expenditure in 1970 to 8.3% in 1984–85. This decline partly reflects the worldwide trend toward lower drug prices, but is largely due to the success of the then Commonwealth Department of Health in negotiating lower prices of drugs listed on the PBS. In 1981, Australian drug prices were almost half world average prices.

For general beneficiaries of the PBS, the use of prescriptions increased through the early 1970s and stabilised in the 1980s (Figure 8.13). There has been a steady rise in the use of prescriptions by pensioner beneficiaries.

Under the PBS, drugs which can be bought over the counter from pharmacies are provided free to pensioner beneficiaries if doctors write prescriptions for them. General beneficiaries are not entitled to receive these drugs at subsidised rates even if they are included on PBS prescriptions.

A significant proportion of the difference between the use of PBS drugs by pensioner beneficiaries and general beneficiaries can be explained by non-prescription drugs being counted for pensioners and not for general beneficiaries, by the different age and sex composition of the two groups, and by the different health status of the two groups. Based on local studies by the Australian Institute of Health, the first two factors would account for about 70% of the difference.

Safety, efficacy and appropriateness of drugs

Few pharmaceutical drugs are completely free of side effects. The extent to which side effects are tolerated depends on the availability of alternative treatments and the severity of diseases being treated.

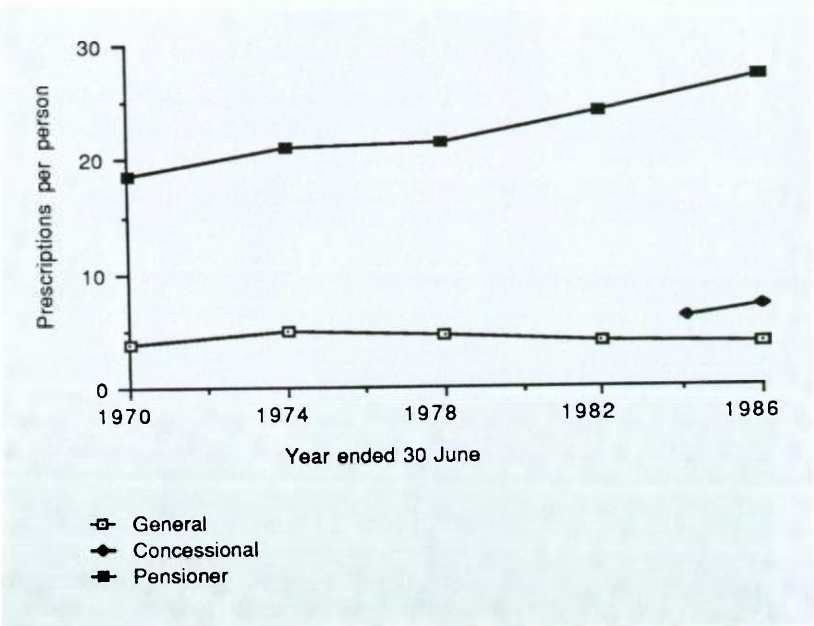


Figure 8.13: Pharmaceutical benefits scheme prescriptions per person by beneficiary type

Notes: The decline between 1974 and 1978 was due primarily to changes in drugs listed on the schedule
Concessional entitlement status was introduced in 1983
Includes over-the-counter drugs which have been prescribed by doctors to enable pensioners to obtain them free of charge

Sources: Commonwealth Department of Health Annual Reports and direct communications

A few drugs can cause death if used in doses not significantly greater than their therapeutically effective levels, and others can produce serious adverse reactions, sometimes resulting in permanent disability. As many as 12% of admissions to hospitals have been related to adverse reactions, overdoses, abuse, addiction, or inappropriate prescribing. There is also evidence that some widely used drugs may be ineffective: for instance, the use of drugs for the long-term management of mild to moderate hypertension has been questioned.

But there is no doubt that some drugs save many lives every year, can relieve pain and suffering, and are used to treat conditions which may otherwise require hospitalisation and surgery.

There is considerable scope for differences of opinion and practices among doctors, patients and consumers about the appropriate balance between safety and efficacy.

The Australian Drug Evaluation Committee (ADEC), established by the Commonwealth Government in the aftermath of thalidomide and other less well-known drug tragedies (Braithwaite 1984), has the principal responsibility for drug efficacy and safety in Australia. It advises the Commonwealth Minister for Community Services and Health whether permission should be given to market drugs in Australia. A study by the World Health Organization found that ADEC had been very effective in not allowing drugs that had significant adverse side effects into Australia, even when they had been widely used overseas (see Dukes and Lunde 1982).

Pharmaceutical Benefits Scheme

The Pharmaceutical Benefits Scheme (PBS) subsidises the cost of certain therapeutic substances with the aim of ensuring that individuals are not financially precluded from access to these items.

The level of subsidy varies with the social security entitlement of people classified as pensioner beneficiaries, concessional beneficiaries or general beneficiaries.

Pensioner beneficiaries must be in receipt of an age pension or specified other benefit, and have to meet a strict additional means test. Concessional beneficiaries may be on unemployment or other benefits and have to meet a means test which is less strict than that applied to pensioners. The rest of the population are classified as general beneficiaries.

Under the 'safety net' scheme, general and concessional patients are required to contribute up to $11 and $2.50 respectively toward the cost of each of the first 25 pharmaceutical benefit prescriptions in any calendar year.

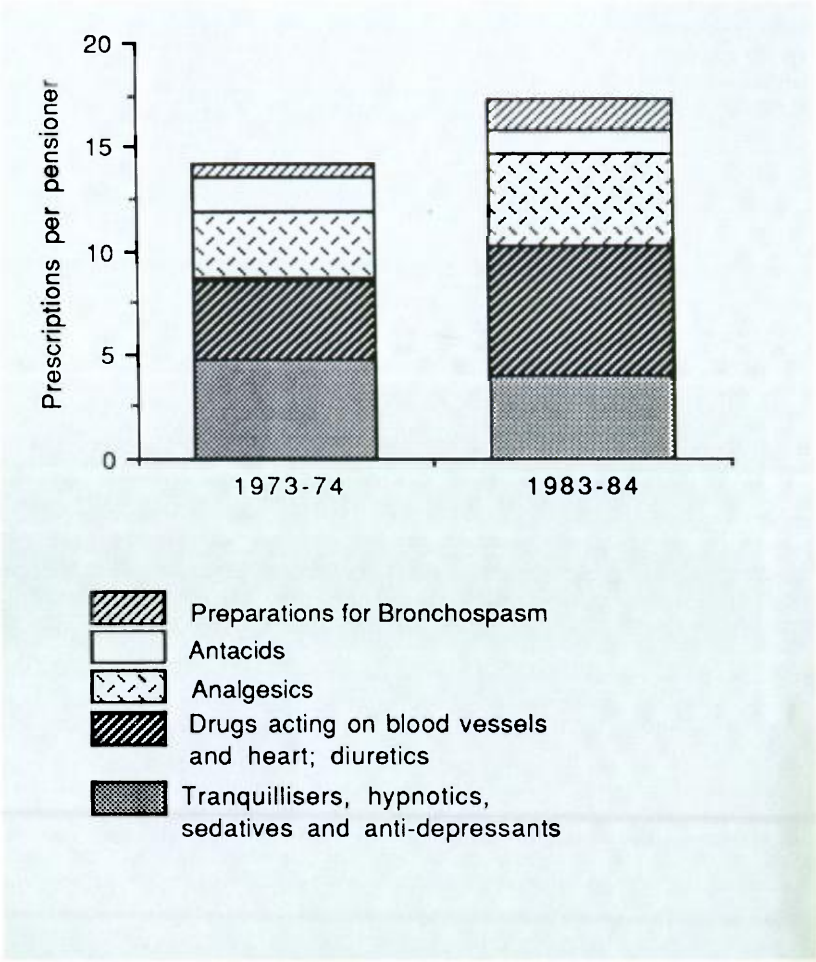
Once 25 PBS prescriptions have been accumulated by a family or individual, a Pharmaceutical Benefits Entitlement Card may be issued by a pharmacist. This entitles the family or individual to free pharmaceutical benefits for the rest of that calendar year. Pensioners receive free drugs on prescription.

Before November 1986, general beneficiaries paid $5 a prescription and concessional beneficiaries $2, regardless of the number of prescriptions used. (This payment has varied from year to year, according to Government policy.)

The evidence on the level and appropriateness of drug use in Australia is conflicting. The OECD (1987) found that the average level of drug use in Australia was the 12th highest of the 21 countries for which 1980s data was available, and that the rate of growth in use over the 1970s and 1980s was the second lowest of the 11 countries for which data was available.

A study carried out for the United States National Institutes of Health found evidence to suggest that use of antibiotics in Australia might be twice as high as in the United Kingdom and Sweden and 30–40% higher than in the United States (Col and O'Connor 1987).

Figure 8.14: Drugs prescribed for pensioners by therapeutic group, 1973–74 to 1983–84
Source: Harvey, AIH (1985)



For pensioners, in the period from 1973–74 to 1983–84, the use of analgesics (painkillers), of drugs acting on the blood vessels and the heart, and of diuretics has increased, but the use of the psychoactive drugs (tranquillisers, anti-depressants, hypnotics and sedatives) has declined (Figure 8.14). Since disease of the circulatory system is a major killer, and since there has been evidence of excessive use of psychoactive drugs in the past, the trends in these two groups appear to be in an appropriate direction.

Examples of some actions to ensure the safety, efficacy and appropriateness of pharmaceutical drug use in Australia are shown in Table 8.A.

Table 8.A: Recent actions to improve safety and appropriateness of drug use

Action	*Agent*	*Intention*
Introduce code of good manufacturing	Commonwealth States & Territories	Ensure quality
Monitor adverse drug reactions	ADEC	Control side-effects
Place restrictions on prescribing of PBS drugs	Commonwealth	Ensure appropriate use
Target drug use in health promotion campaign	Victoria	Ensure appropriate use
Establish chairs of clinical pharmacology	Medical schools	Better education of doctors
Produce journal *Australian Prescriber*	Commonwealth	Better education of doctors
Information to purchasers of drugs	Pharmacists	Increase efficacy and safety of use

8.6 Use of services according to age

The aging of the population and the potential impact on health costs has been identified as a potential problem for the provision of health services (Table 8.B). Section A of this table shows the expenditure per person in each of a number of age ranges and for a number of major areas of health expenditure. These areas account for approximately 75% of total health expenditure. It has been necessary to make a number of simplifying assumptions for each category of expenditure, but it is considered that the relativities give a reasonably accurate picture.

Expenditure per person for people 75 years and over is 6.3 times the average for all people. It is not until age 50 that hospital costs rise rapidly and the expenditure per person exceeds the average of $803. The clear impact of institutional costs on the costs of care of the aged can be seen: hospital costs for people

Table 8.B: Distribution of health expenditure by age group 1985–86

Source: Unpublished preliminary data, AIH

Age Group	*0-14*	*15-34*	*35-49*	*50-64*	*65-74*	*75+*	*Total*
A. Per Capita Expenditure All Persons ($)							
	$	$	$	$	$	$	$
Hospitals	151	266	255	518	1 194	2 700	428
Nursing Homes	0	10	10	39	212	1 642	89
Medical Services	107	170	200	269	325	406	194
Pharmaceuticals	33	49	62	162	313	329	91
Total	291	494	527	988	2 043	5 077	803
B. Percent of Category							
	%	%	%	%	%	%	
Hospitals	8.1	20.7	11.6	16.6	18.1	24.9	100.0
Nursing Homes	0.0	3.7	2.2	6.1	15.4	72.6	100.0
Medical Services	12.7	29.0	20.1	19.0	10.9	8.2	100.0
Pharmaceuticals	8.2	17.6	13.3	24.3	22.3	14.2	100.0
Total	8.4	20.5	12.8	16.9	16.6	24.9	100.0
C. Percent of Age Group							
	%	%	%	%	%	%	
Hospitals	52.1	53.9	48.4	52.4	58.4	53.2	53.4
Nursing Homes	0.0	2.0	1.9	4.0	10.4	32.3	11.1
Medical Services	36.7	34.3	37.9	27.2	15.9	8.0	24.2
Pharmaceuticals	11.2	9.8	11.8	16.4	15.3	6.5	11.4
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

over 75 are six times the average, and nursing home costs are 18 times the average. Medical costs for the aged are only twice the national average, although some of the hospital costs will include a component for medical services.

People aged 75 years and over account for almost a quarter of all hospital costs (Table 8.B, Section B), but only 8.2% of medical service costs.

The composition of health expenditure varies across the age ranges (Table 8.B, Section C). For the younger ages, medical services constitute about 30–40%, but this falls rapidly as age increases.

The major changes in death rates from cardiovascular and respiratory diseases occurred in the late 1960s and the earlier 1970s. There are many indications that there have been significant improvements in people's diet, smoking, and exercise patterns. It will be of great importance to see if there are subsequent reductions in sickness and disease for the older ages that will be translated into reduced demands for health services for the aged, or if the trends of increasing use observed in many countries will continue.

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9 Non-financial resources

The health sector is a major component of the Australian economy, accounting for almost 7.8% of the nation's gross domestic product compared in 1985–86 with 6.4% for the mining industry and 4.0% for agriculture.

9.1 Stock of institutional resources 1985–86

The institutional sector of the health service is very large—there is one institution for every 4600 people in Australia and one hospital bed for every 80 people. In 1987, there were almost as many health institutions in Australia (3460—Mathers and Harvey, AIH, 1988) as hotels and motels (about 4200—ABS). Capital expenditure on health services, of which expenditure on institutions constitutes a large part, was $602 million in 1984–85 and had averaged almost $520 million from 1982–83 to 1984–85.

The distribution of these facilities is important also in terms of accessibility to services and their political importance. About 60% of all acute hospitals are in non-capital cities, and in many smaller towns the hospital is the major employer.

9.2 The health industry labour force

The health industry employs about half a million people or about 7% of the population in full-time or part-time employment. Over the past decade, about 10% of the total growth in employment has been in the health sector.

From 1974 to 1984, the number of people per 100 000 of population employed in the health industry from 1974 to 1984 increased by an average of 2.5% a year (Figure 9.1). Since 1984, it has increased by an average of 3.5% a year, with most of the increase in the private sector. From 1986 to 1987, the increase in the private sector was 7.4%, while there was essentially no increase in the government sector (Figure 9.2).

It should be noted that part of this section relates to the health industry, part to health occupations and part to health professionals. 'Health industry' covers all occupations employed within the industry, not only health occupations. Furthermore, not all people

Figure 9.1: Employment in the health industry

Sources: Total employment (1974 to 1984) from ABS, The labour force, Australia, historical summary, 1966 to 1984, Cat. No. 6204.0; Wage and salary earners (1984 to 1987) from ABS, Employed wage and salary earners in Australia, Cat. No. 6248.0

engaged in a health occupation are employed in the health industry (for instance, medical practitioners employed by insurance companies will have a health occupation, but are classified as being in the 'finance' industry). Nevertheless, in broad terms, the majority of people employed in a health occupation will be engaged in the health industry. The numbers of people working in various health occupations (not limited to those employed in the health industry) in 1986 are shown in Figure 9.3.

Of the total number of health professionals employed in the health industry (or in other industries), the number per 100 000 of population has increased by an average of 2.6% a year from

Figure 9.2: Persons employed in the health industry, government and private sectors

Source: ABS, Employed wage and salary earners in Australia, Cat. No. 6248.0

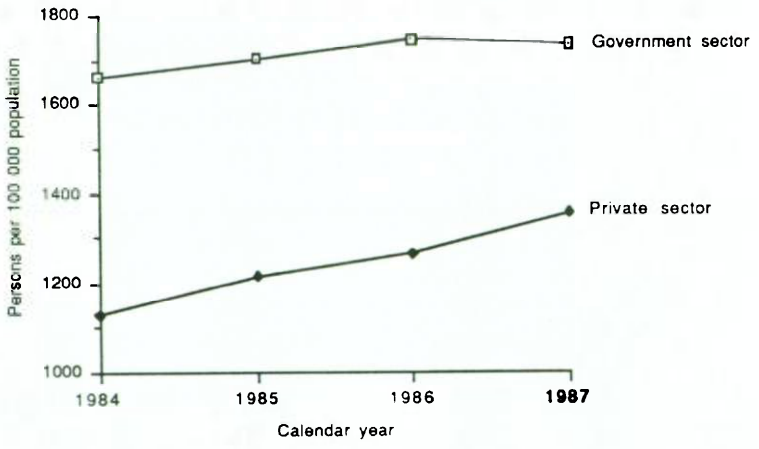
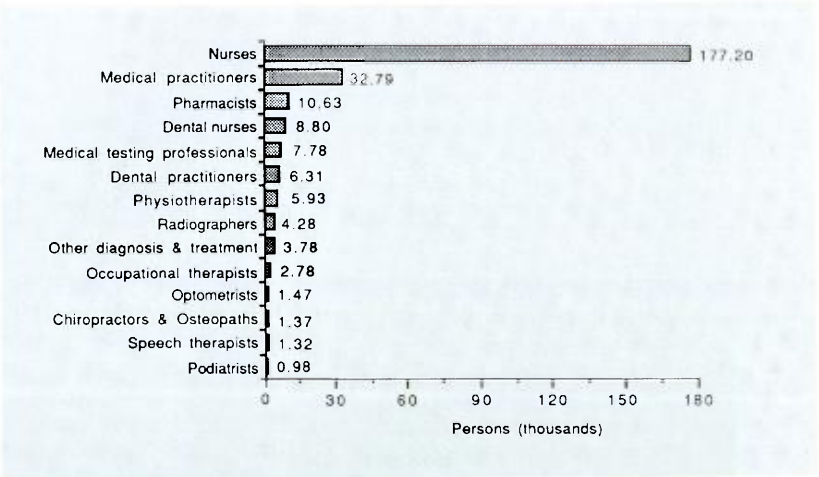


Figure 9.3: Persons engaged in health occupations, 1986

Source: ABS, Census of population and housing 1986



1974 to 1984. Of these, the average annual growth for medical practitioners and dentists together, has been 5.3% and for nurses, 1.9% (Figure 9.4).

Nurses comprise the majority of the health professionals (Figure 9.3). Nursing in Australia is a profession with a complex structure and more than 30 specialties. It is also undergoing a major change with the basic education of nurses being gradually transferred from hospitals to colleges of advanced education in all States.

Figure 9.4: Nurses and other health professionals 1974 to 1984

(a) As defined in ABS (1980): Classification and Classified List of Occupations

Source: ABS, The labour force, Australia, historical summary, 1966 to 1984, Cat. No. 6204.0;

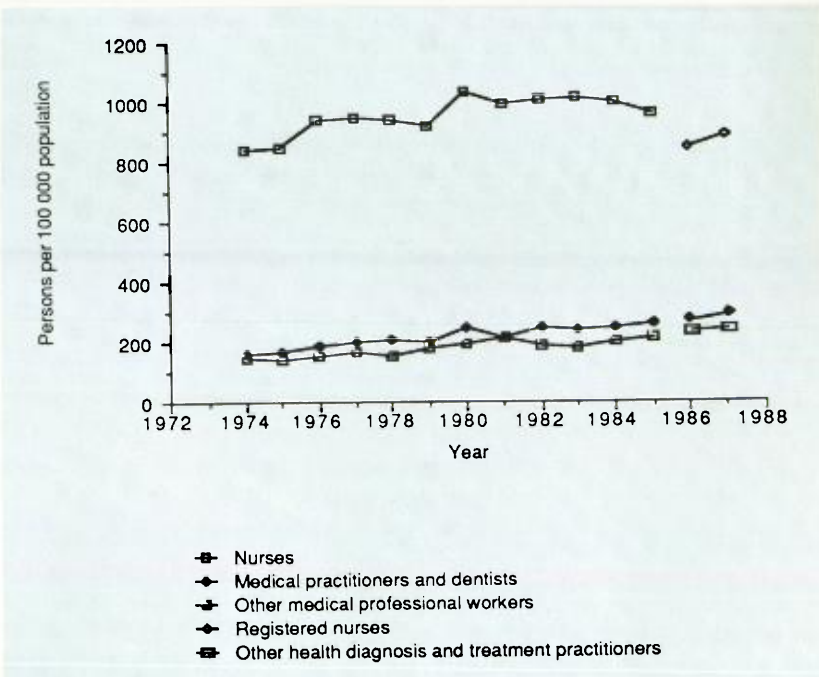


Figure 9.5: Percentage of medical graduates who are female, 1956 to 1986

Source: Data supplied to Commonwealth Department of Community Services and Health by the Commonwealth Tertiary Education Commission

Until recently there has been a shortage of trained nurses, and this has resulted in some ward closures and the restriction of access to hospital services in some States and cities. A major cause of these shortages was a decline in the number of nurses trained in the late 1970s and early 1980s. This was exacerbated by nurses trained in the mid-1970s—the period when the largest number of nurses were trained—leaving the labour force to have children. Other reasons for nurses leaving the labour force were the transfer of nursing education from hospital based courses to the tertiary education sector, dissatisfaction with wage rates and career structures, and with the duties that nurses were expected to perform. In the past two years the shortage of nurses has eased in most States as a result of special retraining programs, recruitments from overseas and better pay and career structures. There has also been an increasing demand for nursing services. The shortening length of hospital stays and the increased use of high technology interventions have both contributed to this.

Medical practitioners, the second most numerous category of health professionals, can be broadly classified into three types:

- general practitioners in private practice;
- specialists in private practice; and
- salaried doctors—most in hospitals, some in community health centres

The rapid rate of growth of doctor supply has given concern that doctor supply, in general practice and some specialties, exceeds need. This has occurred despite reductions in medical school intakes in the late 1970s.

Table 9.A: Distribution of medical practitioners by industry and sex, 1986

Source: ABS, Census of population and housing, 1986

Industry	Females No.	Females %	Men No.	Men %
Psychiatric hospitals	198	2.7	325	1.3
Other hospitals	2 529	34.0	6 669	26.3
Community health	489	6.6	714	2.8
Nursing homes	39	0.5	70	0.3
Public administration	142	1.9	416	1.6
Other industry	298	4.0	973	3.8
Other health services (a)	3 750	50.4	16 170	63.8
TOTAL (b)	7 445	100	25 337	100

(a) Mainly private medical practice.
(b) Percentage errors do not add up to precisely 100% because of round-off errors.

The supply of doctors, the type and duration of education and training, and the geographic distribution of their practices are all under review in Australia. Of particular concern is whether more doctors lead to a greater availability and quality of health care, or to overservicing and increased health costs.

The composition by sex of the medical profession is gradually changing. The proportion of new medical graduates who are female began to increase steeply after 1974 and is now about 36% (Figure 9.5). But current locations of employment of female and male health professionals reflect the numbers of graduates and the traditions of the past. In 1986 about 64% of male doctors worked in other health services, that is, private practice, where they outnumbered female doctors by about 5:1. About 27% of male doctors worked in hospitals, where they outnumbered female doctors by about 3:1 (Table 9.A). For comparison, about 7% of nurses were male with a large proportion working in psychiatric hospitals (Table 9.B).

The interest in the level of female participation in the medical profession focuses on the future availability of doctors working in their profession. In the past, women constituted only a small proportion of medical graduates and the level of participation was significantly lower than for men. However, the growth in the proportion of female graduates has come at a time when there are considerable shifts occurring in the involvement of professional

Table 9.B: Distribution of nurses by industry and sex, 1986

Source: ABS, Census of population and housing, 1986

Industry	Females No.	Females %	Men No.	Men %
Psychiatric hospitals	4 787	2.8	3 227	24.0
Other hospitals	99 294	57.5	6 601	49.1
Community Health	11 965	6.9	1 081	8.0
Nursing homes	29 906	17.3	1 177	8.8
Public administration	1 747	1.0	403	3.0
Other industry	5 974	3.5	512	3.8
Other health services (a)	18 889	10.9	444	3.3
TOTAL (b)	172 562	100	13 445	100

(a) Mainly private medical practice.
(b) Percentage errors do not add up to precisely 100% because of round-off errors.

women in the labour force (because of the long lead time to train doctors). How these two factors will interact is important for the future supply of working doctors.

Of females in the medical labour force, 83% work as non-specialist practitioners (GPs, administrators, researchers etc.) compared with 67% of male doctors. About 12% of male specialist practitioners are surgeons compared with 3% of female specialist practitioners (Figure 9.6).

9.3 Health technologies

Health care technologies include devices, appliances and medical or surgical procedures used in the care of patients, and are supported by a range of information technologies.

Some technologies have made major contributions to health care. They include prosthetic devices such as hearing aids, cardiac pacemakers and artificial limbs, techniques to lower the invasiveness and risk of surgery and the use of X-ray and ultrasound imaging methods in diagnosis.

In recent years there has been a trend toward the use of more health care technologies, and making advances in their capability, often with increased costs. There is a general expectation that new health technologies will lead to further improvements in the quality of health care. They may achieve savings and benefits by replacing more costly and higher risk procedures, shortening hospital stay and improving quality of life, but often the effects are less dramatic and there may be only modest gains over older methods.

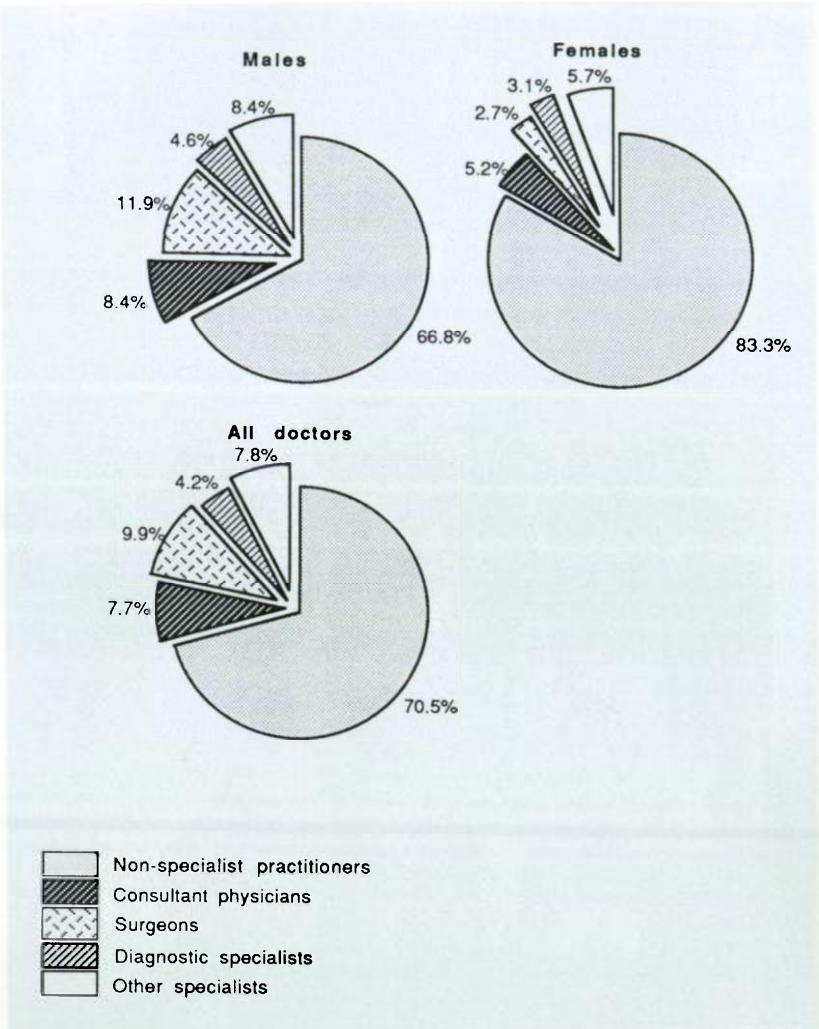
Sometimes new technologies are used with existing techniques, particularly in the diagnostic area, and their introduction may result in an overall increase in health care costs. Because health budgets are limited, there is a need to be selective about technologies because there may be less money for other aspects of health care. There may be concern also about how the technology will be provided, what proportion of the population will be covered, whether the level of use is appropriate and if it is safe.

New technologies are not necessarily beneficial to the health care system (Australian Institute of Health 1987):

- some may prove to be ineffective, such as fetal heart-rate monitoring during pregnancy;
- some may be applied incorrectly—intensive-care units are ineffectively used if patients are not ill enough to warrant use of such complex resources; and
- some may involve an unacceptable risk—routine abdominal X-rays of pregnant women are no longer carried out because of risk to the unborn child, limited effectiveness and availability of other methods.

Figure 9.6: Medical workforce by practice area, 30 September 1986

Source: AIH joint study with the Commonwealth Department of Community Services and Health, 1987



Technologies may take a long time to put in place, and some will undergo rapid development, or competing technologies may emerge while decisions are being made.

Increasing attention is being given to the systematic assessment of health technology so that policy makers, administrators and users can make informed decisions about its introduction and use. Such assessment is still in the early stages of development in Australia, for technologies other than pharmaceuticals (further reading see Reiser and Amber 1984).

Some health care technologies are discussed in Appendix D.

References and further reading

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10 Conclusion

The general level of health of Australians is better than it has ever been. There have been remarkable declines in mortality from all causes and this trend has accelerated during the past 15 years. Yet Australia still lags behind other apparently comparable countries and there are significant preventable health problems which could be eliminated. Cancer incidence and deaths are still increasing, largely due to cigarette smoking, which also plays an important role in the development of diseases of the circulatory system. Although declining significantly, the latter remains the major cause of death. Injury deaths, while again showing a major decline in recent years, cause significant loss of life among both the young and the old. Lifestyle and environmental factors play an important role in these leading causes of death, and in others as well.

Data from health surveys and other sources show that despite these great reductions in mortality, Australians still report that they have many health problems.

Moreover, the role that social and economic factors play in determining health is emphasised by the fact that there are significantly disadvantaged groups which do not enjoy the same high standard of health as the more advantaged groups.

Equity in health remains the most important public health issue at both the international and national level. It is a key component of the WHO Health for All strategy, it emerged as the central theme in the National Program for Better Health proposed by the Australian Health Ministers' Advisory Council (AHMAC) Health Targets and Implementation Committee, and it has provided a framework for much of the Institute of Health's work in health monitoring.

There is a decreasing confidence that the solution to these remaining health problems is to be found in unlimited increases in the provision of medical and hospital services, or in the development of increasingly sophisticated medical and surgical procedures and technologies. Even if this were the answer, the cost would be beyond our collective reach.

Australia, in contrast to a number of other countries, has succeeded in putting a cap on expenditure on health—especially hospital expenditure. Until recently, this was seen as a desirable achievement. However, it is now leading to service problems, with

inevitable political consequences. In the search for solutions, a number of strategies have been canvassed, including privatisation of services or insurance provisions, and the removal of controls.

Part of the problem with health services stems from the health labour force. The supply of doctors is adequate overall, although shortages in particular locations or specialties remain. But there are continuing shortages of nurses. In the emerging field of home and community care, little is known about the labour force, and there is a clear need for better data.

As is often the case, solutions to yesterday's problems bring with them another set of problems for today. Health service planning at the moment is, as it has been over recent years, primarily concerned with the reallocation of limited resources to meet changing needs and priorities. In general, Australia is over-provided with institutional health services and there are already moves to strengthen other components of the system, including primary health, and home and community care. Noteworthy also is the attempt to develop a systematic national approach to improving health, embodied in the report of the Health Targets and Implementation Committee.

It is likely that the provision of treatment services, especially hospital services, will continue to dominate discussion of health policy, simply because they will continue to consume such a large proportion of the health budget. Yet it is critical that the resources be found to support the new initiatives in health promotion and disease prevention because of their potential to avoid suffering and disability, and also because of their potential to reduce the need for health care in the longer term.

APPENDIX A

Developments in health statistics

The Australian Institute of Health was established by Federal Cabinet as a small bureau within the then Department of Health in August 1984 and became a separate statutory authority in July 1987. It is an independent health research and statistics agency within the Commonwealth Community Services and Health portfolio, and also provides research and statistical support to the States and Territories through the Australian Health Ministers' Advisory Council (AHMAC).

The Institute is located in Canberra. Its functions as laid out in the *Australian Institute of Health Act 1987* are:

(a) to collect, with the agreement of the Australian Bureau of Statistics and, if necessary, with the Bureau's assistance, health-related information and statistics, whether by itself or in association with other bodies or persons;

(b) to produce health-related information and statistics, whether by itself or in association with other bodies or persons;

(c) to co-ordinate the collection and production of health-related information and statistics by other bodies or persons;

(d) to provide assistance, including financial assistance, for the collection and production of health-related information and statistics by other bodies or persons;

(e) to develop methods and undertake studies designed to assess the provision, use, cost and effectiveness of health services and health technologies;

(f) to conduct and promote research into the health of the people of Australia and their health services;

(g) to develop, in consultation with the Australian Bureau of Statistics, specialised statistical standards and classifications relevant to health and health services, and advise the Bureau on the data to be used by it for the purpose of health-related statistics;

(h) subject to Section 29 [Confidentiality], to enable researchers to have access to health-related information and statistics

held by the Institute or by bodies or persons with whom contracts or arrangements have been entered into by the Institute;

(j) to publish methodological and substantive reports on work carried out by or in association with the Institute;

(k) to make recommendations to the Minister on the prevention and treatment of diseases and the improvement and promotion of the health and health awareness of the people of Australia;

(m) to do anything incidental to any of the foregoing.

Under its legislation, the Institute is required to provide a health report to the Minister and Parliament every two years.

As provided in the Australian Institute of Health Act 1987, the Institute is governed by a Board comprising:

Chairman	Emeritus Professor Peter Karmel
Director	Dr Len Smith
Three members nominated by AHMAC	
	Dr Jean Collie (Queensland)
	Mr Leon L'Huillier (Victoria)
	(currently vacant)
Australian Statistician	Mr Ian Castles
Nominee of the Secretary of the Department of Community Services and Health	
	Dr David de Souza
Three members nominated by the Minister	
	Mrs Gay Davidson
	Ms Liz Furler
	Dr Dick Scotton
One member nominated by the Public Health Association	
	Dr Ian Ring
One member nominated by the Consumers' Health Forum	
	Mrs Rosemary Calder

State Governments are represented on the Board of the Institute through the three nominees of AHMAC.

The Institute has a base staff allocation of 56, and comprises a Health Status Division, a Health Services Division, a Health Technology Unit, a Secretariat and Corporate Services group. The Health Status Division incorporates a Screening Evaluation Coordination Unit (SECU), which is funded separately by the Department of Community Services and Health.

The Institute provides secretariats for the National Committee on Health and Vital Statistics (NCHVS) and the National Health Technology Advisory Panel. It also supports three external projects: the National Injury Surveillance and Prevention Project (cost-shared with the States), the National Perinatal Statistics Unit, and the Dental Statistics and Research Unit.

With its wide terms of reference, it has been necessary to develop priorities for the Institute's activities. Its prime responsibility is to improve the national health data base. Priorities for developing national health statistics were included in the recommendations of a workshop convened in February 1985 by the NCHVS and the Australian and New Zealand Society for Epidemiology and Research in Community Health (ANZSERCH).

The workshop was attended by representatives of all relevant Commonwealth, State and Territory agencies and professional groups as well as key experts. Its recommendations included:

The establishment of a national health statistics agency with a legislative mandate to:

- collect, analyse and disseminate data on the health of the population, health services, health resources and health care financing
- report annually on the nation's health
- operate the National Death Index
- provide for the preservation of confidentiality.

The new agency should promote national collections, giving priority to:

- hospital and nursing home use
- health labour force
- a three-yearly census of patients and facilities
- risk factor surveys relating to diet, smoking. alcohol and illegal drugs
- cancer statistics
- perinatal statistics
- health expenditure
- surveillance of injuries
- disability surveillance
- standard data items for disaggregation
- record linkage

The new agency should also initiate a comprehensive review of the state of health statistics, and develop a plan and work program for the development and integration of national health statistics. Full use should be made of existing administrative data, giving first attention to collections requiring the least resources to bring them to national coverage.

These recommendations were endorsed by the NCHVS and accepted by the Australian Health Ministers' Conference. The Institute has adopted them as the basis of its work program in health statistics.

In preparation for the national workshop, an inventory of health-related data collections and statistics was prepared, and the Institute, in co-operation with the Bureau of Statistics, is now planning a second, more comprehensive inventory.

Developments to December 1987

HEALTH SERVICES DIVISION

Major Functions

The Health Services Division is responsible for developing statistical and information systems on health services, and for undertaking research into the provision and use of health services.

Overview of activities

The following is a listing of the division's major activities.

One-off statistical collections

Hospital utilisation and costs

Under the auspices of AHMAC, the Institute collected, for the year 1985–86, information on the use and costs of all acute hospitals funded under the Medicare Agreements, as well as available information on private hospitals, nursing homes and hostels. The report was presented at AHMAC in December 1987. AHMAC has asked the Institute to repeat the study for the 1987–88 financial year.

Medical labour force

An analysis was conducted for 1986 of a sample of 3001 medical practitioners selected from the Central Register of Medical Practitioners held by the then Commonwealth Department of Health. Practitioners were classified as 'active' and 'inactive', and by age, sex and specialty. The results were submitted to the Inquiry into the Medical Workforce and will be published in 1988.

Pharmaceutical drugs

Two studies about the use of pharmaceuticals were conducted by the Institute in 1986. The first surveyed pharmaceutical drugs stored in households and the second analysed the use of Pharmaceutical Benefits Scheme prescription drugs in two small areas in Australia.

Quality assurance

Under the auspices of AHMAC, the Institute surveyed all public and private hospitals in Australia to establish the organisational details and extent of their quality assurance activities. A report will be presented to AHMAC in late 1988.

Continuing statistical collections

Labour force statistics

The Division has a continuing program of analysing Census information as it becomes available. The 1981 and 1986 Censuses have been analysed for the composition and patterns of employment for registered health professional groups. The Dental Statistics Research Unit at the University of Adelaide, which is supported by the Institute, also contributes to the development of dental labour force statistics.

Health expenditure information

The Institute gathers information on health expenditure in Australia—the sources of funds, and the institutions and services that are funded. The data are being reviewed, and the contents and format of the Institute's Australian Health Expenditure publication will be revised in late 1988. The Institute also collects and analyses information on health expenditure in other developed countries.

Systems development

Much of the work on development of major systems is being conducted under the auspices of AHMAC.

Taskforce on National Hospital Statistics and the Development of a National Minimum Data Set

After the Hospital Utilisation and Cost Study was completed, AHMAC established the Taskforce on Hospital Statistics to review current health services collections and requirements for national statistics, and to make recommendations on the development of a national statistics system covering health and health related institutions. Most of the Taskforce's work was completed by December 1987.

The Taskforce reported to the March 1988 meeting of AHMAC. This meeting endorsed the development of a national minimum data set which will include a list of information to be collected and definitions of these items. The data set is to be developed by the Institute in conjunction with the National Committee on Health and Vital Statistics. The Institute will present a final report to the first meeting of AHMAC in 1989.

National Core Labour Force Data Collection

At the request of AHMAC, the Institute is preparing a paper on the development of a National Core Labour Force Data Collection. The report is to be presented to the October 1988 meeting of AHMAC.

Uniform Statistics for Procedures in Medicine

The Institute is developing a system to produce uniform statistics on procedures in medicine. This involves combining statistics from hospital morbidity collections of the State and Territory health authorities with statistics from the Health Insurance Commission.

HEALTH STATUS DIVISION

Major Functions

The Health Status Division monitors and reports on the health of the Australian people. It collects and analyses national data on the health of the population as a whole, with special attention to certain groups.

Overview of activities

The following is a listing of the Division's major activities. The Division is involved also with two of the Institute's external activities—the Perinatal Statistics Unit at the University of Sydney and the National Injury Surveillance and Prevention Project.

National Death Index

The Institute is working on a National Death Index, which was agreed to by AHMAC in 1984. It will provide at a single location an index of all deaths that have occurred in Australia, It will give details of the individual—as recorded on the death notification—and the certified cause of death. It will aid large-scale epidemiological studies which involve either follow-up of individuals to determine their vital status and, if dead, the cause, or the identification of individuals certified to have died of a particular cause.

National cancer statistics

The National Cancer Statistics Clearing House is a co-operative undertaking of the Institute and the Australasian Association of Cancer Registries (AACR). The Clearing House is being established to provide national statistics of cancer incidence and mortality, to assist the Registrars in following up individuals who move interstate, and to facilitate epidemiological studies. The Clearing House will begin from the 1982 incidence year. The Institute has already received data from a number of the States.

An annual report on cancer incidence and mortality will be produced. A five-yearly in-depth review of national levels and trends is planned also. The first report, Cancer in Australia 1982 (Giles, Armstrong and Smith), was published by the AACR and the Institute in 1987.

The Screening Evaluation Co-ordination Unit
The unit is responsible for the quantitative evaluation of breast and cervical cancer screening pilot projects throughout Australia. The evaluation encompasses epidemiological, economic, social and behavioural aspects. SECU is also assisting in the development of strategy options for national screening programs for breast and cervical cancer.

Nosology
The National Nosology Reference Centre, which is the designated contact point with the World Health Organization on matters relating to the classification of diseases, is located in the AIH. During the second half of 1987 it co-ordinated the Australian response to WHO's proposal for the 10th revision of the International Classification of Diseases. The Reference Centre also has a clearing house and educational responsibility.

Aboriginal health
The Institute has responsibility for the development of a national system of Aboriginal health statistics under an agreement between the Ministers for Health and Aboriginal Affairs and the Treasurer. This will include the creation of a national Aboriginal health data base. The Institute undertakes the co-ordination and secretariat functions for the Working Party on Aboriginal Health Statistics and supports State and Territory attempts to improve Aboriginal health statistical collection. Recently this included the administration of a $300 000 Community Employment Program grant to provide temporary research officers in each State and Territory health authority.

The current and planned research undertakings include a detailed study of Aboriginal fertility and mortality in the north coast region of New South Wales, general monitoring of Aboriginal mortality, including infant mortality, an assessment of tuberculosis among Aborigines and an analysis of hospitalisation and disabilities in the north coast region of New South Wales.

Jointly with the Australian Institute of Aboriginal Studies and the National Health and Medical Research Council, the Unit maintains an Aboriginal Health Bibliography which is available on-line from the National Library; a printed version will be published soon.

Health differentials project
The Institute has embarked on a major study of levels and trends in the health of the population. It is analysing differentials in health to identify which groups should be the target of prevention programs, and the reasons why some groups have better health. As well as a thorough review of the national and international literature, and of potential Australian data sources, an extensive

analysis will be undertaken of ABS data from the Australian Health Survey, the Disability Survey and death data, and the National Heart Foundation risk-factor surveys. The results of this work were an important part of the 1987 Public Health Association Conference on the theme of Just Health and were published in Health Differentials for Working Age Australians (Lee, Smith, d'Espaignet and Thomson, AIH, 1987).

Surveillance of impairments, disabilities and handicaps
The Institute has funded a pilot project to demonstrate the possibility of establishing surveillance systems for disabilities via voluntary organisations and rehabilitation units. The pilot project is to establish a national spinal injury disability surveillance system. The National Council of Australian Council for the Rehabilitation of the Disabled (ACROD) is assisting by providing a research officer to compile an inventory of data held by ACROD's member organisations.

HEALTH TECHNOLOGY UNIT

Major Functions

The Health Technology Unit promotes, undertakes and co-ordinates assessments of new and established health-care technologies, with particular regard to their cost effectiveness. The Unit provides support for the National Health Technology Advisory Panel (NHTAP), which is chaired by the Unit head.

Overview of activities

The Unit's largest current project is the Magnetic Resonance Imaging (MRI) Assessment Program, co-ordinated by the NHTAP MRI Technical Committee. The Unit is analysing utilisation, clinical and cost data collected from five MRI units installed in teaching hospitals in Australia.

The NHTAP has recently completed reports on endoscopy, oxygen concentrators, developments in lithotripsy technology, mammography screening services and CT scanning. Reports on NHTAP studies on gallstone lithotripsy, angioplasty, cardiac imaging, high energy radiotherapy, digital radiography, isokinetic dynamometry and computerised perimetry are being compiled.

The Non-laboratory Testing Committee of NHTAP has co-ordinated trials of the use of dry chemistry pathology equipment in hospital wards and general practices.

EXTERNAL ACTIVITIES

The Institute also provides funds for a number of activities undertaken externally. At present, these comprise the National Perinatal Statistics Unit at the University of Sydney, the Dental Statistics Research Unit at the University of Adelaide and the National Injury Surveillance and Prevention Project.

The Perinatal Statistics Unit

The unit collects national data on perinatal health and mortality, and congenital anomalies. It also conducts epidemiological studies in this field. The scope of its activities include analytical studies of selected congenital malformations, Cesarean births and IVF pregnancies as well as developing descriptive perinatal data systems and a national congenital malformation monitoring system.

National Injury Surveillance and Prevention Project

In co-operation with other Commonwealth Authorities, the States and the Child Accident Prevention Foundation of Australia, the Institute is conducting a pilot project to demonstrate the use of hospital based reporting on injuries as a basis for prevention programs. It is aimed at identifying preventable injuries by the use of detailed recording of the sequence of events leading to injuries seen in accident and emergency departments in selected hospitals in South Australia, Queensland, Western Australia and New South Wales.

Dental Statistics Research Unit

The unit was established to develop the collection of information and statistics on the dental labour force and on dental health status. It is negotiating with the Dental Registration Boards in States and Territories to gain access to relevant information. The Unit will also gather information on the dental health status of Australians.

INSTITUTE COMMITTEES

The following standing committees assist the Institute in the development of health-related information and statistics.

National Committee on Health and Vital Statistics

This former Committee of AHMAC is being transferred to the Institute with the agreement of AHMAC and will, for the next two years, continue to report to AHMAC as well as to the Institute. Its major functions are to:

- assist the co-ordination of national health and vital statistics from Commonwealth, State and Territory governments and other sources; and
- advise the Institute on matters relating to the priorities for, status of and action required for the development of national health and vital statistics.

The Australian Institute of Health Ethics Committee
This Committee, which is being formalised, will review all proposals for research to be undertaken by staff of the Institute, as well as research projects initiated or conducted externally which seek access to data held by the Institute or other forms of assistance approved by the Institute. Its principal functions will be to:

- develop criteria against which to assess the ethical standards of proposed research projects;
- consider, in the light of the criteria developed, the ethical implications of all projects referred to the Committee;
- advise the Institute whether projects satisfy these criteria;
- provide for surveillance of research projects until completion;
- maintain a register of all applications submitted to the Committee for ethical review.

The National Health Technology Advisory Panel.
The functions of this committee have been explained in the section on the Health Technology Unit.

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APPENDIX B

Institutional services in Australia

Origin of State differences

The history of each State since colonisation echoes through its health system. Victoria, established by free settlers, placed and continues to place a greater emphasis on community involvement in the organisation of health and welfare services than New South Wales, which was run by naval governors for many years. Until the 1970s, public hospitals and a number of welfare services in Victoria were run by the Hospitals and Charities Commission.

Recent social and political factors also influence attitudes and methods of services delivery. Events of the 1930s and 1940s saw the Queensland Government committed to free access to public hospitals and to medical services being provided by salaried and sessionally paid medical staff. In the mid-1940s the Commonwealth Labor Government sought to introduce a national health scheme which incorporated these features. With the defeat of that Government, all States except Queensland continued to apply means tests to people seeking public treatment.

Geographic factors may also affect the delivery of health services. The supply of hospital beds is much higher in country areas and in large States with low population densities, than in the city areas or in smaller States.

Philosophical differences have led to a diversity of services for people with mental and intellectual disabilities, and the aged.

Whereas the national trends referred to in Chapter 7 are largely reflected across individual States and Territories, there are often significant differences in some specific areas which reflect history, geography, politics and philosophy.

Current differences

The following outline has been drawn mainly from Mathers and Harvey, AIH (1988). For further information, see Grant and Lapsley (1987).

Hospital services in particular are characterised by considerable diversity in organisation, structure and degree of integration with other health care services. The States differ in the degree to which

recognised public hospitals, public psychiatric hospitals, geriatric hospitals and other specialised hospitals (such as dental, drug and alcohol) enjoy common and co-ordinated administration. There are also variations in the size and level of service of the private sector. This diversity makes it difficult to compare the use and costs of hospital systems between the States and to interpret differences.

Commonwealth hospital services

Hospitals of the armed services are organised separately from those of the Department of Veterans' Affairs, which operates a repatriation general hospital (RGH) in the capital city of each State. These provide a full range of medical, surgical and specialist facilities. There are also three smaller repatriation auxiliary hospitals. The repatriation hospitals also contribute to each State's available services by treating civilian (community) patients where possible. In 1985–86, community patients accounted for 18% of total bed-days in repatriation hospitals. There were 0.76 million bed-days in repatriation hospitals in 1985–86 and entitled beneficiaries accounted for a total of 1.19 million bed-days in repatriation and acute hospitals in 1985–86.

A major review of the repatriation hospital system was carried out in 1984 with a final report (see the Brand Report) published in June 1985. In 1986, the Government endorsed the report's major recommendations, including:

- eligible veterans be given the choice of using the repatriation hospitals or the State hospital system;
- effective rationalisation take place between the repatriation hospital system and the State hospital systems;
- the two systems be ultimately integrated; and
- the RGH's aim for an increase in occupied bed-days for community patients reaching about 30% by 1990 and 40% by 1995 in each hospital.

New South Wales

The New South Wales Department of Health's services and functions are divided into 11 regions, each regional office having considerable authority to administer health services.

The Department has recently introduced area health services under the Area Health Services Act 1986. They co-ordinate and integrate hospital and community health services for defined geographic areas, replacing separate managements in the major urban areas of New South Wales (Sydney, Hunter and Illawarra). Hospital boards remain in the rest of the State.

A dispute with the medical profession in 1985 resulted in considerable loss of services, especially certain specialties, in metropolitan non-teaching hospitals. As part of the settlement of the dispute, there was a substantial increase in the sessional rate

of remuneration for doctors in public hospitals and the availability of modified fee-for-service in all but the teaching hospitals.

Private hospitals and nursing homes must be licensed subject to the approval of the Secretary of the Department. Licensees are required to comply with regulations as to structure, management and inspection of premises. Applications for private hospital licences are considered subject to a planning guideline of no more than four acute beds per thousand population.

Victoria

The regionalisation of administration of health services in Victoria was phased in from 1983 to 1986. Three metropolitan and five country regions were established, each containing district health councils representing about 100 000 people. The Councils are responsible for monitoring health services available in the district and advising the regional directors.

Executive responsibility is in the hands of the regional directors, who have authority over all day-to-day activities of the Health Department including budget, staff and capital works. The provision of public hospital services and roles is determined regionally. The State's public hospitals are largely independent in day-to-day operation under hospital boards of management which negotiate agreements with regional directors. These boards can authorise the short-term opening or closure of wards, enter into contracts with private enterprise, and determine staff levels and mix of staff within their total budget and staff/patient ratios. Departmental approval is required for major capital works, introduction of new services or long-term closure of services.

Hospital agreements are currently being negotiated between the Health Department and each health care facility. As of early 1987, agreements had been signed with four major hospitals. The agreements specify services that are to be provided within a given budget.

Public hospitals may use private hospital facilities and lease beds in private hospitals. These arrangements are made at hospital level by the board of management.

Psychiatric services are controlled by the Department.

Queensland

All aspects of Queensland's provision of public health, hospital and medical services are under the control of the Department of Health. It directly controls three psychiatric hospitals and two alcoholism rehabilitation clinics.

The recognised public hospitals are arranged in 12 nominal regions, each with a base hospital. The hospitals in each region are grouped into districts, each of which is administered by a district hospitals board. There are 61 hospitals boards controlling

138 hospitals, 27 outpatient clinics and 21 nursing homes throughout the State. The Queensland Radium Institute, with headquarters at Royal Brisbane Hospital, provides free radiotherapy treatment at major hospitals in Queensland.

There are numerous small hospitals and outpatient centres in rural Queensland. Medical services are provided by resident medical superintendents who have private practice rights, visiting medical staff and the Royal Flying Doctor Service.

Queensland has had a free public hospital service without means test since 1944. The honorary system was abolished in 1944 and replaced by a sessionally paid service. The Queensland hospital service has thus differed substantially from those of other States for some time and has developed a strongly centralised administration.

The Department has a strong degree of control over hospital boards, particularly over budgets, staff levels and provision of specialist services. The Department and the Commonwealth Grants Commission believe this is a major factor for Queensland public hospital costs being considerably lower than those of the other States and Territories.

The proportion of medical services provided by salaried rather than visiting medical officers is higher than in the other States. Visiting medical officers are paid on a sessional rather than fee-for-service basis. Admission procedures are said to be stricter than in other States because of screening of patients by hospital doctors.

Private hospitals and nursing homes are licensed subject to annual renewal and inspected periodically by departmental officers.

Western Australia

The previous Departments of Public Health, Mental Health and Hospital and Allied Services were amalgamated into the Western Australian Health Department from 1 July 1984. Many of the public acute hospitals are controlled directly by the Department, although the major metropolitan public hospitals have their own boards of management. The Alcohol and Drug Authority remains a separate statutory authority operating two small hospitals.

Western Australia has a geographically dispersed population and a relatively high proportion of Aborigines. Because of the lack of regional centres of sufficient size and the difficulty of attracting specialist staff to rural centres, all superspecialty and most specialty services are confined to the metropolitan teaching hospitals. Western Australia is the largest State and rural hospitals are often hundreds of kilometres apart. This means that patients are often required to travel considerable distances for treatment and that hospitalisation is often the only feasible option.

Private hospitals are licensed through the Commissioner of Health and the State controls bed numbers, patient numbers, staffing and facility standards.

South Australia

The South Australian Health Commission is responsible for hospitals, mental, dental and community health, and a wide range of other health services. It is also responsible for licensing private hospitals. Local boards of health are responsible for licensing rest homes and nursing homes.

The original Health Commission Act envisaged regionalisation of commission activities. Instead, in 1982, a system of sectorisation was introduced as a more viable method of decentralising administration. Sectors have now been abolished. Public hospitals are autonomous in the sense that they have independent boards of management with their own constitution. They are given global budget allocations by the relevant Sector Offices of the Commission, which also oversees administration and funding.

The Uhrig (1986) review of metropolitan hospitals recommended that the metropolitan hospital system be integrated under a single metropolitan hospital board and that planning and budgeting be performed in relation to clinical programs and hospital support services rather than individual hospitals. A program-based funding allocation model is being investigated with the intention of adopting it for all major hospitals for the 1987–88 financial year. It is intended to introduce activity-based funding and co-ordinated clinical programs for all metropolitan hospitals by 1991–92.

Tasmania

Three bodies administer Tasmania's health services: the Department of Health Services, the Tasmanian Ambulance Service and the Mental Health Services Commission. The Department administers public acute hospitals and other public health services. Hospitals are administered by hospital boards of eight to 10 people, five of them appointed by the Minister.

Royal Hobart Hospital is the major teaching hospital for the State and provides State-wide superspecialty services. Launceston General Hospital is a regional base hospital and there are two area base hospitals on the north-west coast. District hospital services are provided in most of the significant population centres and district nursing centres are maintained in smaller population centres.

Private hospitals are controlled in relation to bed numbers, physical facilities and staff levels under the provisions of the Hospitals Act 1918.

Northern Territory

Health services became the responsibility of the Northern Territory Government on 1 January 1979. The Territory's Department of Health and Community Services operates five public hospitals—the Royal Darwin and Alice Springs hospitals provide specialist referral services for the three smaller hospitals.

The Northern Territory has a much smaller private health sector than the rest of Australia. Royal Darwin Hospital has allocated 60 beds for private use, until the Territory's first private hospital is opened in the second half of 1988. There are no psychiatric hospitals.

Because the population is widely dispersed, Government services in each of the five health regions are designed as integrated area health services with the focus on each regional hospital. Primary health care is provided by Aboriginal health workers, rural community health nurses and district medical officers. Larger rural centres have resident nursing staff and community clinics some of which are equipped for short-term inpatient care. The larger remote centres are also visited by some specialists. The Department and the Royal Flying Doctor Service operate aircraft for patient transport. The Northern Territory Health Aerial Medical Service provides emergency cover to remote areas, including large areas of South Australia and Western Australia.

Aborigines, who comprise approximately 22% of the Territory's population, accounted for 35% of admissions to hospitals and 48% of bed-days in the year ended October 1987. Patterns of Aboriginal sickness and disease differ considerably from those of non-Aborigines, with a much greater prevalence of infectious diseases, respiratory diseases, and injuries and poisoning (see Chapter 6).

Australian Capital Territory

The ACT has four public hospitals, two of which are run by the ACT Community and Health Service (ACTCHS) and provide major regional referral services, including specialist clinics. The other two are administered by private non-profit organisations and are deficit-financed by the Commonwealth. The ACTCHS determines overall bed planning and services, and approves staff numbers and conditions. There are two private hospitals.

The ACT hospital system suffers from substantial diseconomies, because of an excess of total hospital beds and because it provides comprehensive specialty services to a relatively small population (estimated at 400 000 to 500 000 including surrounding New South Wales catchment population). Two of the four public hospitals are major base hospitals compared with one in five in New South Wales.

ACT hospitals provide substantial hospital and specialist referral services to surrounding regions of New South Wales. In 1985–86, New South Wales residents accounted for about 25% of bed-days in ACT public hospitals. ACT residents are referred to Sydney teaching hospitals for certain superspecialty services. In 1985–86, these referrals corresponded to 2% of total bed-days in ACT hospitals.

State differences in the use and cost of institutions

In 1985–86 there were large differences between the States in the use of large health care institutions (Figures B.1 and B.2). Where use is measured in terms of bed-days per thousand of population, nursing homes account for about half (Figure B.1), but where use is measured by separation rates (see Glossary), public hospitals dominate (Figure B.2). Acute hospital bed supply ranges from 3.9 per thousand population for the ACT to 6.4 per thousand in Queensland (Figure B.3).

The overall decline in acute bed supply (discussed in Chapter 8) has been greatest in New South Wales (16% drop between 1979–80 and 1984–85), almost as high in Western Australia, Tasmania and the Northern Territory, and least in Victoria and the ACT (4% drop between 1980 and 1985).

There is substantial uniformity between the States and Territories in per capita expenditure (institutional and medical) on residential health care (Figure B.4). Queensland's per capita expenditure is lower than average, mainly because of lower public hospital costs, although the lower supply of psychiatric hospital beds also contributes. South Australia's per capita expenditure is higher than average because of a higher use of acute hospitals (in 1985–86 the admission rate was 20% above the national average), and a higher use of nursing homes related to a higher proportion of aged and a higher nursing home expenditure per bed-day (10% above the national average in 1985–86).

This approximate uniformity masks differences in the share of expenditure between institutional sectors. There are large interstate variations in average cost per patient for public hospitals although there is no agreement on the best way to measure these costs. Differences in average cost per patient result from differences in average length of stay (Figure B.5). There are also large variations in bed-day cost, which arise mostly from different staffing ratios between the public hospital systems. This suggests that there is scope for improvement in efficiency, output costs and delivery of hospital services.

Figure B.1: Institution bed-day rate, 1985–86
Source: Mathers and Harvey, AIH (1988)

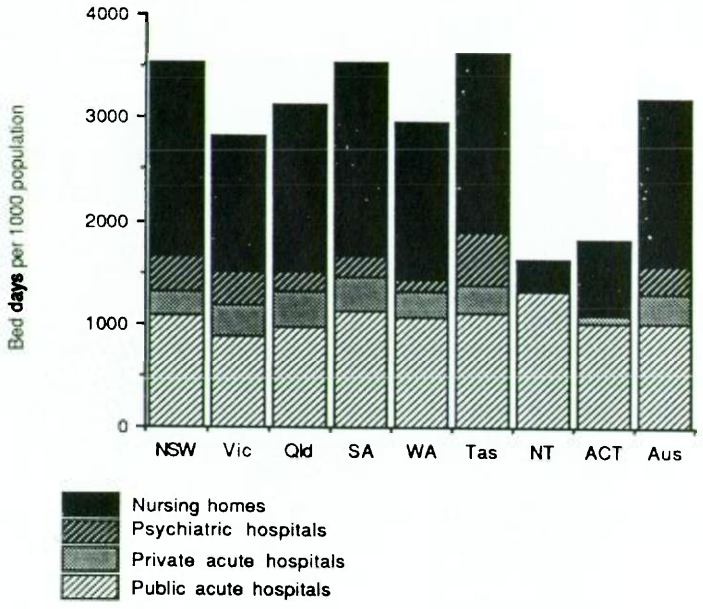


Figure B.2: Institution separation rates, 1985–86
Source: Mathers and Harvey, AIH (1988)

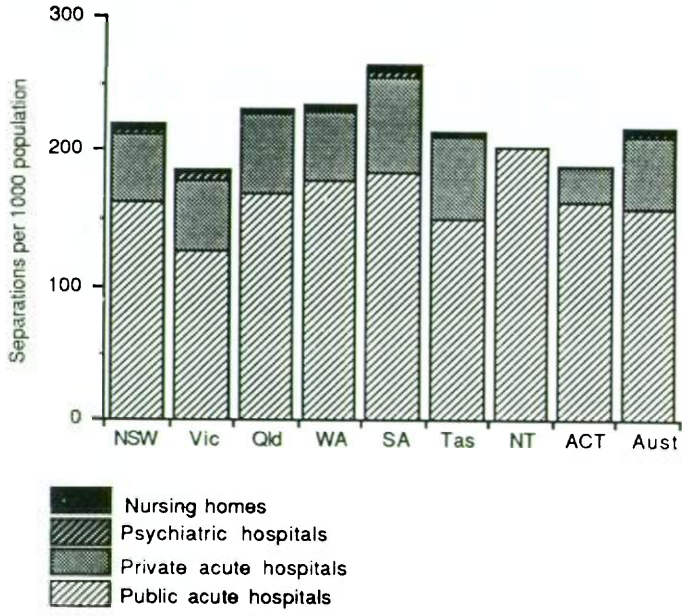


Figure B.3: Acute bed to population ratios, 1985–86

Note: Definitions of and policies relating to the provision of beds in public hospitals vary between States and Territories

Source: Mathers and Harvey, AIH (1988)

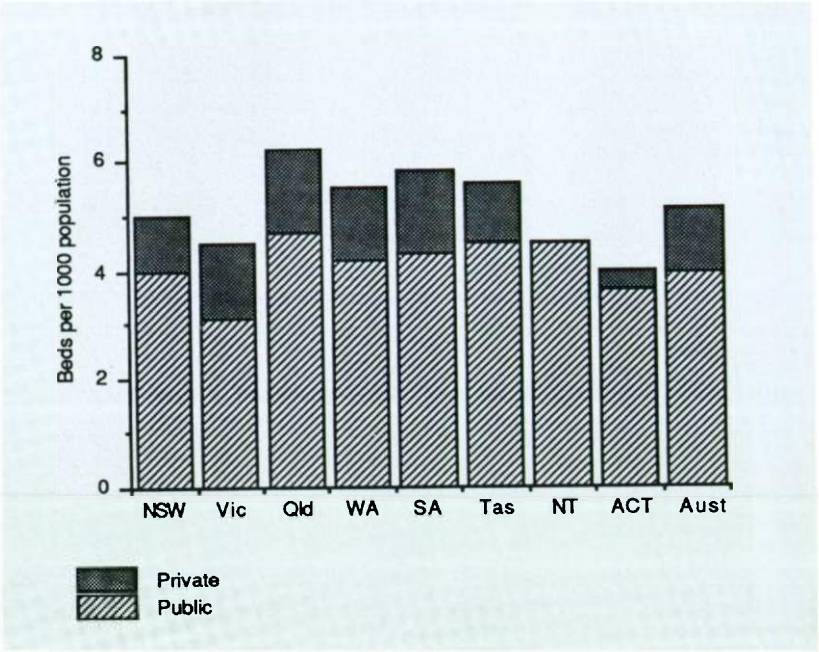


Figure B.4: Recurrent expenditure on health care institutions and institutional medical services per person, 1985–86

Source: Mathers and Harvey, AIH (1988)

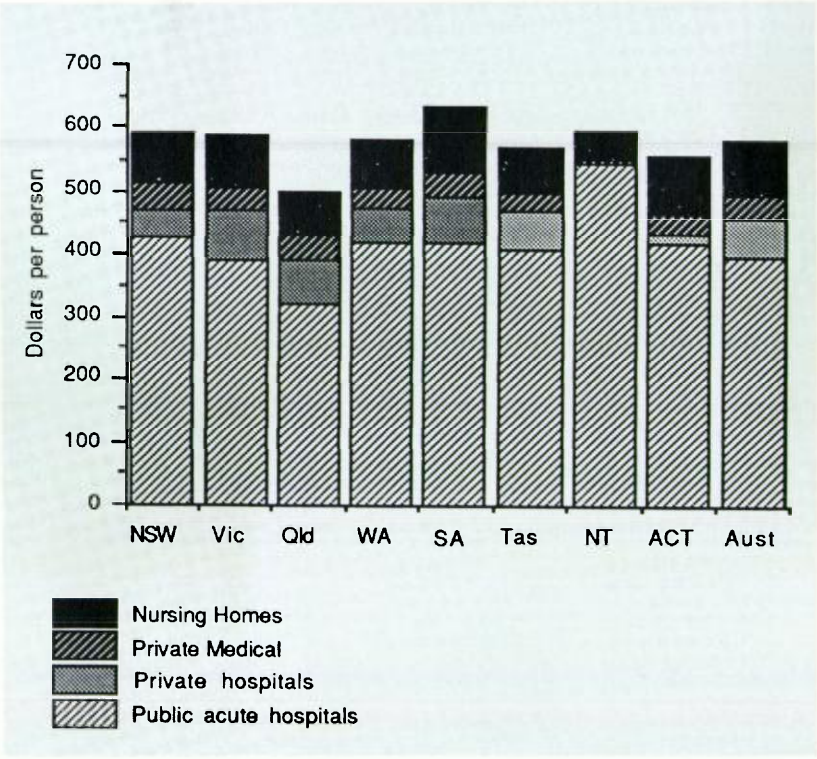
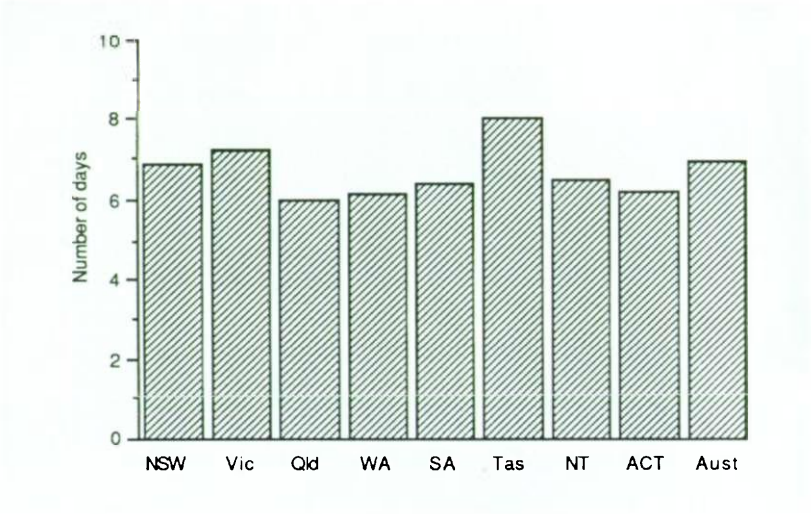


Figure B.5: Average length of stay in public hospitals, 1985–86
Source: Mathers and Harvey, AIH (1988)



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APPENDIX C

Quality assurance

Although stringent accreditation processes exist for most health care practitioners, once these have been met and a licence to practise has been gained, few health professions have formal programs to ensure that a high standard of care is maintained. By and large, the provision of consistently high quality care is left to individual practitioners and to pressure from peers and (more recently) from consumers.

At the second stage of contact between the public and the health system, in hospitals, the same situation has existed. Recently, however, there has been a growing interest by State and Territory Governments in the procedures by which their hospitals maintain quality of care, and many programs have been established to develop some guarantee of quality care (quality assurance). Private hospitals are also showing strong interest.

A voluntary accreditation scheme for hospitals has operated since 1974, but it was not until 1987 that standards for quality assurance were formulated. It has been traditional for teaching hospitals to monitor various aspects of the quality of their services, but their methods and standards have usually been hospital-specific. Moreover the effectiveness of this monitoring has rarely, if ever, been evaluated.

The Australian Institute of Health has conducted a national survey of quality assurance in public and private hospitals (Renwick and Harvey, AIH, 1988). Of the 74% of hospitals which replied, 70% said that they had undertaken some form of quality assurance in the preceding two years. How effective these activities were in ensuring high quality care is still to be examined.

Good patient records are essential for quality assurance and while these featured as one of the most frequently reviewed hospital resources, their incompleteness meant they were one of the biggest problem areas.

One other frequently reported difficulty was the lack of resources for quality assurance activities. This raises some important questions:

- Does the problem lie in attitudes acquired during training or in the pressure resulting from inadequate resourcing?

- When staff/patient ratios are calculated by administrators, is allowance made for documentation and review?
- Is the actual provision of care the only vital part of a health professional's duty, or is willingness to be held accountable for that care equally essential?

References and further reading

Renwick, M. and Harvey, D. R. (1988) *Report of the quality assurance survey*. Australian Institute of Health, Canberra.

APPENDIX D

Health care technologies

CT and MRI

Computerised tomography (CT) is a technology which produces X-ray images of the body with considerably greater detail than conventional X-rays.

CT scanners are widely distributed in Australia with about 180 units in operation at the end of 1987. The cost of most CT scanners is in the range $1 million to $1.5 million and CT services accounted for 2.3% of Medicare Benefits expenditure in 1986–87.

The increase in CT services (Figure D.1) is partly due to the replacement of older methods of diagnosis which had poorer performance and higher risk. It is being used for a wider range of diagnoses and monitoring as indications of its effectiveness are established. There are low but real risks to patients undergoing CT examination through adverse reactions to reagents (contrast media) used to improve picture quality and through exposure to radiation.

CT is a technology with excellent technical capability and low risk, and proven effectiveness in many situations. However, overall cost effectiveness of CT services in Australia is still unclear and

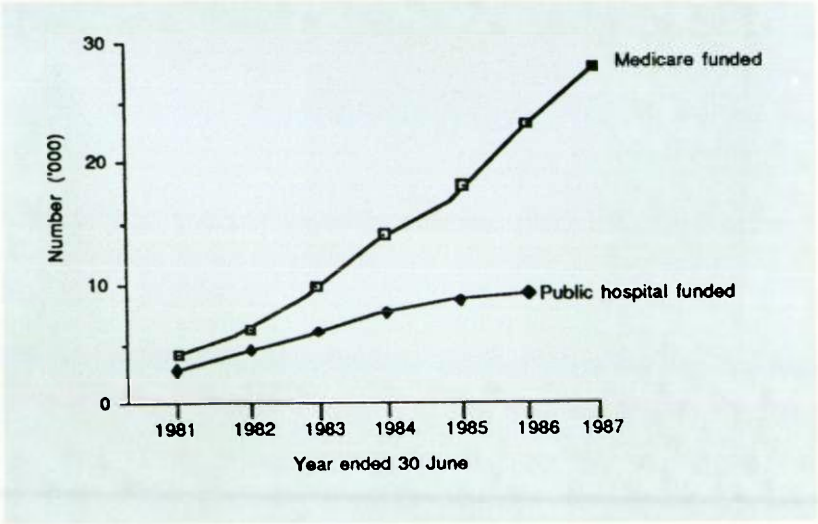

Figure D.1: Computerised tomography services, 1980–81 to 1986–87

Source: Based on data from the Commonwealth Department of Community Services and Health and State health authorities

there is an uneven distribution of scanners between the public and private sectors, with many public patients examined on private machines. There is no current assessment program in place.

Magnetic resonance imaging (MRI) is a more recent diagnostic imaging technology which, to some extent, complements CT. It produces high-quality images of soft tissue, such as the brain, without using potentially harmful contrast media or ionising radiation. MRI is capable of producing additional information, but its costs are three to four times higher than CT, and the gains in patient management through its use may be modest. In some situations it may be a supplement to CT. MRI is undergoing rapid technical development.

There are six MRI scanners in Australia. The cost and effectiveness are being assessed before any wider introduction.

Pathology services

The number of pathology tests paid for through medical benefits in Australia has doubled in the past decade (Figure D.2). In 1986–87, the cost of pathology was about 15% of Medicare payments for medical services (see Figure 8.5).

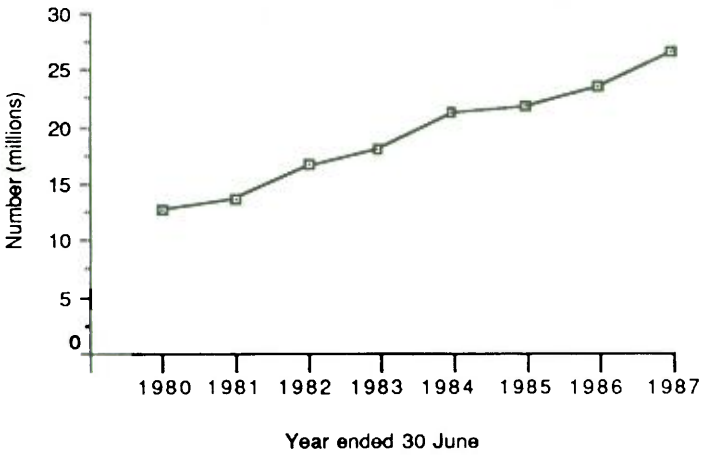

Figure D.2: Number of pathology tests, 1979–80 to 1986–87
Source: Based on data from the Commonwealth Department of Community Services and Health

Pathology servicing has increased with the greater availability of automated analysers, which allow the rapid performance of a number of tests from the same specimen. Although the costs per individual test have continued to fall as a result of automation, the Joint Parliamentary Committee of Public Accounts (1985) stated that all the savings had not always been passed on to those who paid the bills.

Technologies for treatment of heart disease

Coronary artery bypass surgery is a good example of where assessment has shown it is an effective use of resources for those

patients with a high degree of disability but is not an appropriate method of treatment for all cases of angina and other types of heart disease. Blood flow through a blocked blood vessel is restored with a graft which bypasses the blocked section.

The number of these operations has increased in Australia over a number of years (Figure D.3).

An increasingly used alternative is angioplasty in which a balloon is inflated within the blood vessel to restore blood flow by stretching the artery so that it is no longer blocked. This technique has a lower risk than coronary bypass surgery, and is potentially cheaper. Angioplasty is still undergoing technical development. At present it cannot be applied successfully to all patients and has the limitation that blockage of the blood vessel recurs in about a third of patients within six months of the procedure.

Continuing assessment of the costs, risks and benefits will be required.

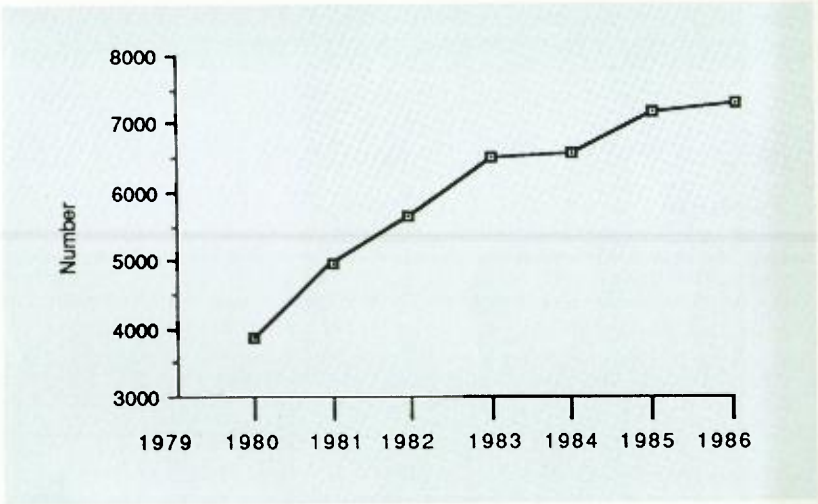

Figure D.3: Coronary artery bypass operations, 1980 to 1986

Source: National Heart Foundation of Australia

Shock wave lithotripsy

Extra corporeal shock wave lithotripsy (ESWL) is a recent high-cost technology which removes kidney stones by disintegrating them. The non-invasive technique has been effective in alleviating a painful condition, and has helped to replace more than 95 per cent of open surgery for removal of kidney stones, thereby reducing risk to patients and length of hospital stay. Because of the high capital cost, patient throughputs of perhaps 1000 a year are required for the first types of lithotripters to operate cost effectively in comparison with alternative methods. Costs of the technology have fallen with technical developments.

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Acknowledgments

All Australian Institute of Health staff and Board members contributed to this publication. It is impossible to acknowledge everyone individually.

Jane Badenoch-Jones compiled much of the initial data.

Edouard T d'Espaignet, Mark Diesendorf and Michael Fett comprised the original editorial committee.

Ian Buttsworth (Australian Bureau of Statistics) provided statistical expertise.

George Palmer (School of Health Administration, University of New South Wales) provided valuable comments.

The information on AIDS was provided by Dr E.K.C. Lo (Commonwealth Department of Community Services and Health).

The information on disabilities was provided by Ms Dallas Ariotti (Commonwealth Department of Community Services and Health).

Information specifically provided by State and Territory health authorities, particularly New South Wales, Queensland, South Australia, Western Australia and the Northern Territory, assisted the compilation of Chapter 6.

Neil Lade and Susie van den Heuvel oversaw the production of the report.

Any errors and omissions are the responsibility of the Institute.

Glossary

Aborigine/Torres Strait Islander. A person of Aboriginal or Torres Strait Islander descent who identifies as an Aborigine or Torres Strait Islander and is accepted as such by the community in which he (she) lives (Department of Aboriginal Affairs 1981).

ABS. Australian Bureau of Statistics.

acute hospitals. See ***hospitals and other health-care institutions.***

acute. Having a short and relatively severe course (Dorland's 1965).

ADEC. Australian Drug Evaluation Committee.

age specific death rate. Number of deaths in a specified period of persons of a specific age group per thousand persons of the same age group.

age specific fertility rate. The number of live births to women in a specified age group in one year per thousand women in the same age group (Last 1983).

age standardised. Weighted average of age-specific rates according to a standard distribution of age to eliminate the effect of different age distributions and thus facilitate valid comparison of groups with differing age compositions (Last 1983).

AHS. Australian Health Survey (conducted periodically by the Australian Bureau of Statistics).

AIDS. Acquired Immune Deficiency Syndrome.

AIH. Australian Institute of Health.

average length of stay. The average of the lengths of stay for all inpatients. For acute hospitals, a reasonable estimate is obtained by dividing total bed-days by total separations.

bed-day. The occupancy of a hospital bed by an inpatient for up to 24 hours.

bulk bill. A doctor who bulk bills regularly sends the bill for some or all his/her patients direct to Medicare.

capital expenditure. Expenditure of a non-recurrent nature (for example, new buildings, equipment used for a number of years).

cardholder. Holder of a pensioner health benefit or a health care card. Health care cards are issued to low-income earners—including the unemployed and special beneficiaries and certain recipients of sheltered employment and rehabilitation allowances—entitling them to receive a range of pharmaceuticals at a concessional contribution rate of $2.50 an item. Pensioner health benefit cards are issued to social security and age pensioners on limited incomes, entitling them to receive a range of pharmaceuticals free on prescription, as well as non-health benefits.

chronic. Persisting over a long period (Dorland's 1965).

Congalton scale. Allocates people to one of four social classes based on the prestige of their occupations.

crude death rate. Number of deaths in a specified period per thousand total population.

cumulative rate. Proportion of an initially disease-free group developing a disease over a fixed time interval (Last 1983).

cumulative rate per cent. Cumulative rate expressed as per cent.

diagnosis related group (DRG). A means of classifying hospital patients to provide a common basis for comparing cost effectiveness and quality of care across hospitals. DRGs classify about 460 types of cases encountered in acute hospitals on the basis of principal diagnosis, principal procedure performed (if any), age, sex and other clinical information. Each DRG represents a class of patient requiring similar hospital services.

disability. Any restriction or lack (resulting from an impairment) of ability to perform an activity in the manner or within the range considered normal for a human being.

epidemic. The occurrence in a community or region of cases of an illness, specific health-related behaviour or other health related events clearly in excess of normal expectation (Last 1983).

epidemiology. The study of the distribution and determinants of health-related states and events in populations, and the application of this study to control of health problems (Last 1983).

episode of care. The time between the formal admission to hospital and discharge, transfer to another health institution or death. If a patient is readmitted for further treatment (even for the same condition), a second episode of care occurs. If a patient receives treatment at one hospital and is transferred to another hospital, a second episode of care begins at the time of transfer.

expectation of life. Predicted number of years of life remaining to a person if the present pattern of mortality does not change.

female. In this volume, female persons of any age.

fertility rate. See ***age specific fertility rate.***

handicap. A disadvantage for a given individual, resulting from an impairment or disability, that limits or prevents the fulfillment of a role that is normal (depending on age, sex, and social and cultural factors for that individual).

health care. Care for the ill. It may or may not include treatment; it does not include health promotion or illness prevention.

health maintenance organisation. An organisation which accepts contractual responsibility to provide a range of health care services to a voluntarily enrolled population of members in exchange for a predetermined advance payment of a premium by members or a third party (e.g. government or employer). The amount of payment made by (or on behalf of) each

member is not affected by the frequency, extent or kind of health services he or she requires.

health promotion. Education to improve health and prevent illness.

health. Several definitions are discussed in Chapter 2.

HIV. Human Immunodeficiency Virus, the virus which causes AIDS.

hospitals and other health-care institutions.

acute hospitals. Public hospitals, repatriation hospitals and private acute hospitals which provide services predominantly to inpatients with acute or temporary ailments; the average stay per admission is relatively short.

hostels. Residential establishments for aged or disabled persons who cannot live independently but do not require nursing care. Hostels may receive Commonwealth subsidies.

nursing homes. Institutions which are recognised by the Commonwealth Government and provide long-term care involving regular basic nursing care to chronically ill, frail or disabled persons. In practice they cater mainly for the aged. They are owned primarily by private organisations, of which about half are profit seeking. Many receive some form of Commonwealth funding.

private hospitals. Privately owned and operated institutions approved by the Commonwealth Department of Health for the payment of a bed-day subsidy during 1985-86 financial year. Private hospitals cater only for private patients who are treated by a doctor of their own choice and are charged fees for accommodation and medical services. Private hospitals can be classified as acute or psychiatric on the basis of the proportion of acute inpatient services provided.

psychiatric hospitals. Institutions which provide free treatment and care for inpatients with psychiatric, mental or behavioural disorders. In Australia they are almost entirely State operated. Where possible, institutions for non-acute drug dependence, developmental and intellectual disability are excluded from this category. This cannot be done consistently for all States. (See Mathers and Harvey, AIH (1988) Volume 2, Section 3.2, for details.)

public hospitals. Hospitals controlled by State and Territory health authorities which provide acute care and are listed in Schedule C of the Medicare Agreements. They provide free shared-ward accommodation for all who require it and free treatment there by a hospital-appointed doctor. In addition they provide, to those who are prepared to pay for it (e.g. through private insurance), private ward accommodation and the doctor of choice. Thus public hospitals service much private medical practice as well as public. There are variations between States in the definition of public hospitals. (See Mathers and Harvey, AIH (1988) Volume 2, Chapter 3.)

publicly funded hospitals. In this volume, denotes recognised public short-stay hospitals, repatriation hospitals and public psychiatric hospitals.

repatriation hospitals. Acute care hospitals run by the Commonwealth Department of Veterans' Affairs originally set up to provide hospital treatment for eligible veterans and their dependants at Commonwealth expense.

incidence. The number of instances of illness commencing, or of persons falling ill, during a given period in a specified population (Last 1983).

incubation period. The time interval between invasion by an infectious agent and the appearance of the first sign or symptom of the disease in question (Last 1983).

infant death. Death of an infant within a year of birth.

infant mortality rate. Number of infant deaths per thousand live births.

infectiousness. A characteristic of the disease that concerns the relative ease with which it is transmitted to others (Last 1983).

inpatient. Any person formally admitted by a hospital. Healthy newborn infants are excluded unless they have a stay of more than 10 days, or are the second or subsequent birth in multiple births.

institutional. In this volume, denotes the major health care institutions, such as hospitals and nursing homes.

IPD1 deflator. Index used to adjust institutional health costs to allow for inflation. It is the ABS implicit price deflator for government consumption expenditure on health, social security and welfare.

length of stay. The difference, in completed days, between the dates of admission and separation. Where a patient is admitted and discharged on the same day, the length of stay is taken as one day.

life expectancy. See *expectation of life.*

low birthweight. Less than 2500 grams.

male. In this volume, male persons of any age.

man. In this volume, adult male.

maternal direct deaths. Deaths resulting from obstetric complications of the pregnant state. See also *total maternal deaths.*

Medicare Benefits Schedule. A compilation of the professional medical services which are subject to the payment of benefits by Medicare against expenses incurred by Australian residents. The Schedule is determined by regulation. Known before Medicare as the Medical Benefits Schedule. The Schedule fee is the value for each professional medical service in the Schedule from which the maximum benefit is calculated. The Schedule fee is not a recommended fee nor is it a maximum fee.

morbidity. Any departure, subjective or objective, from a state of physiological or psychological well-being (Last 1983).

mortality. Death.

neonatal death. Death of an infant within 28 days of birth.

neonatal mortality rate. Number of neonatal deaths per thousand live births.

NH&MRC. National Health and Medical Research Council.

nursing home. See ***hospitals and other health care institutions.***

occupancy rate. The ratio of total bed-days in a year to total possible bed-days (where the latter is available beds multiplied by 365).

OECD. Organisation for Economic Co-operation and Development, comprises a set of 24 developed countries, including most Western European countries, the United States and Australia.

PBS. Pharmaceutical Benefits Scheme.

perinatal death. Stillbirths (fetal deaths) plus neonatal deaths.

perinatal mortality rate. Number of perinatal deaths per thousand total births.

postneonatal death. Death between 28 days and one year of birth of an infant surviving the neonatal period.

postneonatal mortality rate. Number of postneonatal deaths per thousand live births.

potential years of life lost. Number of potential years of life lost in a population as a result of premature death.

prevalence. The number of instances of a given disease or other condition in a given population at a designated time (Last 1983).

private hospital. See ***hospitals and other health-care institutions.***

psychiatric hospital. See ***hospitals and other health-care institutions.***

public health. One of the efforts organised by society to protect, promote and restore the people's health. It is the combination of sciences, skills and beliefs that are directed to the maintenance and improvement of the health of all the people through collective or social actions. The programs, services and institutions involved emphasise the prevention of disease and the health needs of the population as a whole. Public health activities change with changing technology and social values, but the goals remain the same: to reduce the amount of disease, premature death, and disease-produced discomfort and disability in the population. Public health is thus a social institution, a discipline, and a practice (Last 1983).

public hospital. See ***hospitals and other health-care institutions.***

publicly funded hospital. See ***hospitals and other health-care institutions.***

purchasing power parities. Indexes of relative national price levels. They measure how prices in one country compare with prices in another at a given time.

quality adjusted life years (QALYs). A measure of the outcome of actions (either individual or treatment interventions) in terms of their health impact. If an action gives a person an extra year of healthy life expectancy, that counts as one QALY. If an action gives a person an extra year of unhealthy life expectancy (partly disabled or in some distress), it has a value of less than one. Death is rated at zero.

quality assurance. The process of providing, through a range of mechanisms, a credible guarantee that the quality of health services is at an optimum standard in the particular circumstance.

real cost. Cost expressed in terms which have been adjusted for inflation (e.g. in 1984-85 dollars). This enables comparisons to be made between expenditures in different years.

recurrent expenditure. Expenditure which recurs continually or very frequently (e.g. salaries). It may be contrasted with capital expenditure, such as the cost of hospital buildings and diagnostic equipment, for which the expenditure is made infrequently.

relative risk. The ratio of the risk of disease or death among the exposed to the risk among the unexposed (Last 1983).

repatriation hospital. See *hospitals and other health-care institutions*.

risk factor. An attribute or exposure that is associated with an increased probability of a specified outcome, such as the occurrence of a disease. Not necessarily a causal factor (Last 1983).

risk. The probability that an event will occur (Last 1983).

Schedule fee. See *Medicare Benefits Schedule*.

separation (or discharge). Occurs when an inpatient leaves hospital to return home, transfers to another institution, or dies.

separation rate. The number of separations in a year per thousand total population.

sex ratio. Number of events occurring to males in the population divided by the number of similar events occurring to females in the same population.

singleton birth. An offspring born singly; not a twin or one of any multiple pregnancy.

STD. Sexually transmitted disease.

stillbirth. Birth of a fetus weighing at least 500 grams (or where birthweight is unavailable, of at least 22 weeks gestation), which shows no signs of life.

stillbirth rate. Number of stillbirths per thousand total births, live and stillborn.

symptom. Any functional evidence of disease or of a patient's condition (Dorland's 1965).

Torres Strait Islander. See *Aborigine/Torres Strait Islander*.

total bed-days. The sum of the lengths of stay of all inpatients for a given period.

total fertility rate. The number of live births a woman would have if, throughout her reproductive years, she had children at the rates prevailing in the reference calendar year. It is the sum of the age specific fertility rates for that calendar year.

total maternal deaths. Direct deaths plus indirect deaths (those resulting from pre-existing disease or disease that developed during pregnancy but not due to direct obstetric causes).

WHO. World Health Organization.

woman. In this volume, adult female.

yaws. An infectious disease carried by bacteria which enter through cuts and abrasions. It is transmitted mainly from person to person, although flies could possibly be vectors. If left untreated, yaws destroys skin and bone in its late stages.

$ denotes the Australian dollar, unless otherwise indicated.

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