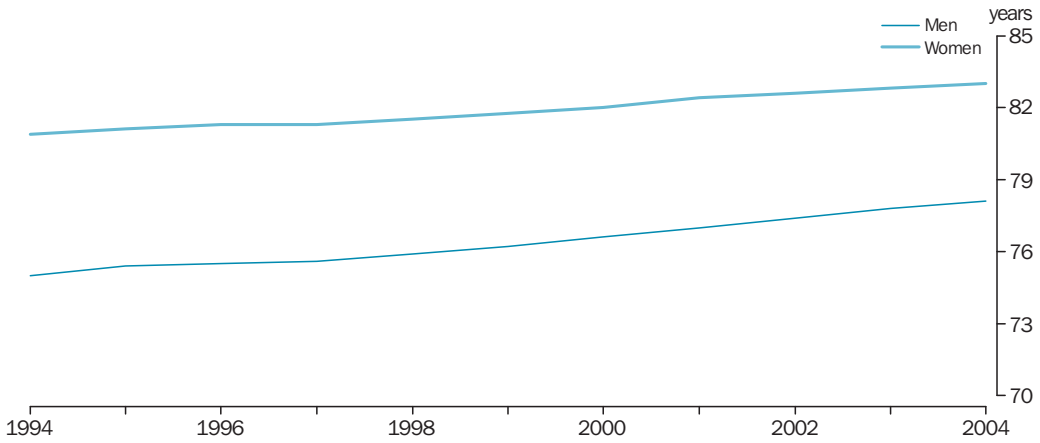
Health: key points

Life expectancy at birth



Source: Australian Demographic Trends 1997, cat. no. 3102.0; and Deaths, Australia (various), cat. no. 3302.0.

Australian life expectancy improved between 1994 and 2004. A boy born in 2004, could expect to live to be over 78, while a girl could expect to reach 83 – increases since 1994 of three and two years respectively.

The relationship of health to progress

People hope to have a long life, free from pain, illness or disability. Good health for all brings social and economic benefits to individuals, their families and the wider community.

About the headline indicator and its limitations: Life expectancy at birth

Life expectancy at birth is a measure of how long someone born in a particular year might expect to live if mortality patterns for that year remained unchanged over their lifetime. Life expectancy at birth is one of the most widely used indicators of population health. It focuses on the length of life rather than its quality, but it usefully summarises the health of the population.

Health: Other indicators of progress

The proportion of people surviving to ages 25, 50 and 75; infant mortality rates; burden of disease; avoidable deaths; incidence of heart attacks and all cancers.

Some differences within Australia

Although Australians are now among the longest-lived people in the world, substantial differences remain among certain parts of the population; Indigenous Australians in particular have much lower life expectancy than other Australians.

Links to other dimensions

Improvements in health may assist progress in other areas and vice versa. See also the commentaries *National income*, *The air and atmosphere*, *Work*, *Life satisfaction and measures of progress* and *Economic hardship*.

Health

Progress and the headline indicator

People hope to have a long life, free from pain, illness or disability. Good health for all brings social and economic benefits to individuals, their families and the wider community.

An indicator describing how long Australians live while simultaneously taking into account the full impact of illness and disability, would be a desirable summary measure of progress. But although such indicators have been developed they are not available as a time series (discussed later in this commentary). Life expectancy at birth is one of the most widely used indicators of population health. It focuses on length of life rather than its quality, but it usefully summarises the health of the population.

Australian life expectancy improved during the past ten years. A boy born in 2004 could expect to live to be over 78, while a girl could expect to reach 83 – increases since 1994 of three and two years respectively.

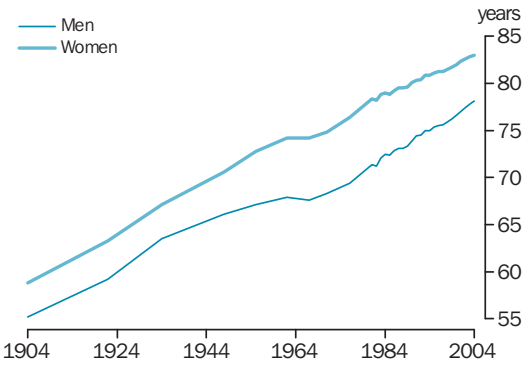
A longer term view

Increases in life expectancy occurred over most of the 20th century, and resulted in an increase of 20 years of life for both men and women. Much of the improvement in the first part of the century was because of a decline in deaths from infectious diseases. This was associated with improvements in living conditions, such as cleaner water, better sewerage systems and improved housing, coupled with rising incomes and improved public health care, including initiatives like mass immunisation.[1] These changes were particularly beneficial to infants, women who were pregnant or in childbirth, and older people; official statistics show that rapid declines in deaths among infants were the main reason that life expectancy increased in the first half of the century.[2] Increases in life expectancy slowed in the middle of the 20th century, and then plateaued in the 1960s, largely because of increases in the rates of cardiovascular disease.[1]

Substantial improvements in life expectancy have been a feature of the second half of the 20th century, particularly since the 1970s. Between 1984 and 2004, life expectancy at age 70 increased by about three years for men and two years for women. Life expectancy at birth over the same period increased by five and a half years for men and just over five years for women.

Over the first half of the 20th century, as the number of deaths due to infectious diseases declined, chronic diseases, such as heart disease, cancer and strokes replaced infectious diseases as the main causes of death. In the latter part of the century, further progress was achieved with a decline in the number of deaths from these chronic conditions. This was largely due to the promotion of healthier lifestyles, continued improvements in living standards, and ongoing medical advances,

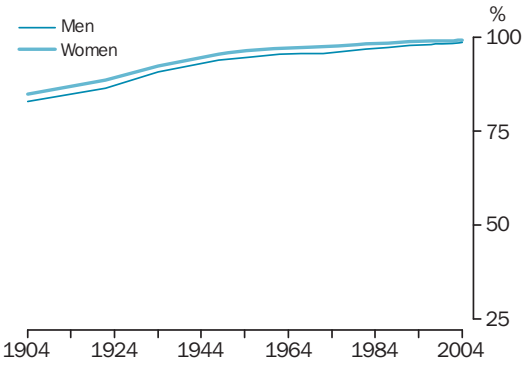
Life expectancy at birth: longer term view



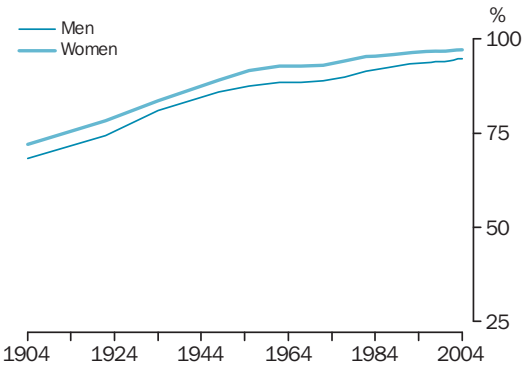
Years represent the last year of a three-year period. For example, 2004 refers to the period 2002–2004.

Source: Australian Historical Population Statistics, cat. no. 3105.0.65.001.

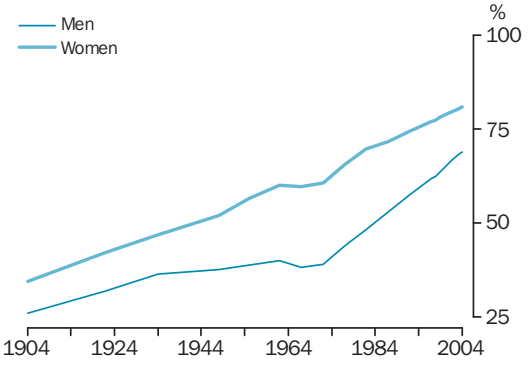
Proportion of people surviving to age 25



Proportion of people surviving to age 50



Proportion of people surviving to age 75



Source: Australian Historical Population Statistics, cat. no. 3105.0.65.001.

including improvement in illness prevention, screening and diagnosis and treatment.

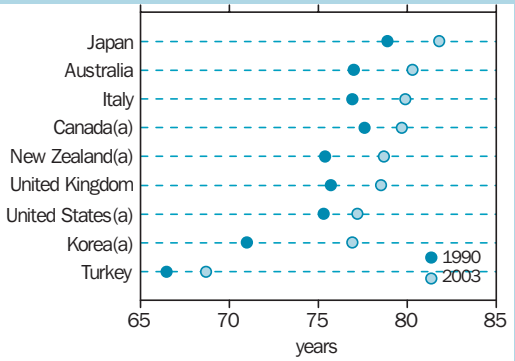
Survival rates

As well as considering changes in life expectancy at birth, one can also consider changes in the proportions of people surviving to a certain age. Over the 20th century, the proportion of the population surviving to the ages of 25, 50 and 75 increased dramatically.

In 1904, 83% of men and 85% of women lived to be 25 years old. By 2004 these figures stood at around 99% for both men and women. Over the same period the proportion of people surviving to age 50 increased from 68% and 72% to 95% and 97%, for men and women respectively. The difference between the sexes was evident throughout the period, however male rates are increasing at a faster rate than those for females.

Change was most evident when considering the proportion of the population living to 75. In 1904, just under 26% of men and 35% of women reached their 75th birthday. By 2004, these figures stood at 69% and 81% respectively. Improvement was relatively steady over the period, except during the 1960s when the rates of some conditions, including heart disease, increased, particularly among men older than 50.[1] Since the early 1970s, the gap between men and women has closed steadily (down from over 21 percentage points in 1970 to about 12 in 2004).

International comparison – life expectancy at birth



(a) Data are for 2002 not 2003
Source: OECD Health Data, 2005.

In 2003, Australians were among the longest lived OECD members, ranking fifth for life expectancy for the total population at birth (80 years). Australia was ranked sixth in the OECD for female life expectancy at birth (83 years) and fourth in the OECD for male life expectancy (78 years).

Japan reported the longest life expectancy in 2003 for females: a girl born in Japan could expect to live for 85 years. Iceland had the longest male life expectancy (79 years) in 2003. In 2003, Turkey had the lowest overall life expectancy of all OECD countries for both males (66 years) and females (71 years).

The OECD country experiencing the greatest increase in life expectancy for both males and females during the period 1990–2003 was Korea, where life expectancy for females increased from 75 years in 1990 to 80 years in 2003, and from 67 years in 1990 to 73 years in 2003 for men.

See also the international comparison for infant mortality in the *International comparisons of progress* essay on page 184.

Some differences within Australia

Despite continued improvement in the population's health, there are significant disparities between different groups.

Life expectancy at birth varies between the states and territories. In 2002–2004 it was highest in the ACT for both men (79.7 years) and women (83.9 years) and lowest in the NT for both men (72.3 years) and women (78.0 years).

Men and women

Women tend to live longer than men, and this is reflected in the differences in life expectancy throughout the 20th century. However, in recent years life expectancy at birth for men has increased more quickly than for women, although a girl born in 2004 could still expect to live more than five years longer than a boy.

In 2004, death rates were higher for men than for women in all age groups. Women are thought to have a possible genetic advantage which makes them more resistant to a range of conditions.[3]

The remaining differences are attributed to different behavioural, lifestyle and working patterns of men and women. Women, for example, are less likely to be overweight or to smoke.[4] Men are more often involved in hazardous occupations than women, while younger men in particular are more prone to risk-taking, and have higher death rates because of accidents.

Aboriginal and Torres Strait Islander Peoples

On average, Aboriginal and Torres Strait Islander people experience a higher burden of disease than non-Indigenous Australians and as a result experience higher rates of mortality. Life expectancy for Indigenous Australians both male and female is estimated to be about 17 years shorter than the measured life expectancy of all Australians.[5]

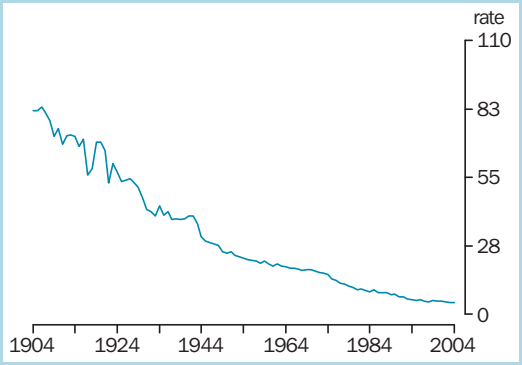
Data for Indigenous deaths by age and cause comes from Queensland, Western Australia, South Australia and the Northern Territory combined, as these are the jurisdictions with the most complete coverage of Indigenous deaths. In all age groups, other than those older than 75, the Indigenous death rate was at least double that of the non-indigenous population. The largest differences were for men and women aged 35–54 (where Indigenous deaths rates were about five times higher than those of non-indigenous people).[6] In particular, death rates for this age group were higher for the Indigenous population than the non-Indigenous population for ischaemic heart

Living with disability(a) – 2003

Expected years of life:	1998 Males	1998 Females	2003 Males	2003 Females
Free of disability	58	62.1	59.1	62.2
With disability(a)	17.9	19.4	18.6	20.7
With severe core activity limitation(b)	5.3	7.6	5.4	8.3
Total life expectancy at birth	**75.9**	**81.5**	**77.8**	**82.8**

(a) Presence of one or more limitations lasting at least 6 months and restricting everyday activity.
(b) Sometimes or always needing assistance of supervision with a core activity; subset of disability
Source: AIHW analysis of ABS 1998 and 2003 Survey of Disability, Ageing and Carers; unpublished ABS Life Tables, 1996–98, 2001–03

Infant mortality rate per 1,000 births



Source: Australian Demographic Trends, 1997, cat. no. 3101.0; and Deaths, Australia, (various), cat. no. 3302.0.

Infant mortality

The decline in infant mortality was one of the prime drivers in increased life expectancy during the 20th century, particularly its first half. For every 1,000 babies born in 1904, nearly 82 would die before their first birthday. By 2004 this figure was just under 5 babies per 1000, a reduction of 22% since 1994, when 6 babies per 1,000 died. In 2004, 40% of all infant deaths occurred within the first day of birth with a further 30% occurring before the baby reached four weeks.

Infant mortality declined particularly quickly in the first half of the 20th century (to around 29 deaths per 1,000 live births at the end of World War II). Clearly, the risk of death in the first year of life had a large impact on overall life expectancy: male life expectancy at birth in 1901–1910 was around 55 years, but was 60 years for those reaching their first birthday.

disease, diseases of the liver (ie alcoholic liver disease and cirrhosis of the liver), diabetes and intentional self harm.

Indigenous infant mortality (in Queensland, Western Australia, South Australia and the Northern Territory combined) was three times higher than the non-indigenous infant mortality rate between 1999–2003. Male Indigenous infant mortality was estimated at about 15 deaths per 1000 births, while female Indigenous infant mortality was estimated as 12 deaths per 1000 births. For non-indigenous males and females respectively, it was 5 deaths per 1000 births and 4 deaths per 1000 births.[6]

Although Indigenous mortality continues to be higher than that of all Australians, there is some evidence that it is decreasing. Over the period 1991 to 2002, recorded mortality showed a decline for both males and females in the three states for which reliable long-term data is available (Western Australia, South Australia and Northern Territory, although only the decrease in Western Australia was statistically significant). Statistically significant declines in infant mortality were also recorded in all three jurisdictions over this period.

Indigenous Australians have high rates of infectious disease, obesity, diabetes, heart disease, kidney disease and cancer. They also experience high rates of injury and death from accidents and violence.[6]

In 2002, Indigenous people over 18 in non-remote areas were 1.7 times more likely than non-Indigenous people to report a disability resulting in a core activity limitation (after adjusting for age differences between the two populations).[5]

A number of factors help to explain why Indigenous Australians suffer poorer health than other Australians. In general, more Indigenous Australians experience disadvantages such as poor education, unemployment, and inadequate housing and infrastructure. In particular, crowded housing has been identified as contributing to the spread of infectious diseases. Indigenous Australians are also more likely to smoke, have poor diets and have high levels of obesity. In 2001, 49% of Indigenous adults (aged over 18) were daily smokers compared with 22% of non-Indigenous adults, and 61% were overweight or obese compared with 48% of non-Indigenous adults.[7]

Older people

ABS population projections indicate that the proportion of the population aged 65 or more will rise. This has prompted concerns about the future cost of health services.

Older people are much more likely to experience ill health and disability. In 2003, 5% of 15–24 year olds reported a core activity limitation, compared to 64% of people aged 75 or more. Based on 2003 data, men can expect to live 19 years (24%) of their life with a disability, compared with 21 years (25%) for women.[8]

The burden of disease

Summary measures that combine information on mortality, disability and other non-fatal health outcomes give a more complete view of the health of the population than life expectancy alone. The most comprehensive measure in Australia has been published by the Australian Institute of Health and Welfare (AIHW) and is known as the Disability Adjusted Life Year (DALY). It is a measure that combines information about the years of healthy life lost due to either premature mortality (relative

Burden of disease(a) – 1996

Major disease group, health condition or injury	*Years of life lost* '000	*Years of life with disability* '000	***Disability adjusted life years*** **'000**
Cardiovascular	447	100	**547**
Cancer	400	79	**478**
Mental illness	18	320	**338**
Nervous system	48	177	**225**
Injury	152	58	**210**
Chronic respiratory	76	104	**180**
Musculoskeletal	7	82	**89**
Digestive	41	36	**77**
Diabetes	31	45	**77**

(a) For nine major disease groups, health conditions or injury.
Source: Australian Institute of Health and Welfare 1999, Burden of Disease and Injury in Australia.

to a standard life expectancy) or to years lived with a disability (here disability means any departure from full health, and includes conditions that range from the common cold to quadriplegia).[9] The burden of disease can be quantified by DALYs. In 1996, cardiovascular diseases and cancer were responsible for the loss of 547,000 and 478,000 years of healthy life, respectively. Over 85% of these years were lost due to premature mortality rather than time spent living with a disability. In contrast, almost 95% of the 338,000 years of healthy life lost to mental illness were due to years lived with a disability.

Factors influencing change

Historical studies of health improvement, as well as comparisons of health between developing and developed countries, provide ample evidence that many factors have helped to improve health. In developed countries, improvements in nutrition, sanitation, water supplies, hygiene, and living and working conditions, brought major improvements in health and life expectancy, particularly before the 1950s. Advances in medical technology have also been important, especially in the past 50 years. These advances have been supported by further improvements in lifestyle such as better diet.

There is a good deal of debate about whether life expectancy will continue to increase, and there are two opposing schools of thought. Some analysts believe that there is a biological limit to an *average* life of around 85 years which has nearly been reached; others believe that life expectancy will continue to increase as a result of further medical advances and better lifestyles.[1] There is no doubt that there is more room for improvement among some groups of the population than among others.

Leading causes of death – 2004

	Males rate(a)	*Females* rate(a)	*Male to female* ratio
Malignant neoplasms (cancers)	231	143	1.6
Ischaemic heart disease	151	86	1.8
Cerebrovascular diseases (e.g. strokes)	58	54	1.1
Chronic lower respiratory diseases	36	21	1.7
Accidents	34	17	2.1

(a) Standardised death rate per 100,000 population.
Source: ABS Causes of Death collection.

Causes of death

Causes of death are strongly linked to a person's age. Among people aged 1–44, external causes of death (including transport accidents and suicide) were the leading causes of death, with death rates from these causes much higher for men than for women. Among people older than 44 years, cancer and cardiovascular disease were the leading causes of death, with men again more at risk than women from these conditions.

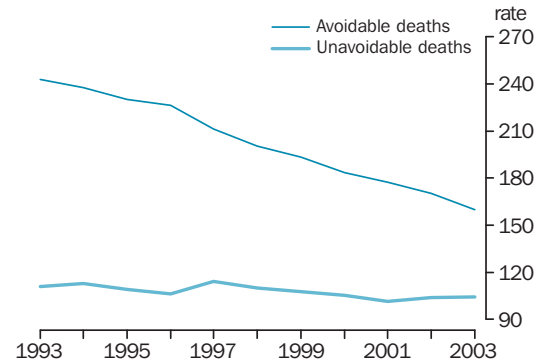
Advances in medical technology, public health measures, including earlier detection of some illnesses, and healthier lifestyles, have contributed to declines in death rates from most of the leading causes of death. Between 1994 and 2004, death rates from malignant neoplasms declined by 17% for men and over 11% for women, and death rates from ischaemic heart disease declined by over 40% for men and women.

Medical experts classify deaths as avoidable and unavoidable. A potentially avoidable death is one that, theoretically, could have been avoided given current understanding of causation, and available disease prevention and health care.

One example of this is colorectal cancer, which is potentially avoidable by:

- primary prevention (through diet and exercise)
- secondary prevention (through early detection)
- tertiary prevention (through effective surgery, chemotherapy and radiotherapy).

Avoidable deaths(a)



(a) Rate per 100,000 people.
Source: Australian Institute of Health and Welfare (unpub).

Conversely an example of a death which is not potentially avoidable is one from dementia, where no substantial gains are available through either primary, secondary or tertiary prevention with current medical technology.[10]

Between 1993 and 2003 the overall death rate decreased by over 25% for the general population. Most of the fall was in potentially avoidable deaths, which declined by one-third (the unavoidable death rate fell by 6%). Men had a higher rate of potentially avoidable mortality than women, reflecting their higher rates of heart disease, and higher rates of death from injuries and accidents (mainly motor vehicle accidents and suicide).

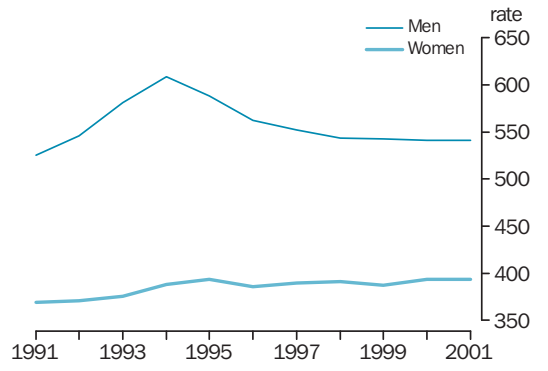
Incidence and treatment of cancer and heart diseases

In 2003, malignant neoplasms (cancers) were the leading cause of death accounting for over 28% of all deaths. Ischaemic heart diseases were the second leading cause of death, contributing over 19% of all deaths.[11] Changes in death rates from cancer and heart disease depend in part on prevention (which reduces the incidence of these diseases), and in part on improvements in treatment techniques.

Between 1991 and 2001 the incidence rate for all cancers (other than non-melanoma skin cancers) among men and women rose by an average of 0.3% and 0.6% per annum respectively. Over the period from around 1995 to 2001, male death rates from cancers fell by an average of 1.8% per annum and female death rates fell by an average of 1.4% per annum.[12]

A significant proportion of the rise in the female incidence rate can be attributed to increases in reported breast cancer which in turn is linked to better detection of cancers by breast screening programs. Lung cancer among women is also still increasing. The rise and then fall in the male cancer rate over the period is linked to the rise and fall in reported prostate cancer.[12]

Incidence rates for all cancers(a)



(a) Rate per 100,000 people. Excludes non-melanoma skin cancers. Age standardised to the 2001 population.

Source: Australian Institute of Health and Welfare (AIHW) and Australasian Association of Cancer Registries (AACR) 2003, Cancer in Australia 2000, AIHW cat. no. 23. AIHW, Canberra.

Lifestyles and health

People's lifestyles can have a major impact on their health. In 1998 the use of tobacco, alcohol and other (illicit) drugs was estimated to have caused about 25% (7,000) of the deaths of Australians under 65 years old. Deaths related to alcohol (which include alcohol-related road injuries) accounted for over 2,000 of these deaths, smoking about 4,200 and illicit drug use almost 1,000 deaths. Over 5,600 of the 7,000 deaths were of men. In 1996, a similar number of people died before age 65 from causes attributable to alcohol and tobacco. But the number of illicit drug deaths increased by one-third over the period.[20]

Smoking is recognised as the single most preventable cause of death in Australia. The proportion of adults who smoked stood at 23% in 2004–05, down from 24% in 2001.[4] A similar proportion of men in most age groups smoked in both 2001 and 2004–05, but there was a 3% decline among men aged 25–34. Between 2001 and 2004–05, there were no significant changes in the proportion of women who smoked in all age groups.[4]

Exercise can benefit both physical and mental health. Physical inactivity is believed to be responsible for about 7% of the total burden of disease in Australia.[13] In the 2004–05 National Health Survey, about 66% of adults reported exercising for recreation, sport or fitness in the previous two weeks. The survey also asked about the frequency, type and duration of exercise to assess people's overall level of exercise. About two-thirds of men and three-quarters of women were assessed as having a low level of exercise or being sedentary. Results from surveys in 1995 and 2001 suggest that the proportion of people with a sedentary lifestyle has not changed over the past decade.

Being overweight is closely related to lack of exercise and diet. And being overweight or obese increases the risk of suffering from a range of conditions, including coronary heart disease, type 2 diabetes and some cancers. In 1996 problems associated with being overweight or obese accounted for 4% of the total burden of disease in Australia. Excluding those for whom body mass index could not be derived, the proportion of males classified as overweight or obese rose from 52% in 1995 to 62% in 2004–05; for females the increase was 37% to 45% (age standardised).[4]

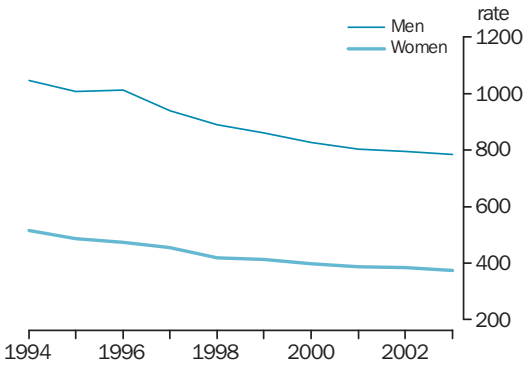
Adequate levels of fruit and vegetable consumption is associated with a reduced risk of coronary heart disease, stroke and several major cancers. The National Health Medical Research Council recommends that adults eat at least two serves of fruit and five serves of vegetables each day.[14] In 2004–05, 46% of Australians aged 12 and over reported a daily fruit intake of one serve or less, and 86% reported a daily vegetable intake of four serves or less.[4] Inadequate intakes were more common among men than women, and among young adults (aged 18–24 years) than other age groups.[15]

Many people's lifestyles involve a combination of health risk factors.[15] In 2004–05, only 10% of men and 13% of women reported none of the four risk factors: smoking, high alcohol consumption, overweight/obese and low exercise levels.[4]

From 1982–1986 to 1992–1997 the percentage of cancer patients surviving 5 years or longer increased from 44% to 57% for men, and 55% to 63% for women.[12]

Between 1994 and 2003, the incidence of heart attacks fell by 25% for men and 27% for women.

Incidence rates for heart attacks(a)



(a) Incidence of major coronary events among 40-90 year olds (age standardised rate per 100,000 population), Australia, 1994–2003

Source: AIHW National Hospital Morbidity Database and AIHW Mortality Database.

The reduction in the rate of heart attacks for those who have already had one is attributed to better treatment of heart disease, be it changes to health behaviour, pharmaceutical treatment or surgery. Between 1993–94 and 2000–01 the proportion of heart attacks that lead to death declined from 35% to 30%.

Links to other dimensions of progress

Improvements in health may assist progress in other areas and vice versa. A substantial body of evidence shows that lower socioeconomic status and less education contributes to poorer health. [16] Likewise, poor health, particularly in childhood, can impair education and thus affect socioeconomic position in later life.

Mental health

The prevalence of mental and behavioural problems as reported in the ABS National Health Survey (NHS)[4] has increased since 1995: 6% of people in 1995 reported these problems while 11% reported them in 2004–05. Half of these people in 2004–05 reported mood (affective) problems (such as feeling depressed) and 46% reported anxiety related problems. However respondents in the survey were not specifically asked whether they had been diagnosed with any mental disorder so the information could be based on self-diagnosis rather than diagnosis by a health professional.

In 2004–05 and 2001, the NHS included questions covering people's feelings of distress (anxiety, depression and worry) over the preceding four weeks. There was no significant difference in the proportion of adults who reported high or very high psychological distress in 2001 and 2004–05, both 13%. The 2004–05 survey found that more women (15%) than men (11%) reported a high or very high level of psychological distress. Approximately 57% of those reporting very high distress levels were women. The rates varied with age. The highest proportion of women reporting high or very high distress were aged 18–24 (19%). The proportion of men reporting high or very high levels of distress was also highest in the 18–24 year age group (12%).

A healthy population with fewer sick people to care for allows economic resources to be used for other things. A larger pool of healthy people means a greater supply of labour for the workforce. Australian business benefits too from a healthy workforce taking fewer days off sick. Conversely the growth of the economy can help to provide funds, either to governments or individuals, to pay for better prevention programs, hospitals and health care, and to maintain suitable sanitation and housing services. Moreover, the health industry is a very significant employer and health spending accounted for about 30% of total government expenditure, and over 5% of household expenditure in 2004–05.[17]

Various types of economic activity also affect human health. The burning of fossil fuels, for example, is linked to types of air pollution and a variety of health concerns. The changing make-up of the Australian economy is having an effect too: a shift to more office-based work with proportionally fewer people employed in more dangerous occupations like mining has helped,[18,19] along with other factors, to reduce the incidence of fatal accidents at work, although more sedentary occupations have some adverse health effects.

See also the commentaries *National income*, *The air and atmosphere*, *Work*, and *Economic hardship*.

Endnotes

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