International health – how Australia compares

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1 Introduction

Introduction

International Health – How Australia Compares examines Australia's international standing for a range of different health indicators. It is generally recognised that Australians enjoy good health, that Australia is one of the healthiest countries in the world, and that the health of its people, by and large, continues to improve (AIHW 1998).

Health, however, is difficult to conceptualise and measure. The World Health Organization (WHO) defines health as 'a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity'. Measurement of these aspects of health and their international comparisons have proved problematic. There is no single indicator that summarises health status. The range of indicators included in this publication paint Australia's health status with a broad brush only, but do allow judgment to be made as to whether or not Australia enjoys the status of 'one of the healthiest countries in the world'.

Generally the picture is favourable but, as always, there is room for improvement. For example, Australia lags behind a number of countries for life expectancy, both in total number of years and years free from disability. It ranks in the middle of a 'league table' for infant mortality and is placed behind several countries for each of our National Health Priority Areas—cardiovascular health, cancer control, injury prevention and control, mental health and diabetes. Although not examined here, several segments of Australian society, including Indigenous people, do not enjoy good health at all (AIHW 1998).

Any assertion about the performance of Australia's health system must also be based on monitoring and comparing different indicators of health. Australia's health system can be monitored and compared over time in order to note improvements or areas of concern, but monitoring and comparing with other health systems is useful, since:

> ...comparing health systems internationally can help to raise questions about one's own system. In addition, looking at other systems can furnish alternative ideas and help establish new models of care. Furthermore, studying other systems can help us avoid pitfalls already experienced by professionals working in those other systems. The efforts of other societies in their health systems can inspire in us an openmindedness for change, a value that is often lacking in traditional planning and decision making. (Ellencweig 1992, p. vii)

Comparison countries

Nineteen developed countries were chosen for comparison with Australia. Most of these are members of the Organisation for Economic Cooperation and Development (OECD), and others, such as Singapore and the former British crown colony of Hong Kong, represent significant regional interests. Regarding Germany, data before 1990 are for the former Federal Republic of Germany, or West Germany.

Developed countries were selected to allow comparisons between Australia and other countries with similar socioeconomic structures, health systems or standards of living. Large differentials in health status are recognised between developed and developing countries—what is not so well understood is that differentials also exist among developed countries. It is the presence of these differentials and the reasons for their continued existence that may help to identify areas for improvement within Australia's health system.

An indicator-based approach

The approach taken in this report has been to construct a wide range of health indicators that relate to various dimensions of health and wellbeing. Although no simple set of statistics can measure the success or failure of a health system, the health status measures presented here allow a broad view of how Australia compares to other developed countries on various aspects of health.

The largest proportion of health indicators presented here concern births and deaths, since in developed countries almost all such events are registered in a broadly standard fashion, thus allowing for easy comparison. Morbidity measures, concerning illness and disability, are equally important but are complicated by widely differing conceptualisation, measurement and analysis between countries. Fewer morbidity measures are available for international comparison.

Introduction

For the indicators presented here, there may be certain differences in data collection and recording between countries that may complicate international comparisons—these are noted when known. The background information on environmental and demographic aspects of populations in various countries provided in the report puts some of these issues in proper perspective.

The set of health indicators included in this report encompass the following broad categories:

- population
- fertility and pregnancy
- important causes of ill-health
- mortality
- health services and resources, and
- health determinants.

Data sources and classification

International comparisons are possible only if accurate national health measures are available. The data presented here are sourced mainly from WHO and United Nations annual publications, which report data from the respective national statistical agencies, including the Australian Bureau of Statistics (ABS). These are complemented by information from the OECD, the ABS, the Australian Institute of Health and Welfare (AIHW) and other national and international organisations. A full list of references appears at the end of the document.

Data concerning deaths, as presented in chapter five, are classified according to the Ninth Revision of the International Classification of Diseases (ICD-9), produced by WHO. The main purpose of the ICD is to produce nationally and internationally consistent information on causes of death.

To adjust for the effects of different population structures between countries and changing population age structures within countries over time, deaths data have been age-standardised to the World Standard Population.

Structure of the report

Each indicator appears on a double page and usually consists of:

- time series and most recently available data for comparison countries, along with a measure of change over time, shown in tables with a constant order of countries;
- several paragraphs of commentary analysing the data and Australia's standing in an international context;
- a series of graphs showing countries in rank order, locating Australia among other comparison countries for most recent data and change over time, along with trends and age-specific data where appropriate; and
- a list of one or more references to more detailed publications.

2 Population

- Human settlement
- Population growth
- Dependency ratios
- Population projections

Human settlement

Figure 1: Surface area, 1995

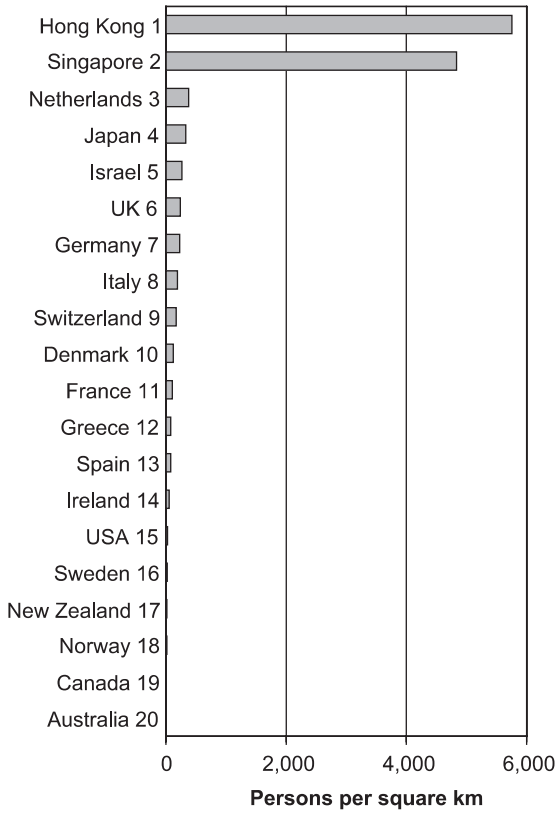


Figure 2: Population density, 1995

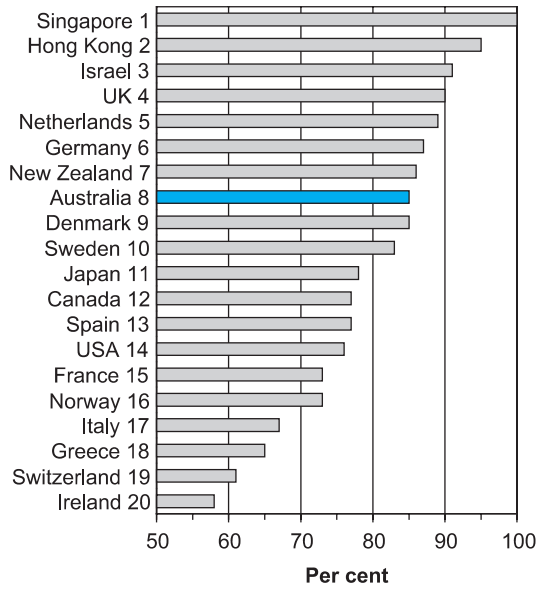


Figure 3: Urbanisation, 1995

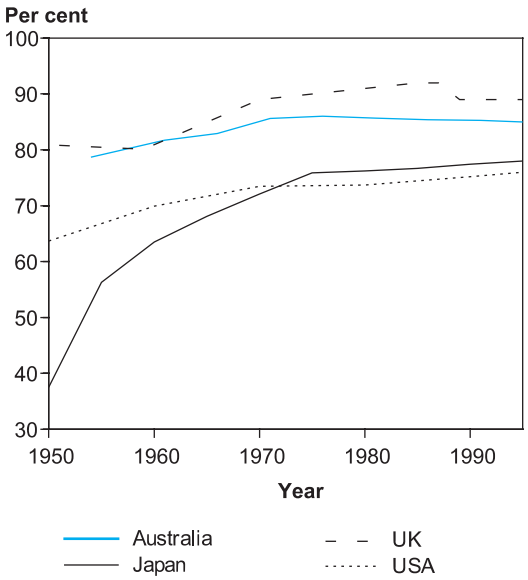


Figure 4: Urban population growth, 1950 to 1995

Human settlement

Surface area, population density and urbanisation, 1995

Country	Surface area (km^2)	Population estimate ('000 persons)	Population density (persons/km^2)	Urban population[(a)] (per cent)
Australia	7,741,220	18,063	2	85
Canada	9,970,610	29,606	3	77
Denmark	43,094	5,228	121	85
France	551,500	58,143	105	73
Germany	356,733	81,642	229	87
Greece	131,957	10,458	79	65
Hong Kong	1,075	6,190	5,758	95
Ireland	70,284	3,582	51	58
Israel	21,056	5,545	263	91
Italy	301,268	57,187	190	67
Japan	377,801	125,197	331	78
Netherlands	40,844	15,451	378	89
New Zealand	270,534	3,542	13	86
Norway	323,877	4,360	13	73
Singapore	618	2,987	4,833	100
Spain	505,992	39,210	77	77
Sweden	449,964	8,831	20	83
Switzerland	41,284	7,040	171	61
UK	244,100	58,258	239	90
USA	9,363,520	263,034	28	76

(a) The definition of 'urbanisation' may vary from country to country.

Source: United Nations 1997.

- Australia is one of the world's largest countries, with an area of some 7.7 million square kilometres. It is more than 14 times larger than France, 20 times larger than Japan and 32 times larger than the United Kingdom. Victoria, one of Australia's smaller states, is approximately three times the size of the Netherlands. Among developed countries, Australia's surface area is exceeded only by Canada and the United States (Figure 1).
- In terms of overall population numbers, Australia is much smaller than many developed countries. In 1995, Australia's estimated resident mid-year population was 18,063,256 persons—ranking ninth behind Canada. It has the lowest net population density among all developed countries—2 persons per square kilometre—followed closely by Canada. In comparison, Singapore and Hong Kong have small surface areas and high population densities (Figure 2).
- Australia is, however, highly urbanised with most of Australia's population living in the south-east seaboard region and in particular the major capital cities. The inhospitable interior has led to only sparse settlement away from the coastal regions. It is estimated that in 1995, 85 per cent of Australians lived in settlements with a population of 10,000 persons or more (Figure 3).
- Urban density in Australian capital cities is low if compared to other international cities. Only certain parts of Sydney, Australia's largest city, approach the densities found in some of the cities overseas (State of the Environment Advisory Council 1996).
- The proportion of Australians living in urban settlements has been steady for the past two decades, and is similar in proportion to the United Kingdom (Figure 4). Japan experienced rapid urbanisation between 1950 and 1970. Since then, Japan's growth in urbanisation has paralleled the United States. However, both Japan and the United States are less urbanised than Australia.

For more information, see:

United Nations 1997. 1995 demographic yearbook. New York: United Nations.

Population growth

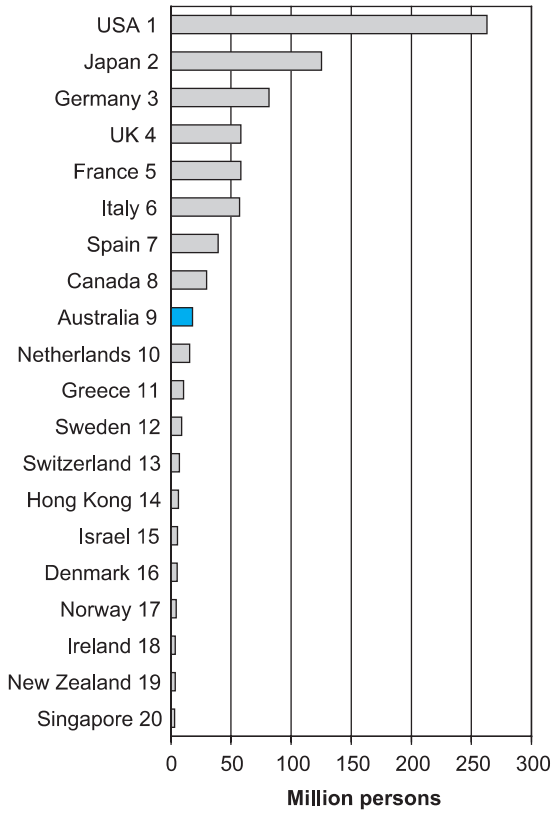


Figure 1: Population estimates, 1995

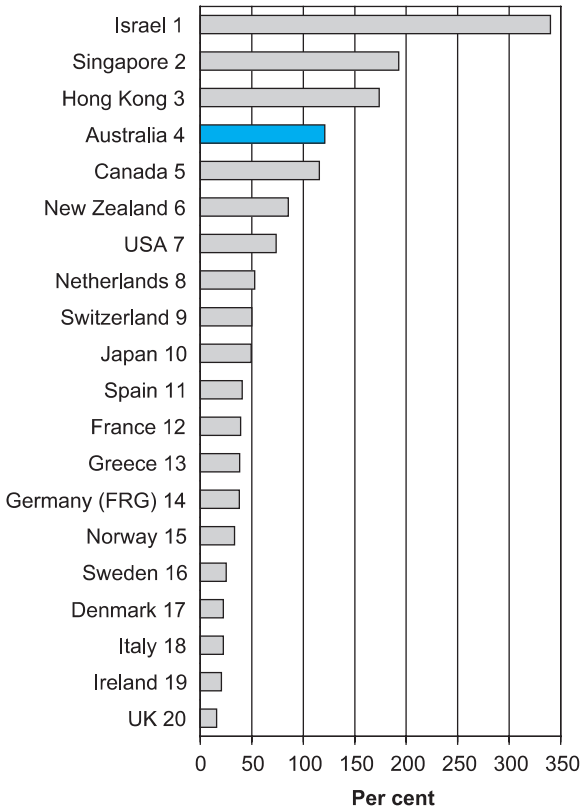


Figure 2: Population growth, 1950 to 1995

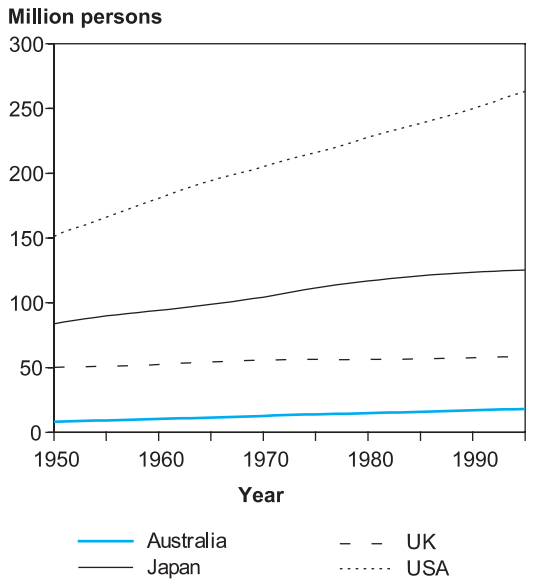


Figure 3: Trends in population numbers, 1950 to 1995

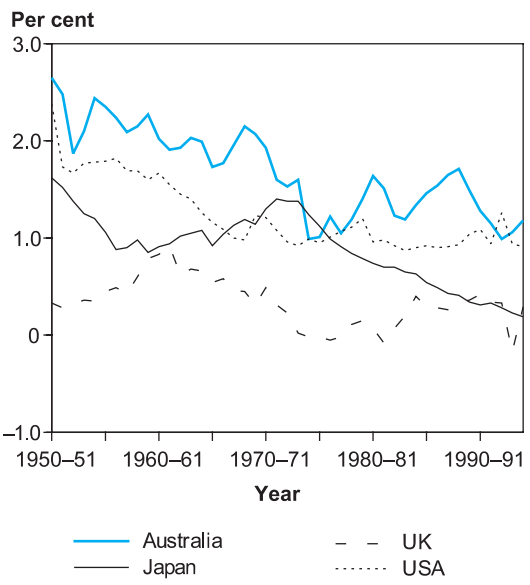


Figure 4: Trends in population growth rates, 1950–51 to 1994–95

Population growth

Estimates of mid-year population ('000 persons)

Country	1950	1960	1970	1980	1993	1994	1995	% change 1950 to 1995
Australia	8,179	10,275	12,507	14,695	17,662	17,847	18,063	120.8
Canada	13,740	17,909	21,324	24,043	28,941	29,248	29,606	115.5
Denmark	4,270	4,581	4,929	5,123	5,189	5,205	5,228	22.4
France	41,740	45,684	50,772	53,880	57,667	57,747	58,143	39.3
Germany (FRG)[(a)]	47,850	53,220	60,710	61,561	81,187	81,410	81,642	37.9
Greece	7,570	8,327	8,793	9,643	10,380	10,426	10,458	38.2
Hong Kong	2,260	3,060	3,960	5,063	5,919	6,061	6,190	173.9
Ireland	2,970	2,834	2,940	3,401	3,563	3,571	3,582	20.6
Israel	1,260	2,110	2,970	3,878	5,261	5,399	5,545	340.1
Italy	46,770	49,640	53,661	56,434	57,057	57,193	57,187	22.3
Japan	83,805	93,220	103,400	116,807	124,670	124,961	125,197	49.4
Netherlands	10,110	11,480	13,030	14,144	15,290	15,382	15,451	52.8
New Zealand	1,910	2,370	2,810	3,113	3,451	3,493	3,542	85.4
Norway	3,270	3,585	3,879	4,086	4,312	4,325	4,360	33.3
Singapore	1,020	1,630	2,070	2,414	2,874	2,930	2,987	192.8
Spain	27,870	30,649	33,876	37,542	39,083	39,143	39,210	40.7
Sweden	7,050	7,480	8,043	8,310	8,719	8,780	8,831	25.3
Switzerland	4,690	5,360	6,190	6,319	6,938	6,994	7,040	50.1
UK	50,330	52,373	55,420	56,330	58,191	58,091	58,258	15.8
USA	151,326	179,323	203,302	227,757	258,233	260,651	263,034	73.8

(a) The estimated population of the former Federal Republic of Germany in 1992 was 64.86 million persons.

Sources: United Nations 1971, 1980, 1990, 1997.

- The size of a nation's population, along with the rate of population growth and the age–sex composition of the population has a bearing on perceived quality of life, sustainable growth and the allocation and use of health care resources.
- In the post-war years, Australia exhibited one of the largest proportional increases in population numbers among developed countries—over 120% between 1950 and 1995—an average growth rate of 2.7% per year. Only Israel, Singapore and Hong Kong have shown larger increases. Canada, starting with a similar population base, has had a growth rate parallel to that for Australia. In contrast, only two European countries, the Netherlands and Switzerland, had population growth exceeding 50% between 1950 and 1995. Four countries—Denmark, Italy, Ireland and the United Kingdom—had less than 25% growth in population numbers during the same time period (Figure 2).
- Immigration has been a major contributor to population growth in Australia, and currently contributes between one-third and one-half of annual population growth. Immigration has also been responsible for a large proportion of population growth in a number of other developed countries, such as Canada.
- Population growth in Australia was high in the decade between 1950 and 1960, at 2.6% per annum. Israel, Singapore, Hong Kong and Canada also had high growth rates during this period. Growth in Australia's population continued through the ensuing decades—2.2% per annum during 1960–70 (fourth behind Israel, Hong Kong and Singapore), 1.8% in 1970–80 (third behind Israel and Hong Kong) and 1.5% in 1980–95 (behind Israel).
- Annual population growth rates in Australia had a downward trend until the mid-1970s, then a levelling off to approximately 1.5% per annum. The trend was similar to that seen in the United States, except that there it began to level off in the late 1960s. The United Kingdom recorded a negative growth for several years between the mid-1970s and early 1980s. The annual growth rate for Japan's population peaked in the early 1970s and has been in decline since then (Figure 4).

For more information, see:
United Nations 1997. 1995 demographic yearbook. New York: United Nations.

Dependency ratios

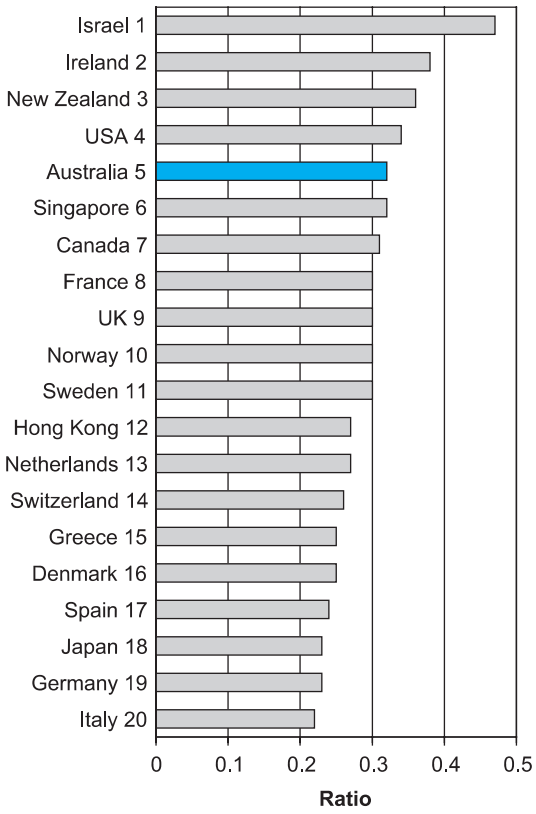


Figure 1: Child dependency ratios, 1995

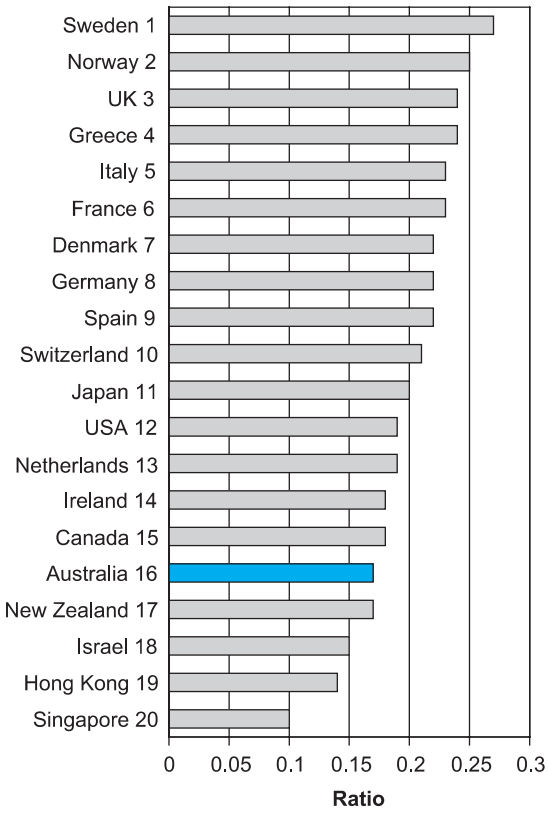


Figure 2: Aged dependency ratios, 1995

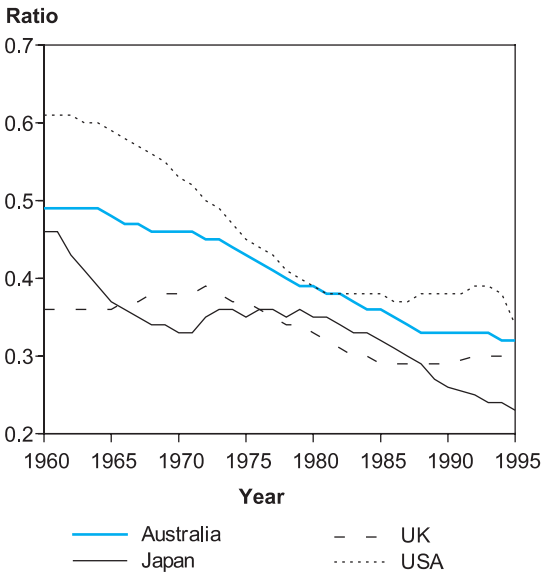


Figure 3: Trends in child dependency ratios, 1960 to 1995

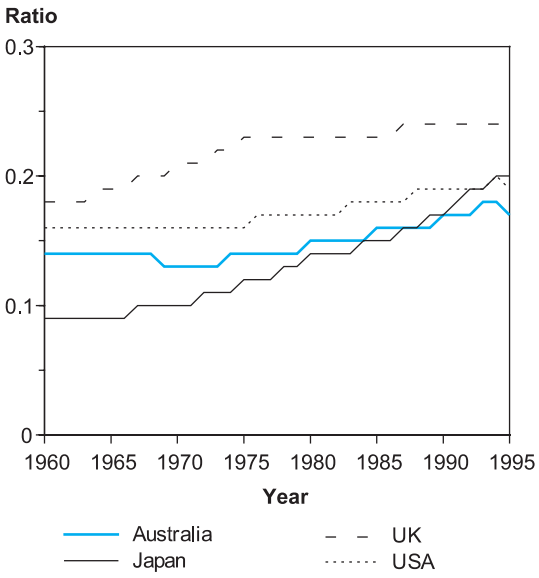


Figure 4: Trends in aged dependency ratios, 1960 to 1995

Dependency ratios

Age distributions and dependency ratios, 1995

Country	Population ('000)	% aged less than 15 years	% aged 15 to 64 years	% aged 65 years and over	Dependency ratio
Australia	18,063	21.5	66.8	11.6	0.50
Canada	29,606	20.8	67.3	11.8	0.48
Denmark	5,228	17.2	67.6	15.2	0.48
France	58,143	19.6	65.5	14.9	0.53
Germany	81,642	16.1	68.7	15.2	0.46
Greece	10,458	16.7	67.4	15.9	0.48
Hong Kong	6,190	19.1	70.7	10.2	0.41
Ireland	3,582	24.5	64.3	11.3	0.56
Israel	5,545	29.1	61.4	9.5	0.63
Italy	57,187	15.1	68.9	16.0	0.45
Japan	125,197	16.2	69.6	14.1	0.44
Netherlands	15,451	18.4	68.4	13.2	0.46
New Zealand	3,542	23.4	65.3	11.3	0.53
Norway	4,360	19.5	64.7	15.9	0.55
Singapore	2,987	22.7	70.5	6.7	0.42
Spain	39,210	16.5	68.6	14.9	0.46
Sweden	8,831	19.0	63.7	17.3	0.57
Switzerland	7,040	17.7	68.1	14.2	0.47
UK	58,258	19.6	65.0	15.5	0.54
USA	263,034	22.0	65.3	12.6	0.53

Sources: United Nations 1997; WHO 1996d.

- The number of non-working-age persons in a community dependent on working-age persons can be expressed as a 'dependency ratio'—the number of persons aged less than 15 years and 65 years and over divided by the number of persons aged 15 to 64 years. It gives some indication of the burden falling on working-age persons in order to provide for non-working-age persons.
- In 1995, Australia ranked ninth for the overall dependency ratio among developed countries, with a value of 0.50. Israel has the highest ratio (0.63) due mainly to a large proportion of children aged less than 15 years, and Hong Kong the lowest (0.41) due mainly to a small proportion of aged persons. Australia's dependency ratio has fallen steadily since 1960, although it appears to have stabilised since the early 1990s, on account of the ageing of the population.
- The ratio can be further separated into two components, namely the child dependency ratio (children aged 0–14 divided by persons aged 15–64), and the aged dependency ratio (persons aged 65 and over divided by persons aged 15–64).
- Compared to other developed countries, Australia has a relatively large number of young persons, and hence a high child dependency ratio. In 1995, Australia ranked fifth for this aspect of the ratio (with a value of 0.32), behind Israel, Ireland, New Zealand and the United States (Figure 1). Even though the Australian child dependency ratio is high among developed countries, the proportion of the Australian population aged 0–14 has been declining steadily since 1960. Child dependency ratios have also been declining steadily in Japan and the United States, although the decline in the United States has stabilised since the early 1980s (Figure 3).
- In contrast, Australia's aged dependency ratio is low, at 0.17 in 1995. Sweden, Norway, the United Kingdom and Greece have higher ratios. Singapore, in comparison, has a very low ratio, with only 6.7% of its population aged 65 years and over (Figure 2). The aged dependency ratio has increased slowly in Australia since 1960, although this is expected to accelerate in the coming decades with an increased proportion of aged persons. The United States and the United Kingdom have also demonstrated slow increases in the ratio, whereas the increase in Japan has been more rapid (Figure 4).

For more information, see:

United Nations 1997. 1995 demographic yearbook. New York: United Nations.

Population projections

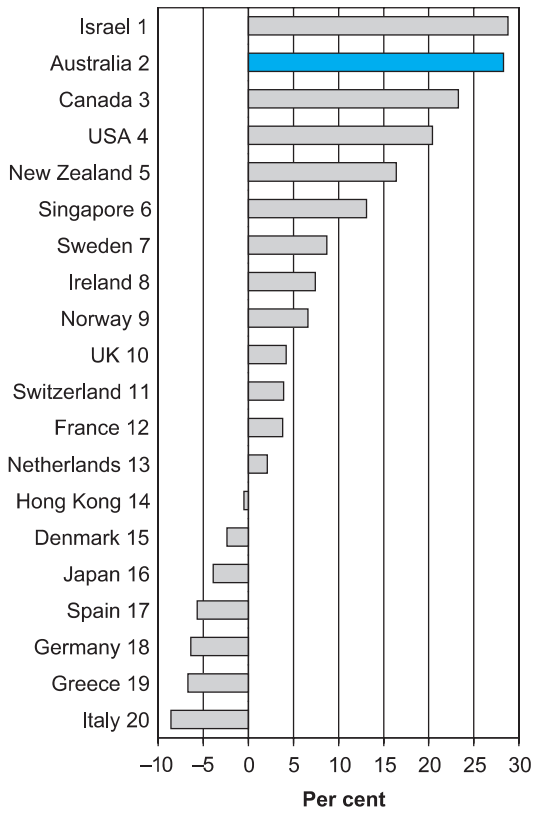


Figure 1: Projected changes in population numbers, 2000 to 2025

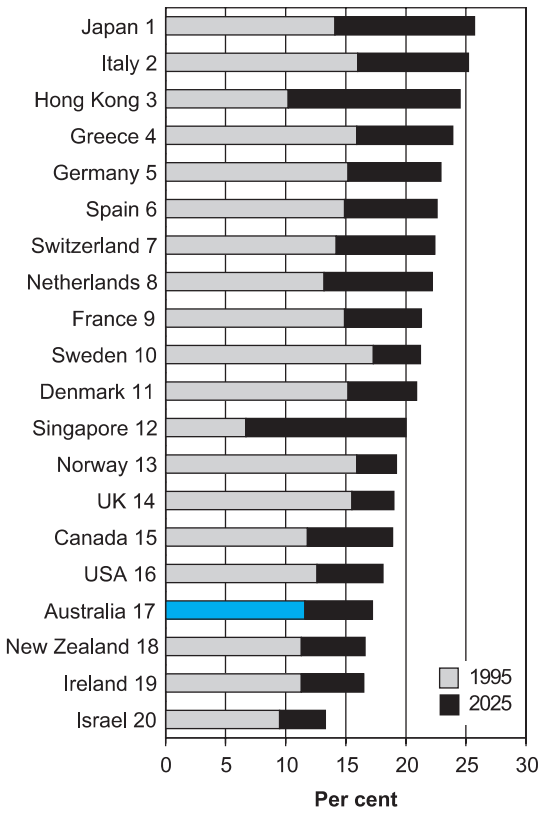


Figure 2: Proportion of population aged 65 years and over, 1995 and projections for 2025

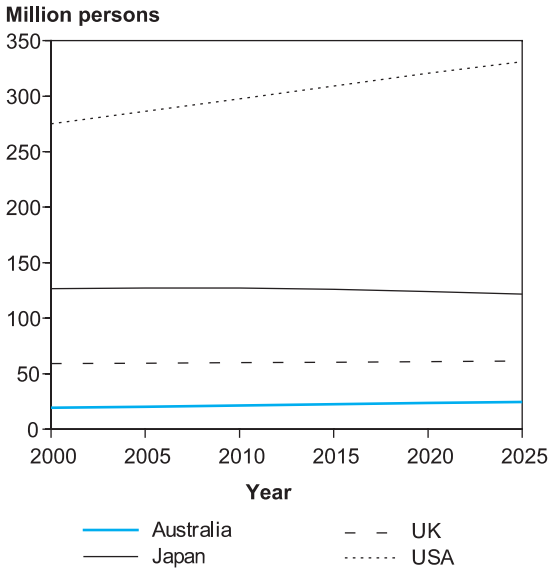


Figure 3: Population projections, 2000 to 2025

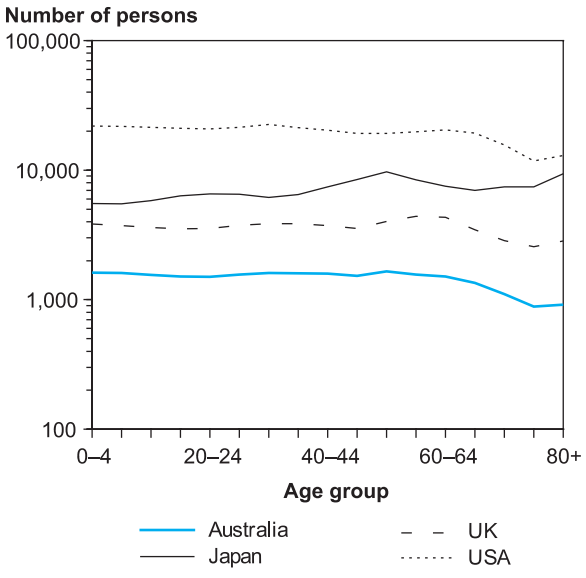


Figure 4: Projected age-specific population distributions, 2025

Population projections

Projected population, 2000 to 2025 ('000 persons)

Country	2000	2005	2010	2015	2020	2025	% change 2000 to 2025
Australia	19,222	20,296	21,367	22,466	23,586	24,667	28.3
Canada	31,029	32,504	33,946	35,425	36,887	38,266	23.3
Denmark	5,207	5,202	5,173	5,140	5,113	5,081	–2.4
France	59,024	59,684	60,130	60,535	60,920	61,247	3.8
Germany	81,700	81,285	80,466	79,331	77,936	76,442	–6.4
Greece	10,573	10,577	10,458	10,284	10,080	9,868	–6.7
Hong Kong	5,968	6,016	6,039	6,039	6,007	5,936	–0.5
Ireland	3,616	3,694	3,777	3,842	3,876	3,882	7.4
Israel	6,062	6,481	6,833	7,159	7,488	7,808	28.8
Italy	57,254	56,819	55,985	54,905	53,649	52,324	–8.6
Japan	126,472	127,265	127,152	125,946	123,973	121,594	–3.9
Netherlands	15,934	16,167	16,239	16,267	16,286	16,276	2.1
New Zealand	3,759	3,912	4,034	4,153	4,269	4,376	16.4
Norway	4,427	4,500	4,556	4,611	4,670	4,719	6.6
Singapore	2,967	3,061	3,144	3,221	3,295	3,355	13.1
Spain	39,848	39,806	39,514	39,002	38,348	37,571	–5.7
Sweden	8,972	9,124	9,266	9,420	9,592	9,751	8.7
Switzerland	7,494	7,666	7,717	7,747	7,774	7,786	3.9
UK	59,022	59,513	59,919	60,398	60,935	61,476	4.2
USA	275,119	286,256	297,486	309,128	320,551	331,152	20.4

Source: United Nations 1994.

- Population projections are estimates of future populations based on assumptions about demographic trends, and in particular three main components—fertility, mortality and overseas migration. Projections of Australia's population are calculated by both the ABS and United Nations.
- Australia's population has increased from around 4 million at the turn of the century to over 18 million now. The United Nations projects an Australian population of almost 25 million by the year 2025, somewhat higher than the 23 million projected by ABS (ABS 1998a).
- No developed country is expected to show an increase in population numbers above 30% between 2000 and 2025. Australia is projected to show an increase of 28% during the first quarter of the twenty-first century, compared with 70% growth between 1950 and 1975, and a projected 38% growth between 1975 and 2000. Israel, Canada and the United States are also likely to add more than 20% to their numbers during the same period (Figure 1).
- No developed European country is projected to show an increase greater than 10% between 2000 and 2025. Several countries, including Italy, Greece, Germany and Spain are likely to experience net decreases in numbers (Figure 1).
- A major issue for many developed countries is the projected increase in the proportion of aged persons over the next several decades. This has significant implications for health care resources and social expenditure, and implies a growing dependency of the aged population on a smaller proportion of working-age persons. In 1995, 11.6% of the Australian population was aged 65 years and over. This proportion is projected to rise to 17.2% in 2025. However, some of the increase in the dependency ratio contributed by an ageing population may be offset by declines in the child dependency ratio.
- In comparison with other developed countries, Australia is projected to have a low proportion of elderly persons by 2025, with only Israel, Ireland and New Zealand likely to have lower proportions. Japan, Italy, Hong Kong and Greece are projected to have proportions of older persons in excess of 23%. Several Asian countries including Japan, Hong Kong and Singapore are projected to have increases of 10% or more in the proportion of their populations aged 65 years and over between 1995 and 2025 (Figure 2).

For more information, see:

United Nations 1994. The sex and age distribution of the world populations: the 1994 revision. New York: United Nations.

Australian Bureau of Statistics 1998. Population projections, 1997 to 2051. ABS Cat. No. 3222.0. Canberra: ABS.

3 Fertility and pregnancy

- Birth rates
- Fertility rates
- Low birthweight
- Family planning
- Maternal mortality

Birth rates

Figure 1: Crude birth rates, 1994

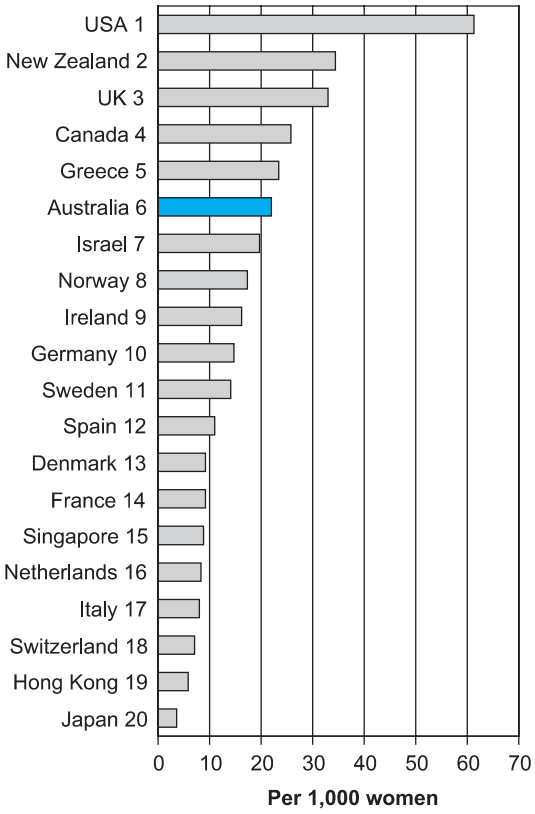


Figure 2: Age-specific birth rates, teenage girls aged 15–19, 1990

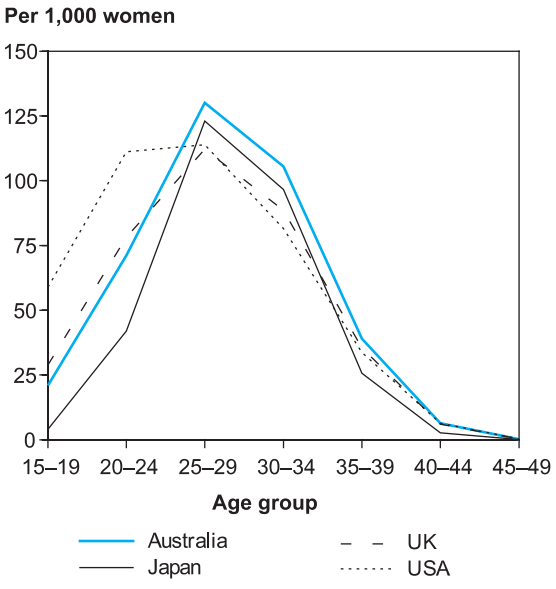


Figure 3: Age-specific birth rates, 1994

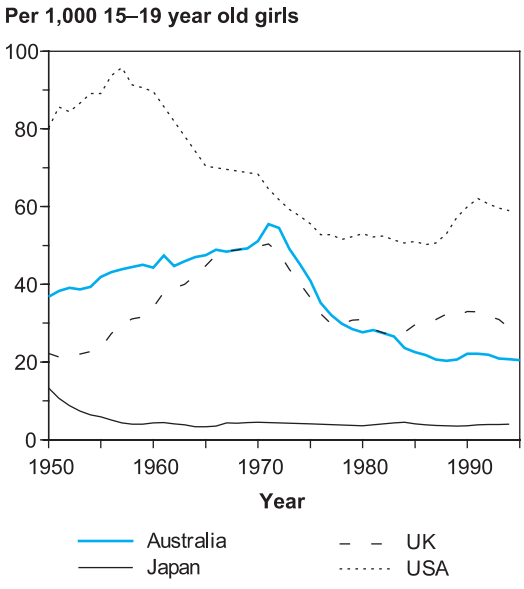


Figure 4: Trends in births to teenage girls aged 15–19, 1950 to 1994

Birth rates

Live births, crude birth rate and age-specific birth rates[(a)]

Country	Year	Live births	Crude birth rate	Age of mother (years) 15–19	20–24	25–29	30–34	35–39	40–44	45–49
Australia	1994	258,051	14.5	20.7	69.2	126.0	105.1	41.2	6.7	0.3
Canada	1992	398,642	14.0	25.7	75.1	119.4	85.4	28.9	4.2	0.1
Denmark	1994	69,668	13.4	9.3	63.4	141.6	107.0	36.5	5.2	0.2
France	1991	759,056	13.3	9.1	73.2	139.4	93.4	37.0	7.4	0.5
Germany	1994	769,603	9.5	10.1	52.7	85.4	69.9	25.6	4.4	0.3
Greece	1994	103,763	10.0	14.2	67.7	98.8	62.1	23.6	4.5	0.4
Hong Kong	1994	71,646	11.8	6.8	40.8	83.2	79.0	29.9	4.3	0.2
Ireland	1994	47,928	13.4	15.3	49.5	112.1	123.0	58.5	12.6	0.7
Israel	1994	114,543	21.2	18.5	124.9	188.9	151.3	77.9	18.0	1.4
Italy	1991	562,787	9.9	8.0	49.7	90.7	71.8	29.3	5.2	0.2
Japan	1994	1,238,328	9.9	4.0	41.9	123.0	96.6	25.6	2.6	0.1
Netherlands	1994	195,611	12.7	6.9	41.1	111.0	113.8	38.1	4.9	0.3
New Zealand	1992	59,266	17.2	33.8	95.3	142.0	108.5	39.9	6.5	0.3
Norway	1992	60,109	14.0	16.0	85.7	137.5	98.3	35.2	5.3	0.2
Singapore	1994	49,602	16.9	7.6	48.4	136.2	116.0	45.4	7.1	0.1
Spain	1991	395,989	10.1	11.0	46.3	99.7	77.9	27.9	5.8	0.4
Sweden	1994	112,257	12.8	9.7	73.4	140.0	103.0	43.0	7.5	0.3
Switzerland	1994	82,980	11.9	6.0	51.3	115.8	92.2	32.2	4.8	0.1
UK	1994	750,671	12.9	28.8	78.2	112.1	88.5	35.4	6.0	0.3
USA	1994	3,952,767	15.2	58.9	111.1	113.9	81.5	33.7	6.4	0.3

(a) The crude birth rate is the number of live births during the year, per 1,000 of the resident mid-year population. Age-specific birth rates are the live births according to age of mother, per 1,000 of the female resident population of the same age.

United Nations 1979, 1997.

- There were 258,051 live births registered in Australia in 1994—a crude birth rate of 14.5 per 1,000 population. Although at its lowest point ever, this rate is high compared to other developed countries, and was exceeded only by Israel, Singapore, New Zealand and the United States that year (Figure 1). Countries with lower crude birth rates include Spain, Italy, Germany and Japan, all at under 10 births per 1,000 population in 1994.
- The age-specific birth rate is typically the highest for mothers aged 25 to 29 years—in 1994 the Australian rate was 126.0 births per 1,000 women in this age group (Figure 3). This rate, however, is the lowest yet recorded for Australian women. Age-specific birth rates for older women have increased in recent years, reflecting the trend for women to defer child-bearing to later ages (AIHW 1996).
- The age-specific birth rate for teenage mothers (aged 15–19) in 1994 was 20.7 births per 1,000 teenage girls. Australia ranked high for births to teenage mothers—in 1990, sixth among 20 developed nations (Figure 2). The United States rate (58.9 in 1994) was almost twice as high as that for the next highest country—New Zealand (33.8 in 1992). The Japanese rate for teenage pregnancies (4.0 in 1994) was in comparison low.
- In Australia, the birth rate for teenage mothers increased steadily until the early 1970s and then fell away rapidly to stabilise in the mid-1980s (Figure 4). Changing social behaviours, including the increased availability of contraceptives and access to legal abortion, have influenced this trend. The United States and the United Kingdom showed similar patterns for this age group, although the rate peaked 15 years earlier for teenagers in the United States.
- Crude birth rates may be affected by the differing age structures of populations in different countries, making international comparisons problematic. A measure such as the total fertility rate (see following page) overcomes this difficulty.

For more information, see:
United Nations 1997. 1995 demographic yearbook. New York: United Nations.

Fertility rates

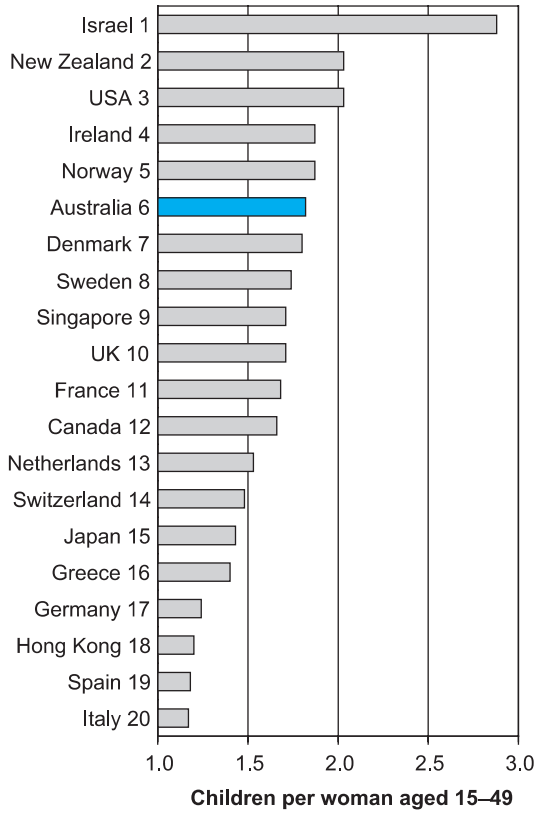


Figure 1: Total fertility rates, 1995

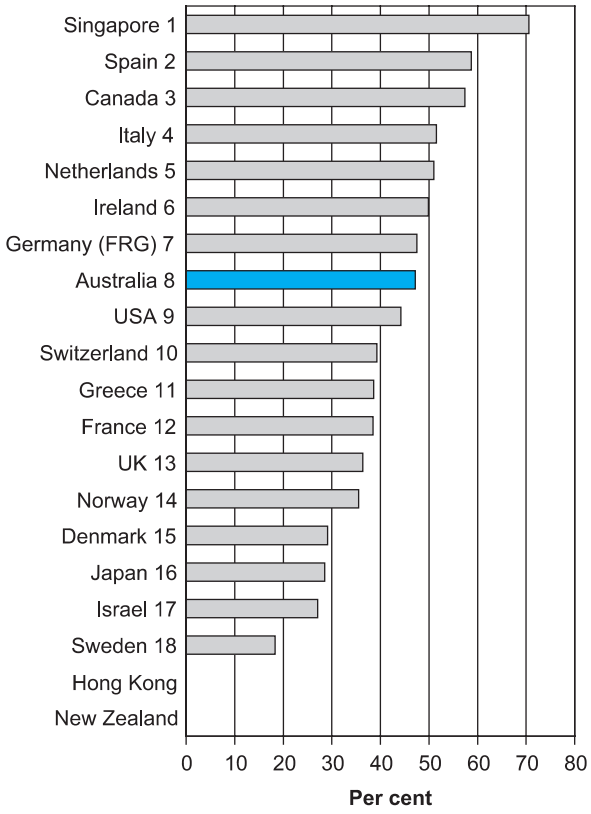


Figure 2: Declines in total fertility rates, 1960 to 1995

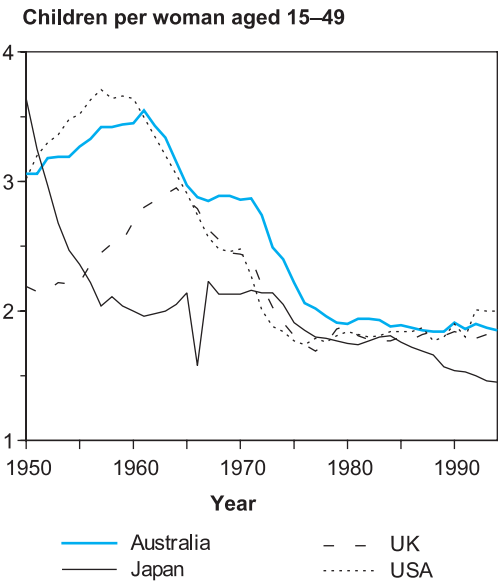


Figure 3: Trends in total fertility rates, 1950 to 1995

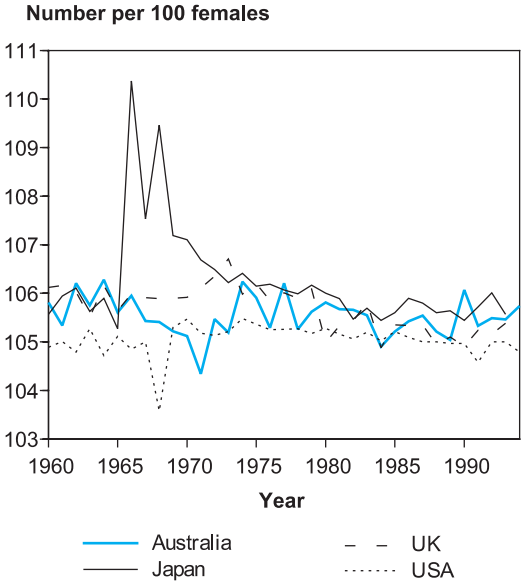


Figure 4: Trends in male:female ratios at birth, 1960 to 1995

Fertility rates

Total fertility rate (children per woman aged 15–49)[(a)]

Country	1950	1960	1970	1980	1992	1993	1994	1995	% change 1960–1995
Australia	3.06	3.45	2.86	1.90	1.90	1.87	1.85	1.82	–47.2
Canada	3.37	3.90	2.33	1.68	1.71	1.70	1.68	1.66	–57.4
Denmark	2.58	2.54	1.95	1.55	1.76	1.75	1.81	1.80	–29.1
France	2.92	2.73	2.48	1.95	1.73	1.65	1.65	1.68	–38.5
Germany (FRG)	—	2.36	2.01	1.44	1.40	1.30	1.26	1.24	–47.5
Greece	—	2.28	2.34	2.23	1.40	1.35	1.38	1.40	–38.6
Hong Kong	—	—	3.29	2.06	1.26	1.23	1.22	1.20	—
Ireland	—	3.73	4.03	3.23	2.02	1.93	1.85	1.87	–49.9
Israel	—	3.95	3.91	3.09	2.93	2.92	2.90	2.88	–27.1
Italy	—	2.41	2.43	1.69	1.26	1.21	1.19	1.17	–51.5
Japan	3.64	2.00	2.13	1.75	1.50	1.46	1.45	1.43	–28.5
Netherlands	3.10	3.12	2.57	1.59	1.59	1.57	1.56	1.53	–51.0
New Zealand	—	—	3.17	2.03	2.12	2.10	2.04	2.03	—
Norway	2.53	2.90	2.50	1.72	1.88	1.86	1.87	1.87	–35.5
Singapore	—	5.81	3.09	1.82	1.76	1.78	1.75	1.71	–70.6
Spain	2.46	2.86	2.84	2.22	1.23	1.24	1.22	1.18	–58.7
Sweden	2.32	2.13	1.94	1.68	2.09	2.00	1.89	1.74	–18.3
Switzerland	2.40	2.44	2.10	1.55	1.58	1.51	1.49	1.48	–39.3
UK	2.19	2.69	2.44	1.89	1.79	1.82	1.75	1.71	–36.4
USA	3.02	3.64	2.48	1.84	2.01	2.00	2.00	2.03	–44.2

(a) The total fertility rate is the sum of the age–specific birth rates, and represents the number of children that would be born to a woman were she to experience the age–specific rates for the year shown.

Sources: OECD 1997; United Nations 1979, 1997.

- Unlike crude birth rate, the total fertility rate is a summary measure of fertility that is not affected by the age–sex composition of the population, thus allowing for international comparisons.
- Australia's total fertility rate is at its lowest level ever. In 1995, a woman in Australia would bear 1.82 children during her reproductive years. This rate, however, is still in the upper third for the 20 developed countries included here for comparison purposes. Apart from Israel, which in 1995 had a total fertility rate of 2.88, rates in all other countries were below the replacement level of 2.1 (Figure 1). This represents the average number of births per woman required to replace a population in the long-term, given prevailing mortality levels (ABS 1998a).
- Post-war fertility in Australia exhibits three distinct phases—a steady increase until the early 1960s (the 'baby boom'), a rapid decline until the early 1980s (with a temporary recovery in the late 1960s), and a levelling off since the early 1980s. Similar patterns are seen in the United States and United Kingdom, but not in Japan (Figure 3). Fertility in Japan fell rapidly until the early 1960s, and has continued to decline steadily since. The Japanese saw a sharp decline in births in 1966, due to this being a year of *hinoeuma*, a superstition which held that girls born in this year were unlucky. This led to an unequal ratio of male to female births (Ministry of Health and Welfare 1995). Normally there are about 5 to 6 per cent more male births than female births (Figure 4).
- Fertility has declined substantially in almost all developed countries, except Sweden, since 1950. Most of this decline occurred in the younger age groups, with childbirth increasingly being deferred to later ages. A number of other social and attitudinal changes have also contributed to this decline. These include the wider availability of contraceptives and the acceptance of a two-child family norm.
- Leaving aside the effects of immigration and mortality, declining fertility rates in some European countries imply sharply contracting populations by 2050.

For more information, see:

Australian Bureau of Statistics. Births, Australia. Cat. No. 3301.0. Canberra: ABS.

Australian Bureau of Statistics 1986. Australian demographic trends 1986. Cat. No. 3102.0. Canberra: ABS.

Low birthweight

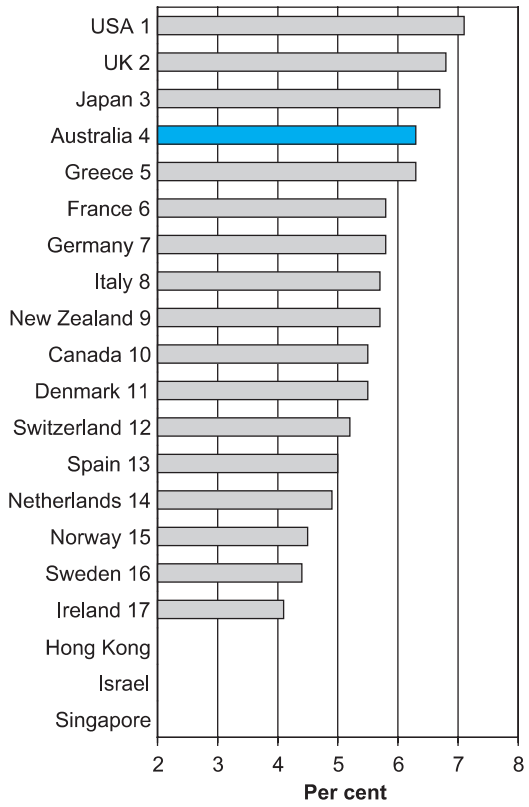


Figure 1: Proportion of low birthweight babies, 1992

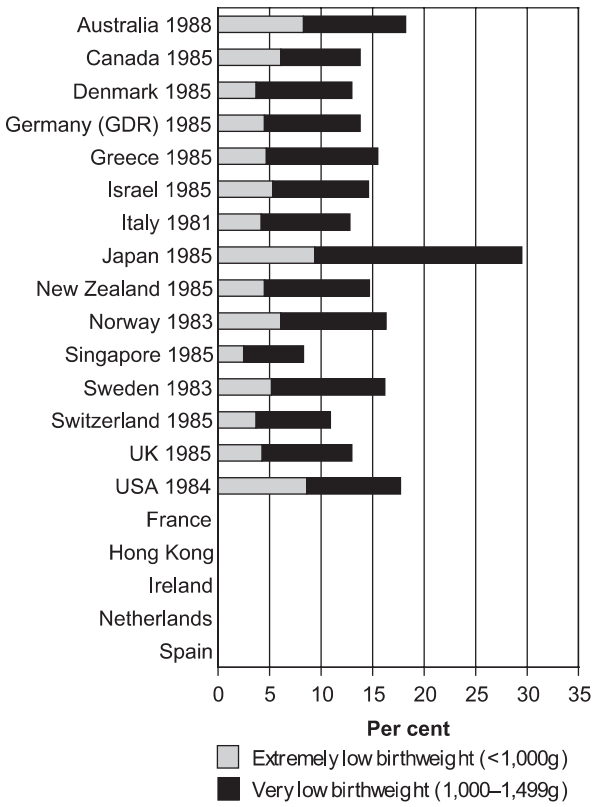


Figure 2: Proportions of extremely low and very low birthweight babies, mid-1980s

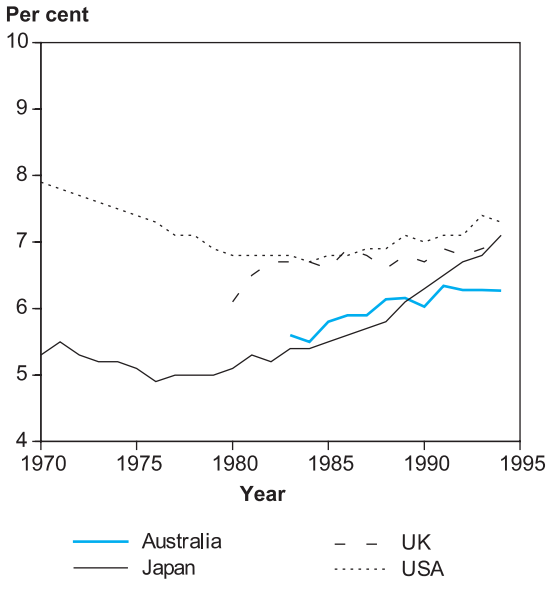


Figure 3: Trends in proportions of low birthweight babies, 1970 to 1994

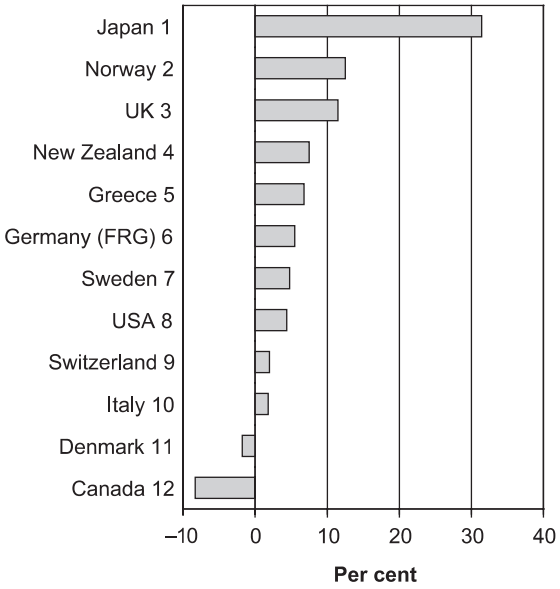


Figure 4: Changes in the proportion of low birthweight babies, 1980 to 1992

Low birthweight

Low birthweight (per cent <2,500g)

Country	1970	1975	1980	1985	1990	1991	1992	1993	1994
Australia				5.8	6.0	6.4	6.3	6.3	6.3
Canada	7.8	6.6	6.0	5.7	5.4	5.5	5.5	5.8	6.0
Denmark	6.0	6.6	5.6	5.4	5.2	5.4	5.5	5.3	5.2
France					5.3	5.7	5.8	5.8	5.9
Germany (FRG)		5.9	5.5	5.7	5.7	5.8	5.8	5.8	6.0
Greece			5.9	6.0	6.0	6.1	6.3	6.8	
Hong Kong									
Ireland				4.1	4.2	4.2	4.1		
Israel		6.1	7.0	7.3	7.0				
Italy			5.6	5.6	5.6	5.8	5.7	5.9	6.0
Japan	5.3	4.8	5.1	5.4	6.3	6.5	6.7	6.8	7.1
Netherlands					4.9	4.9	4.9		
New Zealand		5.4	5.3	5.5	5.8	5.9	5.7	5.9	6.0
Norway	4.8	4.4	4.0	4.4	4.5	4.6	4.5	4.4	4.5
Singapore		8.7	7.5	6.9	7.0				
Spain				4.4	5.0	5.5	5.0	5.4	
Sweden	4.3	4.7	4.2	4.8	4.5	4.5	4.4	4.3	4.1
Switzerland			5.1	5.2	5.1	5.2	5.2	5.3	5.2
UK			6.1	6.6	6.7	6.9	6.8	6.9	7.0
USA	7.9	7.4	6.8	6.8	7.1	7.1	7.1	7.2	7.3

Sources: OECD 1997; United Nations 1988.

- Low birthweight is an important indicator of the social and biological processes leading to birth. It can result from prematurity or poor foetal growth, and may also be associated with elevated risks of infant morbidity and mortality.
- In 1992, 6.3% of all newborns in Australia weighed less than 2,500 grams, and were thus classified as low birthweight. This placed Australia in the first quarter of 17 developed countries for which data were available (Figure 1). The United States (7.1% in 1992) and the United Kingdom (6.8%) had higher proportions of low birthweight infants. Ireland (4.1%) and Sweden (4.4%) had much lower proportions of low birthweight babies.
- Risk factors for low birthweight include maternal age and parity, socioeconomic status, multiple births, cigarette smoking, the consumption of alcohol during pregnancy, and the nutritional status of the mother.
- The proportion of infants considered to be of low birthweight has been rising in Australia and Japan and several other developed countries in recent years (Figures 3 and 4). New technology is giving extremely low (<1,000g) and very low (1,000–1,499g) birthweight infants an increased chance of survival which may have contributed to these upward trends.
- Although they might be expected to be closely related, a population's average birthweight is not considered to be a good predictor of overall infant mortality. Sweden and Japan both have low infant mortality rates, yet have high and low average birthweights respectively. Japan and the United States have low average birthweights, yet the lowest and highest infant mortality rates among the comparison countries (US Congress, Office of Technology Assessment, 1993). Instead of using an arbitrary weight of 2,500g to define low birthweight, it may be more useful to use a proportion of a particular country's birthweight distribution.

For more information, see:

US Congress, Office of Technology Assessment 1993. International health statistics: what the numbers mean for the United States. Background paper, OTA-BP-H-116. Washington DC: US Government Printing Office.

Family planning

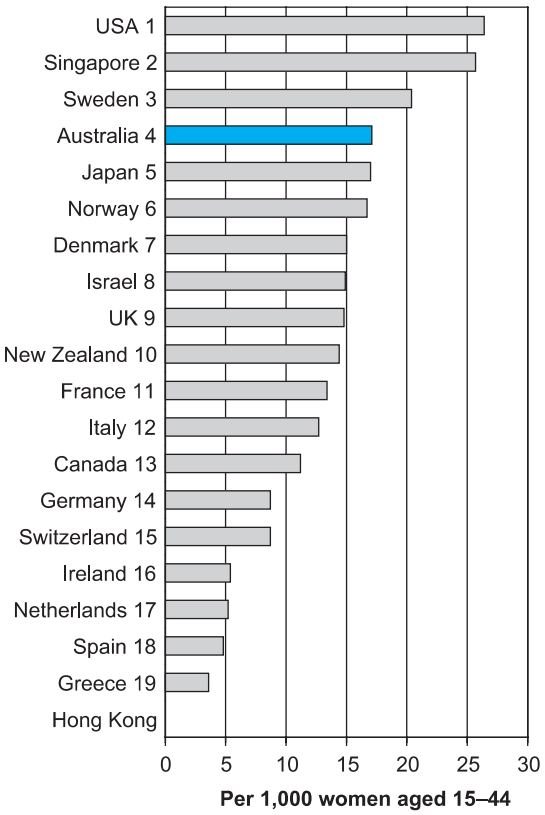


Figure 1: Elective abortion rates, 1990–1991

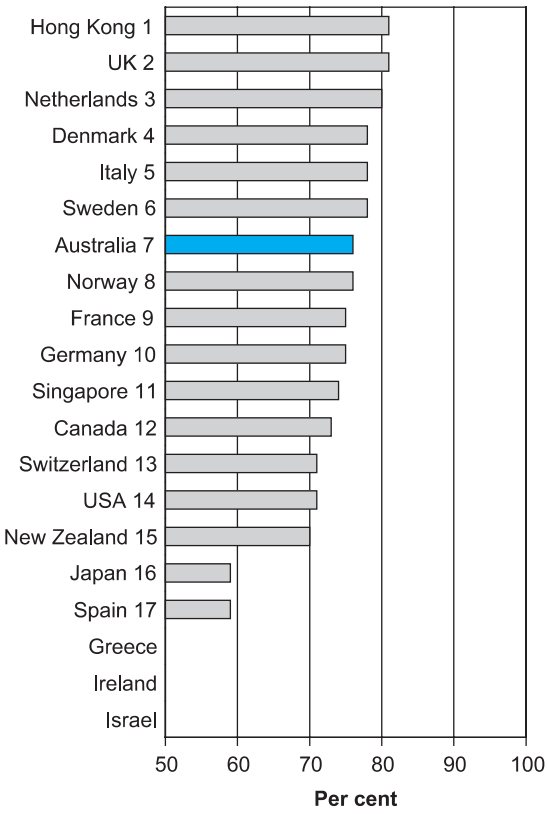


Figure 2: Contraceptive use, 1985–94

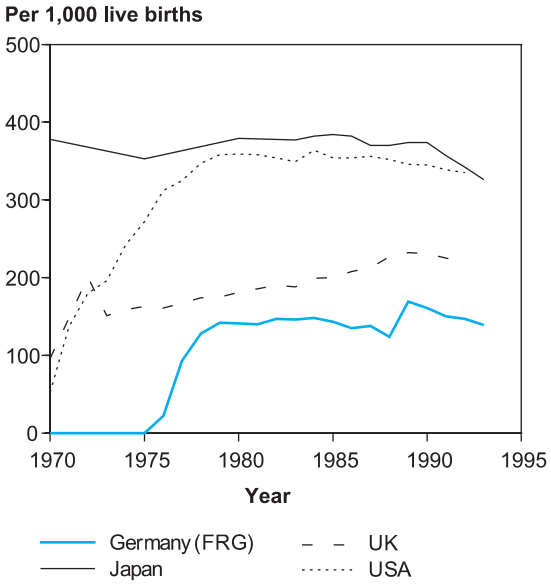
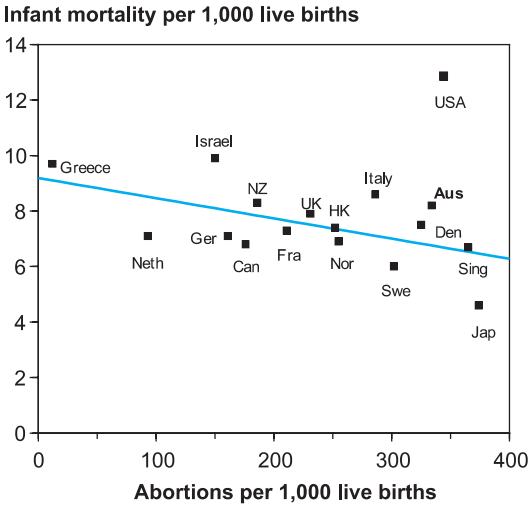


Figure 3: Trends in legally induced abortions, 1970 to 1995



Note: Fitted curve excludes USA.

Figure 4: Infant mortality rate and legally induced abortions, 1990

Family planning

Legally induced abortions and prevalence of contraceptive use

Country	Year	Legally induced abortions	Live births	Proportion[a]	Contraceptive use rate, 1985–94 (%)
Australia	1993	[b]87,000	260,229	0.25	76
Canada	1992	59,694	398,642	0.13	73
Denmark	1994	17,598	69,668	0.20	78
France	1991	162,902	759,056	0.18	75
Germany	1994	103,586	769,603	0.12	75
Greece	1992	11,977	104,081	0.10	—
Hong Kong	1987	17,600	69,958	0.20	81
Ireland	1993	—	49,456	—	—
Israel	1993	17,164	112,330	0.13	—
Italy	1994	124,334	527,406	0.19	78
Japan	1994	364,350	1,238,328	0.23	59
Netherlands	1994	20,811	195,611	0.10	80
New Zealand	1992	11,460	59,266	0.16	70
Norway	1993	14,909	59,678	0.20	76
Singapore	1994	15,690	49,554	0.24	74
Spain	1993	—	388,708	—	59
Sweden	1994	32,293	112,257	0.22	78
Switzerland	1993	—	83,762	—	71
UK	1994	169,964	750,671	0.18	81
USA	1991	1,388,937	4,110,907	0.25	71

(a) (Abortions)/(Abortions+live births).
(b) Estimated. Based on unpublished Medicare data, data from the AIHW National Hospital Morbidity Database, ABS 1998b, and Adelson, Frommer & Weisberg 1995, 1996.

Sources: United Nations 1997; UNICEF 1996.

- In Australia, national information on induced abortions is lacking, with only South Australia and the Northern Territory collecting population-based data. In 1994, one in five (20.8%) pregnancies in South Australia resulted in abortion, with half of all teenage pregnancies being terminated (AIHW 1996). An estimate of the total number of pregnancies terminated annually in Australia can be made, based on available State and Territory data, Medicare data and hospital separations data. In 1993, about 87,000 abortions were performed—equating to one in four pregnancies being terminated.
- The proportion of pregnancies ending in abortion are similar in Australia and Japan, exceeded in 1990–1991 by the United States, Singapore and Sweden (Figure 1). Greece, Spain, the Netherlands and Ireland exhibit low rates—although many Irish women travel to England to have their pregnancy terminated (Brahams 1992, Francome 1992). Rates of abortion have been relatively stable in Japan, the United States and Germany since the late 1970s (Figure 3).
- Higher rates of elective abortion are correlated with lower infant mortality, possibly due to the selective termination of high-risk pregnancies (US Congress, Office of Technology Assessment, 1993). However, this relationship does not hold in the United States, where there are both high rates of elective abortion and infant mortality (Figure 4).
- Data on the prevalence of contraceptive use in developed nations is often out-of-date, or lacking altogether, due largely to the lack of population-based studies. Available data are reported in the above table, and in Figure 2, from studies or surveys conducted between 1985 and 1994.
- It is estimated that over the past three decades, regular contraceptive use has increased by approximately 27%. Were family planning services universally available, the 25 million or more abortions performed annually in the industrialised world would decline radically (UNICEF 1994). The United Nations estimates that 57% of married women of child-bearing age worldwide currently use family planning.

For more information, see:
WHO 1994. Family planning and health. World Health Stat Q 47: 2–39.

Maternal mortality

Figure 1: Maternal mortality, 1990–94

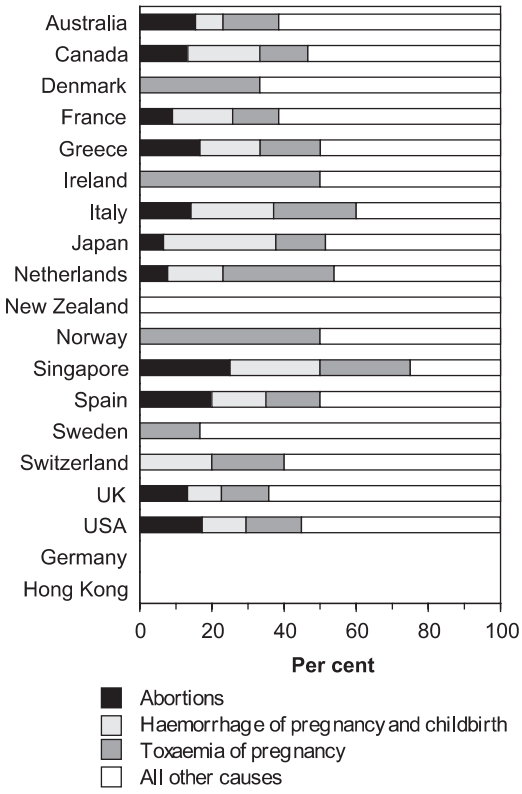


Figure 2: Maternal mortality, by cause, 1985–89

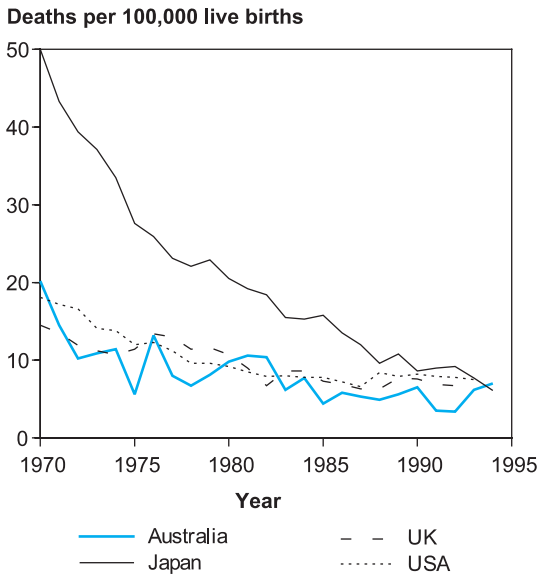


Figure 3: Trends in maternal mortality rates, 1970 to 1994

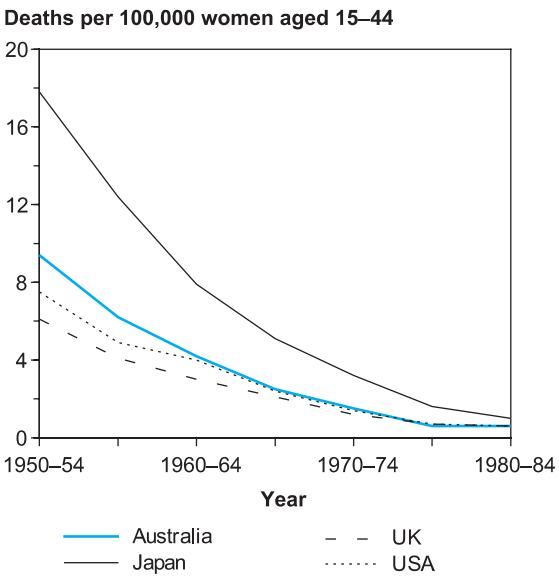


Figure 4: Trends in maternal mortality rates, 1950–54 to 1980–84

Maternal mortality

Numbers and rates of maternal mortality

Country	Year	Maternal deaths per 100,000 live births	Estimated number of maternal deaths, 1990	Lifetime risk of maternal death, 1990
Australia	1994	7.0	25	1 in 4,900
Canada	1994	3.6	25	1 in 7,700
Denmark	1993	7.4	5	1 in 5,800
France	1994	11.7	110	1 in 3,100
Germany	1994	5.2	190	1 in 2,700
Greece	1994	1.9	10	1 in 5,600
Hong Kong	1994	11.2	5	1 in 9,200
Ireland	1992	5.9	5	1 in 3,800
Israel	1994	5.2	5	1 in 4,000
Italy	1994	12.4	65	1 in 5,300
Japan	1994	6.1	230	1 in 2,900
Netherlands	1994	6.1	25	1 in 4,300
New Zealand	1993	20.4	15	1 in 1,600
Norway	1993	3.4	5	1 in 7,300
Singapore	1994	6.1	5	1 in 4,900
Spain	1993	6.2	30	1 in 9,200
Sweden	1993	5.1	10	1 in 6,000
Switzerland	1994	3.6	5	1 in 8,700
UK	1992	6.7	70	1 in 5,100
USA	1993	7.5	480	1 in 3,500
Asia			323,000	1 in 65
North America			500	1 in 3,700
Europe			3,200	1 in 1,400
Oceania			1,400	1 in 26
World			585,000	1 in 60

Sources: WHO 1994, 1996c; United Nations 1980, 1997.

- Deaths due to pregnancy-related causes are not solely a problem of the developing world. In developed countries in 1991, there were more than 200,000 deaths of women aged 15 to 44, of which 4,000 were ascribed to maternal causes (WHO 1995c). These causes include haemorrhage, sepsis, hypertensive disorders of pregnancy and obstructed labour (Figure 2).
- The Australian maternal mortality rate in 1994 was 7.0 deaths per 100,000 live births—a total of 18 deaths. This places Australia in the upper half of developed countries. It should be noted, however, that most developed countries have only small numbers of maternal deaths each year, and that rates may vary substantially from year to year. In 1992 for example, there were 9 maternal deaths in Australia—a rate of 3.4 deaths per 100,000 live births. About 30% of maternal deaths occur in Aboriginal and Torres Strait Islander women, who are responsible for only about 3% of all confinements (AIHW 1996).
- Averaged over the years 1990–94, Australia's maternal mortality rate of 5.3 deaths per 100,000 live births ranked 13th among 20 developed countries (Figure 1). New Zealand and France had rates in excess of 10 deaths per 100,000 live births—in comparison, Canada, Denmark, Greece, Singapore, Sweden and Switzerland all had less than 5 deaths per 100,000 population. The rates for Australia, the United Kingdom and the United States have shown steady declines over recent decades. The decline for Japan since 1970 has been substantial (Figures 3 and 4).
- WHO has calculated lifetime risks for maternal deaths. In 1990, these were 1 in 1,400 for a mother in Europe and 1 in 3,700 for a mother in North America. The Australian rate was calculated at 1 in 4,900, and that for Oceania at an unacceptably high 1 in 26. Maternal mortality among several Melanesian countries is extremely high.

For more information, see:

Abou Zahr C et al. 1996. Maternal mortality. World Health Stat Q 49: 77–87

WHO 1996. New estimates of maternal mortality. Weekly Epidem Rec 71: 120–124

4 Important causes of ill-health

- Cancers
- Communicable diseases
- Congenital malformations
- Dental caries
- Disability
- Heart attack
- HIV/AIDS
- Mental disorders

Cancers, males

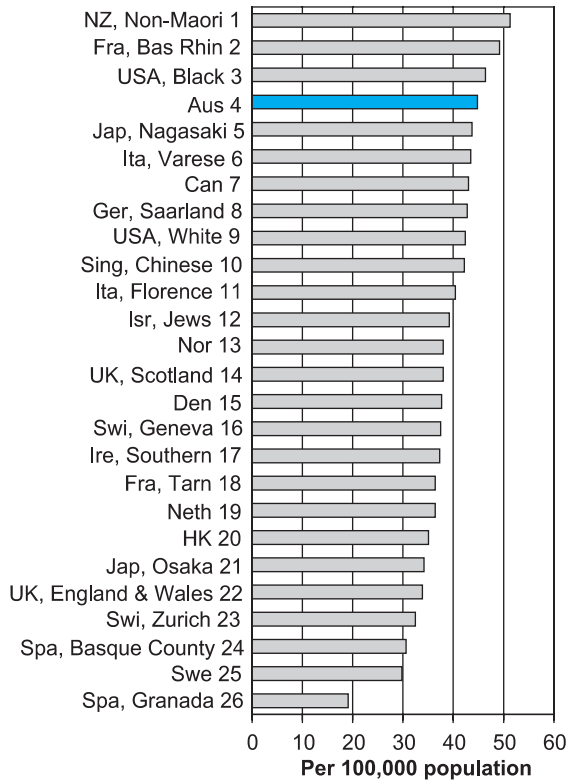


Figure 1: Colorectal cancer incidence, males, 1988–1992

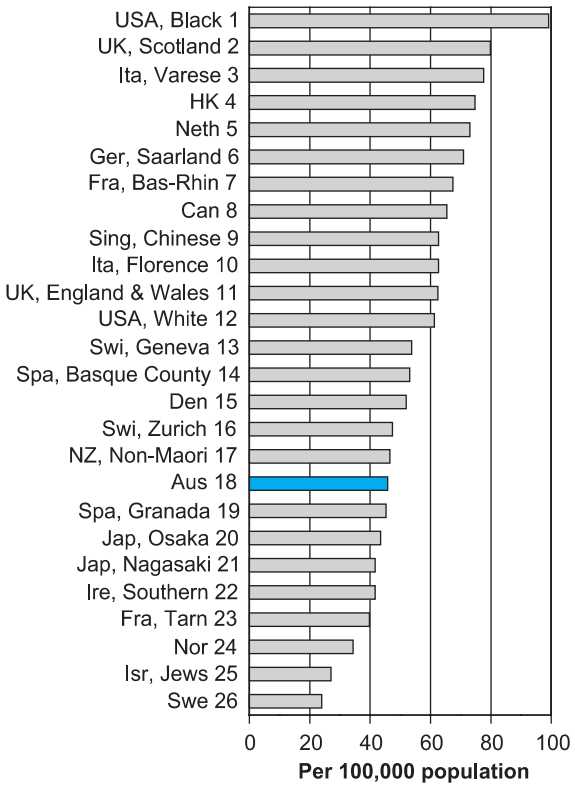


Figure 2: Lung cancer incidence, males, 1988–1992

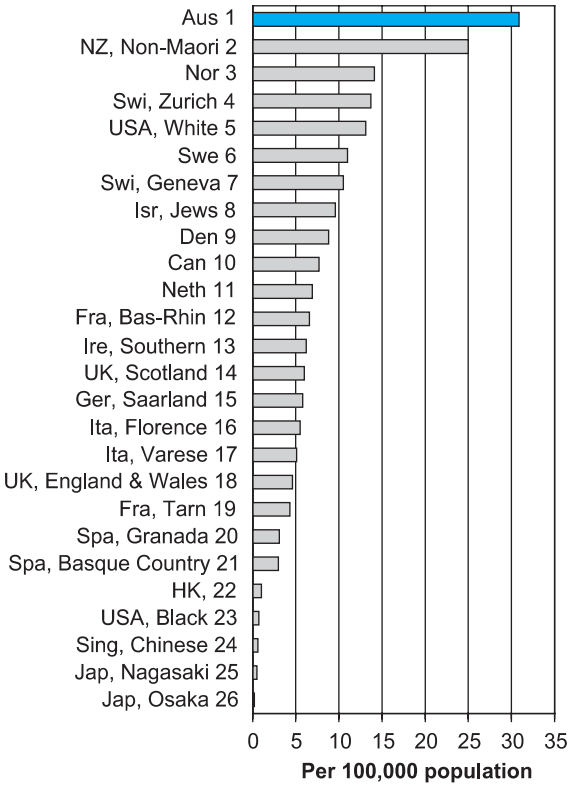


Figure 3: Melanoma incidence, males, 1988–1992

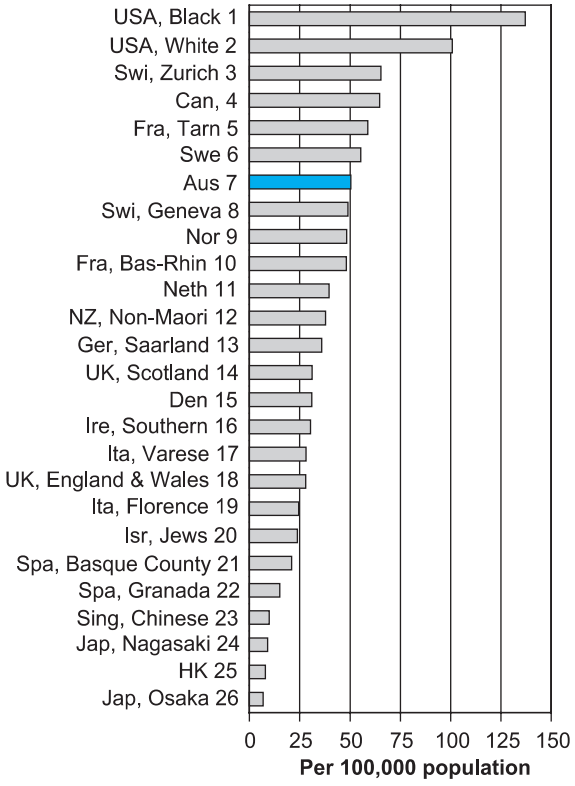


Figure 4: Prostate cancer incidence, males, 1988–1992

Cancers, males

Cancer incidence, males (per 100,000 population)

Country/region	Year	Colorectal ICD 153–54	Lung ICD 162	Melanoma ICD 172	Prostate ICD 185	Bladder ICD 188	NHL[(a)] ICD 200, 202
Australia	1990	44.8	45.8	30.9	50.4	14.1	12.6
Canada	1988–92	43.0	65.4	7.7	64.7	18.7	13.1
Denmark	1988–92	37.7	51.9	8.8	31.0	27.9	9.8
France, Bas-Rhin	1988–92	49.2	67.4	6.6	48.1	23.1	12.1
France, Tarn	1988–92	36.4	39.7	4.3	58.8	24.7	6.8
Germany, Saarland	1988–92	42.8	70.9	5.8	35.9	23.1	9.4
Hong Kong	1988–92	35.1	74.7	1.0	7.9	14.5	8.7
Ireland, Southern	1988–92	37.3	41.6	6.2	30.4	12.2	8.9
Israel, Jews	1988–92	39.2	27.0	9.6	23.9	25.2	12.6
Italy, Florence	1988–91	40.4	62.6	5.5	24.4	35.2	9.8
Italy, Varese	1988–92	43.5	77.6	5.1	28.2	35.0	13.9
Japan, Nagasaki	1988–92	43.7	41.7	0.5	9.1	11.2	13.5
Japan, Osaka	1988–92	34.2	43.5	0.2	6.8	7.4	6.1
Netherlands	1989–92	36.4	73.0	6.9	39.6	15.2	10.6
New Zealand, Non-Maori	1988–92	51.3	46.5	25.0	37.8	14.0	10.3
Norway	1988–92	38.0	34.3	14.1	48.4	16.6	10.1
Singapore, Chinese	1988–92	42.2	62.7	0.6	9.8	7.7	6.1
Spain, Basque County	1988–91	30.6	53.1	3.0	21.0	27.1	8.1
Spain, Granada	1988–92	19.1	45.3	3.1	15.1	23.5	5.6
Sweden	1988–92	29.8	23.9	11.0	55.3	17.3	10.8
Switzerland, Geneva	1988–92	37.5	53.7	10.5	49.0	32.5	13.5
Switzerland, Zurich	1988–92	32.5	47.4	13.7	65.4	22.4	12.9
UK, England & Wales	1988–90	33.9	62.4	4.6	28.0	20.3	9.6
UK, Scotland	1988–92	38.0	79.8	6.0	31.2	22.9	9.4
USA, White	1988–92	42.4	61.3	13.1	100.8	24.0	16.3
USA, Black	1988–92	46.4	99.1	0.7	137.0	11.1	12.3

(a) Non-Hodgkin's lymphomas.

Sources: Parkin et al. 1997; Jelfs et al. 1996.

- Cancer describes a range of diseases in which abnormal cells proliferate and spread out of control. Many cancers can be serious and even fatal. Each year, about 345,000 new cancer cases are diagnosed in Australia, most of which are non-melanocytic skin cancers which are less life-threatening than other cancers. Cancer occurs more commonly in males than females, with the most common registerable cancers among males being prostate, colorectal, lung and melanoma. About 30% of male deaths in Australia are caused by cancers.
- National information about people with newly diagnosed cancers is only available for a limited number of countries; however, many developed countries have regional cancer registries. Latest regional incidence data for males position Australia in the top half of developed countries for a number of major cancers. Australian males had a colorectal cancer incidence rate of 44.8 per 100,000 population in 1990, fourth highest among comparison groups (Figure 1) Colorectal cancer is considered a disease of economically developed countries. Prostate cancer, one of the most common cancers among males, was also high; a rate of 50.4 in 1990 ranking Australian males seventh amongst comparison groups (Figure 4).
- The Australian male lung cancer rate of 45.8 per 100,000 population in 1990 was moderate compared to other developed countries (Figure 2). However, the melanoma rate of 30.9 in 1990 was the highest in the world. Melanoma rates for the Asian comparison groups were especially low (Figure 3). Incidence of non-Hodgkin's lymphomas is also high among Australian males, ranking equal seventh among comparison groups. Australian males ranked 20th for bladder cancer incidence.

For more information, see:

Parkin DM, Whelan SL, Ferlay J et al. 1997. Cancer incidence in five continents, Volume VII. IARC Scientific Publications No. 143. Lyon: International Agency for Research on Cancer.

Cancers, females

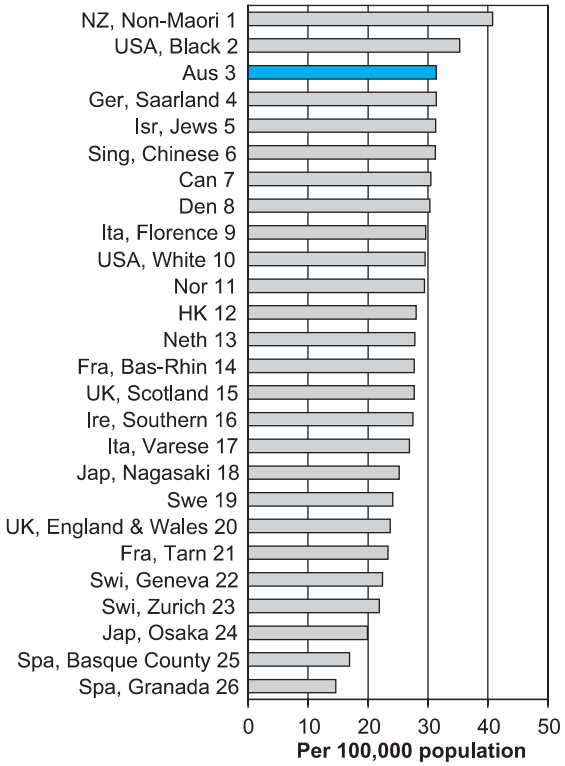


Figure 1: Colorectal cancer incidence, females, 1988–1992

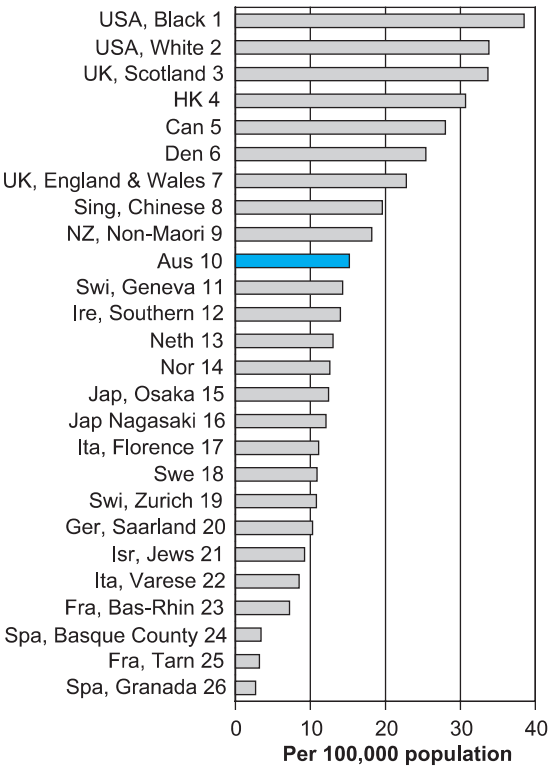


Figure 2: Lung cancer incidence, females, 1988–1992

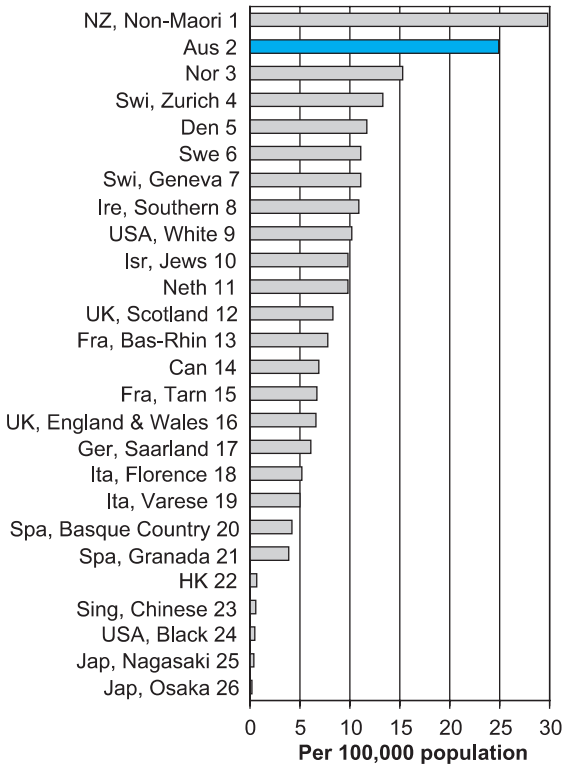


Figure 3: Melanoma incidence, females, 1988–1992

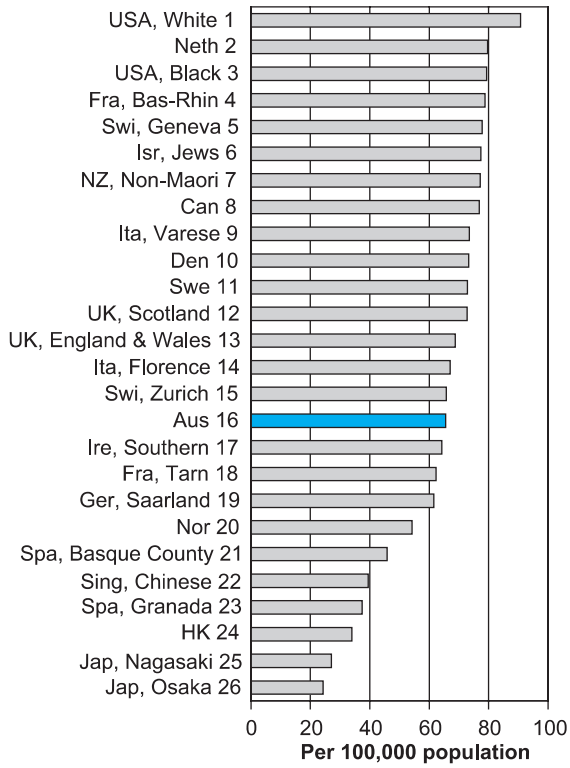


Figure 4: Breast cancer incidence, females, 1988–1992

Cancers, females

Cancer incidence, females (per 100,000 population)

Country/region	Year	Colorectal ICD 153–54	Lung ICD 162	Melanoma ICD 172	Breast ICD 174	Uterus ICD 179, 182	Cervix ICD 180
Australia	1990	31.4	15.2	24.9	65.5	9.5	10.2
Canada	1988–92	30.5	28.0	6.9	76.8	14.8	7.8
Denmark	1988–92	30.3	25.4	11.7	73.3	15.2	15.2
France, Bas-Rhin	1988–92	27.7	7.2	7.8	78.8	16.7	10.0
France, Tarn	1988–92	23.3	3.2	6.7	62.3	10.2	7.7
Germany, Saarland	1988–92	31.4	10.3	6.1	61.5	13.9	11.4
Hong Kong	1988–92	28.0	30.7	0.7	34.0	7.2	15.3
Ireland, Southern	1988–92	27.5	14.0	10.9	64.2	8.6	6.5
Israel, Jews	1988–92	31.3	9.2	9.8	77.4	11.4	5.3
Italy, Florence	1988–91	29.6	11.1	5.2	67.0	12.9	6.2
Italy, Varese	1988–92	26.9	8.5	5.0	73.5	12.8	6.4
Japan, Nagasaki	1988–92	25.2	12.1	0.4	27.1	4.9	11.3
Japan, Osaka	1988–92	19.9	12.4	0.2	24.3	4.2	9.2
Netherlands	1989–92	27.8	13.0	9.8	79.6	10.8	7.1
New Zealand, Non-Maori	1988–92	40.8	18.2	29.8	77.2	9.5	11.9
Norway	1988–92	29.4	12.6	15.3	54.2	12.6	12.7
Singapore, Chinese	1988–92	31.2	19.6	0.6	39.5	7.0	16.3
Spain, Basque County	1988–91	16.9	3.4	4.2	45.8	9.7	6.0
Spain, Granada	1988–92	14.6	2.7	3.9	37.4	9.2	5.6
Sweden	1988–92	24.1	10.9	11.1	72.9	14.7	8.0
Switzerland, Geneva	1988–92	22.4	14.3	11.1	77.8	12.9	6.1
Switzerland, Zurich	1988–92	21.9	10.8	13.3	65.7	15.2	6.8
UK, England & Wales	1988–90	23.7	22.8	6.6	68.8	9.4	12.5
UK, Scotland	1988–92	27.7	33.7	8.3	72.7	8.3	12.7
USA, White	1988–92	29.5	33.8	10.2	90.7	18.4	7.5
USA, Black	1988–92	35.3	38.5	0.5	79.3	12.0	12.0

Sources: Parkin et al. 1997; Jelfs et al. 1996.

- Cancer is generally less common among females than males. In the late 1980s and early 1990s however, Australian females exhibited a high incidence of several different cancers compared to other developed countries. Colorectal cancer is one of these—a rate of 31.4 new cases per 100,000 population ranking equal third among the comparison regions, exceeded only by white New Zealand and Afro-American females (Figure 1). The Basque County and Granada regions of Spain and Osaka in Japan had the lowest rates among the comparison regions.
- Australian females rated better for lung cancer—a rate of 15.2 new cases per 100,000 population in 1990, ranking 10th (Figure 2). Females from Hong Kong, Scotland and the United States recorded comparatively high rates, females from France and Spain low rates.
- As for Australian males, Australian females also had an extremely high incidence of melanoma—24.9 cases per 100,000 population in 1990 (Figure 3). This was exceeded only by the rate for white New Zealand females. Females in Asian countries such as Hong Kong, Japan and Singapore, and Afro-American females exhibited the lowest rates.
- Australian females ranked in the lower half of the comparison regions for breast cancer incidence, at 65.5 new cases per 100,000 population in 1990 (Figure 4). United States and Dutch females recorded the highest rates, and Japanese and Hong Kong females the lowest.
- For uterine cancer, Australia ranked relatively low at equal 17th, and for cancer of the cervix ranked 11th. Japanese females had low rates of uterine cancer, but higher rates of cervical cancer, exceeded by females from Singapore, Hong Kong and Denmark. Jewish and Spanish females also exhibited low incidence rates of cervical cancer in the late 1980s and early 1990s.

For more information, see:

Parkin DM, Whelan SL, Ferlay J et al. 1997. Cancer incidence in five continents, Volume VII. IARC Scientific Publications No. 143. Lyon: International Agency for Research on Cancer.

Communicable diseases

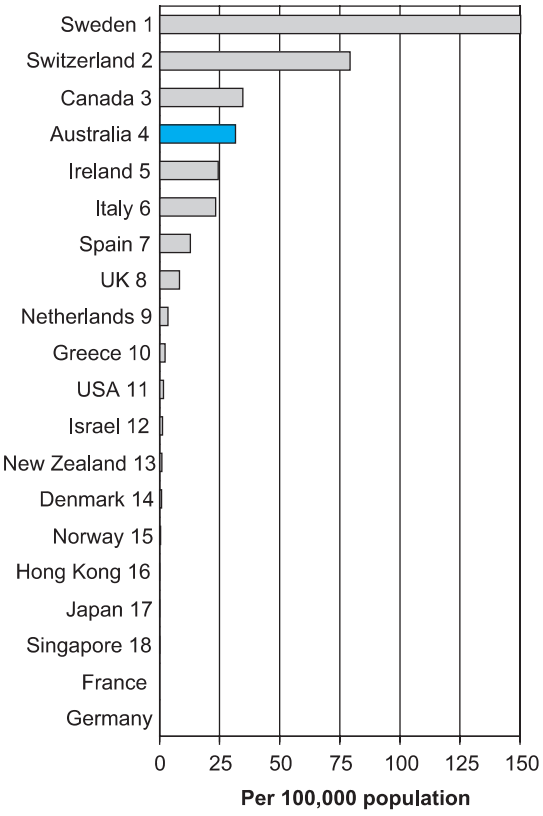


Figure 1: Reported cases of pertussis, 1994

Figure 2: Reported cases of tuberculosis, 1993

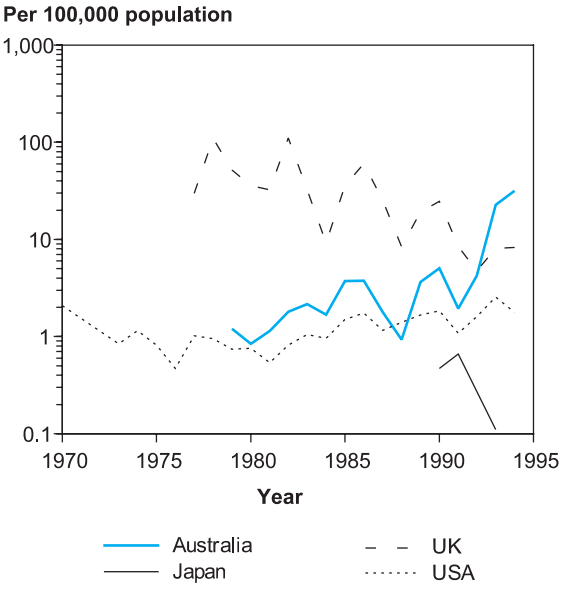


Figure 3: Trends in reported cases of pertussis, 1970 to 1995

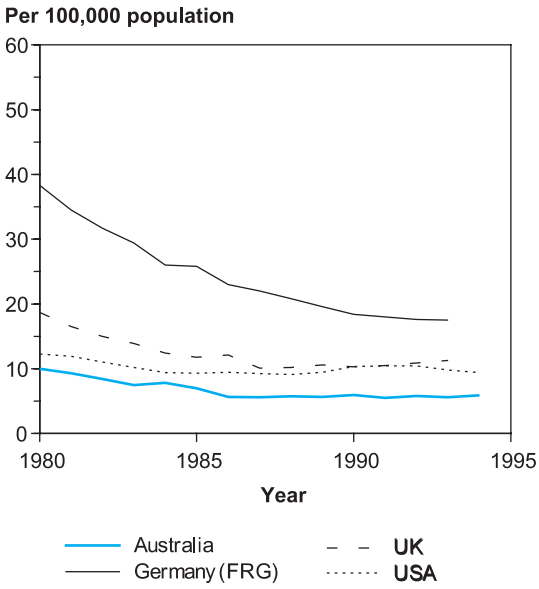


Figure 4: Trends in reported cases of tuberculosis, 1970 to 1995

Communicable diseases

Reported cases of pertussis, tuberculosis and measles (per 100,000 population)

Country	Tuberculosis 1993	Tetanus 1994	Pertussis 1994	Measles 1995
Australia	6.1	0.08	31.6	7.3
Canada	6.9	0.01	34.7	7.8
Denmark	7.9	0.00	0.8	0.1
France	16.1	0.06	—	—
Germany	17.5	0.02	—	—
Greece	1.7	0.05	2.3	0.2
Hong Kong	110.4	1.01	0.1	0.5
Ireland	(a)18.0	(b)0.00	(b)24.4	6.5
Israel	8.0	0.00	1.3	0.5
Italy	8.3	0.18	23.4	56.0
Japan	(a)39.4	(b)0.03	0.1	(b)1.6
Netherlands	10.6	0.01	3.5	1.2
New Zealand	10.6	0.06	1.0	(c)0.9
Norway	5.9	(b)0.02	(b)0.4	0.4
Singapore	63.7	0.00	0.1	6.2
Spain	24.2	0.09	12.8	22.2
Sweden	7.2	0.01	150.2	(c)0.0
Switzerland	13.4	0.04	79.3	0.4
UK	11.3	0.01	8.3	13.4
USA	9.5	0.02	1.7	0.1

(a)1992 data. (b) 1993 data. (c) 1994 data.

Sources: AIHW 1996; WHO 1993a, 1996a.

- In 1990, an estimated one-third of all world-wide deaths were caused by infectious and parasitic diseases. In developed countries however, the diseases accounted for only 4% of deaths whilst the proportion in less developed countries was 44% of all deaths. More than 70% of all deaths among children in developing countries were estimated to be caused by infections (WHO 1992b).
- In developed countries, preventable deaths from communicable diseases still occur. Between 1990 and 1996, 17 Australian children died from measles and its complications. In 1994, the only disease preventable by immunisation for which no cases were notified was diphtheria (AIHW 1996).
- Comparisons between countries is complicated by variations in case definitions, methods of diagnosis and case ascertainment. International data for communicable diseases may also include countries which are experiencing epidemics of a particular disease. Sweden is a case in point, with a pertussis (whooping cough) epidemic occurring during 1993–94 (Figure 1). The United Kingdom also reported a large number of pertussis cases in the 1970s and 1980s, due to marked declines in immunisation rates (Figure 3). Italy experienced a measles outbreak in 1995. Australia also experienced a measles outbreak beginning in late 1992 and continuing through 1994.
- Tuberculosis has resurged throughout many parts of the developed and developing world to such an extent that in 1993 the disease was declared a 'global health emergency' by WHO. Reasons include HIV co-infection, increased resistance to drugs and the neglect of control programs (AIHW 1996). Notification rates tend to be higher in Hong Kong, Singapore and Japan (Figure 2).
- Continued monitoring of disease epidemiology, expanded control activity and the maintenance of high immunisation levels are necessary in order to limit and control local epidemics of infectious diseases.

For more information, see:

WHO 1992. Communicable disease epidemiology and control. World Health Stat Q 45: 166–211.

Curran M, Harvey B, Crerar S et al. 1997. Australia's notifiable diseases status, 1996. Comm Dis Intell 21: 281–307.

Congenital malformations

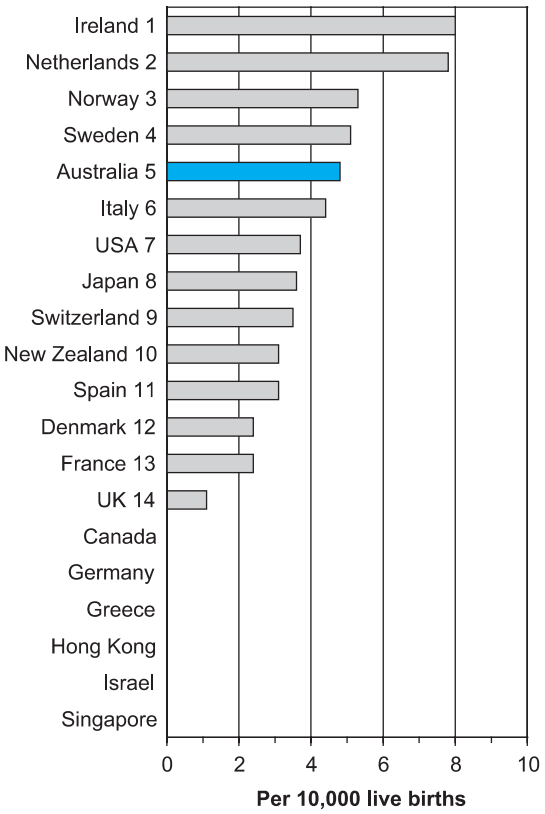


Figure 1: Incidence of spina bifida, 1992

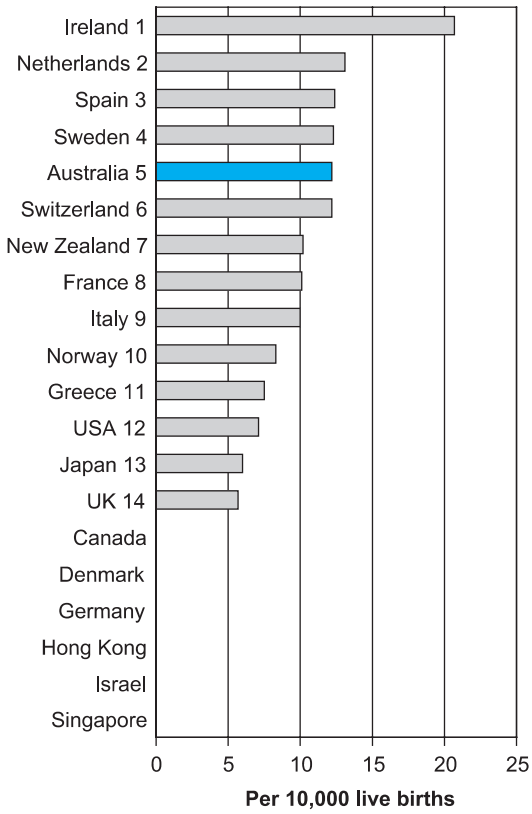


Figure 2: Incidence of Down syndrome, 1992

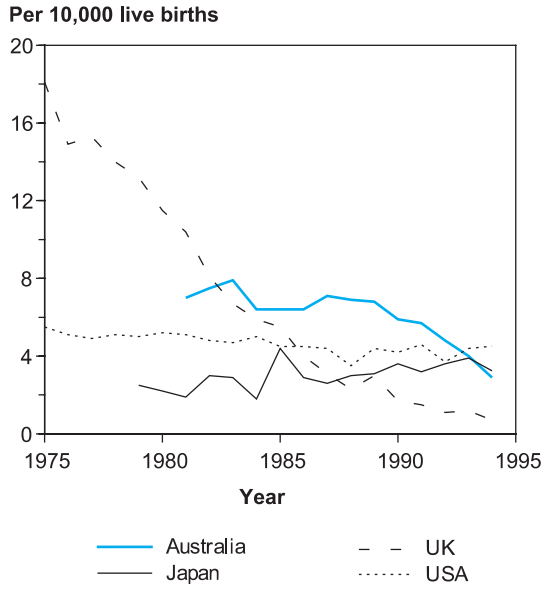


Figure 3: Trends in incidence of spina bifida, 1975 to 1995

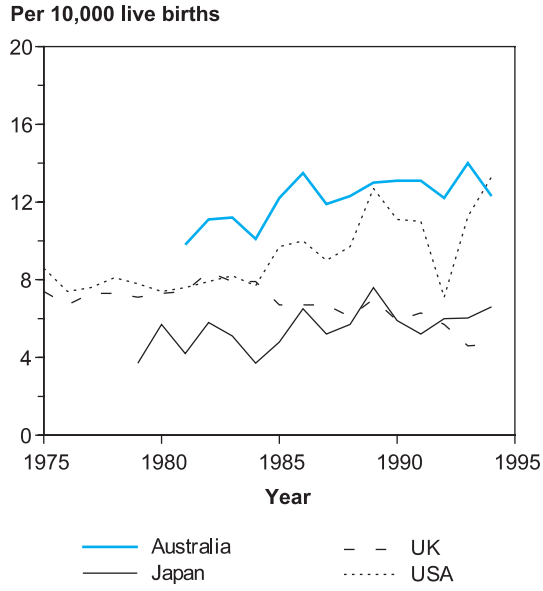


Figure 4: Trends in incidence of Down syndrome, 1975 to 1995

Congenital malformations

Selected congenital malformations (per 10,000 live births)

Country	Spina bifida ICD 741		Hydrocephaly ICD 742.3		Transposition of great vessels, ICD 745.1		Limb reduction ICD 755.2-4		Down syndrome ICD 758.0	
Australia	1994	2.9	1988	3.9	1994	3.8	1994	3.9	1994	12.3
Canada	1988	8.3	1988	5.1	1988	4.6	1988	4.8	1988	13.8
Denmark	1993	3.1	1988	2.4	1993	0.1	1993	7.4	—	—
France	1993	1.0	—	—	1995	3.6	1994	3.5	1994	9.6
Germany	1994	2.8	—	—	—	—	—	—	—	—
Greece	1990	1.6	—	—	1990	0.8	1990	9.1	1992	7.5
Hong Kong	—	—	—	—	—	—	—	—	—	—
Ireland	1994	5.5	—	—	1994	7.2	1994	5.5	1994	22.0
Israel	1988	2.3	1988	2.9	1988	4.0	1988	2.9	1988	10.3
Italy	1993	2.9	1988	4.2	1993	2.9	1994	4.1	1994	12.2
Japan	1994	3.3	1988	5.6	—	—	1993	4.5	1994	6.6
Netherlands	1994	4.7	—	—	1994	7.8	1994	7.3	1994	10.4
New Zealand	1995	2.8	1988	3.6	1991	2.1	1994	1.4	1994	11.5
Norway	1995	5.6	1988	4.8	1995	2.3	1995	7.4	1995	12.2
Singapore	—	—	—	—	—	—	—	—	—	—
Spain	1994	2.9	1988	4.0	1994	1.6	1994	7.3	1994	11.9
Sweden	1992	5.1	1988	2.1	1995	2.1	1992	5.3	1992	12.3
Switzerland	1994	3.3	—	—	1994	4.7	1994	7.2	1994	12.5
UK	1994	0.7	1988	2.0	1994	0.3	1994	2.9	1994	4.7
USA	1994	4.5	1988	5.8	1994	2.5	1994	4.5	1994	13.3

Sources: OECD 1997; The International Clearinghouse for Birth Defects Monitoring Systems 1991.

- Congenital malformations are abnormalities that are recognised at, or are present since, birth. These include conditions which are genetic or caused by environmental factors. Congenital malformations are a significant public health problem since they are relatively common, frequently lead to disabilities and handicaps, and are a major reason for hospitalisation in infancy and childhood.
- In Australia, 1.6% of infants born in 1994 had a major congenital malformation (Lancaster et al. 1997). These malformations include spina bifida, hydrocephaly (a malformation due to obstruction of the cerebrospinal fluid pathways and often accompanied by enlargement of the head), transposition of great vessels (a congenital heart defect), limb reduction defects (characterised by the absence of limb skeletal structures) and Down syndrome.
- Prenatal screening by ultrasound or amniocentesis has increased the likelihood of detecting congenital malformations before birth. Termination of pregnancy following the diagnosis of a congenital malformation is increasing, resulting in a decreased recorded incidence of some malformations.
- The most common indication for terminations include Down syndrome, other chromosomal anomalies, and neural tube defects such as anacephalus and spina bifida. There is an increased risk of malformation for mothers aged 40 years and over.
- In 1992, Australian rates of several important congenital malformations, including spina bifida and Down syndrome, ranked in the top half of rates for developed countries (Figures 1 and 2). Ireland and the Netherlands had higher reported rates, and the United Kingdom had lower reported rates. Rates in different countries, however, are partially determined by the availability, access and use of screening technologies.
- The reported incidence of congenital malformations has increased in Australia since the mid-1980s. This is due in part to increased and improved detection by new birth defect registers in some States and Territories (Abraham, d'Espaignet & Stevenson 1995).

For more information, see:

Lancaster P et al. 1997. Congenital malformations Australia, 1993 and 1994. Sydney: AIHW National Perinatal Statistics Unit.

The International Clearinghouse for Birth Defects Monitoring Systems 1991. Congenital malformations worldwide. Amsterdam: Elsevier.

Dental caries

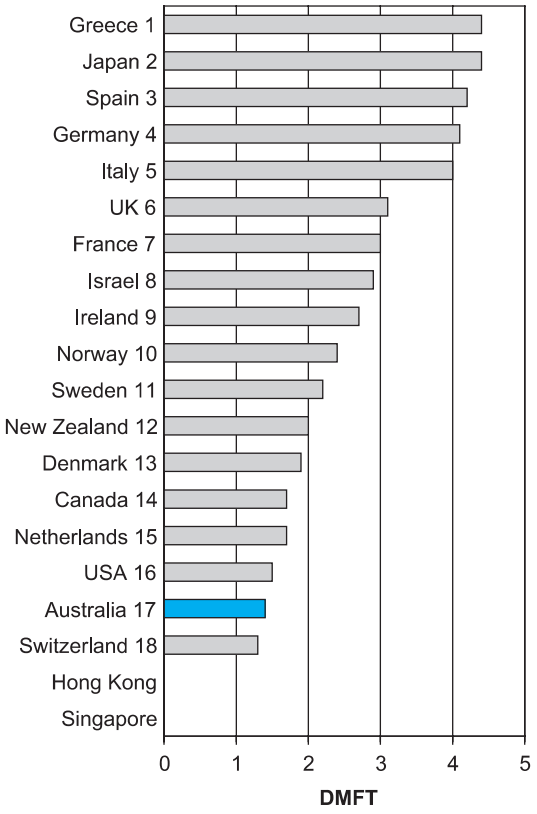


Figure 1: DMFT scores, children aged 12, 1990

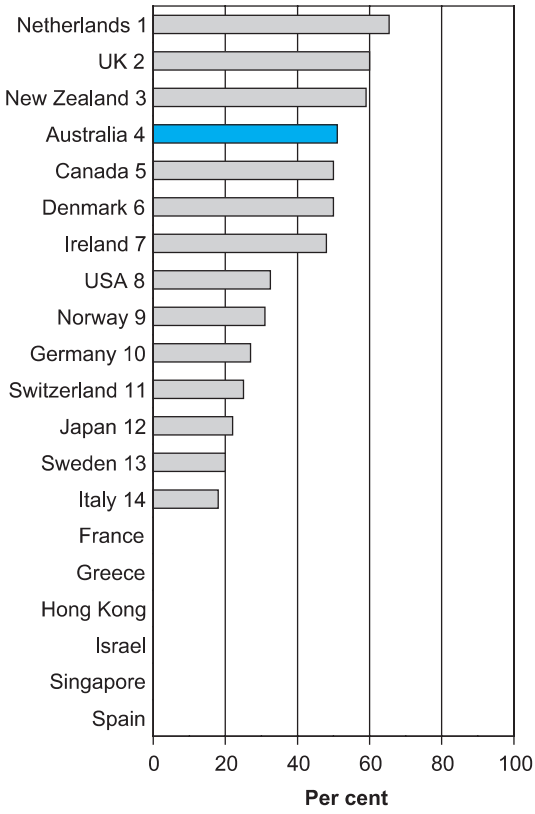


Figure 2: Edentulous population aged 65 years and over, 1990

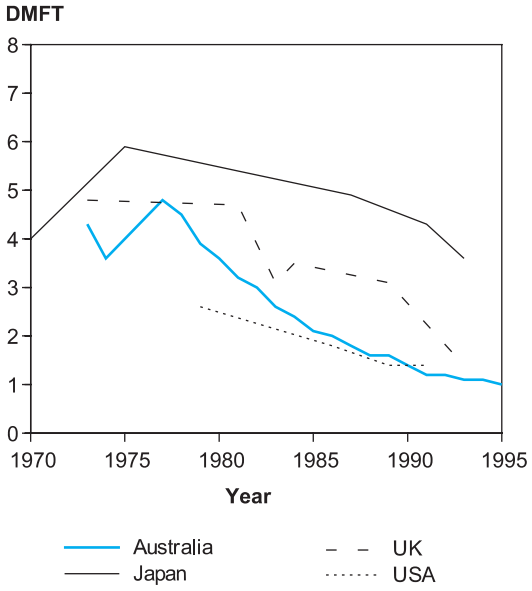


Figure 3: Trends in DMFT scores, children aged 12, 1970 to 1995

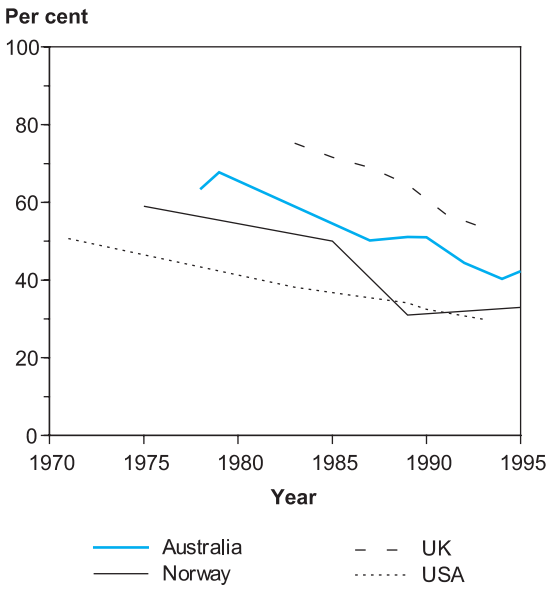


Figure 4: Trends in edentulous population aged 65 years and over, 1970 to 1995

Dental caries

DMFT scores[(a)] at ages 12 and 35–44, and edentulism[(b)] at age 65 and over

Country	DMFT, age 12		DMFT, age 35–44		Edentulism, age 65+	
Australia	1995	1.0	1995–96	13.5	1996	39.1
Canada	1990	1.7	—	—	1990	50.0
Denmark	1996	1.8	1985	22.9	1991	51.0
France	1993	2.1	1994	14.6	—	—
Germany	1995	2.3	1991	16.3	1990	27.0
Greece	1993	1.6	1990	15.8	—	—
Hong Kong	1986	1.5	1991	8.7	—	—
Ireland	1996	1.5	1990	15.4	1990	48.0
Israel	1989	3.0	—	—	—	—
Italy	1996	2.1	1995	12.0	1990	18.0
Japan	1993	3.6	1993	13.7	1992	20.4
Netherlands	1992	0.9	1986	17.4	1995	60.2
New Zealand	1995	1.4	1989	20.9	1989	58.6
Norway	1996	1.8	1990	20.5	1995	33.0
Singapore	1994	1.0	—	—	—	—
Spain	1993	2.3	1993	10.9	—	—
Sweden	1995	1.4	—	—	1989	20.0
Switzerland	1992	1.1	1988	22.3	1990	25.0
UK	1993	1.4	1990	19.0	1993	53.5
USA	1991	1.4	1991	13.6	1993	29.9

(a) Dental caries is measured by the DMFT score—a sum of permanent teeth that are decayed (D), missing (M) or filled due to caries (F). A score of 0–1.1 is considered very low, 2.8–4.4 moderate and 6.6+ very high.
(b) Edentulism is the loss of all natural teeth.

Sources: WHO Oral Health Country Profiles, unpublished; OECD 1998.

- The oral health of both children and adults in most developed countries has improved dramatically over the last several decades. Factors such as changes in diet and declines in sugar consumption, exposure to fluoride and changes in disease management have contributed to these improvements.
- The first controlled addition of fluoride to a public water supply took place in the United States in 1945. Most developed countries now have community water fluoridation, and it continues to be the most effective and socially equitable measure for caries prevention among all ages.
- The introduction of the School Dental Scheme in 1977 saw the beginning of marked improvement in the dental health of Australian children, with declines in average caries experience and an increase in the percentage of children with no dental caries (AIHW 1996). In 1995, the DMFT score for 12-year-old Australian children was 1.0. This was a low score among developed countries (Figures 1 and 3).
- An increasing proportion of Australian adults are retaining their natural teeth, with recent significant falls in both adult DMFT scores and edentulism. However, both DMFT scores and the proportion of the population who are edentulous are comparatively high for Australians (Figures 2 and 4). Edentulism increases with age, with females having a higher prevalence than males. It is expected that the increasing proportions of older persons in future decades will lead to increased demands for dental care among the elderly.
- WHO has set a number of dental health goals for the year 2000. These include: 50% of children aged 5–6 to be caries-free, children aged 12 to have a DMFT score of less than 3, at least 85% of adults aged 18 to retain all their teeth, a 50% reduction in edentulism for persons aged 35–44 and a 25% reduction in edentulism for persons aged 65 and over. Most developed countries are on target to achieve these goals.

For more information, see:

WHO 1994. Oral health. World Health Stat Q 47: 42–94.

Australian Institute of Health and Welfare 1998. Australia's health 1998: the sixth biennial health report of the Australian Institute of Health and Welfare. Canberra: AIHW.

Disability

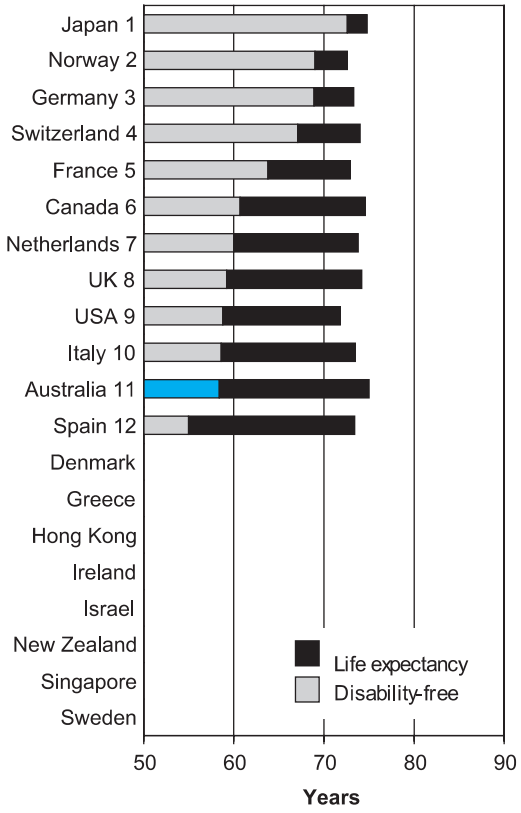


Figure 1: Disability-free life expectancy at birth, men, 1985–1995

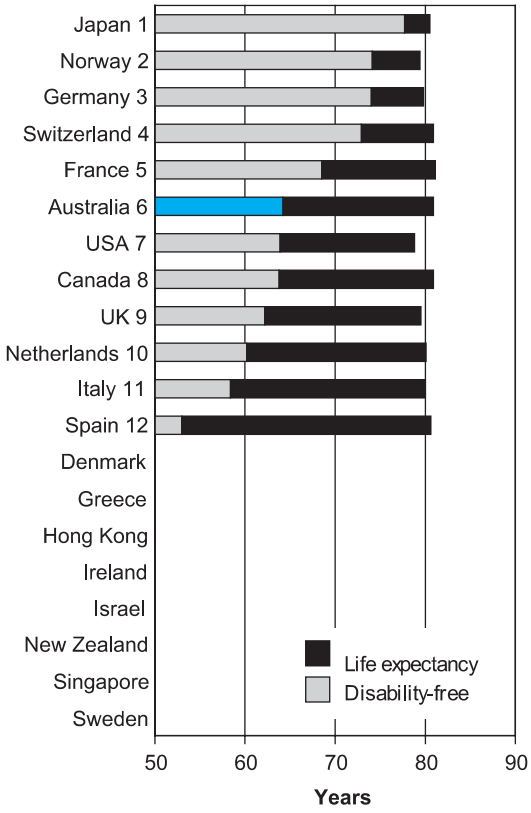


Figure 2: Disability-free life expectancy at birth, women, 1985–1995

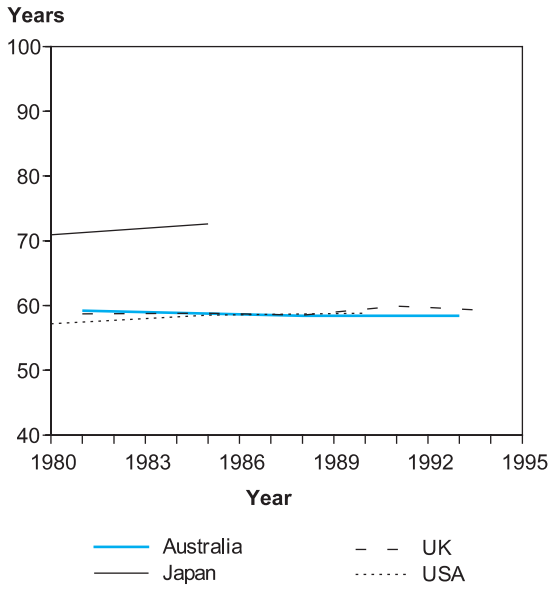


Figure 3: Trends in disability-free life expectancy at birth, men, 1980 to 1995

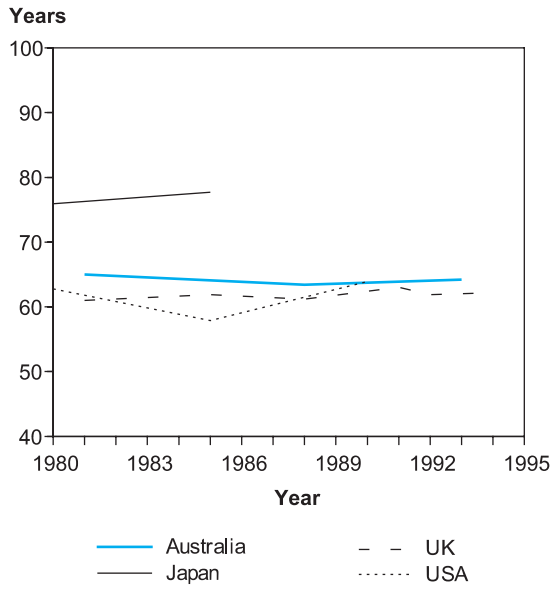


Figure 4: Trends in disability-free life expectancy at birth, women, 1980 to 1995

Disability

Disability-free life expectancy at birth

		Men			Women		
Country	Year	LE[(a)]	DFLE[(b)]	DFLE/LE (%)	LE	DFLE	DFLE/LE (%)
Australia	1993	75.0	58.4	77.9	80.9	64.2	79.4
Canada	1991	74.6	60.7	81.4	80.9	63.8	78.9
Denmark	—	—	—	—	—	—	—
France	1991	72.9	63.8	87.5	81.1	68.5	84.5
Germany	1995	73.3	68.9	94.0	78.8	74.0	92.7
Greece	—	—	—	—	—	—	—
Hong Kong	—	—	—	—	—	—	—
Ireland	—	—	—	—	—	—	—
Israel	—	—	—	—	—	—	—
Italy	1990	73.5	58.6	79.7	80.0	58.4	73.0
Japan	1985	74.8	72.6	97.1	80.5	77.7	96.5
Netherlands	1990	73.8	60.0	81.3	80.1	60.2	75.2
New Zealand	—	—	—	—	—	—	—
Norway	1985	72.6	69.0	95.0	79.4	74.1	93.3
Singapore	—	—	—	—	—	—	—
Spain	1991	73.4	55.0	74.9	80.6	53.0	65.8
Sweden	—	—	—	—	—	—	—
Switzerland	1988–89	74.0	67.1	90.7	80.9	72.9	90.1
UK	1994	74.2	59.2	79.8	79.5	62.2	78.2
USA	1990	71.8	58.8	81.9	78.8	63.9	81.1

(a) Life expectancy.
(b) Disability-free life expectancy.

Sources: OECD 1998; Crimmins, Saito & Ingegneri 1997.

- Quality-of-life indicators are increasingly being used for programme evaluation, monitoring of population health, research and policy analysis. One of these indicators is health expectancy, which incorporates mortality and morbidity information to give a measure of expectation of life in particular health states. A commonly used example is disability-free life expectancy which estimates the expected years of life free of disability for a population.
- In 1993, life expectancy at birth was 75.0 years for Australian males and 80.9 years for Australian females. Disability-free life expectancy in comparison was 58.4 years for males, and 64.2 years for females, on average slightly under 80% of total life expectancy at birth (Figures 1 and 2).
- International comparisons are complicated by different definitions of disability and differing survey methodologies. The standardisation of definitions and methodologies will allow for better international comparisons. Generally, however, male life expectancy at birth includes a greater proportion of disability. Also, increases in life expectancy are being offset by the expected number of years with disability or handicap (Figures 3 and 4).
- The United States has set a goal of increasing the years of healthy life from an estimated value of 62 years in 1980 to 65 years by the year 2000 (US Department of Health and Human Services 1990). The World Health Organization's fourth European 'Health For All' regional target aims for a 10% increase in healthy life expectancy by the year 2000 (US Congress, Office of Technology Assessment 1993). No current targets have been set for Australia.

For more information, see:

Mathers CD & Robine JM 1998. International trends in health expectancies: a review. Australasian Journal on Ageing 17(1) Supplement: 51–55.

Mathers C et al. (eds.) 1994. Advances in health expectancies: proceedings of the 7th meeting of the International Network on Health Expectancy (REVES), Canberra, February 1994. Canberra: AGPS.

Heart attack

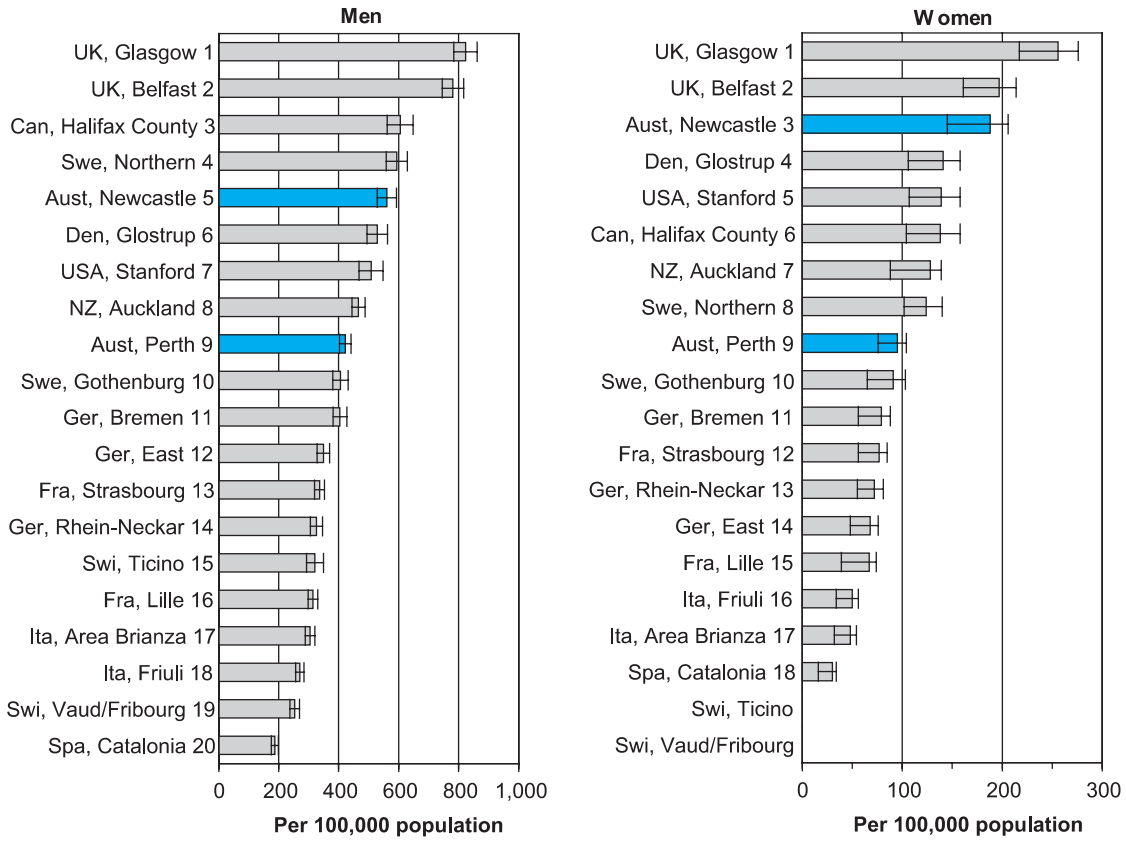


Figure 1: Age-standardised annual event rates with 95% confidence interval, ages 35–64, selected MONICA study populations, 1985–1987

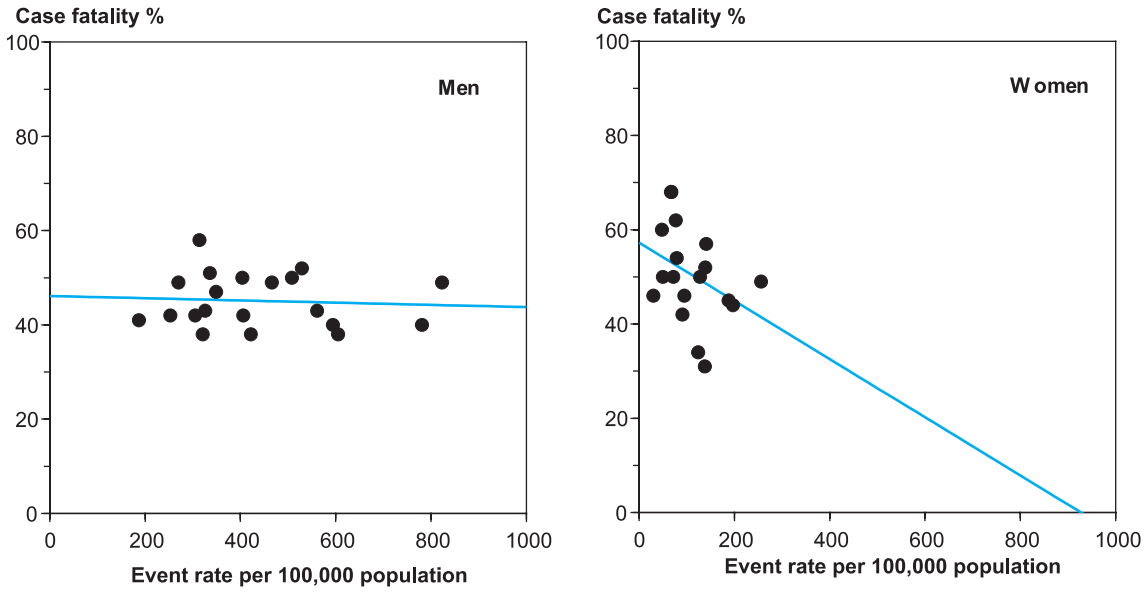


Figure 2: Scatterplot of 28-day case-fatality rates and event rates, selected MONICA study populations, 1985–1987

Heart attack

Coronary events[(a)] and case-fatality, 1985–1987

Region and country	Men aged 35–64		Women aged 35–64	
	Event rate, ±95% CI	% case fatality, ±95% CI	Event rate, ±95% CI	% case fatality, ±95% CI
Australia, Newcastle	561±32	43±3	188±18	45±5
Australia, Perth	422±19	38±2	95±9	46±5
Canada, Halifax County	605±43	38±3	138±20	31±6
Denmark, Glostrup	529±34	52±3	141±17	57±6
France, Lille	314±16	58±3	67±7	68±5
France, Strasbourg	336±17	51±3	77±8	62±5
Germany, Bremen	404±23	50±3	79±9	54±6
Germany, East	349±21	47±3	68±8	68±6
Germany, Rhein-Neckar region	326±20	43±3	72±9	50±6
Italy, Area Brianza	305±16	42±3	48±6	60±6
Italy, Friuli	270±14	49±2	50±6	50±6
New Zealand, Auckland	466±22	49±2	128±11	50±4
Spain, Catalonia	187±12	41±3	30±4	46±8
Sweden, Gothenburg	406±26	42±3	91±12	42±7
Sweden, Northern	594±35	40±3	124±16	34±6
Switzerland, Ticino	321±28	38±4	—	—
Switzerland, Vaud/Fribourg	253±16	42±3	—	—
UK, Belfast	781±36	40±2	197±17	44±4
UK, Glasgow	823±39	49±2	256±20	49±4
USA, Stanford	508±40	50±4	139±19	52±7

(a) Age-standardised to the World Standard Population. Event rates are per 100,000 population.

Sources: WHO MONICA Project Principal Investigators 1994.

- The WHO MONICA project is an international collaborative project aiming to MONItor trends and determinants in CArdiovascular disease over a 10-year period. The MONICA study remains one of the most comprehensive studies yet undertaken for cardiovascular disease and its risk factors, although it is based on regional (and not national) data. The study has produced event (i.e. occurrence) rate and case-fatality (i.e. death) rate data for acute myocardial infarction (or 'heart attack') for a number of study populations, including Newcastle and Perth in Australia.
- In 1985–87, both males and females had higher rates of heart attack in Newcastle than Perth, with rates higher for males than for females in both cities. The Australian sites ranked in the top half of the 20 sites included here for comparison purposes, for both males and females. For males, Newcastle ranked fifth and Perth ninth amongst 20 sites. For females, Newcastle ranked third and Perth ninth (Figure 1). Case-fatality rates in both Newcastle and Perth ranked somewhat lower.
- Although not included here, rates of heart attack among males from Finland were high (824±49 events per 100,000 population in Kuopio Province, 915±62 in North Karelia), and low among males from China (76±9 in Beijing). In Poland, 28-day case-fatality was high for both males (81% in Tarnobrzeg Voivodship, 60% in Warsaw) and females (91% in Tarnobrzeg Voivodship, 63% in Warsaw).
- Among the populations included for comparison, rates of heart attack were high for the United Kingdom and low for Spain and Italy. Case-fatality was high in the two French study populations. Event and case fatality rates were significantly correlated for females ($r=-0.33$, $p<.05$), but not males (Figure 2), suggesting that non-fatal attacks were being missed where event rates were low.

For more information, see:

WHO MONICA Project Principal Investigators 1994. Myocardial infarction and coronary deaths in the World Health Organization MONICA project. Circulation 90: 583–612.

Boyle CA, Dobson AJ 1995. Morbidity from cardiovascular disease in Australia. Canberra: AIHW.

HIV/AIDS

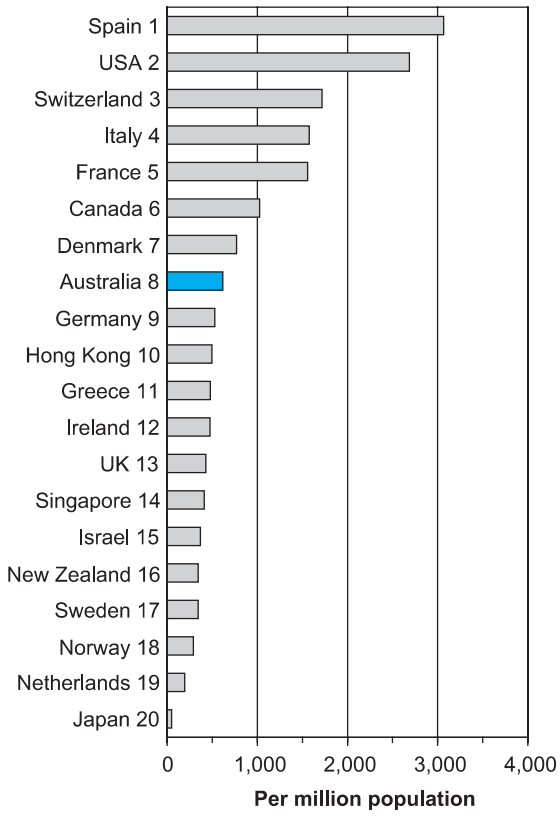


Figure 1: Estimates of adult HIV seroprevalence, end 1994

Figure 2: Cumulative AIDS incidence, 1996

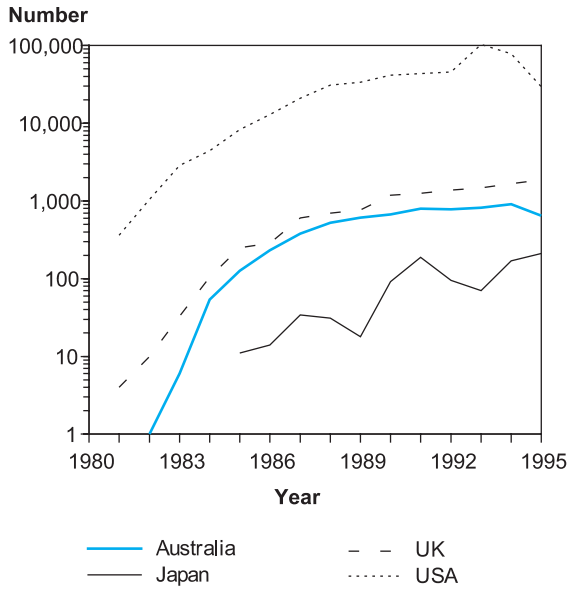


Figure 3: Reported cases of AIDS by year of diagnosis, 1980 to 1995

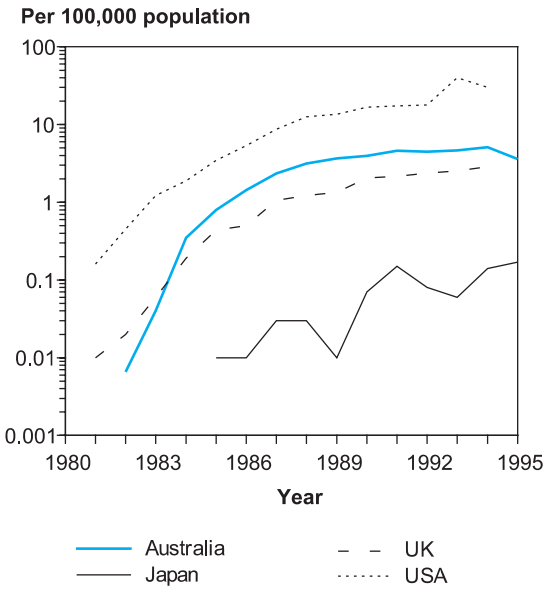


Figure 4: Reported cases of AIDS per 100,000 population, 1980 to 1995

HIV/AIDS

Cumulative HIV prevalence and reported cases of AIDS

Country	HIV prevalence, end 1994	AIDS cases, to 1996	Cumulative AIDS incidence (per million pop.)[(a)]		
			1990	1993	1996
Australia	11,000	6,442	109	245	352
Canada	30,000	13,291	144	268	443
Denmark	4,000	1,866	117	228	359
France	90,000	41,058	171	420	703
Germany	43,000	14,518	62	119	178
Greece	5,000	1,350	29	73	129
Hong Kong	3,000	175	4	14	27
Ireland	1,700	514	41	94	143
Israel	2,000	376	23	44	65
Italy	90,000	33,304	105	295	581
Japan	6,200	1,186	2	4	9
Netherlands	3,000	3,991	85	168	257
New Zealand	1,200	523	48	104	145
Norway	1,250	518	37	74	118
Singapore	1,200	179	6	21	60
Spain	120,000	38,393	136	469	977
Sweden	3,000	1,371	47	94	156
Switzerland	12,000	5,112	191	436	720
UK	25,000	12,565	56	126	214
USA	700,000	513,486	538	1,120	1,936

(a) Cumulative AIDS incidence is the total number of AIDS cases reported to date divided by the current estimate of the mid-year population.

Sources: WHO 1990, 1993b, 1995b, 1996b.

- Human immunodeficiency virus (HIV) infection first emerged as a deadly epidemic in the early 1980s. HIV is a retrovirus precipitating the onset of Acquired Immune Deficiency Syndrome (AIDS). In the 15 years since the first reported AIDS cases, HIV infection has become a global pandemic. Reported AIDS cases worldwide numbered 1.3 million from 193 countries by the end of 1995. Over 5 million persons are estimated to have died from AIDS; an additional 24 million adults are estimated to have already been infected with HIV, with nearly 10,000 new infections occurring each day (Quinn 1996).
- Data on HIV/AIDS are available from disease surveillance programs of individual countries. Data as of 1996 indicate that the United States has the highest cumulative rate of AIDS incidence among developed countries—1,936 notified cases per million population, followed by Spain with 977 cases per million population. Australia ranked in the middle of developed countries with 352 cases per million population. Singapore, Hong Kong and Japan have had the lowest cumulative rates (Figure 2).
- The total number of AIDS cases may not be a direct reflection of the extent of HIV infection in a country, since it is influenced by the proportion of HIV cases actually developing AIDS. This is related to the 'age' of the epidemic in a country, and treatment with drugs such as AZT which may delay the onset of AIDS. Prevalence data, or the number of persons currently living with HIV infection, is a more useful measure (Figure 1).
- Risk factors responsible for the transmission of HIV vary substantially from country to country. Male to male sexual activity has been responsible for most of the cases in the United States and Australia, injecting drug use has caused most of the cases in Italy and Spain, and contaminated blood products are responsible for most of the Japanese cases (NCHECR 1997, US Congress Office of Technology Assessment 1993).
- Public awareness and prevention of HIV/AIDS has been heightened in many developed countries by coordinated programs, including Australia's National HIV/AIDS Strategy.

For more information, see:

Quinn TC 1996. Global burden of the HIV pandemic. Lancet 348: 99–106.

Mental disorders

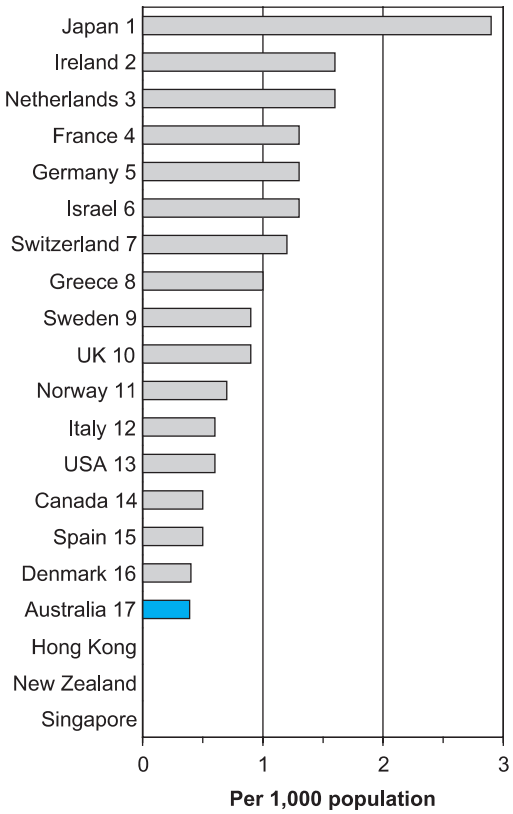


Figure 1: Psychiatric beds, 1995

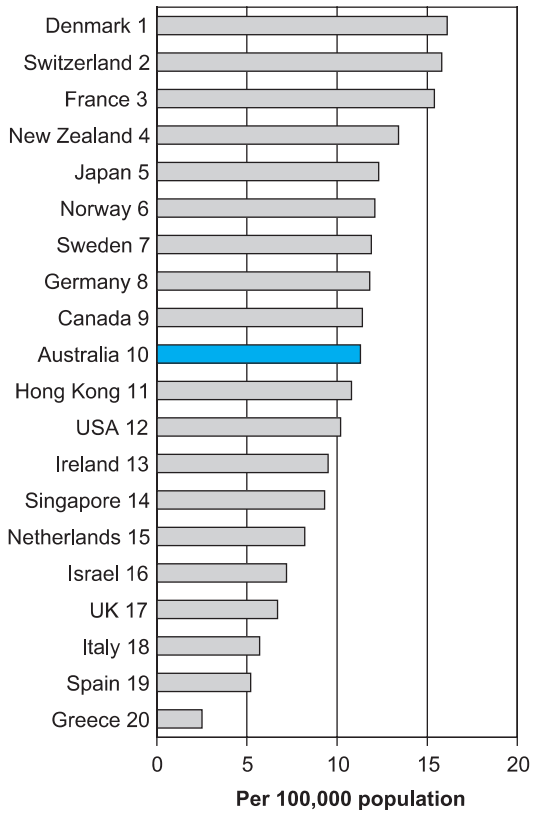


Figure 2: Age-standardised suicide rates, 1992

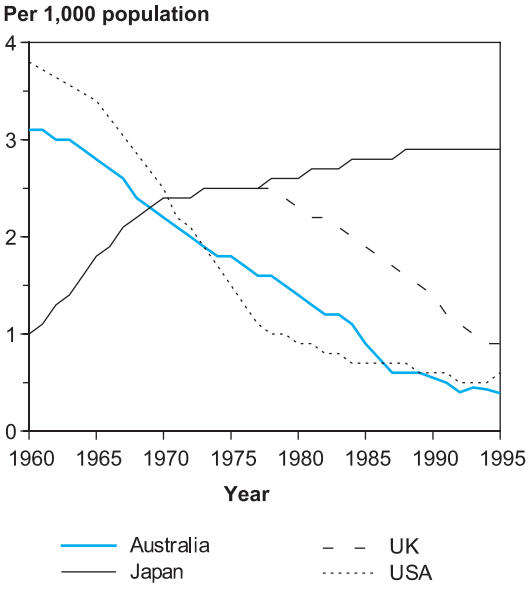


Figure 3: Trends in psychiatric beds, 1960 to 1995

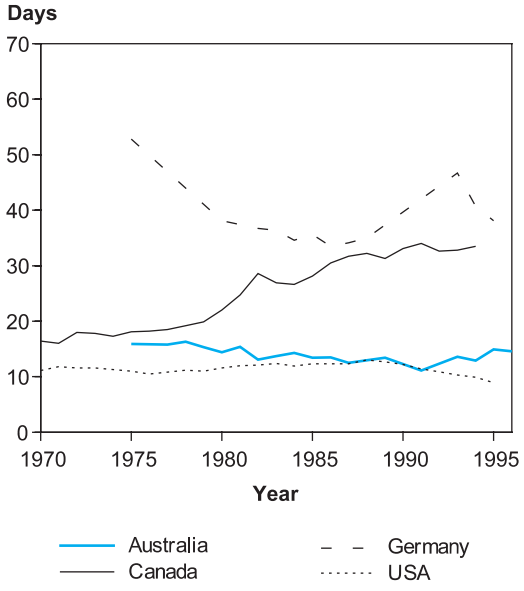


Figure 4: Trends in average length of hospital stay for mental disorders, 1970 to 1996

Mental disorders

Indicators of mental health

Country	Suicide rate, 1992[a]	Self-evaluation 'less than good'[b]		Psychiatric beds, 1995[c] (per 1,000 pop.)	Discharge rate[d] (per 1,000 pop.)		Average stay[d] (days)	
Australia	11.3	1995	17%	0.4	1996–97	11.1	1996–97	14.6
Canada	11.4	1994	51%	0.5	1994	6.1	1994	33.5
Denmark	16.1	1994	20%	0.4	1993	2.9	1993	9.0
France	15.4	1991	27%	1.3	1993	5.2	1996	7.3
Germany	11.8	1995	54%	1.3	1995	9.4	1995	38.1
Greece	2.5	—	—	1.0	1991	3.0	1992	99.0
Hong Kong	10.8	—	—	—	—	—	—	—
Ireland	9.5	—	—	1.6	1996	1.2	1996	10.4
Israel	7.2	—	—	1.3	1994	2.6	1994	141.3
Italy	5.7	1995	38%	0.6	1994	5.6	1994	19.6
Japan	12.3	—	—	2.9	1996	2.8	1996	330.7
Netherlands	8.2	1996	18%	1.6	1991	1.5	1995	31.8
New Zealand	13.4	—	—	—	1996	2.9	1996	32.0
Norway	12.1	1995	8%	0.7	1996	1.7	1996	6.3
Singapore	9.3	—	—	—	—	—	—	—
Spain	5.2	1995	28%	0.5	1994	2.4	1996	27.8
Sweden	11.9	1995	23%	0.9	1996	11.7	1995	21.2
Switzerland	15.8	—	—	1.2	—	—	1993	16.5
UK	6.7	1991	36%	0.9	1993	6.5	1993	86.4
USA	10.2	1995	10%	0.6	1995	7.7	1995	8.9

(a) Per 100,000 population. Age-standardised to the World Standard Population.
(b) Per cent population aged 16 and over.
(c) Type of hospital varies. Most countries, including Australia, count beds both in stand-alone psychiatric hospitals and psychiatric units co-located in public or private hospitals.
(d) Discharge rate and average length of stay for ICD 290–319 Mental disorders. Type of hospital varies between countries, and is mainly public acute; Australian data are for public acute and private hospitals, and exclude psychiatric hospitals.

Sources: WHO 1994, 1995a, 1996d; OECD 1998.

- Few reliable indicators are available for measuring the incidence of mental disorders in a community. The rate of suicide (Figure 2) is often cited as a proxy measure of psychological distress. Hospital data provide information on the treatment of severe mental illness, but cannot be used as incidence measures. Monitoring drug usage for the treatment of psychiatric disorders might also be a relevant indicator.
- Many countries routinely include self-evaluation questions in their health surveys. The distribution of various categorical perceptions of health status provide some insight into the mental health status of a community. It should be noted, however, that survey methodology varies between countries.
- Data regarding psychiatric services indicate that Australia has a low number of psychiatric beds per 1,000 population when compared to other developed countries (Figure 1). This reflects the policy of de-institutionalisation of psychiatric patients which has occurred in Australia since the mid-1980s, in favour of increased service provision in community settings. The fall in the number of beds commenced in the early 1960s, and has been mirrored in the United States and United Kingdom. Japan, on the other hand, is increasing their number of psychiatric beds (Figure 3). The lower bed ratio is accompanied by higher discharge rates and lower average length of stay in public acute and private hospitals.
- One of the goals of the WHO mental health programme has been the development of reliable and cross-culturally applicable diagnostic criteria and instruments for mental health assessment. Newer measures of health, such as the Medical Outcomes Study Short-Form 36 (SF-36) are increasingly being adopted in population surveys of mental health.

For more information, see:

Bland RC 1996. International health and psychiatry. Can J Psychiatry 41: 11–5.

Pillay YG 1992. International comparisons: selected mental health data. Psychol Rep 71: 723–6.

5 Mortality

- Life expectancy
- Potential years of life lost
- Major causes of death
- Infant mortality
- All causes
- Cancer
    - Stomach cancer
    - Lung cancer
    - Skin cancer
    - Breast cancer
    - Prostate cancer
- Diabetes mellitus
- Cardiovascular disease
    - Ischaemic heart disease
    - Stroke
- Respiratory system
    - Bronchitis, emphysema and asthma
- Sudden infant death syndrome
- Injury and poisoning
    - Motor vehicle accidents
    - Suicide
- Other selected causes

Life expectancy, males

Figure 1: Male life expectancy at birth, 1992

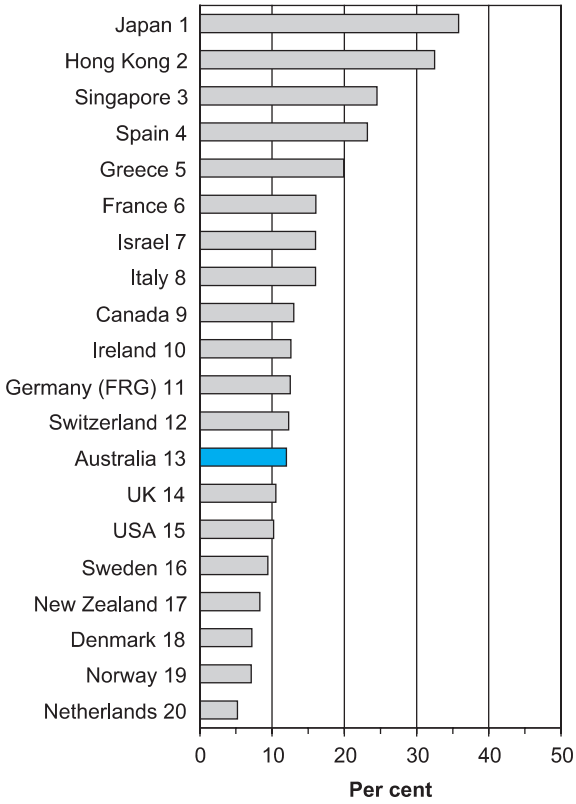


Figure 2: Rise in male life expectancy at birth, 1950 to 1992

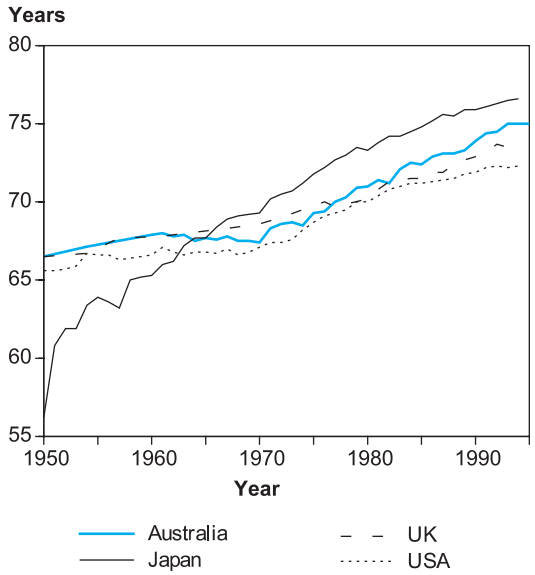


Figure 3: Trends in male life expectancy at birth, 1950 to 1995

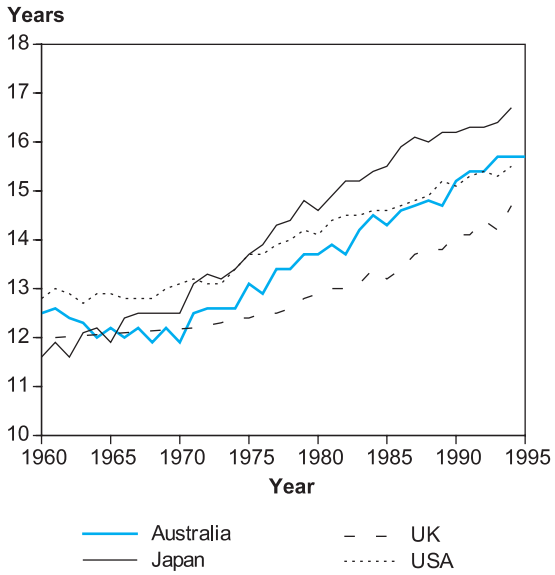


Figure 4: Trends in male life expectancy at age 65, 1960 to 1995

Life expectancy, males

Life expectancy at birth, males (years)

Country	1950	1960	1970	1980	1992	1993	1994	% change 1950 to 1992
Australia	66.5	67.9	67.4	71.0	74.5	75.0	75.0	12.0
Canada	66.3	68.4	69.3	71.9	74.9	74.8		13.0
Denmark	67.8	70.4	70.7	71.1	72.7	72.7		7.2
France	63.6	67.2	68.6	70.2	73.8	73.8		16.0
Germany (FRG)	64.6	66.9	67.4	69.9	72.7	72.8	73.0	12.5
Greece	62.3	67.3	70.1	72.2	74.7	75.0	75.2	19.9
Hong Kong	57.2	64.0	68.5	72.6	75.8	76.6	76.9	32.5
Ireland	64.5	68.1	68.8	69.5	72.6			12.6
Israel	64.4	68.1	69.6	72.1	74.7	75.3	75.5	16.0
Italy	63.8	67.2	69.0	71.1	74.0			16.0
Japan	56.2	65.3	69.3	73.3	76.3	76.5	76.6	35.8
Netherlands	70.6	71.4	70.9	72.4	74.3	74.0	74.6	5.2
New Zealand	67.2	68.7	68.3	70.0	72.8	73.3		8.3
Norway	69.3	71.3	71.1	72.5	74.2	74.2		7.1
Singapore	58.8	64.1	67.4	69.2	73.2	73.7	73.5	24.5
Spain	59.8	67.3	69.7	72.6	73.7			23.2
Sweden	69.0	71.6	72.1	72.8	75.5	75.5		9.4
Switzerland	66.4	69.2	70.2	72.3	74.6	75.0	75.1	12.3
UK	66.7	67.9	69.0	70.2	73.7	73.5	74.1	10.5
USA	65.6	66.6	67.1	70.0	72.3			10.2

Sources: United Nations 1993; WHO 1994, 1995a, 1996d.

- ***In 1992,*** the life expectancy at birth for Australian males was 74.5 years, rising to 75.0 years in 1994. A number of countries exceed Australian male life expectancy: a baby boy born in Japan in 1992 can expect to live 76.3 years. Hong Kong (75.8 years) and Sweden (75.5 years), as well as Canada, Greece, Israel and Switzerland, also enjoyed greater male life expectancy at birth than did Australia. The United States (72.3 years) had the lowest life expectancy among the countries included here for comparison, followed by Ireland, Germany, Denmark and New Zealand (Figure 1).
- Between 1950 and 1992, the Asian nations experienced a greater improvement in male life expectancy at birth than any other of the developed countries included here. Japanese life expectancy increased by more than one-third (35.8%) during this time period. Hong Kong (32.5%) and Singapore (24.5%), as well as Spain (23.2%), also showed notable improvements (Figure 2).
- In comparison, between 1950 and 1992, Australian male life expectancy at birth increased by 12%. The improvement was only moderate, ranking 13th among developed nations. However, Australia's baseline life expectancy in 1950 was high at 66.5 years. The Scandinavian countries (Sweden, Denmark and Norway), as well as New Zealand and the Netherlands, had less than 10% increases in life expectancy. Again, their life expectancies in 1950 were comparatively high.
- The improvements in Australian post-war life expectancy can be attributed to reductions in death rates at older ages, especially from diseases of the circulatory system (AIHW 1996). Male life expectancy at birth remained stable between 1950 and 1970, but has increased steadily since, accompanied by a downturn in cardiovascular mortality rates since the late 1960s. This trend has been mirrored in the United Kingdom and United States. In Japan, however, life expectancy has continued to increase steadily since 1950 (Figures 3 and 4).

For more information, see:
WHO 1996. World health statistics annual, 1995. Geneva: World Health Organization.

Life expectancy, females

Figure 1: Female life expectancy at birth, 1992

Figure 2: Rise in female life expectancy at birth, 1950 to 1992

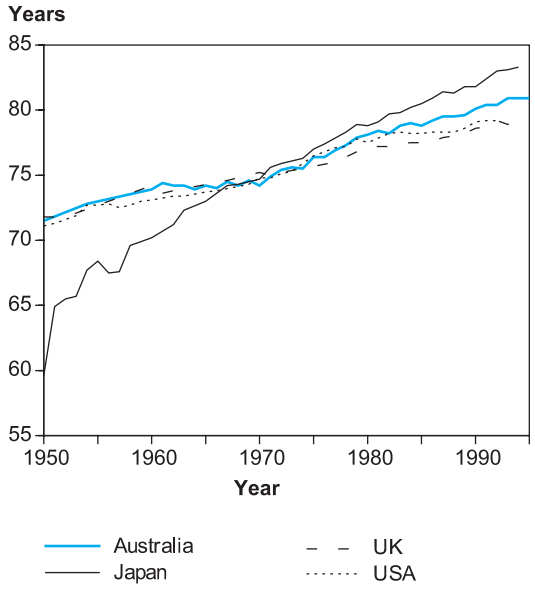


Figure 3: Trends in female life expectancy at birth, 1950 to 1995

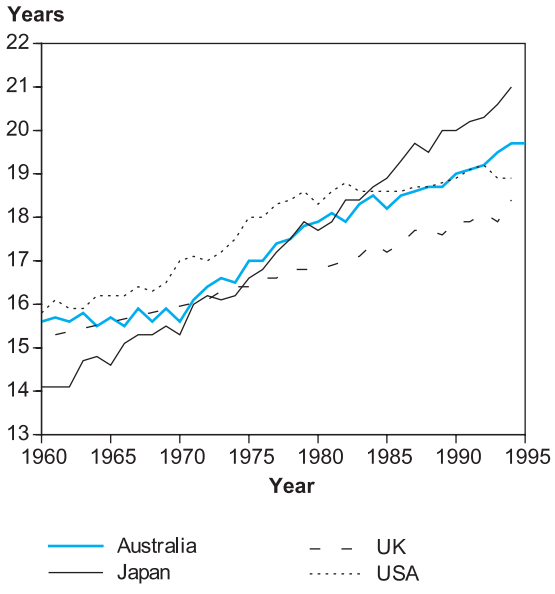


Figure 4: Trends in female life expectancy at age 65, 1960 to 1995

Life expectancy, females

Life expectancy at birth, females (years)

Country	1950	1960	1970	1980	1992	1993	1994	% change 1950 to 1992
Australia	71.5	73.9	74.2	78.1	80.4	80.9	80.9	12.4
Canada	70.8	74.2	76.4	79.0	81.4	81.0		15.0
Denmark	70.1	73.8	75.9	77.2	78.1	77.9		11.4
France	69.3	73.8	76.1	78.4	82.3	82.1		18.8
Germany (FRG)	68.5	72.4	73.8	76.7	79.3	79.3	79.6	15.8
Greece	65.2	70.4	73.6	76.4	80.0	80.4	80.2	22.7
Hong Kong	64.9	71.3	75.6	78.3	81.6	82.3	82.9	25.7
Ireland	67.1	71.9	73.5	75.6	78.2			16.5
Israel	66.4	70.7	73.0	75.7	78.4	79.1	79.4	18.1
Italy	67.3	72.3	74.9	77.8	80.7			19.9
Japan	59.6	70.2	74.7	78.8	83.0	83.1	83.3	39.3
Netherlands	72.9	75.5	76.6	79.2	80.5	80.0	80.4	10.4
New Zealand	71.3	73.8	74.6	76.3	79.2	78.9		11.1
Norway	72.7	75.6	76.8	79.2	80.5	80.3		10.7
Singapore	62.1	67.6	71.8	74.6	78.9	78.6	79.0	27.1
Spain	64.3	71.9	75.0	78.6	81.1			26.1
Sweden	71.6	75.3	77.2	78.8	81.1	80.9		13.3
Switzerland	70.9	74.8	76.2	78.8	81.7	81.7	81.9	15.2
UK	71.8	74.2	75.2	77.2	79.2	78.9	79.5	10.3
USA	71.1	73.1	74.8	77.5	79.2			11.4

Sources: United Nations 1993; WHO 1994, 1995a, 1996d.

- In 1992, the life expectancy for Australian females at birth was 80.4 years, rising to 80.9 years in 1994. Australia ranked in the lower half of the developed countries included here for comparison for female life expectancy in 1992. As in the case of males, Japan ranked first on this indicator of health—a baby girl born in Japan in 1992 can expect to live 83.0 years. France, Switzerland, Hong Kong and Canada also had comparatively higher female life expectancies. Denmark (78.1 years) had the lowest female life expectancy at birth in 1992, led by Ireland, Israel and Singapore (Figure 1).
- Girls born in Asian countries had the greatest improvement in post-war life expectancy. A Japanese girl born in 1950 could expect to live 59.6 years. By 1992, this figure had risen to 83.0 years—an improvement of almost 40%. The Mediterranean countries (Spain, Greece and Italy) also showed notable improvements during this period of some 20% or more (Figure 2).
- Between 1950 and 1992, Australian female life expectancy at birth increased by 12.4%, slightly higher than that for males (12.0%). This places Australia 14th among 20 developed nations for improvement in female life expectancy. The United Kingdom, the Netherlands and Norway, as well as New Zealand, the United States and Denmark had smaller increases in life expectancy than Australia. Smaller improvements in life expectancy in these countries are partly due to a higher base in 1950.
- Compared to males, Australian, United Kingdom and United States females showed a steadier improvement in post-war life expectancy, both at birth and at the age of 65. This improvement accelerated further after 1970—again attributable to the downturn in cardiovascular mortality dating from this time. In Japan, this improvement has been more rapid and sustained over the same time period (Figures 3 and 4).
- Male:female differences in life expectancy vary among developed countries, from a high of 8.5 years for France in 1992, to a low of 3.7 years for Israel in the same year. For Australia, the difference between male and female life expectancy at birth was 5.9 years in 1992. In Japan, male:female differences in life expectancy have generally been increasing since the 1950s.

For more information, see:

WHO 1996. World health statistics annual, 1995. Geneva: World Health Organization.

Potential years of life lost

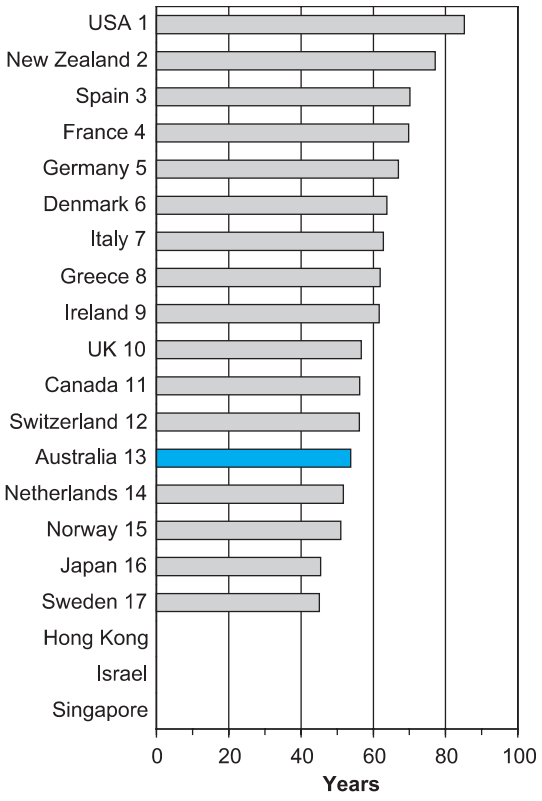


Figure 1: Male PYLL before age 70 per 1,000 persons, 1993–1994

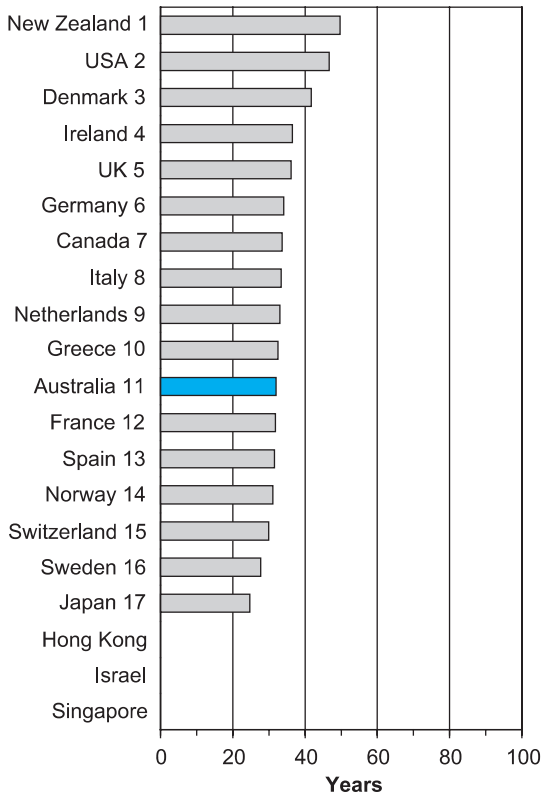


Figure 2: Female PYLL before age 70 per 1,000 persons, 1993–1994

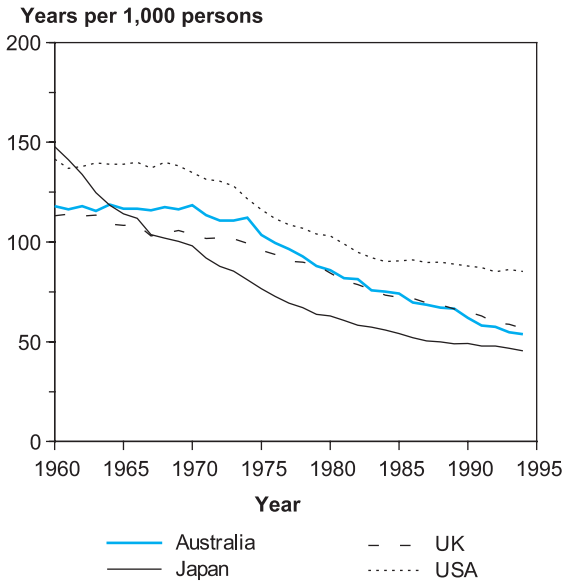


Figure 3: Trends in male PYLL, 1960 to 1995

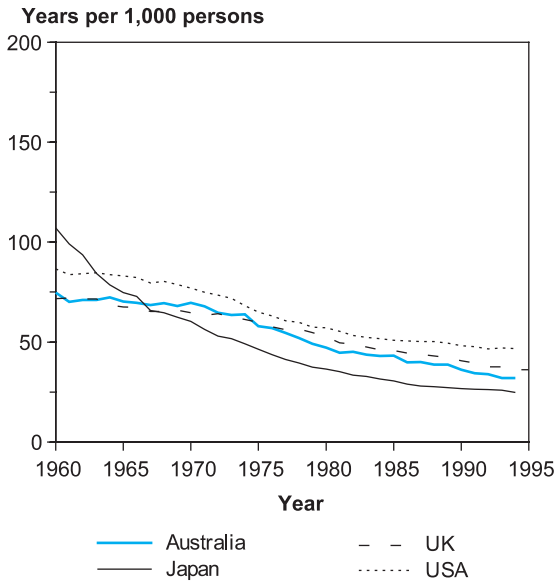


Figure 4: Trends in female PYLL, 1960 to 1995

Potential years of life lost

Potential years of life lost before age 70, by sex and major cause of death[(a)] (per 1,000 population)

		Males				Females			
Country	Year	CVD	Cancer	External causes	All causes	CVD	Cancer	External causes	All causes
Australia	1994	10.7	13.5	16.7	53.8	4.1	11.4	5.3	31.9
Canada	1994	11.2	12.9	17.1	56.3	4.4	12.2	5.7	33.7
Denmark	1993	12.6	14.8	16.4	63.7	5.6	15.6	6.8	41.7
France	1994	8.9	19.0	20.9	69.8	3.0	10.1	6.9	31.7
Germany	1996	14.8	15.7	14.5	63.2	5.7	12.5	4.5	32.7
Greece	1995	14.1	14.2	17.6	63.2	4.9	9.5	4.7	31.6
Hong Kong	—	—	—	—	—	—	—	—	—
Ireland	1993	18.4	14.6	15.1	61.6	6.3	13.7	4.0	36.5
Israel	—	—	—	—	—	—	—	—	—
Italy	1993	11.4	16.3	13.7	62.8	4.7	11.3	3.7	33.4
Japan	1994	9.3	12.7	13.4	45.5	4.2	8.7	4.7	24.7
Netherlands	1995	11.7	13.7	9.3	51.4	5.0	12.5	3.6	32.6
New Zealand	1995	19.3	16.9	26.3	73.4	7.7	17.7	8.6	47.7
Norway	1994	12.2	12.0	13.2	51.0	4.3	12.3	4.4	31.1
Singapore	—	—	—	—	—	—	—	—	—
Spain	1994	11.5	17.1	16.2	70.1	4.0	10.1	4.1	31.5
Sweden	1995	11.1	9.6	12.6	43.0	3.7	10.5	4.7	26.3
Switzerland	1994	9.6	13.2	20.1	56.2	3.3	10.2	6.8	30.0
UK	1995	15.3	13.1	11.5	56.9	6.1	13.1	3.5	36.2
USA	1994	17.6	14.3	25.8	85.2	8.0	12.4	8.2	46.7

(a) Excludes suicide.

Source: OECD 1998.

- Potential years of life lost (PYLL) is an indicator of premature or untimely death. If dying before the age of 70 is considered premature, then a person dying at age 55 would have lost 15 years of potential life. On this score, a particular country's PYLL value will be higher if mortality among children or young people is high. Conditions such as birth defects, injuries and AIDS are significant contributors to PYLL values. Chronic diseases causing death among the elderly, on the other hand, have little effect on these values.
- Japan, Sweden and Norway had low PYLL values for both males and females during 1993 or 1994, whereas the United States and New Zealand had the highest values for both sexes (Figures 1 and 2), attributable to comparatively higher infant death rates. France and Spain showed high male PYLL values—close to 70 years per 1,000 population. France and Spain also had male:female PYLL ratios in excess of 2.0, the male PYLL value being more than double the female value.
- The Australian male rate of 53.8 years, and female rate of 31.9 years per 1,000 population in 1994 compare well with other developed countries. For the 'external' cause of death subgroup, however, 10 countries performed better than Australia for both males and females. This subgroup includes such causes of death as motor vehicle accidents, accidental falls and homicide.
- Australian PYLL values have exhibited a steady decline since 1970, showing trends similar to those observed in the United Kingdom and the United States. Japanese PYLL, in contrast, have shown a decline from a much earlier date (Figures 3 and 4). These reductions in premature mortality can be attributed to factors such as advances in medical technologies (e.g. cardiovascular therapies) and health policy or social programme interventions in particular areas such as perinatal health.
- The PYLL measure is strongly influenced by death rates in every stage of life. Other composite measures of health status such as disability-adjusted life years (DALYs) and disability-free life expectancy (DFLE) are therefore receiving increasing prominence. These measures combine information not only on the length of life, but also on quality of life, and may encompass morbidity, disability and mortality outcomes.

For more information, see:

OECD 1993. OECD health systems: facts and trends 1960–1991. OECD Health Policy Studies No. 3. Paris: OECD.

Major causes of death

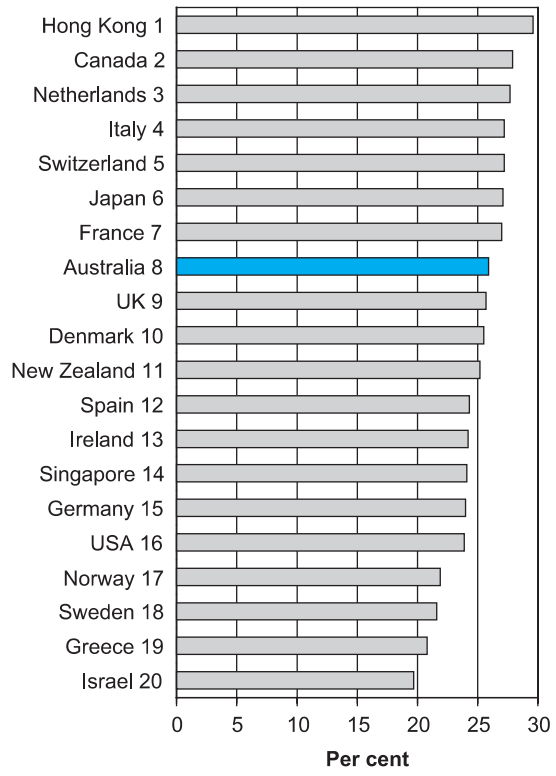


Figure 1: Deaths from cancer, 1992

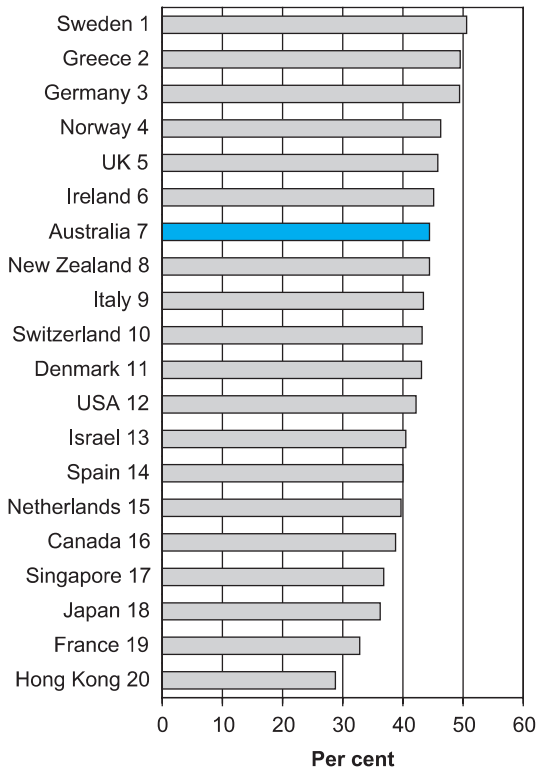


Figure 2: Deaths from diseases of the circulatory system, 1992

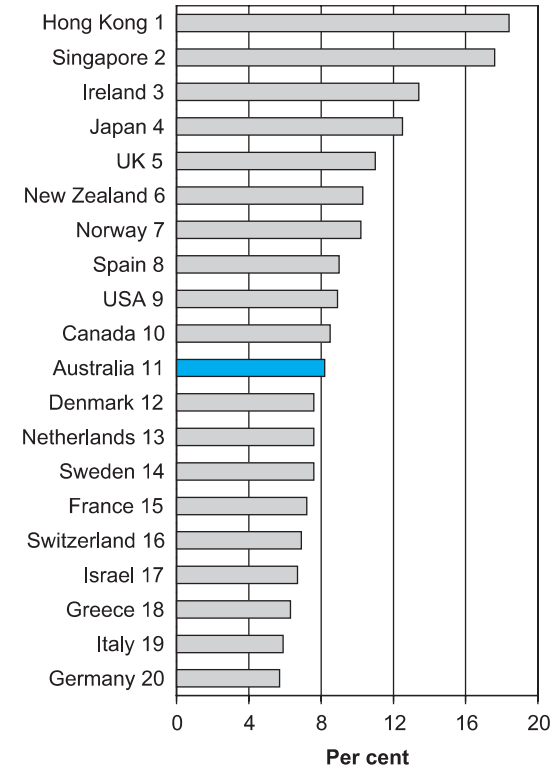


Figure 3: Deaths from diseases of the respiratory system, 1992

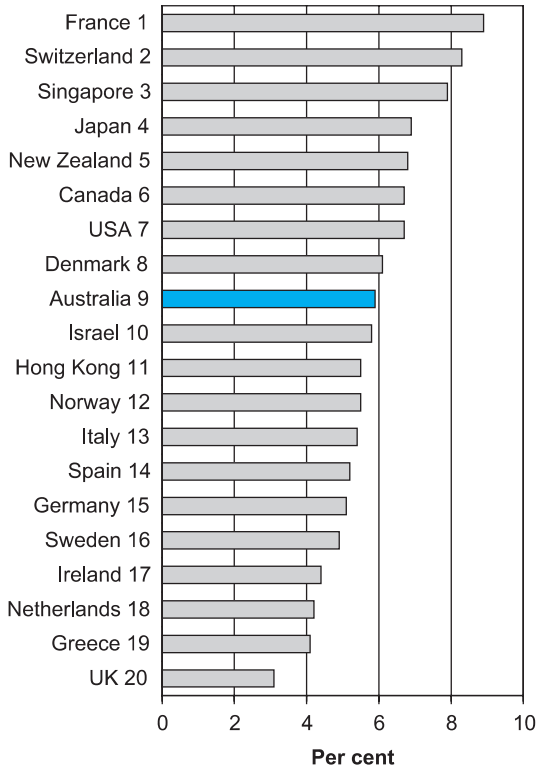


Figure 4: Deaths from injury and poisoning, 1992

Major causes of death

Per cent proportion of major causes of death, 1992

Country	Cancer (ICD 140–208)	Circulatory (ICD 390–459)	Respiratory (ICD 460–519)	Injury & poisoning (ICD E800–E999)	All other causes	All causes
Australia	25.9	44.4	8.2	5.9	15.6	100.0
Canada	27.9	38.8	8.5	6.7	18.1	100.0
Denmark	25.5	43.1	7.6	6.1	17.7	100.0
France	27.0	32.8	7.2	8.9	24.1	100.0
Germany	24.0	49.4	5.7	5.1	15.8	100.0
Greece	20.8	49.5	6.3	4.1	19.3	100.0
Hong Kong	29.6	28.8	18.4	5.5	17.7	100.0
Ireland	24.2	45.1	13.4	4.4	12.9	100.0
Israel	19.7	40.5	6.7	5.8	27.3	100.0
Italy	27.2	43.4	5.9	5.4	18.1	100.0
Japan	27.1	36.2	12.5	6.9	17.3	100.0
Netherlands	27.7	39.7	7.6	4.2	20.8	100.0
New Zealand	25.2	44.4	10.3	6.8	13.3	100.0
Norway	21.9	46.3	10.2	5.5	16.1	100.0
Singapore	24.1	36.8	17.6	7.9	13.6	100.0
Spain	24.3	40.0	9.0	5.2	21.5	100.0
Sweden	21.6	50.6	7.6	4.9	15.3	100.0
Switzerland	27.2	43.2	6.9	8.3	14.4	100.0
UK	25.7	45.8	11.0	3.1	14.4	100.0
USA	23.9	42.2	8.9	6.7	18.3	100.0

Sources: WHO 1994, 1995a, 1996d.

- Diseases of the circulatory system, such as heart attack and stroke; neoplasms (or cancer) such as lung, colorectal, breast and prostate cancer; diseases of the respiratory system, such as asthma, emphysema and bronchitis; and injury and poisoning, such as motor vehicle accidents, accidental falls and suicide, are the major causes of death among developed countries.
- In Australia, in 1992, 44.4% of all deaths were attributed to diseases of the circulatory system. A further one-quarter (25.9%) of all deaths were due to cancers, with the other major causes of death including diseases of the respiratory system (8.2%) and injury and poisoning (5.9%).
- Most developed countries have similar cause-of-death profiles to that for Australia. Between 30–50% of deaths in 1992 were due to diseases of the circulatory system, 20–30% from cancer, 5–15% from diseases of the respiratory system and 3–8% from injury and poisoning. Hong Kong was exceptional among comparison countries in that cancer deaths exceeded circulatory deaths in 1992. The very high proportion of deaths from respiratory diseases in Hong Kong and Singapore are also noteworthy.
- The highest proportion of deaths due to cancer occurred in Hong Kong, Canada and the Netherlands, with Israel, Greece, Sweden and Norway recording the lowest figures (Figure 1).
- Sweden, Greece and Germany recorded the highest proportion of deaths due to diseases of the circulatory system, at approximately 50% (Figure 2). On the other hand, in France, and the Asian countries (Singapore, Japan and Hong Kong) these diseases accounted for less than 40% of deaths.
- Hong Kong and Singapore had the highest proportion of deaths due to diseases of the respiratory system in 1992—three times higher than Germany and Italy—and largely due to high rates of pneumonia in those countries (Figure 3). In France and Switzerland, more than 8% of all deaths were caused by injury and poisoning, attributable to causes such as accidental falls, traffic accidents and suicide (Figure 4). Only 3% of all deaths in the United Kingdom in 1992 were attributed to injury and poisoning.
- To gain a better understanding of mortality in various countries, it is important to consider more detailed cause- and age–sex-specific comparisons. These are provided on the following pages.

For more information, see:

WHO 1996. World health statistics annual, 1995. Geneva: World Health Organization.

Infant mortality

Figure 1: Infant mortality rates, 1994

Figure 2: Declines in infant mortality rates, 1950 to 1994

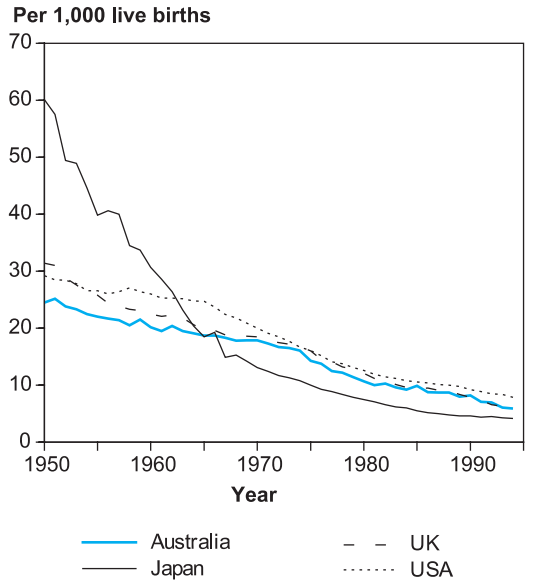


Figure 3: Trends in infant mortality, 1950 to 1994

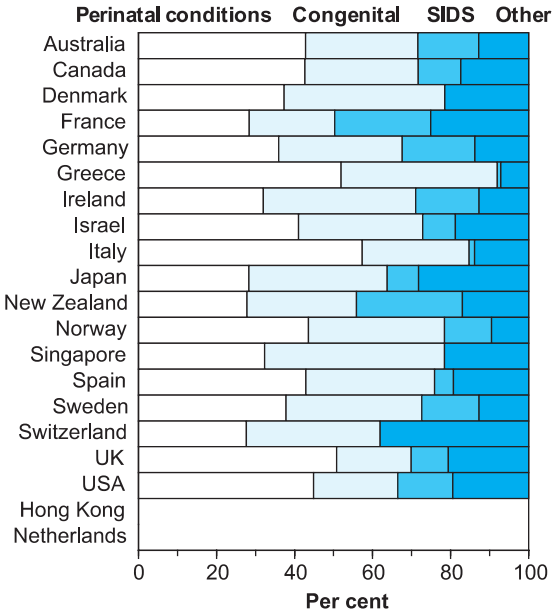


Figure 4: Infant mortality, by cause of death, 1992–1993

Infant mortality

Infant, neonatal and post-neonatal mortality rates (per 1,000 live births)

Country	Infant mortality rate 1950	1960	1970	1980	1994	Year	Neonatal (<28 days)	Post-neonatal (28–364 days)
Australia	24.5	20.2	17.9	10.7	5.9	1994	3.91	1.95
Canada	41.5	27.3	18.8	10.4	6.2	1993	4.15	2.15
Denmark	30.7	21.5	14.2	8.4	5.7	1993	3.57	1.83
France	52.0	27.4	18.2	10.0	5.8	1993	3.15	3.32
Germany (FRG)	57.2	33.8	23.6	12.6	5.6	1994	3.22	2.38
Greece	35.4	40.1	29.6	17.9	7.9	1994	5.60	2.33
Hong Kong	99.6	41.5	19.2	11.2	4.5	1994	2.68	1.81
Ireland	46.2	29.3	19.5	11.1	5.9	1994	3.96	1.96
Israel	47.3	31.0	25.3	15.6	7.5	1993	4.71	3.09
Italy	63.8	43.9	29.6	14.6	6.6	1992	5.85	2.06
Japan	60.1	30.4	13.1	7.5	4.2	1994	2.33	1.92
Netherlands	26.7	17.9	12.7	8.6	5.6	1994	4.02	1.63
New Zealand	27.6	22.6	16.7	12.9	7.1	1993	3.81	3.52
Norway	28.2	18.9	12.7	8.1	5.2	1993	3.45	1.66
Singapore	82.2	34.8	19.7	11.7	4.3	1994	2.40	1.85
Spain	69.8	43.7	26.5	11.1	6.0	1992	4.61	2.44
Sweden	21.0	16.6	11.0	6.9	4.4	1994	1.89	2.56
Switzerland	31.2	21.1	15.1	9.1	5.1	1994	3.27	1.84
UK	31.4	22.5	18.4	12.1	6.2	1994	4.12	2.07
USA	29.2	26.0	20.0	12.6	7.9	1993	5.29	3.07

Sources: United Nations 1979, 1997; WHO 1995a, 1996d.

- Infant mortality, measured as the number of deaths below one year of age, is used internationally as a key indicator of a country's social and economic development. In developed countries, however, infant mortality is not strongly correlated with well-known socioeconomic measures such as the amount spent on health or per capita GDP. However, it may be used to provide information on the health status of mothers and infants and the delivery of health services.
- In 1994, the infant death rate for Australia was 5.9 deaths per 1,000 live births, a ranking of equal ninth among 20 developed countries. Countries with comparatively high infant mortality include the United States and Greece; countries with comparatively low rates include Singapore, Japan and Sweden (Figure 1).
- Understanding international differences in infant death rates is difficult, as it involves factors such as differing population characteristics, maternal risk behaviours and data collection systems. For example, significant inter-population variation in infant mortality rates is noted in the United States. In Japan, cultural customs favour recording infant deaths as stillbirths, since these are not recorded in the family registration system (US Congress, Office of Technology Assessment, 1993).
- Infant mortality in all the countries included here for comparison has more than halved since 1950 (Figures 2 and 3). Although recording a fall of over 75%, Australia's achievement is bettered by many other developed countries. However, Australia's baseline rate in 1950 was low compared to other countries.
- Infant mortality can be divided into two components: neonatal (covering the first four weeks of life) and post-neonatal (covering the remaining period to the end of the first year of life). Greece and Italy have higher neonatal rates (and deaths due to perinatal conditions), New Zealand and France higher post-neonatal rates (and deaths due to SIDS). Post-neonatal death rates are higher than neonatal death rates in France and Sweden. Cause-of-death reporting, however, can vary markedly between countries and may affect the comparative picture (Figure 4).

For more information, see:

Wegman ME 1996. Infant mortality: some international comparisons. Pediatrics 98: 1020–7.

Mortality, males, all causes (ICD 001–999)

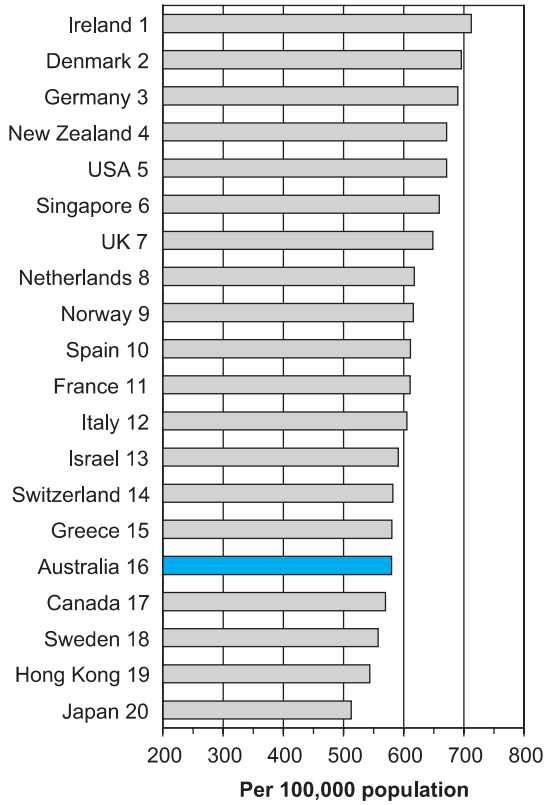


Figure 1: Age-standardised male death rates, all causes, 1992

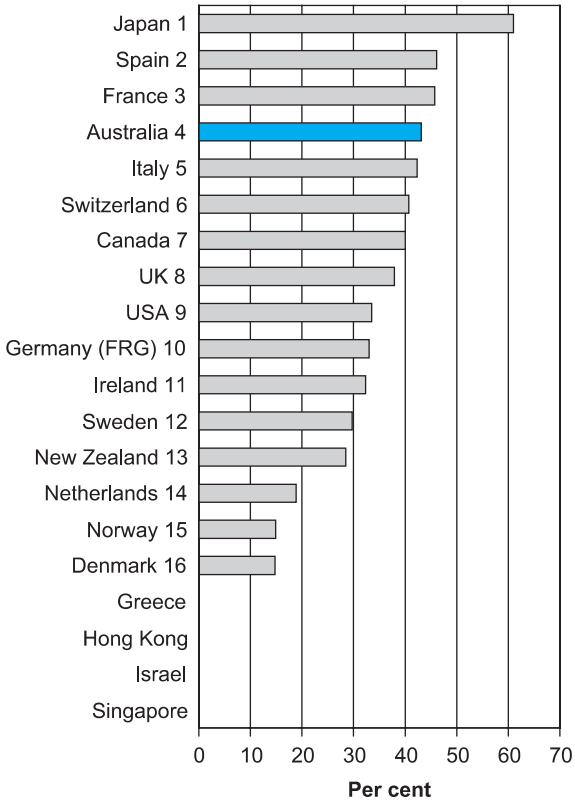


Figure 2: Declines in male death rates, all causes, 1950–54 to 1992

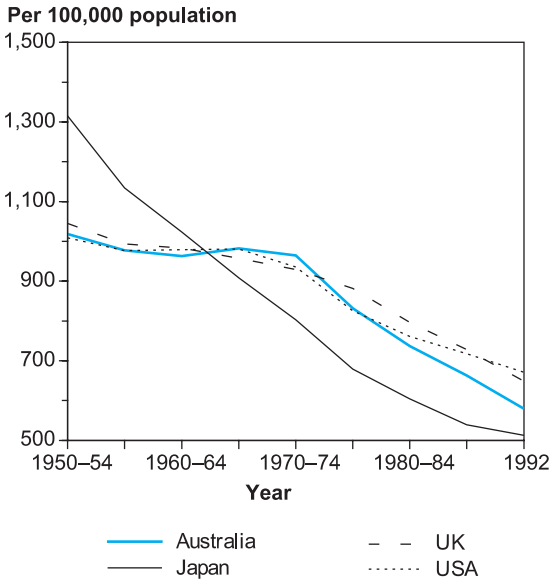


Figure 3: Trends in male death rates, all causes, 1950–54 to 1992

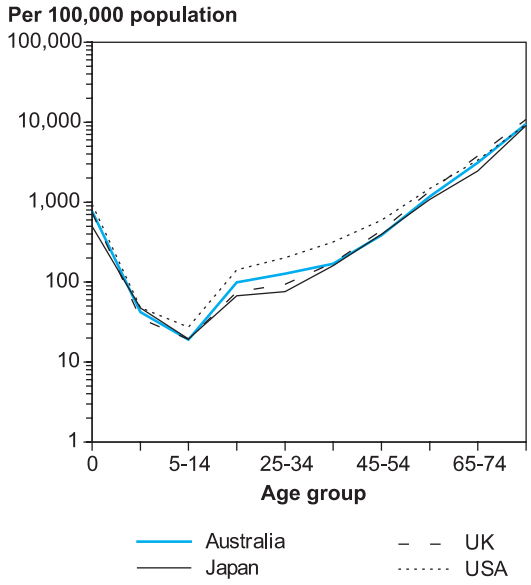


Figure 4: Age-specific male death rates, all causes, 1992

Mortality, males, all causes (ICD 001–999)

Death rates[(a)], males, all causes (per 100,000 population)

Country	1950–54	1960–64	1970–74	1980–84	1992	1993	1994	% change 1950–54 to 1992
Australia	1,018.7	963.4	964.8	737.3	579.8	555.4	563.6	–43.1
Canada	949.4	880.5	838.2	698.8	569.9	571.0		–40.0
Denmark	817.1	799.7	778.5	753.5	695.9			–14.8
France	1,125.3	969.6	861.9	748.6	610.6	606.9		–45.7
Germany (FRG)	1,028.9	991.0	971.6	810.4	689.7	685.6	668.7	–33.0
Greece	—	776.0	688.0	633.4	580.4	565.1	551.0	—
Hong Kong	—	1,052.3	897.9	646.3	543.5	514.4	496.6	—
Ireland	1,052.2	942.8	936.9	856.2	712.2			–32.3
Israel	—	—	—	674.1	590.8	563.1		—
Italy	1,049.7	944.9	874.1	751.1	605.3			–42.3
Japan	1,315.4	1,023.2	803.2	604.4	512.9	508.1	492.7	–61.0
Netherlands	761.8	749.1	773.3	692.4	617.6	640.4	605.8	–18.9
New Zealand	939.1	920.0	919.7	799.1	671.5	637.7		–28.5
Norway	724.0	749.3	751.8	686.5	616.1	624.5		–14.9
Singapore	—	—	1,131.3	890.6	659.3	625.3	636.0	—
Spain	1,134.7	899.6	801.5	665.5	611.5			–46.1
Sweden	792.5	745.3	713.1	658.5	557.3	554.5		–29.7
Switzerland	981.2	896.7	790.3	679.3	582.1	566.2	552.1	–40.7
UK	1,045.1	983.0	929.1	797.0	648.6	656.9	622.6	–37.9
USA	1,009.0	979.2	935.5	761.5	671.4			–33.5

(a) Age-standardised to the World Standard Population.

Sources: WHO 1988, 1994, 1995a, 1996d.

- The most common and useful measure of a population's health is, paradoxically, its death rate, since mortality statistics remain the most widely available source of information on health and health problems. Age standardising death rates allows for comparisons of mortality experience between countries with different age distributions.
- In 1992, the Australian male death rate for all causes of death—adjusted for age and standardised to the World Standard Population—was 580 deaths per 100,000 population. This rate is moderate compared to 19 other developed countries for which data are available. Four countries had lower rates than Australia in 1992—Japan, Hong Kong, Sweden and Canada. Ireland, Denmark and Germany experienced the highest rates in 1992, Ireland's rate being almost 23% higher than that of Australia (Figure 1).
- All countries have experienced declines in all-causes male death rates since the early 1950s. The largest decline has been in Japan—rates falling in excess of 60%, or an average 1.5% per annum, between 1950–54 and 1992. Strikingly, Japan had the highest death rate among the 16 countries for which data were available for the period 1950–54. Australia's decline of 43%, or over 1% per annum, is also notable. The Scandinavian countries (Denmark, Norway and Sweden) have experienced only modest declines over this period; however, their immediate post-war death rates were comparatively low (Figure 2).
- During the 1950s and 1960s, death rates in Australia and many other developed countries stabilised. Death rates remained low and stable among children and adults to middle age, but small improvements were noted among older aged persons. By the mid-1960s and early 1970s, it was believed that mortality trends had levelled and that further gains would be minimal. Since then, further declines have occurred at all ages. The pattern is different in Japan where consistent declines have been seen since the early 1950s (Figure 3).

For more information, see:

Lancaster HO 1990. Expectations of life: a study in the demography, statistics, and history of world mortality. New York: Springer-Verlag.

Mortality, females, all causes (ICD 001–999)

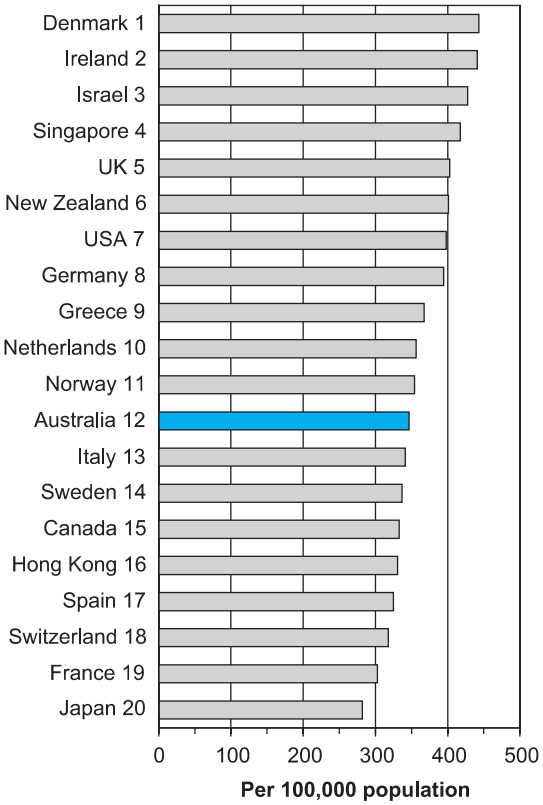


Figure 1: Age-standardised female death rates, all causes, 1992

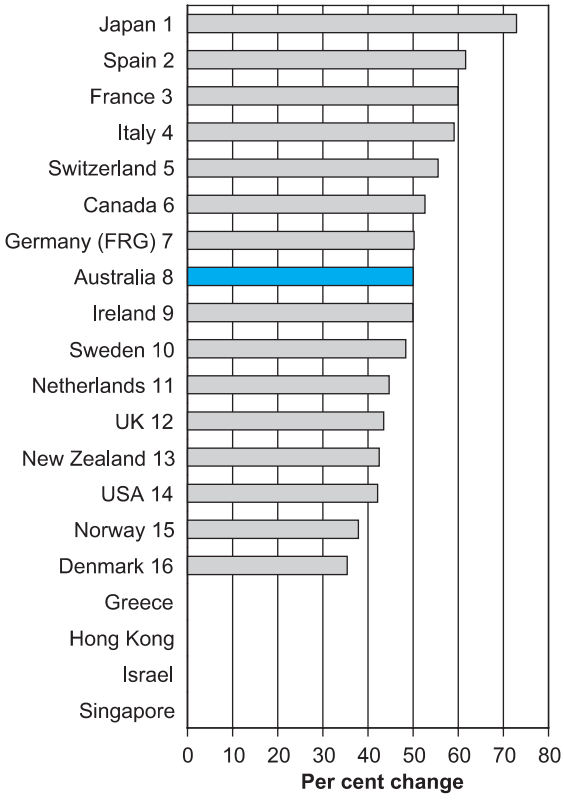


Figure 2: Declines in female death rates, all causes, 1950–54 to 1992

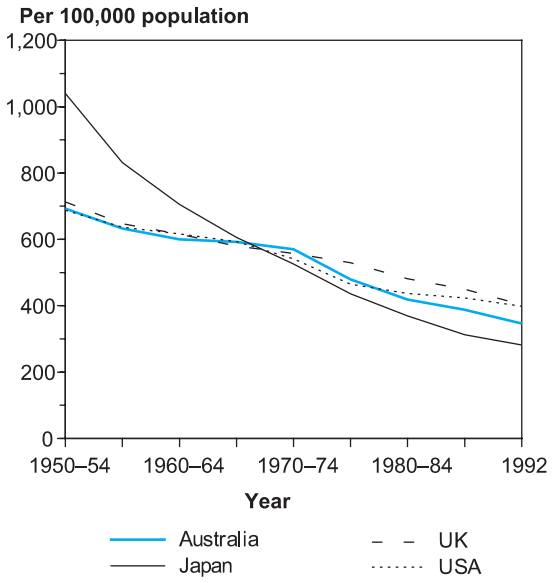


Figure 3: Trends in female death rates, all causes, 1950–54 to 1992

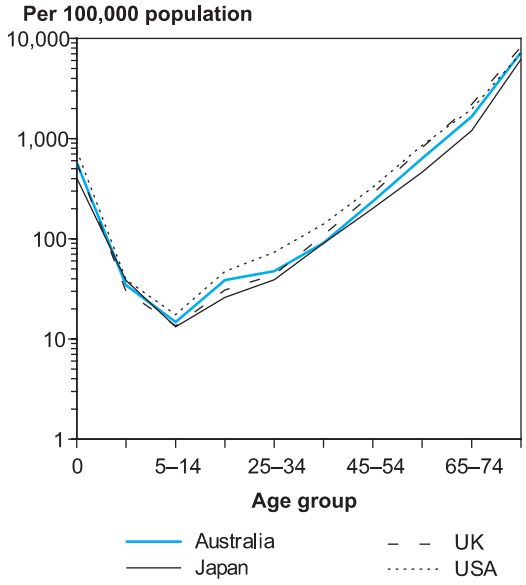


Figure 4: Age-specific female death rates, all causes, 1992

Mortality, females, all causes (ICD 001–999)

Death rates[(a)], females, all causes (per 100,000 population)

Country	1950–54	1960–64	1970–74	1980–84	1992	1993	1994	% change 1950–54 to 1992
Australia	692.9	600.0	570.0	418.8	346.7	330.8	336.4	–50.0
Canada	702.2	580.1	485.8	394.1	333.0	338.5		–52.6
Denmark	686.0	591.7	502.9	456.7	443.3			–35.4
France	754.9	579.7	473.3	386.5	302.6	303.7		–59.9
Germany (FRG)	792.0	666.3	603.4	469.5	394.5	393.3	383.1	–50.2
Greece	—	600.4	498.6	436.3	367.6	354.6	356.8	—
Hong Kong	—	638.1	507.5	394.4	330.6	315.6	296.4	—
Ireland	879.3	708.1	644.2	540.5	440.8			–49.9
Israel	—	—	—	521.0	427.6	403.1		—
Italy	835.3	657.5	549.4	434.7	341.3			–59.1
Japan	1,040.1	705.5	526.1	369.0	281.9	278.1	265.3	–72.9
Netherlands	643.8	529.1	477.7	381.2	356.1	367.8	356.3	–44.7
New Zealand	697.3	608.2	572.6	485.0	401.0	405.8		–42.5
Norway	570.6	530.3	455.0	382.4	354.1	360.3		–37.9
Singapore	—	—	680.7	577.5	417.4	417.7	408.5	—
Spain	845.7	649.5	528.9	397.1	325.0			–61.6
Sweden	652.4	548.3	452.4	385.1	336.9	339.3		–48.4
Switzerland	714.2	589.6	486.4	381.5	317.8	316.3	307.1	–55.5
UK	713.0	615.8	558.1	481.0	402.8	411.4	391.6	–43.5
USA	687.9	616.1	541.4	437.3	398.0			–42.1

(a) Age-standardised to the World Standard Population.

Sources: WHO 1988, 1994, 1995a, 1996d.

- Females in all developed countries experience markedly lower death rates than do males. The gap between males and females is large, and is increasing in some countries. Japanese females have the distinction of the lowest death rates in the world. In 1994, the age-standardised death rate stood at 265 deaths per 100,000 population. In the past four decades, the Japanese female rate has declined to one-quarter of the estimate for 1950–54.
- In 1992, the Australian age-standardised female death rate for all causes was 347 per 100,000 population, some 40% lower than the male rate. This rate places Australian females in the bottom half of the 20 comparison countries (Figure 1).
- A wide range is observed in death rates for females in various developed countries. In 1992, the death rates in Denmark, Ireland and Israel were 50% higher than the rate in Japan. There were also large male–female disparities in rankings for Israel (13th for males, 3rd for females) and France (11th for males, 19th for females).
- Japan, Spain and France have shown the largest reductions in mortality since 1950–54, with the United States, Norway and Denmark showing the smallest reductions (Figure 2). Australia ranked towards the middle. The improvement in the Australian female death rate is not as pronounced as that for males.
- Death rates for Australian females declined very slowly from the end of the Second World War to the late 1960s, and accelerated thereafter (Figure 3). These reductions in death rates occurred for all age groups. It is believed that these reductions are related to changes in lifestyle, impacting known risk factors such as smoking and a high cholesterol diet, as well as advances in medical technology and therapy. The widespread improvements in death rates since the early 1970s hail significant increases in life expectancy, especially for persons in the older age groups.

For more information, see:

Lancaster HO 1990. Expectations of life: a study in the demography, statistics, and history of world mortality. New York: Springer-Verlag.

Mortality, males, all cancers (ICD 140–208)

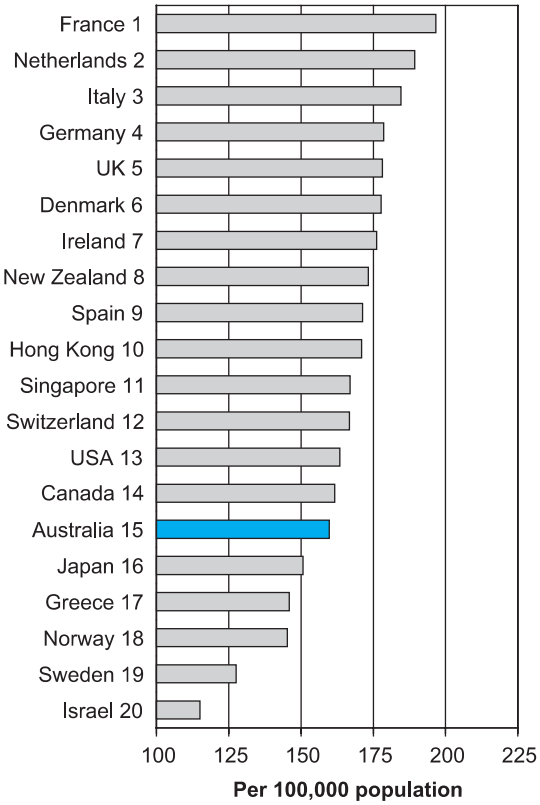


Figure 1: Age-standardised male death rates, all cancers, 1992

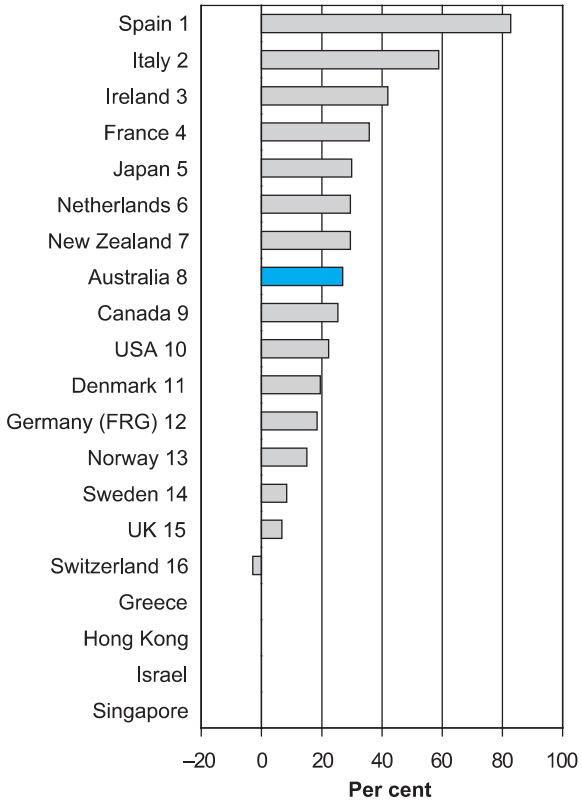


Figure 2: Changes in age-standardised male death rates, all cancers, 1950–54 to 1992

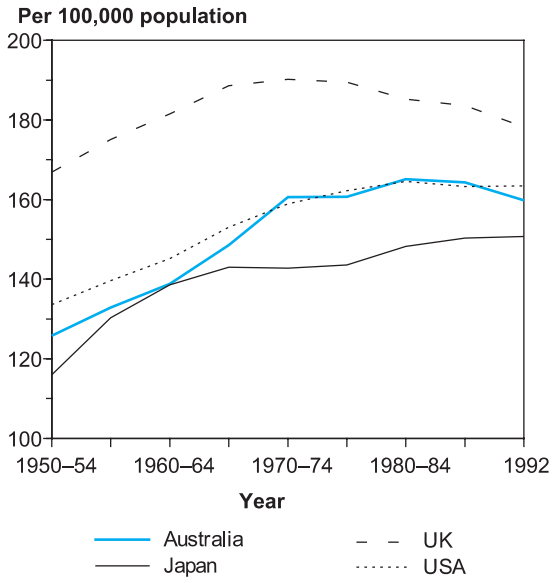


Figure 3: Trends in male death rates, all cancers, 1950–54 to 1992

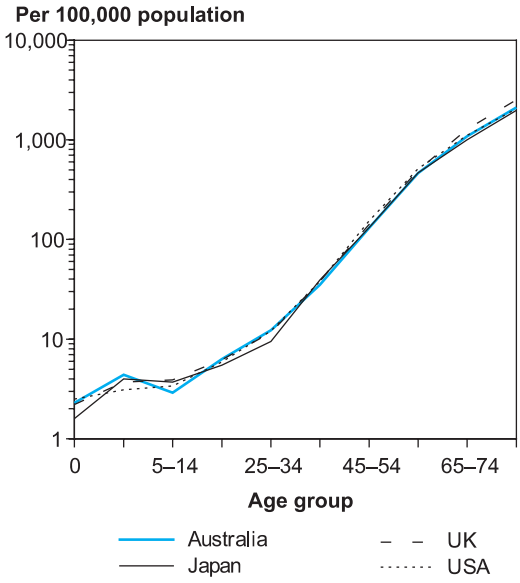


Figure 4: Age-specific male death rates, all cancers, 1992

Mortality, males, all cancers (ICD 140–208)

Death rates[(a)], males, all cancers (per 100,000 population)

Country	1950–54	1960–64	1970–74	1980–84	1992	1993	1994	% change 1950–54 to 1992
Australia	125.8	138.8	160.6	165.1	159.8	156.8	160.5	27.0
Canada	128.9	141.9	158.3	165.7	161.7	159.0		25.4
Denmark	148.7	164.3	168.5	182.8	177.7			19.5
France	144.8	172.5	186.4	200.9	196.7	194.8		35.8
Germany (FRG)	150.8	169.8	178.8	181.1	178.6	176.4	173.7	18.4
Greece	—	118.6	127.6	142.6	145.9	147.2	145.5	—
Hong Kong	—	138.5	172.4	179.7	171.0	171.2	166.3	—
Ireland	124.2	138.4	158.7	165.6	176.2			41.9
Israel	—	—	—	118.8	115.0	127.2		—
Italy	116.2	145.7	171.9	188.1	184.6			58.9
Japan	116.0	138.6	142.8	148.2	150.7	148.6	149.0	29.9
Netherlands	146.2	168.1	189.6	199.9	189.3	187.9	183.6	29.5
New Zealand	133.8	145.5	168.3	172.9	173.3	170.3		29.5
Norway	126.4	126.7	134.0	144.7	145.3	148.1		15.0
Singapore	—	—	166.8	188.3	167.0	156.1	165.7	—
Spain	93.7	128.5	139.0	153.1	171.3			82.8
Sweden	117.7	130.8	142.0	133.4	127.5	125.4		8.3
Switzerland	171.8	170.2	178.0	178.2	166.8	162.9	160.2	–2.9
UK	166.9	181.5	190.2	185.2	178.2	173.3	169.7	6.8
USA	133.6	145.2	158.9	164.6	163.4			22.3

(a) Age-standardised to the World Standard Population.

Sources: WHO 1988, 1994, 1995a, 1996d.

- Cancers constitute a diverse group of diseases in different body sites, characterised by the growth and spread of abnormal cells which invade and destroy the surrounding tissue. Deaths from cancer account for some 20–30% of all deaths in developed countries. The main types of cancer causing death among males are lung, colorectal and prostate cancers, and for females breast, colorectal and lung cancers.
- The 1992 Australian male death rate for all cancers was 160 deaths per 100,000 population. Compared to 19 other developed countries, this was a moderately low rate, with only Israel, Sweden, Norway, Greece and Japan showing lower rates. France (197), the Netherlands (189) and Italy (185) on the other hand, had the highest male rates for all cancers combined in 1992 (Figure 1).
- Combining mortality data for all cancer sites, however, masks trends for individual cancers, some of which have risen in numbers and others fallen over the years. In Australia, for example, stomach cancer rates have fallen by approximately 75% for both males and females between 1950–54 and 1992, whereas lung cancer rates have risen by over 100% in the same time period.
- The Australian male death rate for all cancers has remained relatively stable over the past two decades, following a rapid rise between the early 1950s and the early 1970s (Figure 3). In the period between 1950–54 and 1992, rates rose by 27%, or 0.7% per year. During this time, the United Kingdom recorded consistently higher male rates than did Australia, Japan or the United States. Spain and Italy recorded rises of 83% and 59% respectively in the same time period. Switzerland is the only country that recorded a decline in male cancer death rates during this period (2.9%) (Figure 2).
- There are many factors that may account for international differences and trends in cancer death rates. Some of these are varying genetic predispositions to cancer, survival rates, environmental factors and differing risk-taking behaviours such as smoking. Differing diagnostic and coding procedures, especially of death certificates, may also play a major role in this diversity of outcomes.

For more information, see:

Pisani P, Parkin DM, Ferlay J 1993. Estimates of the worldwide mortality from eighteen major cancers in 1985. Implications for prevention and projections of future burden. Int J Cancer 55: 891–903.

Mortality, females, all cancers (ICD 140–208)

Figure 1: Age-standardised female death rates, all cancers, 1992

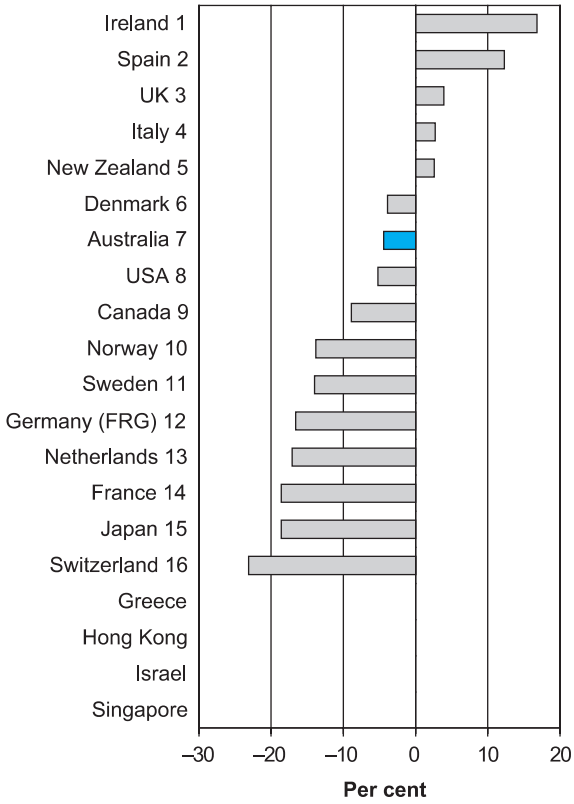


Figure 2: Changes in age-standardised female death rates, all cancers, 1950–54 to 1992

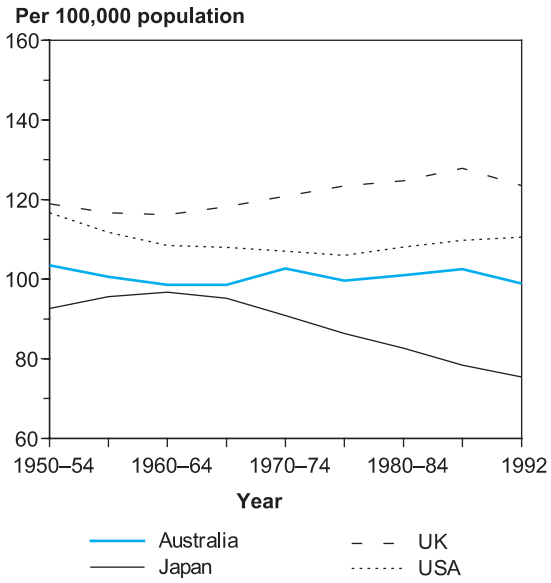


Figure 3: Trends in female death rates, all cancers, 1950–54 to 1992

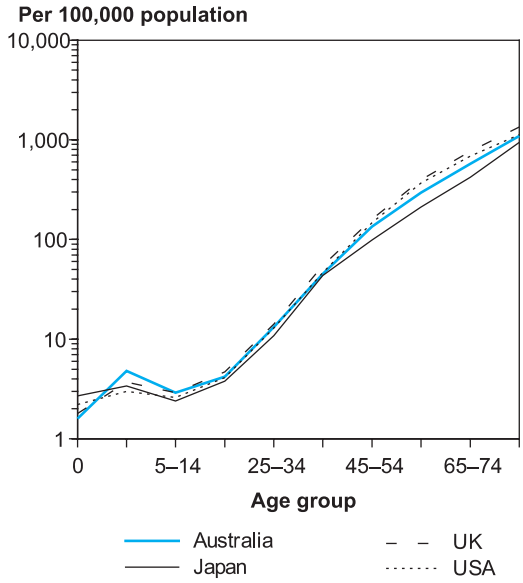


Figure 4: Age-specific female death rates, all cancers, 1992

Mortality, females, all cancers (ICD 140–208)

Death rates[(a)], females, all cancers (per 100,000 population)

Country	1950–54	1960–64	1970–74	1980–84	1992	1993	1994	% change 1950–54 to 1992
Australia	103.5	98.6	102.7	101.0	98.9	99.6	100.8	–4.4
Canada	118.4	113.0	110.0	108.0	107.9	107.8		–8.9
Denmark	144.3	141.8	132.1	136.3	138.7			–3.9
France	106.2	105.0	97.5	91.9	86.4	86.5		–18.6
Germany (FRG)	129.9	128.3	122.6	113.7	108.3	108.2	105.9	–16.6
Greece	—	74.9	74.9	80.0	76.9	77.2	78.4	—
Hong Kong	—	90.9	97.5	95.4	92.5	92.0	88.0	—
Ireland	107.4	113.1	125.4	123.4	125.4			16.8
Israel	—	—	—	104.5	100.3	101.2		—
Italy	94.2	100.9	102.2	99.5	96.7			2.7
Japan	92.6	96.7	90.9	82.7	75.4	74.1	74.1	–18.6
Netherlands	129.5	120.7	116.9	108.3	107.3	108.8	109.2	–17.1
New Zealand	115.0	111.9	117.4	122.0	118.0	122.3		2.6
Norway	113.2	102.5	99.0	100.3	97.6	101.1		–13.8
Singapore	—	—	97.6	110.4	101.4	105.6	102.7	—
Spain	70.7	89.6	87.7	80.7	79.4			12.3
Sweden	112.8	110.6	111.0	101.8	97.0	97.3		–14.0
Switzerland	125.7	114.2	108.9	102.5	96.7	94.9	92.7	–23.1
UK	118.9	116.2	120.9	124.7	123.5	121.0	119.4	3.9
USA	116.7	108.5	107.0	108.1	110.6			–5.2

(a) Age-standardised to the World Standard Population.

Sources: WHO 1988, 1994, 1995a, 1996d.

- The most common cancers causing death among Australian females are breast, colorectal and lung cancers. Among developed countries, Australian females rank comparatively higher than males for age-standardised cancer death rates. In 1992, they rated 11th among 20 countries, with an age-standardised rate of 99 deaths per 100,000 population (Figure 1).
- Unlike males, post-war Australian female death rates for all cancers show a small decline. Between 1950–54 and 1992, a 4.4% reduction occurred in the rate of all cancers.
- In several other countries, significant reductions in overall cancer mortality were noted among females between 1950–54 and 1992. Switzerland, France, the Netherlands and Japan saw decreases of over 10%. Ireland and Spain, on the other hand, recorded increases of over 10% (Figure 2). Japan has seen a steady decline in the death rate for all cancers since the early 1960s (Figure 3). Trends for all causes, however, mask increases or decreases for individual cancers.
- Cancer death rates vary for different age groups, generally increasing with age. Sex also has an important bearing, rates being higher for females than males in middle age. Some of these differences can be accounted for by cancers specific to sex—cancers of the ovary, uterus and breast may cause mortality earlier in life, whereas cancer of the prostate generally occurs later in life (Lancaster 1990). Age-specific rates for Australia, Japan, the United Kingdom and United States are similar, the Japanese rates being somewhat lower for the older age groups (Figure 4).
- In Australia, as in many other developed countries, cancers of the lung, breast and cervix are the focus of public health campaigns. Targets have been set for the year 2000, accompanied by increased screening, amelioration of risk factors and improved therapies to decrease incidence and mortality.

For more information, see:

Pisani P, Parkin DM, Ferlay J 1993. Estimates of the worldwide mortality from eighteen major cancers in 1985. Implications for prevention and projections of future burden. Int J Cancer 55: 891–903.

Mortality, males, stomach cancer (ICD 151)

Figure 1: Age-standardised male death rates, stomach cancer, 1992

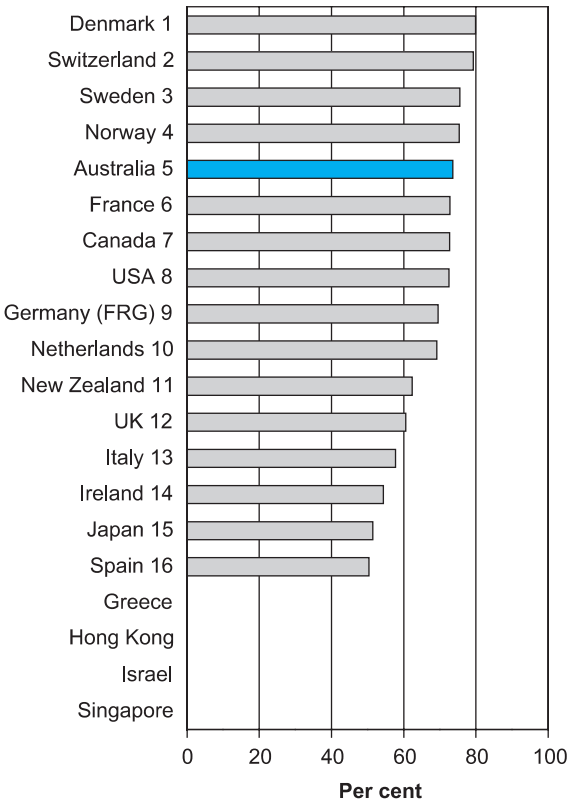


Figure 2: Declines in male death rates, stomach cancer, 1950–54 to 1992

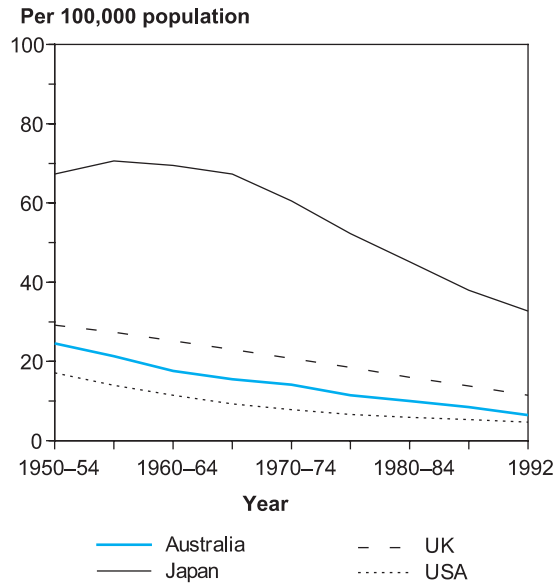


Figure 3: Trends in male death rates, stomach cancer, 1950–54 to 1992

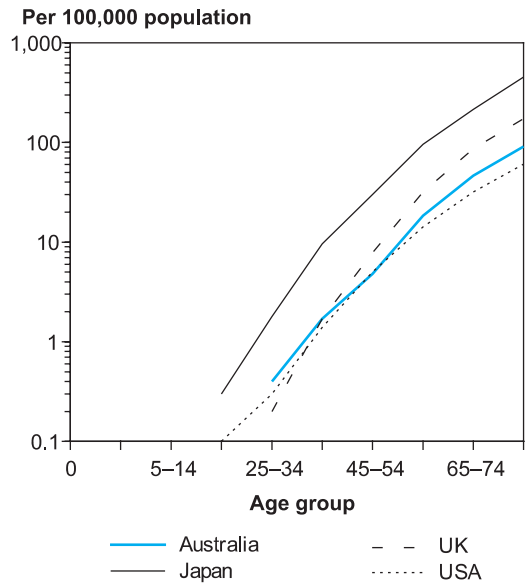


Figure 4: Age-specific male death rates, stomach cancer, 1992

Mortality, males, stomach cancer (ICD 151)

Death rates[(a)], males, stomach cancer (per 100,000 population)

Country	1950–54	1960–64	1970–74	1980–84	1992	1993	1994	% change 1950–54 to 1992
Australia	24.6	17.6	14.1	10.0	6.5	6.6	6.7	–73.6
Canada	25.3	19.1	14.1	9.6	6.9	6.1		–72.7
Denmark	32.9	24.8	16.5	11.1	6.6	6.9		–79.9
France	28.7	24.2	16.6	11.6	7.8	7.6		–72.8
Germany (FRG)	45.3	39.0	29.2	19.4	13.8	13.2	12.9	–69.5
Greece	—	16.3	13.9	11.3	8.8	9.3	8.2	—
Hong Kong	—	20.0	17.0	12.6	10.6	10.4	9.8	—
Ireland	28.5	25.0	21.4	14.8	13.0			–54.4
Israel	—	—	—	10.5	8.9	8.8		—
Italy	36.6	34.8	29.2	21.9	15.5			–57.7
Japan	67.3	69.5	60.5	45.2	32.7	31.0	30.7	–51.4
Netherlands	39.6	30.3	22.7	16.4	12.2	11.1	10.7	–69.2
New Zealand	24.4	18.2	14.5	11.6	9.2	7.9		–62.3
Norway	42.7	28.0	19.7	13.8	10.5	9.3		–75.4
Singapore	—	—	30.7	23.8	19.5	16.2	16.3	—
Spain	26.6	31.2	26.5	17.5	13.2			–50.4
Sweden	31.8	24.9	17.2	11.5	7.8	6.8		–75.5
Switzerland	41.5	29.9	20.8	12.9	8.6	7.9	8.0	–79.3
UK	29.2	25.2	20.8	16.0	11.5	10.4	10.4	–60.6
USA	17.1	11.5	7.8	5.9	4.7			–72.5

(a) Age-standardised to the World Standard Population.

Sources: WHO 1988, 1994, 1995a, 1996d.

- In the 1930s, stomach cancer was noted to be first in frequency in Australia among cancers in either sex (Lancaster 1990). It still remains a major cause of mortality, in 1985 being noted as the second most frequent cause of death worldwide from cancer in both sexes (Pisani, Parkin & Ferlay 1993). Five-year survival rates for stomach cancer remain low. Rates of stomach cancer increase with age (Figure 4).
- In 1992, the age-standardised death rate for stomach cancer among Australian males was 6.5 per 100,000 population. This was a low rate among developed countries, higher only than the rate in the United States. Japan (32.7) and Singapore (19.5) had much higher rates among the twenty comparison countries (Figure 1).
- Mortality from stomach cancer for males has declined by 50–80% between 1950–54 and 1992 (Figures 2 and 3). In Australia, mortality fell from 24.6 per 100,000 population in 1950–54 to 6.5 per 100,000 population in 1992, a fall of 73.6%, or an average 1.8% per annum. The largest decreases have been noted in the Scandinavian countries and Switzerland. Spain and Japan have had small declines in death rates, although even these are in excess of 50% over four decades.
- It is generally agreed that changes in lifestyle and the preservation of foodstuffs by refrigeration have contributed to the decline in stomach cancer rates. Trends in dietary habits—lowering salt intake and increasing fresh fruit and vegetable intakes—have also been associated with the decline. The *Helicobacter pylori* bacteria has been implicated as playing a major role in causing chronic gastritis and in the development of stomach cancer.
- Rates of stomach cancer in Eastern European countries, where dietary and lifestyle changes have yet to take place, remain high (Franceschi et al. 1994).

For more information, see:

Correa P, Chen VW 1994. Gastric cancer. Cancer Surv 19–20: 55–76.

Mortality, females, stomach cancer (ICD 151)

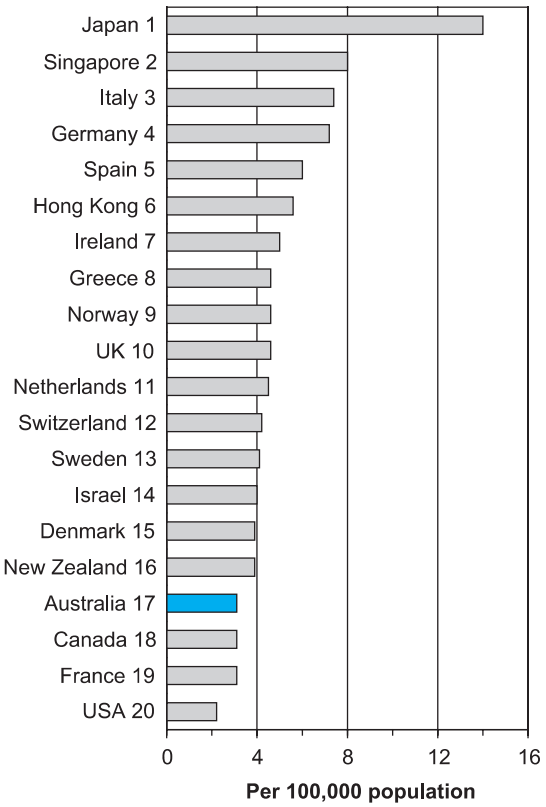


Figure 1: Age-standardised female death rates, stomach cancer, 1992

Figure 2: Declines in female death rates, stomach cancer, 1950–54 to 1992

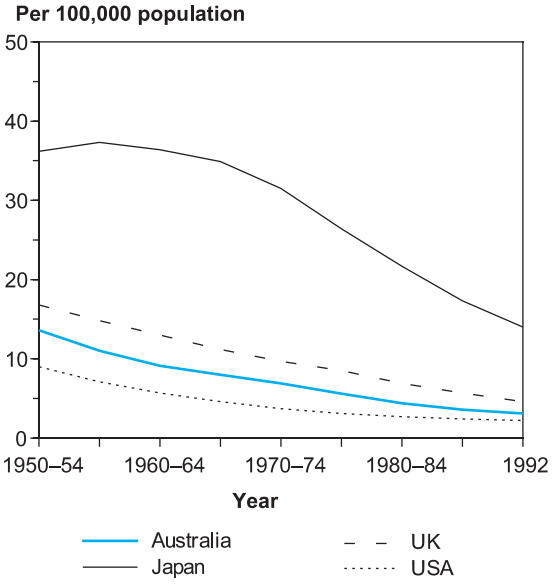


Figure 3: Trends in female death rates, stomach cancer, 1950–54 to 1992

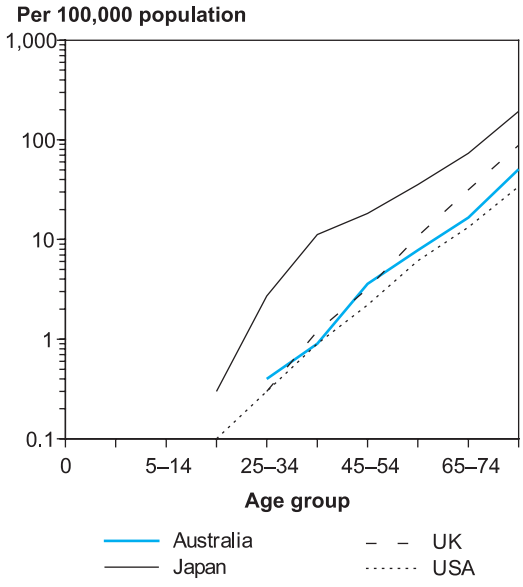


Figure 4: Age-specific female death rates, stomach cancer, 1992

Mortality, females, stomach cancer (ICD 151)

Death rates[(a)], females, stomach cancer (per 100,000 population)

Country	1950–54	1960–64	1970–74	1980–84	1992	1993	1994	% change 1950–54 to 1992
Australia	13.6	9.1	6.9	4.4	3.1	2.8	2.8	–77.2
Canada	13.3	9.1	6.5	4.3	3.1	2.9		–76.7
Denmark	22.1	15.2	8.8	5.5	3.9	3.5		–82.4
France	15.5	12.0	7.6	5.0	3.1	3.1		–80.0
Germany (FRG)	28.8	22.4	15.4	10.1	7.2	7.0	6.7	–75.0
Greece	—	10.2	7.8	6.0	4.6	4.2	4.3	—
Hong Kong	—	11.2	8.3	6.4	5.6	4.9	5.7	—
Ireland	20.4	16.5	13.7	7.8	5.0			–75.5
Israel	—	—	—	6.4	4.0	4.1		—
Italy	21.6	18.3	14.2	10.3	7.4			–65.7
Japan	36.2	36.4	31.5	21.7	14.0	13.3	12.7	–61.3
Netherlands	25.4	16.1	10.9	6.8	4.5	4.4	4.4	–82.3
New Zealand	13.6	8.9	6.7	5.5	3.9	3.4		–71.3
Norway	24.8	16.0	10.4	7.2	4.6	3.9		–81.5
Singapore	—	—	14.1	12.6	8.0	10.3	8.4	—
Spain	16.3	18.2	14.3	8.4	6.0			–63.2
Sweden	20.9	13.5	9.1	5.9	4.1	4.0		–80.4
Switzerland	26.9	17.0	10.7	6.2	4.2	3.5	3.6	–84.4
UK	16.8	13.0	9.7	6.9	4.6	4.2	4.2	–72.6
USA	9.0	5.7	3.7	2.7	2.2			–75.6

(a) Age-standardised to the World Standard Population.

Sources: WHO 1988, 1994, 1995a, 1996d.

- The death rate for cancer of the stomach among females in Australia in 1992 was 3.1 deaths per 100,000 population. This rate was less than half of the rate for males. Canada and France had rates similar to that for Australia, but the United States had the lowest rate of 2.2 deaths per 100,000 population. In recent years the rate for Australian females has declined even further, falling to 2.8 per 100,000 population in 1994.
- As well as the highest male rate, Japan and Singapore had the highest female death rate for stomach cancer in 1992. Germany and Italy also had deaths in excess of 7 per 100,000 population. The Japanese rate (14.0) was more than four times greater than the Australian rate, and six times greater than the United States rate (Figure 1).
- Post-war declines in rates of stomach cancer among females in developed countries have been even more pronounced than the declines for males. For example, Japan—the country with the least improvement—recorded a decline in excess of 60% between 1950–54 and 1992. These improvements accelerated after the early 1970s, although rates had begun to fall since the mid-1950s (Figure 3).
- Stomach cancer among females in Australia declined by 77%, or almost 2% per annum between 1950–54 and 1992, with the most rapid falls occurring in the 1970s. Rates in Switzerland, the Scandinavian countries (Denmark, Norway and Sweden) and the Netherlands fell in excess of 80% during the same period (Figure 2).
- Like the male rate, death rates due to female stomach cancer increase with age. This increase with age tends to be less pronounced among females than among males, especially for the older age groups. In 1992, the Japanese female death rate decelerated markedly for females aged 40 or more (Figure 4).

For more information, see:

Levi F, LaVecchia C, Lucchini F, Negri E 1995. Cancer mortality in Europe, 1990–92. Eur J Cancer Prev 4: 389–417.

Mortality, males, lung cancer (ICD 162)

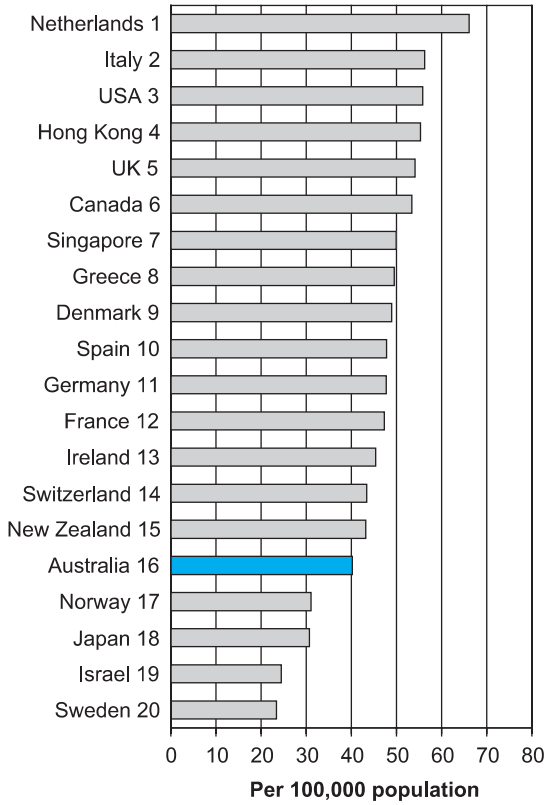


Figure 1: Age-standardised male death rates, lung cancer, 1992

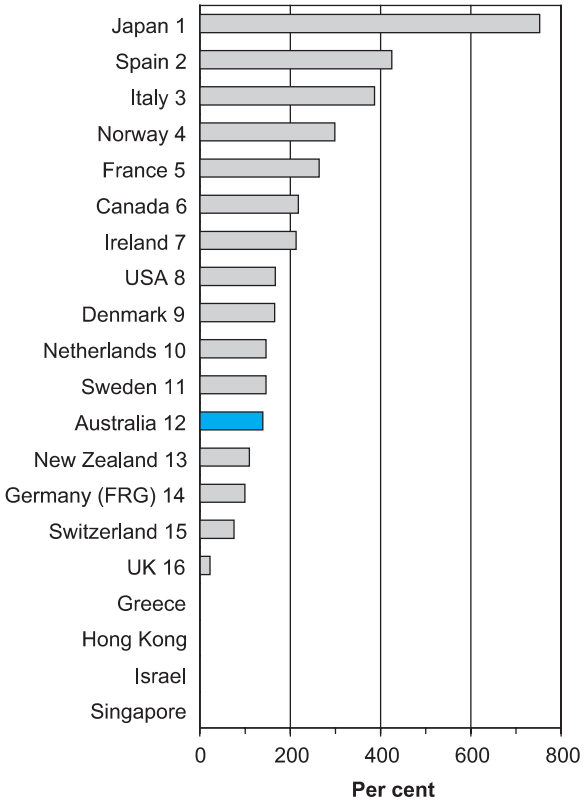


Figure 2: Increases in male death rates, lung cancer, 1950–54 to 1992

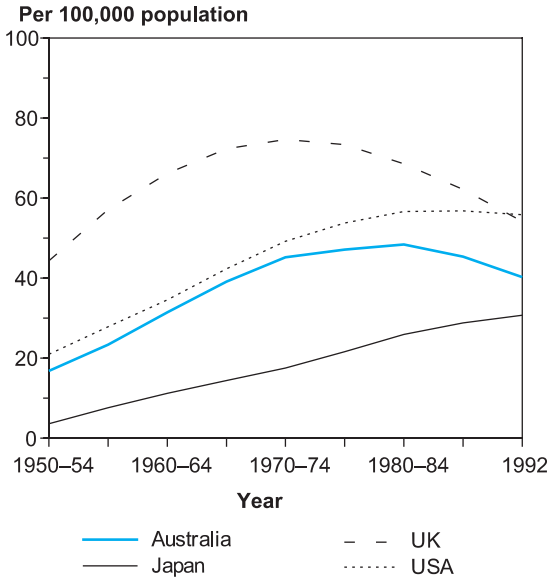


Figure 3: Trends in male death rates, lung cancer, 1950–54 to 1992

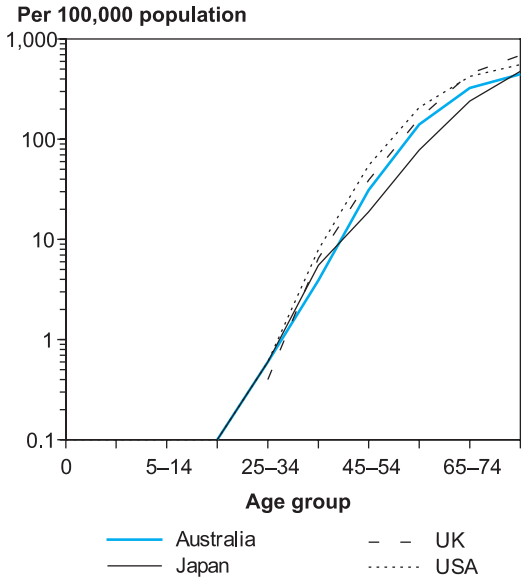


Figure 4: Age-specific male death rates, lung cancer, 1992

Mortality, males, lung cancer (ICD 162)

Death rates[(a)], males, lung cancer (per 100,000 population)

Country	1950–54	1960–64	1970–74	1980–84	1992	1993	1994	% change 1950–54 to 1992
Australia	16.8	31.4	45.2	48.4	40.2	38.8	40.1	139.3
Canada	16.8	28.6	43.8	54.9	53.4	52.9		217.9
Denmark	18.4	32.8	45.3	54.3	48.9			165.8
France	13.0	24.2	33.0	43.0	47.3	47.4		263.8
Germany (FRG)	23.9	38.7	45.7	49.0	47.7	47.5	46.3	99.6
Greece	—	27.5	35.7	45.4	49.5	51.0	50.4	—
Hong Kong	—	24.0	41.7	55.5	55.3	55.5	54.0	—
Ireland	14.5	27.7	41.5	48.4	45.4			213.1
Israel	—	—	—	24.2	24.5	28.4		—
Italy	11.7	24.6	40.8	55.5	56.2			387.0
Japan	3.6	11.2	17.5	25.9	30.7	30.9	31.2	752.8
Netherlands	26.8	47.7	68.2	77.3	66.1	65.0	62.7	146.6
New Zealand	20.6	33.5	45.7	49.7	43.2	40.0		109.7
Norway	7.8	13.1	19.7	27.8	31.1	32.1		298.7
Singapore	—	—	41.3	55.5	49.9	44.4	45.3	—
Spain	9.1	17.8	24.6	36.5	47.8			425.3
Sweden	9.5	15.6	22.0	24.1	23.4	22.3		146.3
Switzerland	24.7	33.4	43.9	48.8	43.4	42.1	40.3	75.7
UK	44.3	66.1	74.6	68.5	54.1	51.6	49.8	22.1
USA	20.9	34.5	49.2	56.6	55.8			167.0

(a) Age-standardised to the World Standard Population.

Sources: WHO 1988, 1994, 1995a, 1996d.

- The twentieth century has seen a dramatic epidemic of lung cancer—it is now the major cause of cancer deaths for both sexes. Tobacco smoking is the major risk factor for lung cancer. Recent calculations for 1985 have estimated that 15%—or 1.1 million new cases per year—of all cancers, and 85% of the 676,000 cases of lung cancer in males, may be attributed to cigarette smoking (Parkin, Pisani, Lopez & Masuyer 1994).
- In 1992, the age-standardised death rate for lung cancer among Australian males was 40.2 deaths per 100,000 population, towards the lower end of rates for developed countries (Figure 1). Sweden had the lowest death rate for males in 1992, at 23.4 deaths per 100,000 population, closely followed by Israel at 24.5 deaths per 100,000 population. The Netherlands had the highest rate—66.1 deaths per 100,000 population—65% higher than the Australian rate, and almost three times as high as the Swedish rate.
- Most developed countries have shown dramatic increases in post-war death rates for male lung cancer, with only three countries (the United Kingdom, Switzerland and Germany) recording increases less than 100% (Figure 2). The Japanese rate increased over eight-fold, from 3.6 deaths per 100,000 in 1950–54 to 30.7 in 1992. The Australian rate increased by almost 140% in that period.
- Long-term trend data for several developed countries indicate that male lung cancer mortality rates have plateaued, and are beginning to fall (Figure 3). Rates in the United Kingdom peaked in the early 1970s, and those in Australia and the United States in the early 1980s. Rates in Japan, however, continue to increase.
- Although male lung cancer mortality rates have declined lately in several developed countries, the persistence of tobacco smoking and its penetration into new markets is ample reason for continuing to monitor trends in lung cancer. Recent dramatic mortality increases in central and eastern Europe among young and middle-aged males, reflecting rising cigarette consumption in the 1960s, 1970s and 1980s, are cause for concern. Raising public awareness and increasing motivation among public health professionals are needed in these areas.

For more information, see:

Gilliland FD, Samet JM 1994. Lung cancer. Cancer Surv 19–20: 175–95.

Mortality, females, lung cancer (ICD 162)

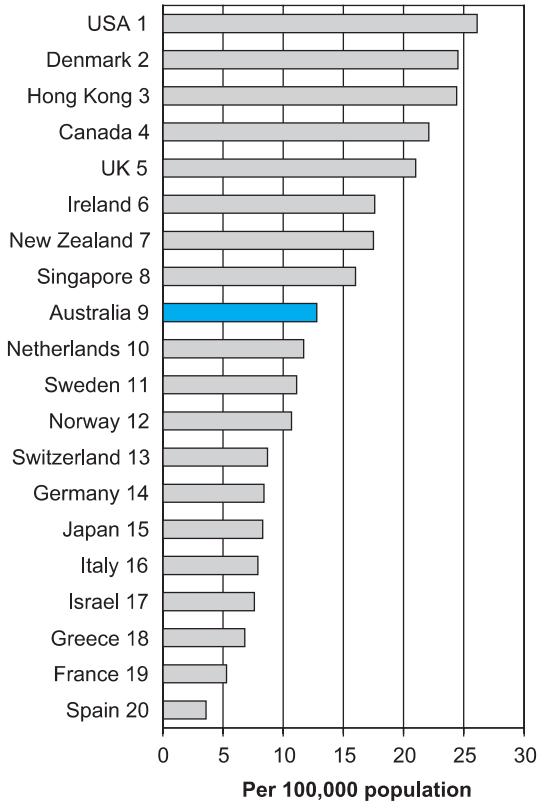


Figure 1: Age-standardised female death rates, lung cancer, 1992

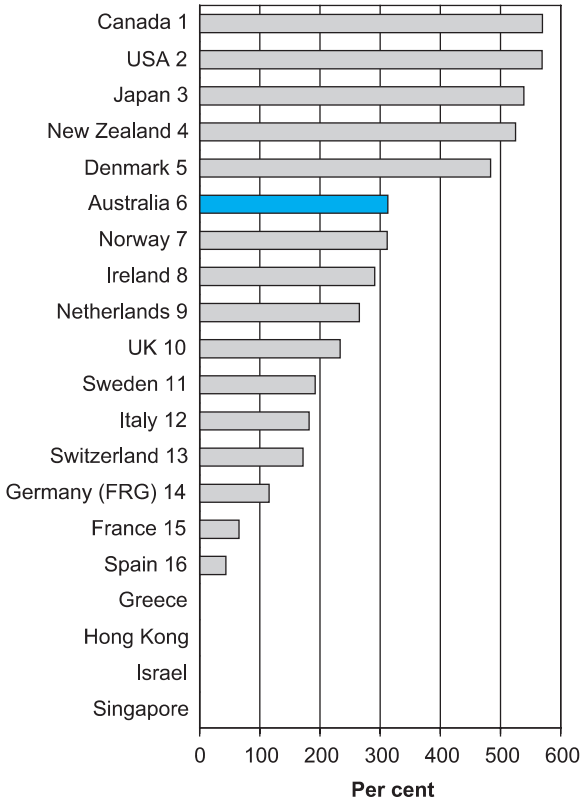


Figure 2: Increases in female death rates, lung cancer, 1950–54 to 1992

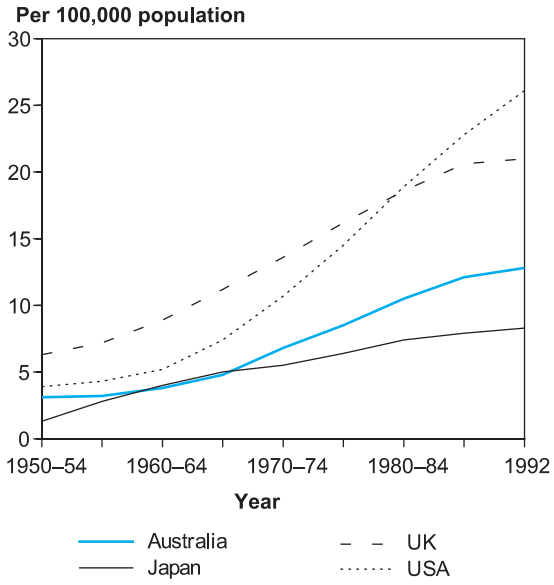


Figure 3: Trends in female death rates, lung cancer, 1950–54 to 1992

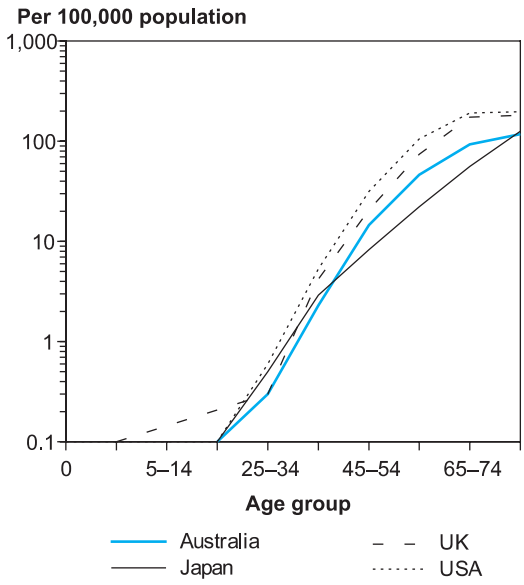


Figure 4: Age-specific female death rates, lung cancer, 1992

Mortality, females, lung cancer (ICD 162)

Death rates[(a)], females, lung cancer (per 100,000 population)

Country	1950–54	1960–64	1970–74	1980–84	1992	1993	1994	% change 1950–54 to 1992
Australia	3.1	3.8	6.8	10.5	12.8	13.3	13.4	312.9
Canada	3.3	4.2	7.7	15.0	22.1	23.2		569.6
Denmark	4.2	5.9	9.5	17.5	24.5			483.3
France	3.2	3.6	3.4	4.0	5.3	5.6		65.6
Germany (FRG)	3.9	4.9	4.8	6.2	8.4	8.8	9.2	115.4
Greece	—	5.1	5.9	6.2	6.8	6.6	7.0	—
Hong Kong	—	12.2	20.0	23.1	24.4	23.6	21.0	—
Ireland	4.5	6.6	11.7	17.0	17.6			291.1
Israel	—	—	—	7.8	7.6	8.9		—
Italy	2.8	4.1	4.9	6.3	7.9			182.1
Japan	1.3	4.0	5.5	7.4	8.3	8.2	8.4	538.5
Netherlands	3.2	3.4	4.0	7.0	11.7	12.6	13.3	265.6
New Zealand	2.8	5.0	9.8	13.7	17.5	17.7		525.0
Norway	2.6	2.7	3.9	6.6	10.7	11.1		311.5
Singapore	—	—	13.1	17.9	16.0	18.2	16.4	—
Spain	2.5	3.6	4.1	3.7	3.6			44.0
Sweden	3.8	3.8	5.3	7.8	11.1	10.5		192.1
Switzerland	3.2	3.0	3.9	5.8	8.7	9.6	9.7	171.9
UK	6.3	8.9	13.6	18.6	21.0	20.8	20.8	233.3
USA	3.9	5.2	10.7	18.9	26.1			569.2

(a) Age-standardised to the World Standard Population.

Sources: WHO 1988, 1994, 1995a, 1996d.

- In the first half of this century, lung cancer was a rare disease in females (Ernster 1996). However, since the early 1950s, the death rate for female lung cancer has increased in several industrialised countries, including the United States, by as much as 500%. By 1986, lung cancer had become the leading cause of cancer death among females in the United States. In Australia, it is the third leading cause of death, surpassed only by breast and colorectal cancers. Projections of rates suggest that by the end of 1997 lung cancer would have become the second most common cause of cancer death among Australian females (AIHW & AACR 1998).
- Compared to other developed countries, Australia has a moderate female lung cancer death rate, although it is rising (AIHW & AACR 1998). In 1992, the age-standardised rate was 12.8 deaths per 100,000 population, ranking ninth among twenty developed countries. The United States, Denmark and Hong Kong had the highest rates of lung cancer mortality in 1992, and the Mediterranean countries (Spain, Greece, Israel and Italy) and France had the lowest (Figure 1).
- Canada, the United States, Japan and New Zealand have seen lung cancer death rates among females increase by over 500% in the period 1950–54 to 1992 (Figure 2). Australia's increase has been over 300%, with tobacco smoking beginning to become more common among Australian females in the 1940s. Only France and Spain have had death rates increase by less than 100% between 1950–54 and 1992. Unlike male rates, there have been no recent declines, although rates in several countries, including Australia, have slowed during the past decade (Figure 3).
- In Europe, the lung cancer epidemic is considered to be in its early phases (Levi, LaVecchia, Lucchini & Negri 1995), with southern and eastern Europe becoming priority areas for public health interventions, due to a high prevalence of tobacco smoking among young women. In Australia, the slow or halted declines in female smoking rates, especially among younger women, is also cause for concern.

For more information, see:

Ernster VL 1996. Female lung cancer. Annu Rev Public Health 17: 97–114.

Mortality, males, skin cancer (ICD 172–173)

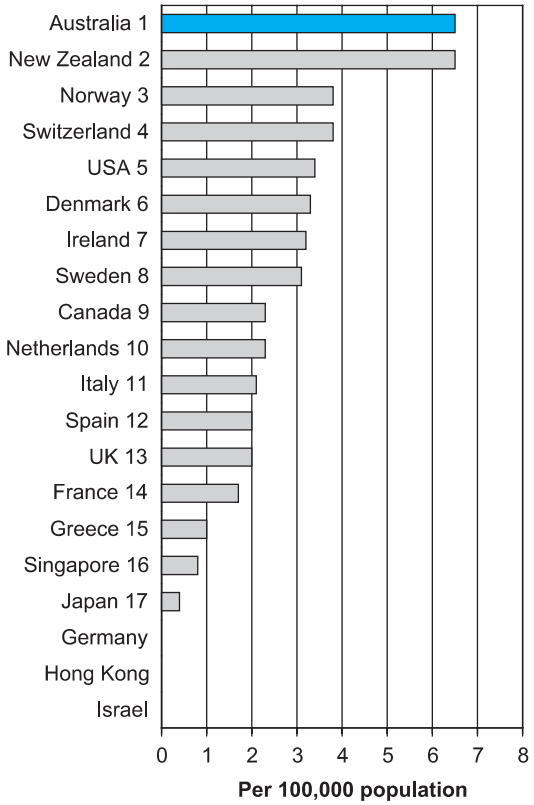


Figure 1: Age-standardised male death rates, skin cancer, 1985–89

Figure 2: Changes in male death rates, skin cancer, 1950–54 to 1985–89

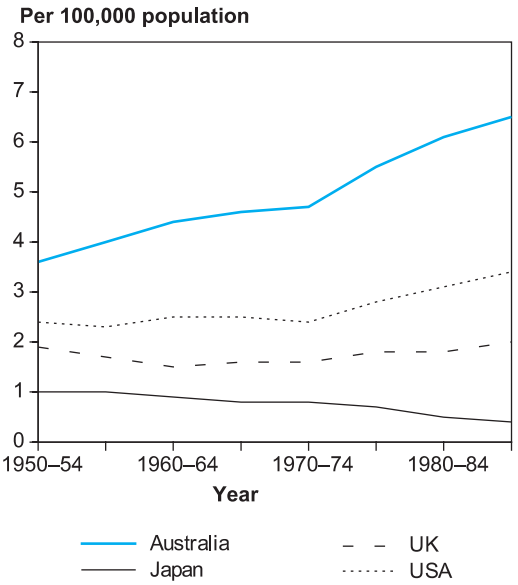


Figure 3: Trends in male death rates, skin cancer, 1950–54 to 1985–89

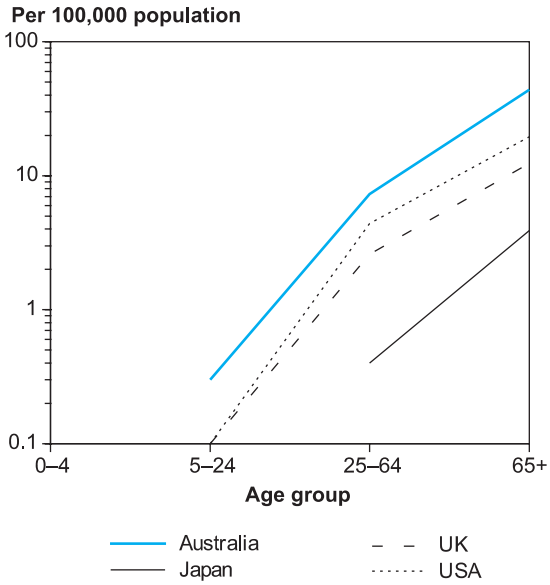


Figure 4: Age-specific male death rates, skin cancer, 1985–89

Mortality, males, skin cancer (ICD 172–173)

Death rates[(a)], males, skin cancer (per 100,000 population)

Country	1950–54	1960–64	1970–74	1980–84	1985–89	% change 1950–54 to 1985–89
Australia	3.6	4.4	4.7	6.1	6.5	80.6
Canada	1.8	1.8	1.7	2.1	2.3	27.8
Denmark	1.9	2.0	2.7	3.1	3.3	73.7
France	2.4	1.9	1.6	1.7	1.7	–29.2
Germany (FRG)	—	—	—	—	—	—
Greece	—	1.1	0.9	1.0	1.0	—
Hong Kong	—	—	—	—	—	—
Ireland	2.8	2.8	2.3	2.3	3.2	14.3
Israel	—	—	—	—	—	—
Italy	2.2	1.7	1.6	2.0	2.1	–4.5
Japan	1.0	0.9	0.8	0.5	0.4	–60.0
Netherlands	1.6	1.6	1.9	2.2	2.3	43.8
New Zealand	3.1	2.9	3.9	6.2	6.5	109.7
Norway	1.6	2.0	3.1	3.4	3.8	137.5
Singapore	—	—	0.7	1.2	0.8	—
Spain	1.6	1.6	1.3	1.7	2.0	25.0
Sweden	1.2	1.8	2.3	2.8	3.1	158.3
Switzerland	2.2	2.4	2.8	3.3	3.8	72.7
UK	1.9	1.5	1.6	1.8	2.0	5.3
USA	2.4	2.5	2.4	3.1	3.4	41.7

(a) Age-standardised to the World Standard Population.

Source: WHO 1994.

- Skin cancer includes both melanoma and non-melanocytic skin cancer (NMSC). However, nearly all deaths from skin cancer are due to melanoma. NMSC is common in incidence, and if treated early can usually be cured. Melanoma is the cancer that has shown the most rapid increase in incidence among most white populations in the last several decades. In 1994, Australian males had a lifetime risk of 1 in 28 of developing melanoma; 8.7% of all new male cancer cases and 3.2% of all male cancer deaths were attributable to melanoma (AIHW & AACR 1998).
- For the years 1985–89, Australia and New Zealand had the highest male skin cancer death rates in the world at 6.5 deaths per 100,000 population (Figure 1). This rate was more than 40% higher than for the next highest countries—Norway and Switzerland. Mortality is lower in Asian and Mediterranean countries.
- The Scandinavian countries (Sweden, Norway and Denmark) and Australia and New Zealand have seen the largest post-war increases in skin cancer mortality—all in excess of 70%, or an average of 2% per annum between 1950–54 and 1985–89 (Figures 2 and 3). On the other hand, Japan and France have achieved significant reductions in deaths from skin cancer during this period.
- There is some evidence that skin cancer mortality is slowing or decreasing in several countries, including Australia, possibly due to successful primary prevention and early diagnosis (Elwood & Koh 1994, Jelfs et al. 1996).
- Exposure to sunlight is directly related to the risk of skin cancer development. Incidence is higher among fair-skinned persons, among those with numerous moles and among those with intermittent sun exposure and frequent sunburns. As a risk factor, sun exposure is amenable to change through educational campaigns and public health interventions (Marks 1995).

For more information, see:

Marks R 1995. An overview of skin cancers. Incidence and causation. Cancer 75 (2 Suppl): 607–12.

Australian Institute of Health and Welfare (AIHW) and Australasian Association of Cancer Registries (AACR) 1998. Cancer in Australia 1991–1994 (with projections to 1999). Canberra: AIHW.

Mortality, females, skin cancer (ICD 172–173)

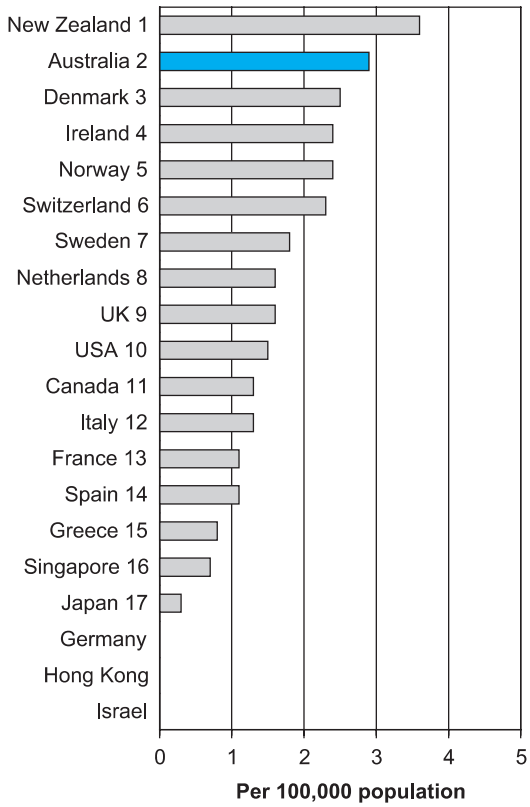


Figure 1: Age-standardised female death rates, skin cancer, 1985–89

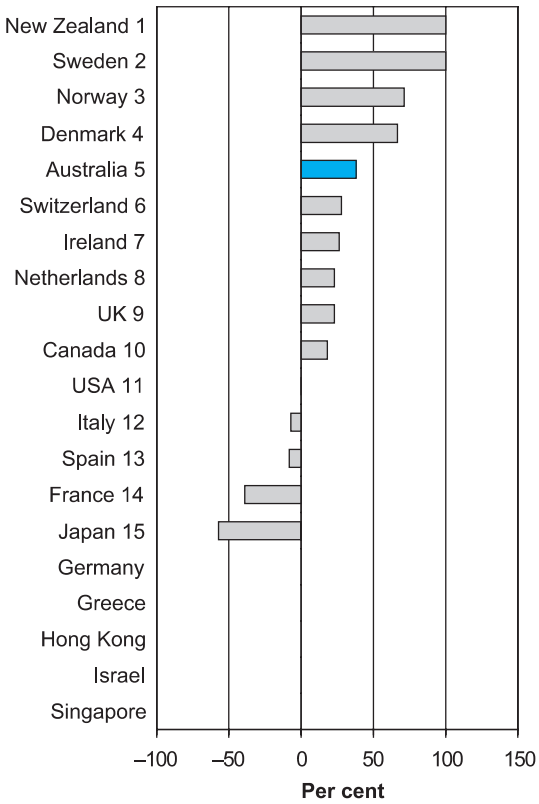


Figure 2: Changes in female death rates, skin cancer, 1950–54 to 1985–89

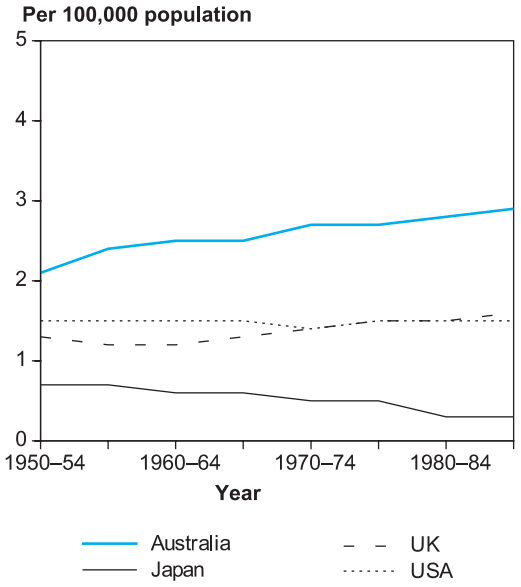


Figure 3: Trends in female death rates, skin cancer, 1950–54 to 1985–89

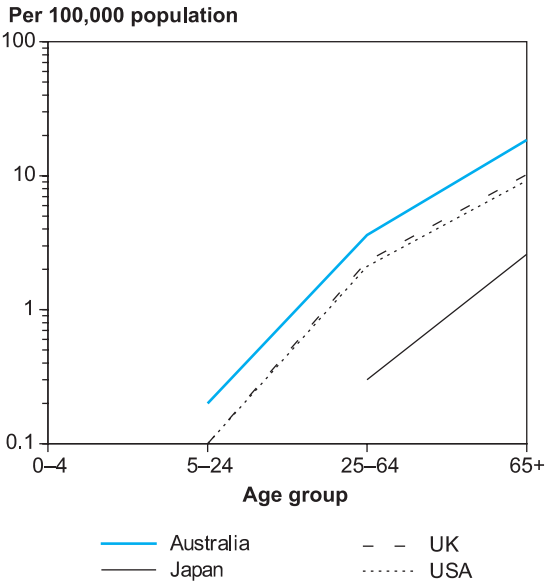


Figure 4: Age-specific female death rates, skin cancer, 1985–89

Mortality, females, skin cancer (ICD 172–173)

Death rates[(a)], females, skin cancer (per 100,000 population)

Country	1950–54	1960–64	1970–74	1980–84	1985–89	% change 1950–54 to 1985–89
Australia	2.1	2.5	2.7	2.8	2.9	38.1
Canada	1.1	1.3	1.2	1.3	1.3	18.2
Denmark	1.5	1.9	2.0	2.2	2.5	66.7
France	1.8	1.6	1.2	1.2	1.1	–38.9
Germany (FRG)	—	—	—	—	—	—
Greece	—	1.0	0.8	0.8	0.8	—
Hong Kong	—	—	—	—	—	—
Ireland	1.9	1.8	1.9	2.0	2.4	26.3
Israel	—	—	—	—	—	—
Italy	1.4	1.2	1.0	1.3	1.3	–7.1
Japan	0.7	0.6	0.5	0.3	0.3	–57.1
Netherlands	1.3	1.2	1.3	1.5	1.6	23.1
New Zealand	1.8	2.1	2.8	3.4	3.6	100.0
Norway	1.4	1.4	1.7	2.0	2.4	71.4
Singapore	—	—	0.6	0.6	0.7	—
Spain	1.2	1.1	0.8	0.9	1.1	–8.3
Sweden	0.9	1.3	1.5	1.9	1.8	100.0
Switzerland	1.8	1.9	1.8	2.1	2.3	27.8
UK	1.3	1.2	1.4	1.5	1.6	23.1
USA	1.5	1.5	1.4	1.5	1.5	0.0

(a) Age-standardised to the World Standard Population.

Source: WHO 1994.

- Like Australian males, Australian females have a high skin cancer death rate, exceeded in 1985–89 only by New Zealand (Figure 1). The female rate of 2.9 deaths per 100,000 population is less than half the male rate. There is also notably less variation between female rates than male rates for the five countries with the highest rates of skin cancer mortality. Again, apart from Australia and New Zealand, the Scandinavian countries, Ireland and Switzerland had high death rates, and the Asian and Mediterranean countries low rates.
- Australian females have experienced a much lower post-war increase in skin cancer mortality than did males—38% between 1950–54 and 1985–89, as opposed to 81% for males. Death rates in New Zealand and Sweden doubled during this time period, but declined in Italy, Spain, France and Japan. Rates have been steady in the United States (Figure 2).
- Long-term trends in female skin cancer death rates show a steady increase in Australia, a slight increase in the United Kingdom, no change in the United States and a steady decrease in Japan (Figure 3).
- Skin cancer death rates increase with age for both males and females (Figure 4). Besides differences between countries in skin cancer death rates, there are also some notable within-country differences. Heavily pigmented ethnic groups, such as Indigenous Australians or New Zealand Maoris, have lower mortality and incidence than do populations with lighter complexions. Almost all migrant groups in Australia have melanoma death rates significantly lower than the Australian-born population (Giles, Jelfs & Kliewer 1995).
- Prevention programs in Australia have been based on behavioural research indicating that knowledge, beliefs and attitudes about skin cancer, suntanning and sunlight exposure are critical in determining behaviour.

For more information, see:

Marks R 1995. An overview of skin cancers. Incidence and causation. Cancer 75 (2 Suppl): 607–12.

Australian Institute of Health and Welfare (AIHW) and Australasian Association of Cancer Registries (AACR) 1998. Cancer in Australia 1991–1994 (with projections to 1999). Canberra: AIHW.

Mortality, females, breast cancer (ICD 174)

Figure 1: Age-standardised female death rates, breast cancer, 1992

Figure 2: Changes in female death rates, breast cancer, 1950–54 to 1992

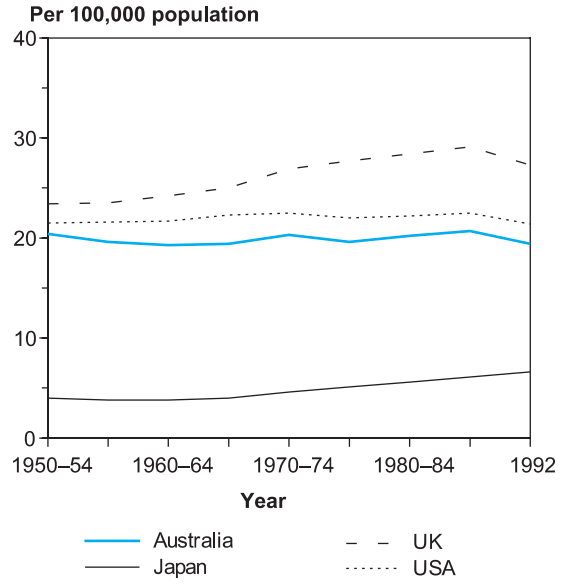


Figure 3: Trends in female death rates, breast cancer, 1950–54 to 1992

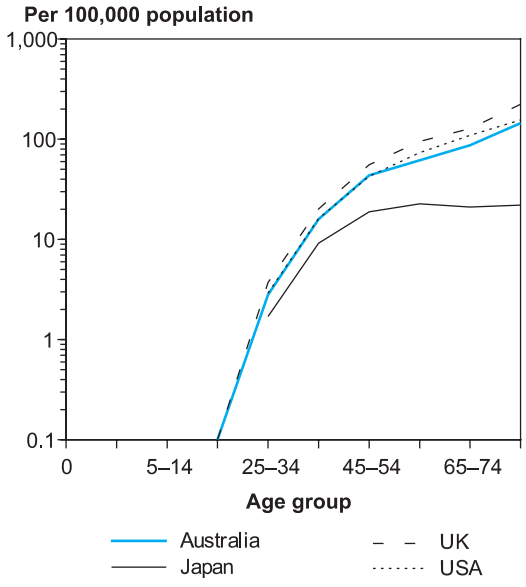


Figure 4: Age-specific female death rates, breast cancer, 1992

Mortality, females, breast cancer (ICD 174)

Death rates[(a)], females, breast cancer (per 100,000 population)

Country	1950–54	1960–64	1970–74	1980–84	1992	1993	1994	% change 1950–54 to 1992
Australia	20.4	19.3	20.3	20.2	19.4	20.4	20.3	4.9
Canada	22.8	23.7	24.0	23.2	22.5	21.5		–1.3
Denmark	24.8	24.5	26.2	26.0	28.0			12.9
France	13.6	16.0	17.8	19.1	19.6	19.8		49.1
Germany (FRG)	15.4	17.1	19.9	21.5	22.2	22.4	21.8	46.1
Greece	—	6.7	11.0	15.0	15.2	15.7	16.4	—
Hong Kong	—	9.1	9.5	8.4	9.5	9.0	9.1	—
Ireland	18.5	20.9	24.8	26.4	27.4			48.1
Israel	—	—	—	23.2	23.2	24.5		—
Italy	13.2	15.3	18.3	19.8	19.8			50.0
Japan	4.0	3.8	4.6	5.6	6.6	6.8	7.1	65.0
Netherlands	23.6	24.6	27.2	26.1	26.7	26.6	26.7	13.1
New Zealand	22.7	22.7	24.7	25.8	24.0	24.0		5.7
Norway	17.7	17.0	17.6	17.5	18.8	19.4		6.2
Singapore	—	—	9.8	12.4	13.8	15.2	14.2	—
Spain	5.7	9.0	11.2	14.3	17.3			203.5
Sweden	18.1	19.6	19.7	18.5	17.9	17.2		–1.1
Switzerland	22.1	22.0	23.9	24.6	23.8	23.7	22.6	7.7
UK	23.4	24.2	26.9	28.4	27.3	26.3	25.9	16.7
USA	21.5	21.7	22.5	22.2	21.4			–0.5

(a) Age-standardised to the World Standard Population.

Sources: WHO 1988, 1994, 1995a, 1996d.

- Breast cancer is the most common cause of cancer deaths among women in Australia, accounting for 30% of all newly diagnosed cancers, and 19% of all deaths in 1994. One in 11 Australian females will develop breast cancer at some time during her lifetime (AIHW & AACR 1998).
- In 1992, the age-standardised death rate for breast cancer in Australian females was 19.4 deaths per 100,000 population. This rate is lower than for many other developed countries. Denmark, Ireland, the United Kingdom and the Netherlands have higher death rates among the comparison countries, with rates in excess of 25 per 100,000 population in 1992. The Asian countries (Japan, Hong Kong and Singapore) all had rates under 15 per 100,000 population. Rates in Mediterranean countries (Greece and Spain) were also low (Figure 1).
- Death rates from breast cancer among Australian females have been steady for many decades, although Lancaster (1990) has noted steady increases among older age groups. Spain, Japan and Italy have seen post-war death rate increases of 50% or more (Figure 2). However, there is evidence of recent levelling off or declines in mortality in many western countries, including Australia, the United Kingdom and the United States (Hermon & Beral 1996) (Figure 3).
- Breast cancer death rates increase rapidly with age, from teenage years onward (Figure 4). Whereas death rates continue to increase after the age of 50 in Australia, the United Kingdom and the United States, in Japan they exhibit a levelling-off.
- The incidence of breast cancer has risen recently in many countries. This is in part due to improved and more frequent screening, but changes in known and suspected breast cancer risk factors may have also contributed (Ursin, Bernstein & Pike 1994). These risk factors include increasing age, dietary factors (especially the consumption of animal products), and child-bearing. Regular screening is recommended for women aged 50 and over.

For more information, see:

Kelsey JL, Bernstein L 1996. Epidemiology and prevention of breast cancer. Annu Rev Public Health 17: 47–68.

Mortality, males, prostate cancer (ICD 185)

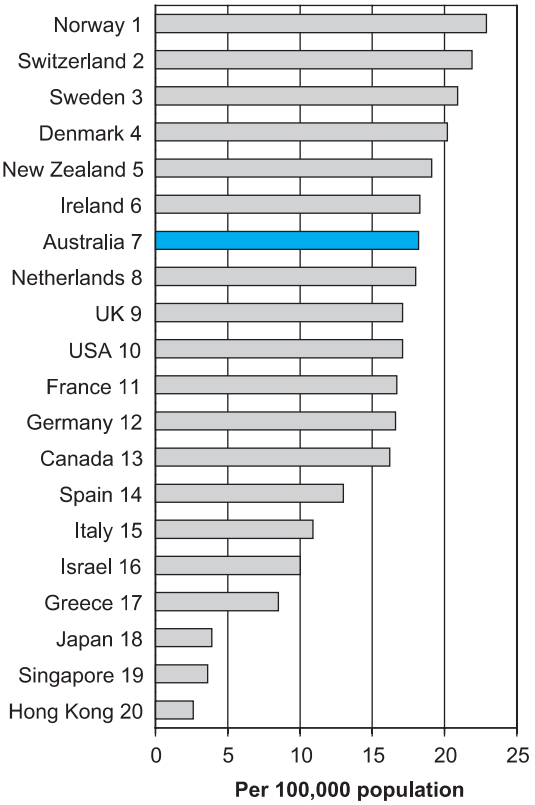


Figure 1: Age-standardised male death rates, prostate cancer, 1992

Figure 2: Increases in male death rates, prostate cancer, 1950–54 to 1992

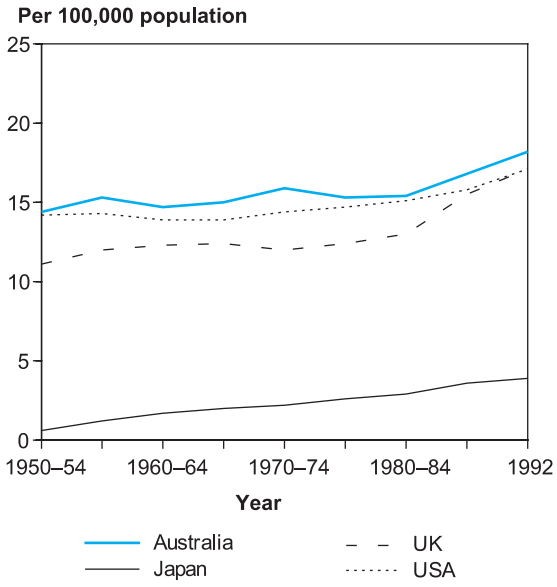


Figure 3: Trends in male death rates, prostate cancer, 1950–54 to 1992

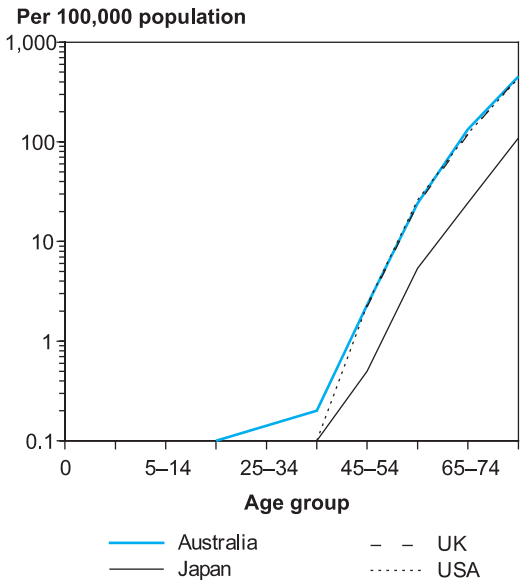


Figure 4: Age-specific male death rates, prostate cancer, 1992

Mortality, males, prostate cancer (ICD 185)

Death rates[(a)], males, prostate cancer (per 100,000 population)

Country	1950–54	1960–64	1970–74	1980–84	1992	1993	1994	% change 1950–54 to 1992
Australia	14.4	14.7	15.9	15.4	18.2	18.9	19.4	26.4
Canada	12.3	13.4	14.4	14.6	16.4	16.4		33.3
Denmark	12.7	14.9	13.5	17.4	20.2	20.4		59.1
France	10.3	15.6	15.2	15.6	16.7	16.9		62.1
Germany (FRG)	—	—	—	—	16.6	17.0	17.4	—
Greece	—	4.8	6.4	7.3	8.5	9.0	9.3	—
Hong Kong	—	—	—	—	2.6	3.3	3.3	—
Ireland	8.3	10.2	13.2	14.0	18.3			120.5
Israel	—	—	—	—	10.0	10.9		—
Italy	5.9	9.0	10.8	11.0	10.9			84.7
Japan	0.6	1.7	2.2	2.9	3.9	3.9	4.3	550.0
Netherlands	12.0	13.9	15.0	16.3	18.0	18.7	18.7	50.0
New Zealand	13.7	13.8	16.3	16.7	19.1	20.4		39.4
Norway	13.2	16.5	17.1	20.0	22.9	24.0		73.5
Singapore	—	—	1.6	3.4	3.6	4.4	5.3	—
Spain	6.4	10.6	12.2	12.5	13.0			103.1
Sweden	12.0	18.0	20.3	18.6	20.9	21.7		74.2
Switzerland	14.6	16.3	19.4	20.9	21.9	22.4	22.6	50.0
UK	11.1	12.3	12.0	13.0	17.1	16.8	17.0	54.1
USA	14.2	13.9	14.4	15.1	17.1			20.4

(a) Age-standardised to the World Standard Population.

Sources: WHO 1988, 1994, 1995a, 1996d.

- Prostate cancer is now the most common form of cancer in Australian males, and follows lung cancer as the second most common cause of cancer death in males, responsible for 13.7% of all male cancer deaths in 1994 (AIHW & AACR 1998). Age is a major risk factor for prostate cancer, 95% of cases occurring in males aged 60 or more (Figure 4).
- In 1992, the age-standardised death rate for this cancer was 18.2 deaths per 100,000 population among Australian males. This places Australia in the top half of the developed countries included here for comparison (Figure 1). High rates are also recorded in the Scandinavian countries (Norway, Sweden and Denmark) and Switzerland. Death rates in Asian and Mediterranean countries are recorded as lower than those for European and North American countries, although it is likely that this difference is, in part, due to varying detection rates (Whittemore 1994).
- Although Japan has a low death rate from prostate cancer, it recorded the greatest increase between 1950–54 and 1992—well over 500% (Figures 2 and 3). This steady increase is not explained by the introduction of improved screening techniques. It is suspected that the increased adoption of a Western lifestyle following World War II may be a contributing factor (Imai et al. 1996). Ireland, Spain and Italy have seen death rates increase by 75% or more between 1950–54 and 1992. The rate in Australia increased by a moderate 26% during the same time period, with the bulk of the increase occurring since the early 1980s.
- The known incidence of prostate cancer is rising, partly due to increased screening and detection rates, but also due to the ageing population of the developed countries. Should it continue, this rise in incidence will have implications for future health care costs and the need for improved treatment procedures.

For more information, see:

Whittemore AS 1994. Prostate cancer. Cancer Surv 19–20: 309–22.

Commonwealth Department of Health and Family Services and Australian Institute of Health and Welfare 1998. National Health Priority Areas Report on Cancer Control 1997. Canberra: DHFS and AIHW.

Mortality, males, diabetes mellitus (ICD 250)

Figure 1: Age-standardised male death rates, diabetes mellitus, 1992

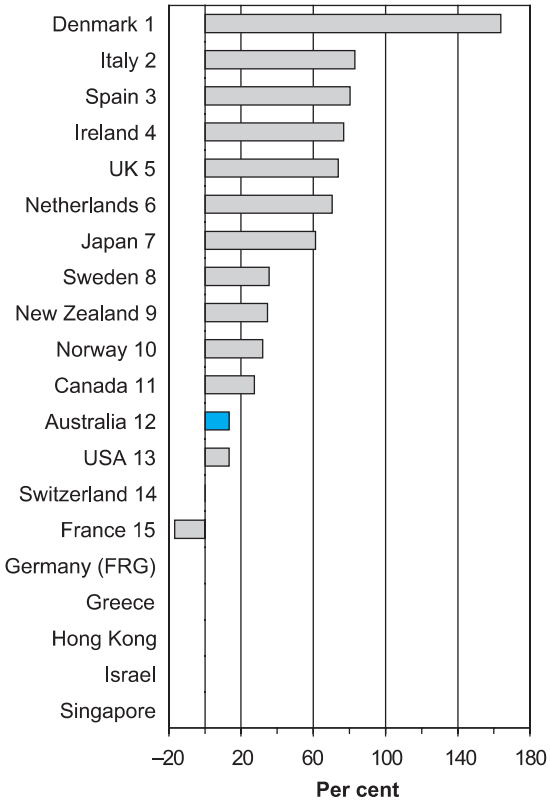


Figure 2: Changes in male death rates, diabetes mellitus, 1950–54 to 1992

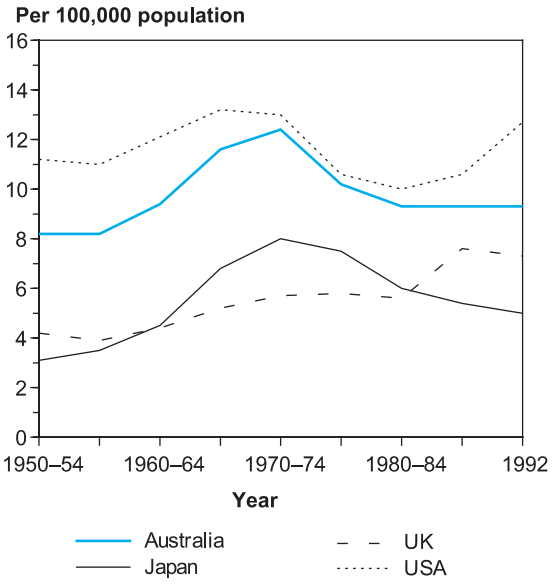


Figure 3: Trends in male death rates, diabetes mellitus, 1950–54 to 1992

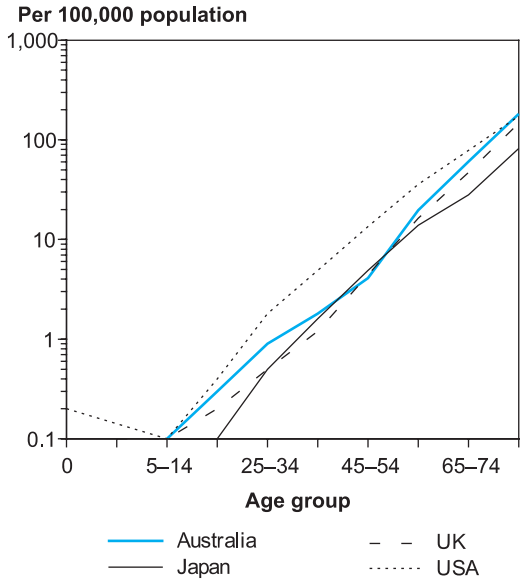


Figure 4: Age-specific male death rates, diabetes mellitus, 1992

Mortality, males, diabetes mellitus (ICD 250)

Death rates[(a)], males, diabetes mellitus (per 100,000 population)

Country	1950–54	1960–64	1970–74	1980–84	1992	1993	1994	% change 1950–54 to 1992
Australia	8.2	9.4	12.4	9.3	9.3	10.4	10.9	13.4
Canada	8.4	10.1	12.0	9.4	10.7	11.5		27.4
Denmark	3.6	5.6	7.9	8.7	9.5	11.8		163.9
France	6.0	8.1	8.3	6.6	5.0	5.4		–16.7
Germany (FRG)	—	—	—	—	9.9	12.2	11.6	—
Greece	—	9.0	14.1	16.2	5.4	4.0	3.4	—
Hong Kong	—	—	—	—	5.2	5.4	4.7	—
Ireland	5.2	5.3	7.4	6.3	9.2			76.9
Israel	—	—	—	—	13.6	12.3		—
Italy	7.1	9.5	12.1	14.9	13.0			83.1
Japan	3.1	4.5	8.0	6.0	5.0	5.0	5.2	61.3
Netherlands	6.1	7.9	6.7	5.5	10.4	10.7	10.6	70.5
New Zealand	7.2	9.0	12.5	10.4	9.7	10.4		34.7
Norway	5.0	5.4	4.3	6.0	6.6	6.5		32.0
Singapore	—	—	16.0	17.9	8.1	8.4	9.4	—
Spain	5.1	6.8	9.9	10.4	9.2			80.4
Sweden	6.2	8.6	8.4	7.3	8.4	8.5		35.5
Switzerland	8.6	10.2	14.6	9.8	8.6	8.6	8.7	0.0
UK	4.2	4.4	5.7	5.6	7.3	6.1	6.0	73.8
USA	11.2	12.1	13.0	10.0	12.7			13.4

(a) Age-standardised to the World Standard Population.

Sources: WHO 1988, 1994, 1995a, 1996d.

- Diabetes mellitus is one of the most common chronic diseases in Western populations, in which the body makes too little of the hormone insulin or cannot use it properly. This disturbs the body's main energy processes, especially those involving the sugar glucose. The two most common forms of diabetes are insulin-dependent (or Type 1), which generally has a childhood onset, and non-insulin-dependent (or Type 2) which mostly occurs after age 40.
- In Australia, approximately 90% of persons with diabetes have Type 2. The disease is estimated to affect about 4% of the Australian adult population, with much higher rates for Aboriginal and Torres Strait Islander peoples (AIHW 1998).
- In 1992, the death rate for diabetes mellitus among Australian males was 9.3 deaths per 100,000 population. Many developed countries experience similar rates. Israel, Italy and the United States had rates in excess of 12 per 100,000 population in 1992. Japan, France, Hong Kong and Greece had rates below 6 per 100,000 population (Figure 1).
- Most developed countries have recorded post-war increases in male diabetes mortality, the largest rise occurring in Denmark (164%). Italy and Spain have also recorded increases of over 80%. Only France had a net decline in rates (17%).
- There has been a small overall increase (13%) in the Australian male death rate since 1950–54 (Figure 2); however, this masks a pronounced rise and fall beginning in the mid-1950s and ending in the early 1980s due mainly to changing coding practices (Figure 3). The United Kingdom and Japan have experienced similar rises and falls, although the death rate for the United States has risen lately.
- Diabetes mortality rates rise rapidly after the age of 40 (Figure 4). There are major differences in the age-specific death rates between Japan and the United Kingdom, United States and Australia at younger ages. The number of deaths below age 20 is almost nil in Japan, reflecting the low incidence of type 1 diabetes in that country.
- Besides increasing age, the risk factors for type 2 diabetes include obesity and physical inactivity, both of which are modifiable. The incidence of diabetes is rising in Australia and the disease remains a major public health threat.

For more information, see:

McCarty DJ et al. 1996. The rise and rise of diabetes in Australia, 1996. Canberra: International Diabetes Institute.

Mortality, females, diabetes mellitus (ICD 250)

Figure 1: Age-standardised female death rates, diabetes mellitus, 1992

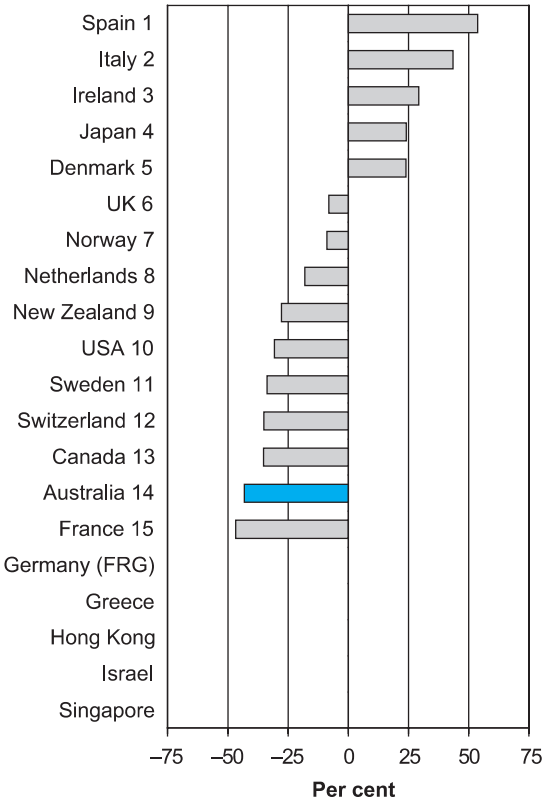


Figure 2: Changes in female death rates, diabetes mellitus, 1950–54 to 1992

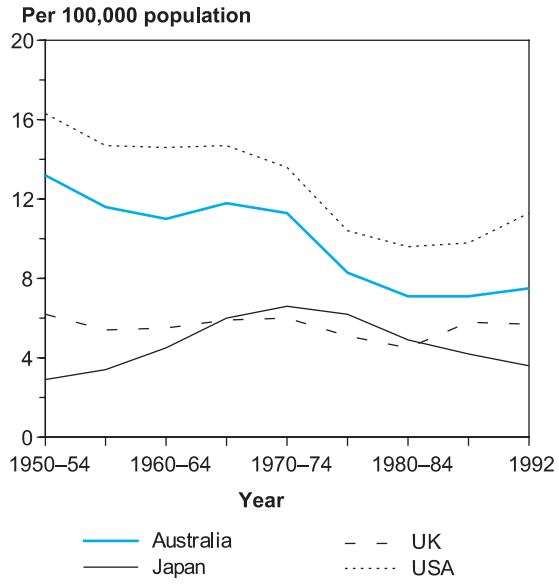


Figure 3: Trends in female death rates, diabetes mellitus, 1950–54 to 1992

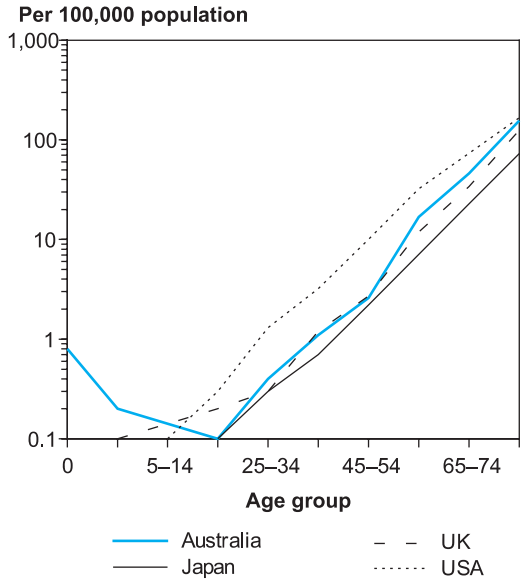


Figure 4: Age-specific female death rates, diabetes mellitus, 1992

Mortality, females, diabetes mellitus (ICD 250)

Death rates[(a)], females, diabetes mellitus (per 100,000 population)

Country	1950–54	1960–64	1970–74	1980–84	1992	1993	1994	% change 1950–54 to 1992
Australia	13.2	11.0	11.3	7.1	7.5	7.5	7.6	–43.2
Canada	12.5	12.4	12.1	8.1	8.1	9.1		–35.2
Denmark	5.0	5.2	7.9	6.8	6.2	7.6		24.0
France	7.7	8.8	8.2	5.7	4.1	4.4		–46.8
Germany (FRG)	—	—	—	—	10.1	12.1	11.3	—
Greece	—	10.4	17.0	18.8	6.4	4.4	3.7	—
Hong Kong	—	—	—	—	5.9	5.9	4.3	—
Ireland	5.8	6.5	8.4	5.3	7.5			29.3
Israel	—	—	—	—	14.2			—
Italy	9.2	12.4	15.8	17.7	13.2			43.5
Japan	2.9	4.5	6.6	4.9	3.6	3.5	3.6	24.1
Netherlands	12.7	13.8	9.9	6.1	10.4	10.1	10.2	–18.1
New Zealand	11.5	10.4	11.7	8.1	8.3	8.1		–27.8
Norway	5.7	5.8	3.9	4.3	5.2	4.4		–8.8
Singapore	—	—	18.2	24.2	10.2	10.9	13.7	—
Spain	6.7	9.8	13.7	13.1	10.3			53.7
Sweden	9.2	9.5	8.0	5.9	6.1	6.3		–33.7
Switzerland	12.3	13.2	16.7	9.8	8.0	7.9	7.6	–35.0
UK	6.2	5.5	6.0	4.5	5.7	4.6	4.4	–8.1
USA	16.3	14.6	13.6	9.6	11.3			–30.7

(a) Age-standardised to the World Standard Population.

Sources: WHO 1988, 1994, 1995a, 1996d.

- In Australia, the female diabetes death rate is lower than the male rate. However, this is not the case in several other developed countries. In 1992, females had higher death rates than males in Greece, Israel, Singapore and Spain.
- The female death rate for diabetes mellitus in Australia in 1992 was 7.5 per 100,000 population. Again, Australia occupies a middle ranking among developed countries—Israel, Italy and the United States at the high end of this distribution, and Japan, France and Norway with lower rates (Figure 1).
- Whereas most countries recorded increases in male diabetes death rates between 1950–54 and 1992, many countries recorded decreases in death rates for females (Figure 2). Australia recorded the second largest decrease among countries for which data are available—a net fall of 43%, or over 1% per annum. There was a notable rise in the Australian rate during the 1960s, followed by a strong fall in rates in the early 1970s (Figure 3). Mortality from diabetes among Australian females has been relatively stable since the early 1980s.
- France recorded the largest fall in female diabetes mortality between 1950–54 and 1992 (47%), and is also the only country that recorded a decline in male death rates during the same period. Spain, Italy, Ireland, Japan and Denmark on the other hand recorded increases in death rates, with Japan experiencing a marked increase between the mid-1950s and early 1970s. The rate in the United Kingdom remained stable at around 5 deaths per 100,000 population over four decades. The trend in the United States was similar to that for Australia until the mid-1980s (Figure 3), but has varied since then. It is likely that these trends reflect changing death coding practices more than any other factor.
- Underestimation of diabetes death rates from routine data collections is well recognised (Colaguiri et al. 1998). In addition to being a primary cause of death, diabetes also predisposes individuals to a variety of life-threatening complications, including end-stage renal disease, coronary heart disease and stroke. The contribution of diabetes to fatal outcomes from these complications is not considered in estimating death rates.

For more information, see:

McCarty DJ et al. 1996. The rise and rise of diabetes in Australia, 1996. Canberra: International Diabetes Institute.

Mortality, males, cardiovascular disease (ICD 390–459)

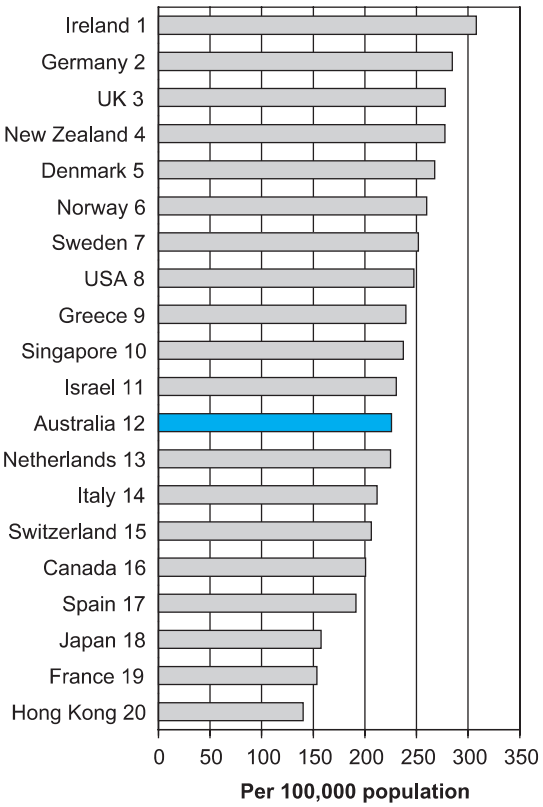


Figure 1: Age-standardised male death rates, cardiovascular disease, 1992

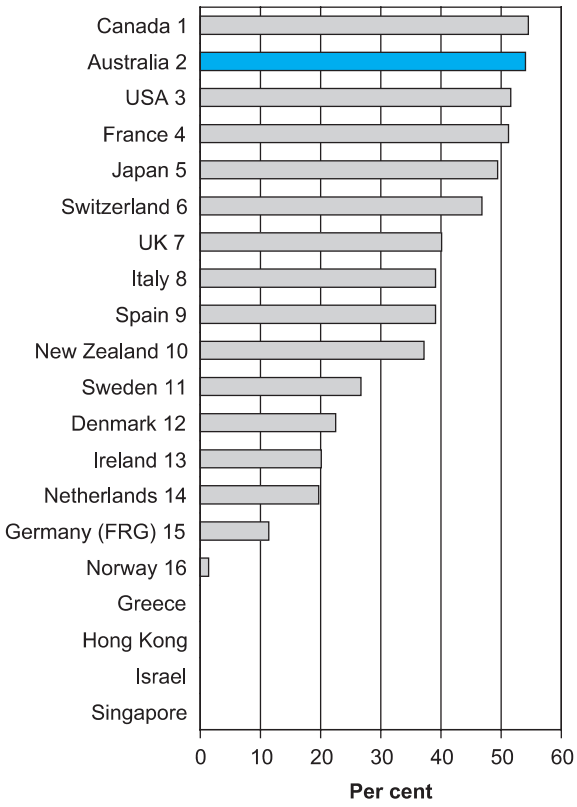


Figure 2: Declines in male death rates, cardiovascular disease, 1950–54 to 1992

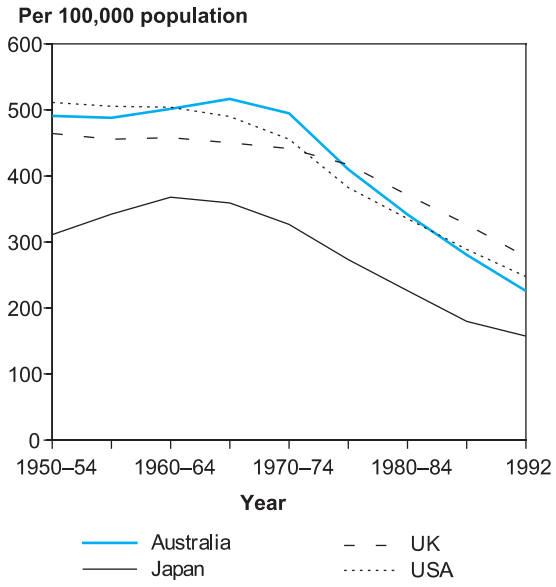


Figure 3: Trends in male death rates, cardiovascular disease, 1950–54 to 1992

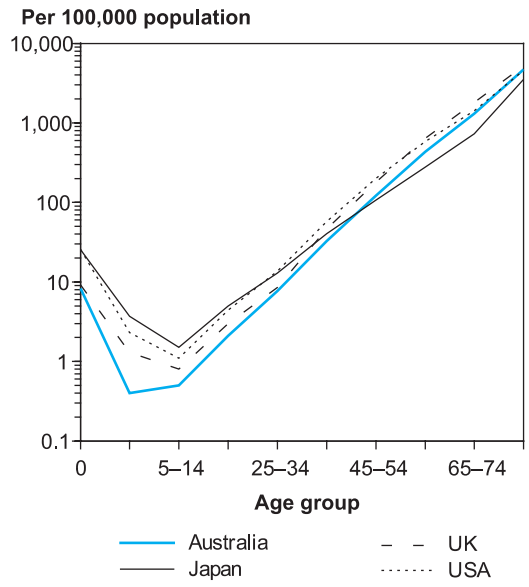


Figure 4: Age-specific male death rates, cardiovascular disease, 1992

Mortality, males, cardiovascular disease (ICD 390–459)

Death rates[(a)], males, cardiovascular disease (per 100,000 population)

Country	1950–54	1960–64	1970–74	1980–84	1992	1993	1994	% change 1950–54 to 1992
Australia	491.0	501.8	494.9	341.7	225.8	213.1	212.8	–54.0
Canada	441.3	431.7	391.9	299.7	200.7	200.7		–54.5
Denmark	345.3	366.6	359.0	326.4	267.6	257.8		–22.5
France	314.6	292.6	272.2	219.1	153.5	152.9		–51.2
Germany (FRG)	321.5	360.7	386.6	356.2	284.7	282.9	271.8	–11.4
Greece	—	189.0	211.8	241.6	239.6	227.0	227.8	—
Hong Kong	—	279.3	227.5	176.4	140.1	124.9	123.8	—
Ireland	385.2	429.2	448.2	417.1	307.9			–20.1
Israel	—	—	—	292.7	230.3	225.2		—
Italy	347.9	365.4	343.0	299.8	211.7			–39.1
Japan	311.0	367.8	326.7	226.1	157.4	154.5	139.9	–49.4
Netherlands	279.8	310.3	326.6	287.8	224.7	233.0	218.9	–19.7
New Zealand	442.0	447.0	448.1	366.0	277.7	258.0		–37.2
Norway	263.7	334.4	353.1	312.0	259.9	254.6		–1.4
Singapore	—	—	309.3	299.9	237.1	221.5	223.2	—
Spain	314.2	281.2	307.8	255.7	191.5			–39.1
Sweden	343.7	354.8	348.3	333.6	251.9	250.1		–26.7
Switzerland	387.4	364.7	306.4	275.9	206.2	201.8	190.4	–46.8
UK	464.1	458.2	441.3	371.2	277.8	277.6	257.0	–40.1
USA	511.3	503.9	455.4	335.4	247.6			–51.6

(a) Age-standardised to the World Standard Population.

Sources: WHO 1988, 1994, 1995a, 1996d.

- Cardiovascular disease (CVD), including heart attack, stroke, angina (chest pain), heart failure and other forms of heart and blood vessel disease, is Australia's greatest health problem. In 1996, 53,989 persons died from CVD—42% of all deaths in Australia. It is the primary cause of over 400,000 hospital episodes every year, and is the greatest cause of direct health care costs, estimated at $3.7 billion in 1993–94.
- In 1992, Australia's death rate for CVD among males was 226 per 100,000 population. Despite marked declines in mortality over the past two decades, Australia still compares unfavourably with many developed countries. Australia ranked 12th among 20 comparison countries for CVD death rates in 1992. The death rate, although almost three-quarters of the rate in Ireland, was 60% more than the rate observed in Hong Kong. Besides Hong Kong, France, Japan and Spain also have rates lower than 200 deaths per 100,000 population (Figure 1).
- Death rates for CVD declined in all comparison countries during the period 1950–54 to 1992 (Figure 2). Rates in Australia declined by 54%, the decline being exceeded only by Canada. Relatively smaller declines were noted in the Scandinavian countries, Germany, the Netherlands and Ireland.
- Along with the United States, Australia had the highest CVD death rates of all the 20 countries compared here until the early 1980s. A rapid decline in CVD mortality commenced during the early 1960s in the United States and Canada, in the late 1960s in Australia and New Zealand, and in the early 1970s in Israel, the Netherlands and Norway (Waters & Bennett 1995b). Rates remain high in Eastern Europe. Consistent patterns of decline in death rates over time (Figure 3) and their age-specific distribution (Figure 4) have been observed in Australia, Japan, the United Kingdom and the United States.
- Trends in death rates for CVD are correlated with a number of risk factors, including cigarette smoking, high blood cholesterol, high blood pressure, obesity and a sedentary life style (Rose 1989, Waters & Bennett 1995a). Newly rich societies, experiencing changes in diet and lifestyle, usually experience epidemics of cardiovascular disease.

For more information, see:

Waters A-M, Bennett S 1995. Mortality from cardiovascular disease in Australia. Canberra: AIHW.

Gajanayake I, Bennett S 1997. Surveillance of cardiovascular mortality in Australia 1983–1994. Canberra: AIHW.

Mortality, females, cardiovascular disease (ICD 390–459)

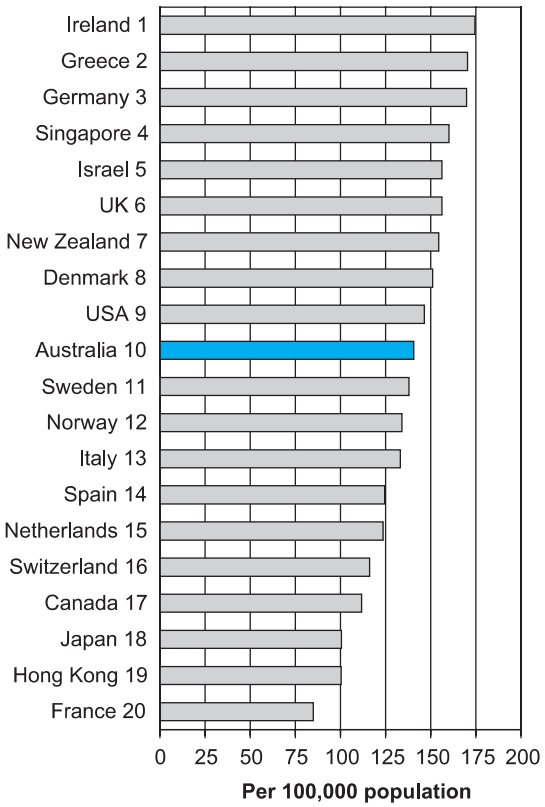


Figure 1: Age-standardised female death rates, cardiovascular disease, 1992

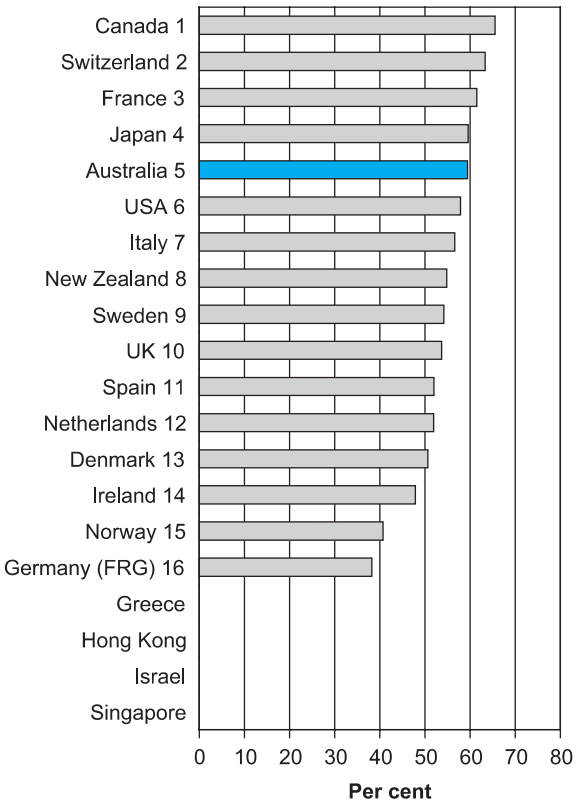


Figure 2: Declines in female death rates, cardiovascular disease, 1950–54 to 1992

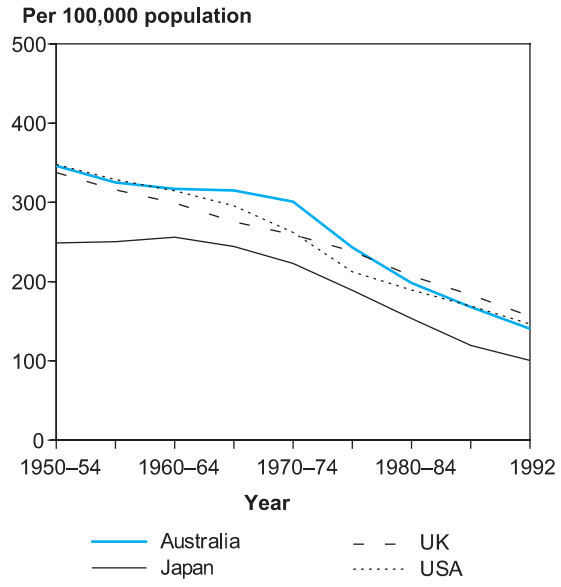


Figure 3: Trends in female death rates, cardiovascular disease, 1950–54 to 1992

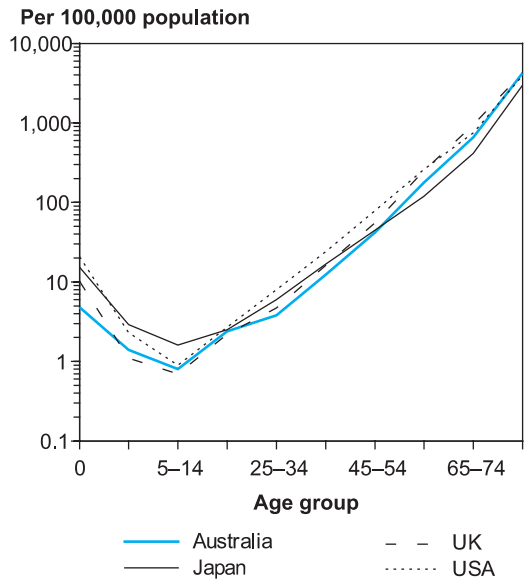


Figure 4: Age-specific female death rates, cardiovascular disease, 1992

Mortality, females, cardiovascular disease (ICD 390–459)

Death rates[(a)], females, cardiovascular disease (per 100,000 population)

Country	1950–54	1960–64	1970–74	1980–84	1992	1993	1994	% change 1950–54 to 1992
Australia	346.2	317.0	300.8	198.1	140.6	129.9	129.8	–59.4
Canada	323.3	277.7	217.9	162.8	111.7	112.1		–65.5
Denmark	305.4	258.3	215.3	175.5	151.0	162.5		–50.6
France	220.8	184.9	159.4	124.1	85.0	83.8		–61.5
Germany (FRG)	274.8	254.0	247.5	208.3	169.9	168.2	162.6	–38.2
Greece	—	168.9	170.8	183.9	170.3	162.4	170.2	—
Hong Kong	—	159.8	142.4	121.7	100.4	91.3	86.7	—
Ireland	334.8	326.8	300.9	248.2	174.5			–47.9
Israel	—	—	—	228.8	156.2	158.8		—
Italy	306.8	280.2	241.4	192.7	133.1			–56.6
Japan	248.8	256.2	223.0	153.5	100.6	98.4	88.2	–59.6
Netherlands	256.5	228.2	198.9	151.3	123.5	126.9	119.3	–51.9
New Zealand	342.1	294.6	270.8	210.4	154.5	156.1		–54.8
Norway	226.0	240.9	204.5	159.0	134.0	133.3		–40.7
Singapore	—	—	200.5	214.9	160.0	163.0	156.7	—
Spain	259.4	233.3	229.8	177.1	124.5			–52.0
Sweden	301.3	263.7	210.4	177.0	137.9	135.8		–54.2
Switzerland	316.7	266.9	205.4	160.2	116.1	112.9	110.1	–63.3
UK	337.5	299.1	259.3	207.3	156.2	157.1	146.5	–53.7
USA	347.6	314.4	261.9	189.5	146.5			–57.9

(a) Age-standardised to the World Standard Population.

Sources: WHO 1988, 1994, 1995a, 1996d.

- In most countries around the world, females have lower death rates than males for cardiovascular disease. In 1992, the Australian female rate of 141 per 100,000 population was 38% lower than the male rate of 226 per 100,000 population. In previous decades, there was less disparity between male and female rates in Australia—the female rate for 1950–54 was 30% lower than the male rate.
- In 1992, the differential between male and female death rates for CVD varied somewhat from country to country—the Norwegian female rate was only 52% of the male rate, whereas the Greek and Hong Kong female rates were 71% and 72% of the male rates.
- The Australian female death rate of 141 ranked 10th among 20 developed countries in 1992 (Figure 1). Ireland (175), Greece (170) and Germany (170) had higher rates, and France (85), Hong Kong (100) and Japan (101) lower rates among the comparison countries.
- The female CVD death rate has also declined over the past several decades. In fact, females have shown even larger falls in post-war CVD mortality than males. The Australian rate fell 59% between 1950–54 and 1992 (Figure 2), compared to a fall of 54% for males over the same time period. Canada, Switzerland and France had the largest declines—each over 60%, and Germany, Norway and Ireland the smallest declines among the comparison countries—less than 50%.
- Female death rates in Australia had shown only a small net fall until the late 1960s, when the decline began to accelerate rapidly. The Australian pattern of female CVD mortality more closely resembles the Japanese pattern (Figure 3). Declines were much more uniform in the United Kingdom and United States.
- Similar patterns of age-specific death rates were noted in Japan, the United Kingdom, the United States and Australia (Figure 4). The patterns are also similar to those for males, except that the rates are consistently lower for all age groups.
- International comparisons of trends in circulatory system mortality may be complicated by differing coding practices between countries (Murray & Lopez 1997), but the consistency of declining trends is noteworthy.

For more information, see:

d'Espaignet ET 1993. Trends in Australian mortality–diseases of the circulatory system, 1950–1991. AIHW Mortality Series No. 2. Canberra: AGPS.

Mortality, males, ischaemic heart disease (ICD 410–414)

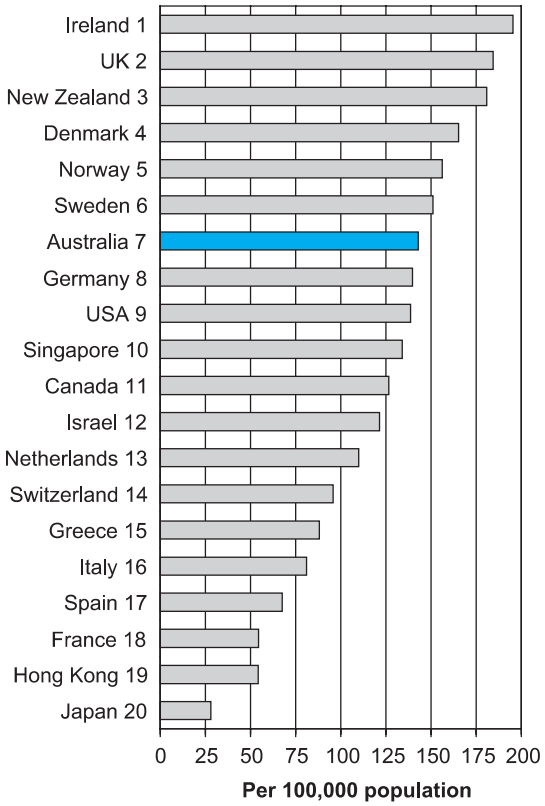


Figure 1: Age-standardised male death rates, ischaemic heart disease, 1992

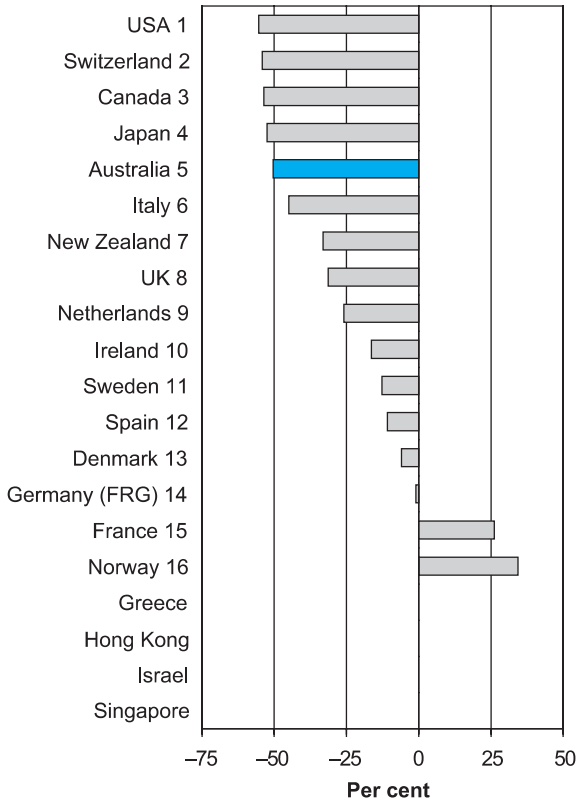


Figure 2: Changes in male death rates, ischaemic heart disease, 1950–54 to 1992

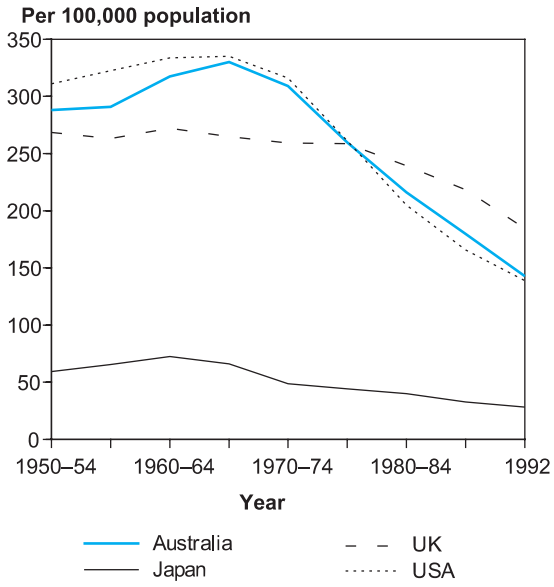


Figure 3: Trends in male death rates, ischaemic heart disease, 1950–54 to 1992

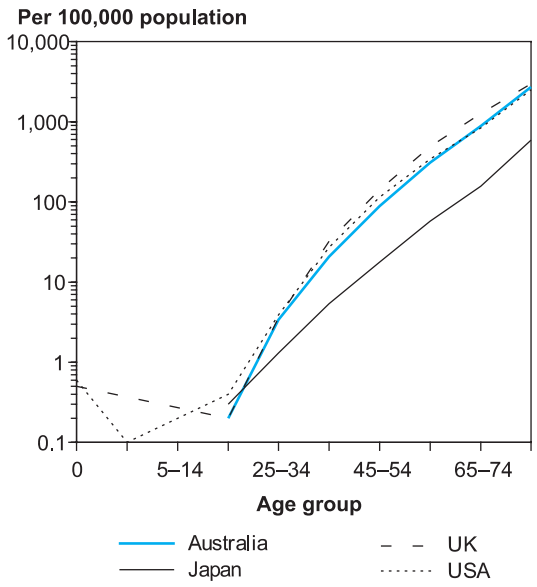


Figure 4: Age-specific male death rates, ischaemic heart disease, 1992

Mortality, males, ischaemic heart disease (ICD 410–414)

Death rates[(a)], males, ischaemic heart disease (per 100,000 population)

Country	1950–54	1960–64	1970–74	1980–84	1992	1993	1994	% change 1950–54 to 1992
Australia	288.0	317.4	309.1	216.2	142.9	133.3	130.9	–50.4
Canada	272.6	296.7	268.8	199.7	126.6	125.8		–53.6
Denmark	175.7	219.5	244.6	226.2	165.2			–6.0
France	43.2	73.1	73.2	71.0	54.5	53.7		26.2
Germany (FRG)	141.1	179.6	166.1	164.2	139.7	140.4	134.7	–1.0
Greece	—	72.1	70.4	81.7	88.1	84.8	80.7	—
Hong Kong	—	68.5	54.7	56.5	54.2	50.6	50.5	—
Ireland	233.7	252.6	251.8	250.8	195.4			–16.4
Israel	—	—	—	166.8	121.4	120.5		—
Italy	147.4	172.0	123.9	108.5	81.1			–45.0
Japan	59.2	72.4	48.7	40.0	28.1	27.7	30.2	–52.5
Netherlands	148.4	181.8	187.4	161.2	109.9	113.0		–25.9
New Zealand	270.3	287.8	287.8	239.1	180.8	165.8		–33.1
Norway	116.2	197.2	215.0	195.5	156.1	146.8		34.3
Singapore	—	—	114.6	165.5	134.1	126.8	126.9	—
Spain	75.8	69.6	66.6	74.0	67.6			–10.8
Sweden	173.0	218.5	244.9	231.8	151.0	149.4		–12.7
Switzerland	208.9	200.1	106.3	114.9	95.7	93.5	88.0	–54.2
UK	268.4	272.1	259.2	239.3	184.4	182.3	166.8	–31.3
USA	311.1	333.6	316.1	204.8	138.7			–55.4

(a) Age-standardised to the World Standard Population.

Sources: WHO 1988, 1994, 1995a, 1996d.

- Ischaemic heart disease (or coronary heart disease) is the single most important cause of death in Australia. In 1996, 16,092 males and 13,545 females died from ischaemic heart disease—23% of all deaths.
- In 1992, the age-standardised ischaemic heart disease (IHD) death rate for Australian males was 143 deaths per 100,000 population. This rate placed Australia in the top half of the 20 developed countries included here (Figure 1). Ireland, the United Kingdom and New Zealand had high death rates; Japan, Hong Kong, France and the Mediterranean countries (Spain, Italy and Greece) had comparatively much lower rates.
- During the period 1950–54 to 1992, IHD mortality more than halved in five countries—the United States, Switzerland, Canada, Japan and Australia. Death rates increased in Norway and France in contrast (Figure 2).
- Male mortality from IHD has fallen dramatically in Australia since the late 1960s, with an average fall of 3.4% per year in the ten years between 1980–84 and 1992. This fall has been largely responsible for the overall decline in mortality in Australia during this time. The trend in Australian male IHD death rates most closely resembles that for the United States (Figure 3). Rates for the United Kingdom and Japan show a slow but consistent decline since the early 1960s. The disparity between the trend in Japanese rates and those for Australia, the United Kingdom and the United States is noteworthy.
- Age-specific death rates begin to rise from early adulthood (Figure 4). Again, Japanese rates are substantially lower for all age groups.
- Coding of IHD mortality has been variable, both over time and between countries. Murray & Lopez (1997) note significant miscoding in numerous developed countries, including Spain, Italy, Japan and France. Even after recoding, though, these countries are still found to have low death rates.
- The amelioration of risk factors, most notably decreases in blood pressure and smoking prevalence (Bennett & Magnus 1994), and improvements in medical care have contributed to declines in mortality.

For more information, see:

Thom TJ 1989. International mortality from heart disease: rates and trends. Int J Epidemiol 18 (Supp. 1): S20–S28.

Mortality, females, ischaemic heart disease (ICD 410–414)

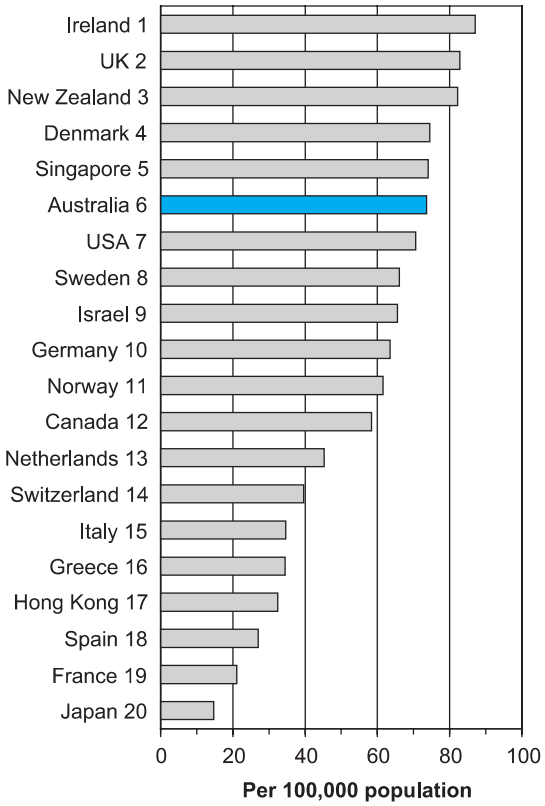


Figure 1: Age-standardised female death rates, ischaemic heart disease, 1992

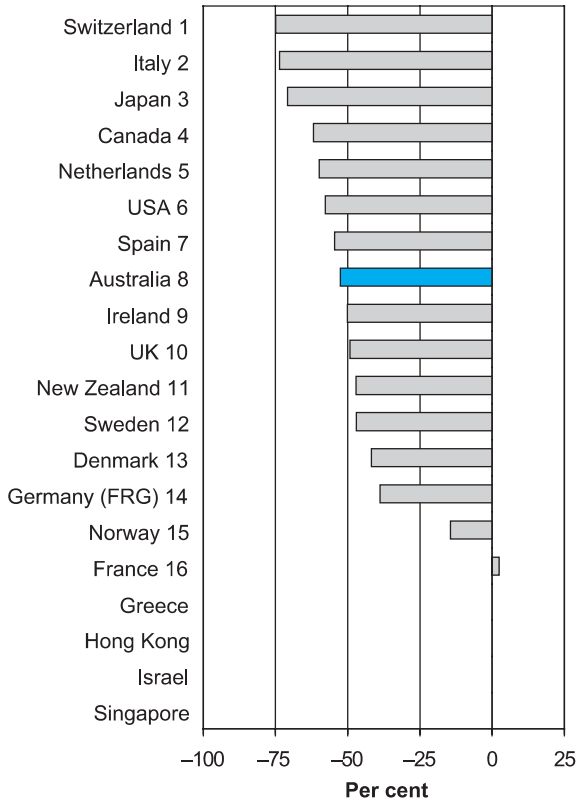


Figure 2: Changes in female death rates, ischaemic heart disease, 1950–54 to 1992

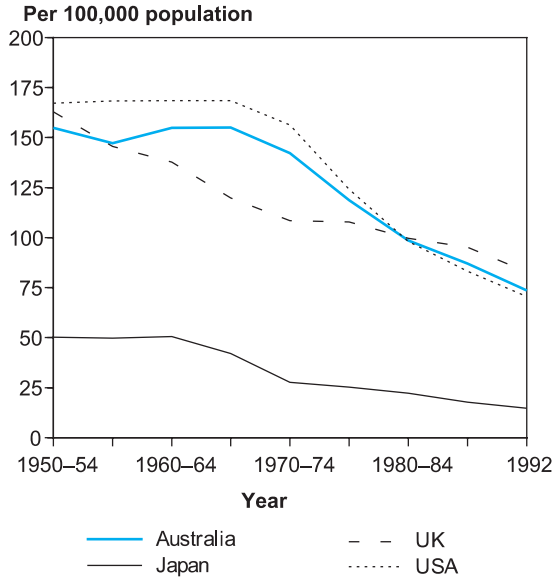


Figure 3: Trends in female death rates, ischaemic heart disease, 1950–54 to 1992

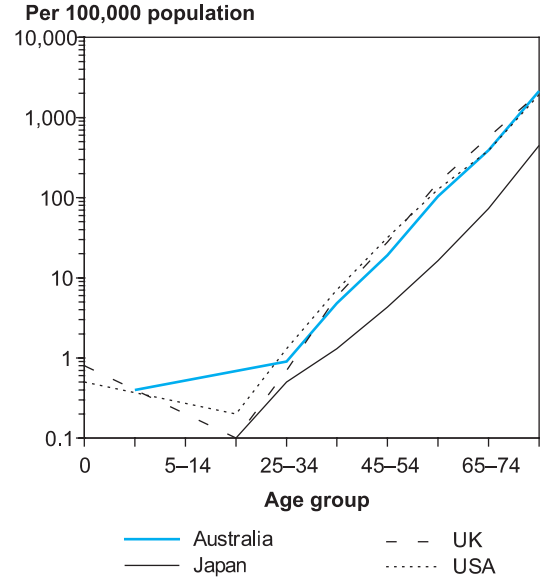


Figure 4: Age-specific female death rates, ischaemic heart disease, 1992

Mortality, females, ischaemic heart disease (ICD 410–414)

Death rates[(a)], females, ischaemic heart disease (per 100,000 population)

Country	1950–54	1960–64	1970–74	1980–84	1992	1993	1994	% change 1950–54 to 1992
Australia	154.8	154.9	143.3	98.6	73.6	66.7	66.6	–52.5
Canada	153.4	151.6	124.1	90.5	58.4	58.0		–61.9
Denmark	127.9	123.0	121.2	101.4	74.5			–41.8
France	20.6	33.4	29.5	27.8	21.1	20.8		2.4
Germany (FRG)	103.7	97.9	69.7	65.0	63.5	64.0	62.2	–38.8
Greece	—	53.2	30.9	29.8	34.5	33.1	32.8	—
Hong Kong	—	33.7	30.1	32.7	32.4	30.9	29.9	—
Ireland	174.7	153.3	124.0	108.9	87.1			–50.1
Israel	—	—	—	99.1	65.6	68.2		—
Italy	131.2	119.1	65.9	48.2	34.6			–73.6
Japan	50.3	50.6	27.6	22.3	14.7	14.3	15.1	–70.8
Netherlands	113.0	101.5	78.7	62.7	45.3	46.3	43.5	–59.9
New Zealand	155.3	138.9	127.6	108.8	82.2	80.9		–47.1
Norway	72.0	102.4	88.2	72.9	61.6	59.6		–14.4
Singapore	—	—	48.4	85.1	74.1	77.4	74.1	—
Spain	59.3	46.8	28.9	29.9	27.0			–54.5
Sweden	124.6	131.3	123.5	99.0	66.1	64.4		–47.0
Switzerland	157.6	129.6	41.2	42.4	39.6	38.5	38.0	–74.9
UK	162.9	137.7	108.5	99.6	82.8	81.7	74.9	–49.2
USA	167.2	168.5	156.3	98.1	70.6			–57.8

(a) Age-standardised to the World Standard Population.

Sources: WHO 1988, 1994, 1995a, 1996d.

- In Australia, the female death rate for ischaemic heart disease (IHD) is about half that for males (52% in 1992). In other developed countries the proportion varies, from a low of about 40% for France, Greece, Norway and Spain to a high of about 60% in Singapore and Hong Kong.
- Australia has quite a high female IHD death rate compared to other developed countries. The rate of 74 deaths per 100,000 population in 1992 ranked sixth, higher than 14 other comparison countries. Ireland, the United Kingdom and New Zealand had the highest rates at over 80 deaths per 100,000 population (Figure 1). France, the Mediterranean countries (Spain, Greece and Italy) and Asian countries (Japan and Hong Kong, but not Singapore), on the other hand, had rates less than 40 deaths per 100,000 population in 1992.
- Dietary factors play an important role in explaining the low ischaemic heart disease rates among Mediterranean countries (Keys 1980, Gaziano & Manson 1996). The 'French paradox'—low rates of heart disease despite saturated fat intake, serum cholesterol, blood pressure and smoking rates not being lower than elsewhere—has been attributed to the protective effects of regularly drinking wine with meals (Burr 1995).
- As in the case of males, declines in female IHD mortality in Australia since the late 1960s have been dramatic—the rate in 1992 was approximately half that of 1972. Switzerland, Italy and Japan demonstrated the largest declines between 1950–54 and 1992, with Australia's decline of 53% over the same time period ranking in the middle for 16 developed countries (Figure 2). France recorded a slight net increase in mortality. Thom (1989) notes that the peak in the IHD mortality epidemic generally occurred earlier in time for women than for men.
- Variations in temporal trends for IHD death rates for Japanese, United Kingdom, United States and Australian females are quite similar to that noted for males from these four countries (Figure 3). Age-specific comparisons also reveal similar patterns (Figure 4).

For more information, see:

Beaglehole R 1990. International trends in coronary heart disease mortality, morbidity and risk factors. Epidemiol Rev 12: 1–15.

Mortality, males, stroke (ICD 430–438)

Figure 1: Age-standardised male death rates, stroke, 1992

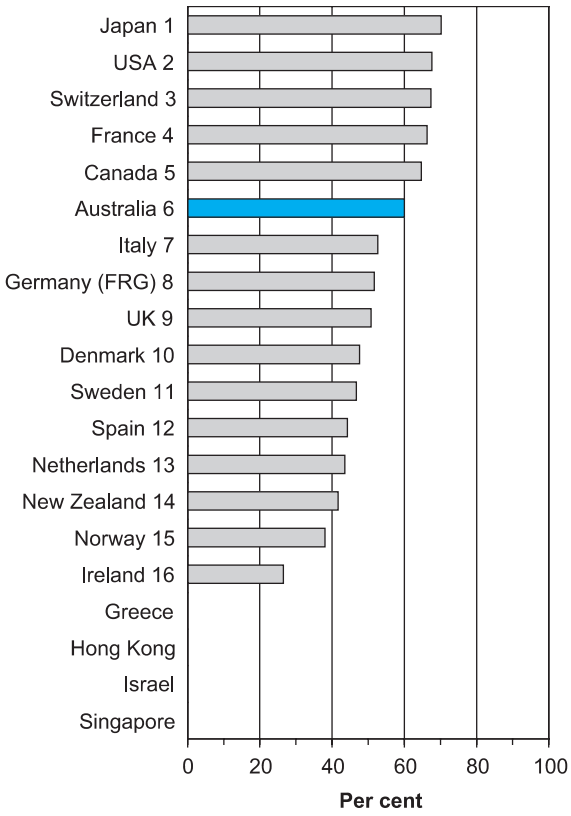


Figure 2: Declines in male death rates, stroke, 1950–54 to 1992

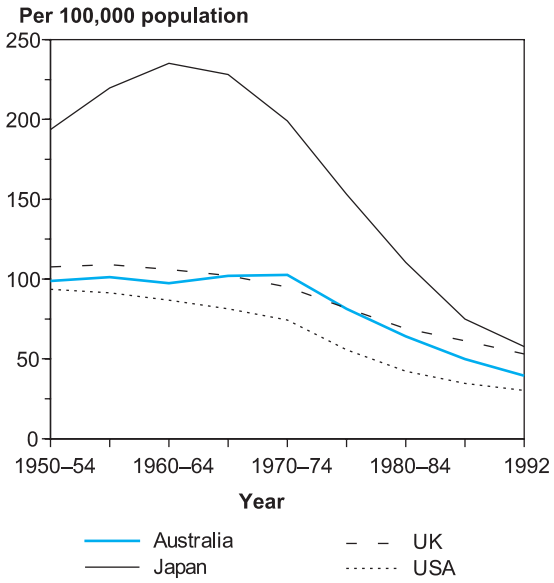


Figure 3: Trends in male death rates, stroke, 1950–54 to 1992

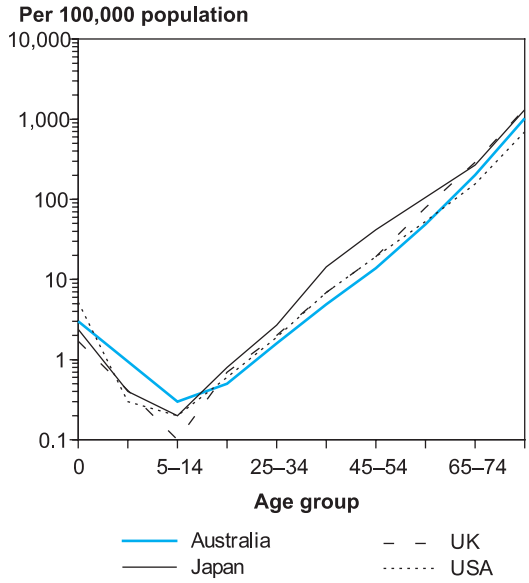


Figure 4: Age-specific male death rates, stroke, 1992

Mortality, males, stroke (ICD 430–438)

Death rates[(a)], males, stroke (per 100,000 population)

Country	1950–54	1960–64	1970–74	1980–84	1992	1993	1994	% change 1950–54 to 1992
Australia	98.7	97.3	102.7	64.2	39.5	37.7	40.2	–60.0
Canada	84.1	74.6	65.1	42.9	29.7	30.9		–64.7
Denmark	91.4	79.2	61.2	51.3	47.9			–47.6
France	105.2	95.8	91.9	61.9	35.5	35.0		–66.3
Germany (FRG)	118.1	121.0	106.3	80.3	57.0	55.9	54.4	–51.7
Greece	—	67.8	75.5	83.1	71.9	67.1	69.7	—
Hong Kong	—	113.7	81.5	72.6	46.1	45.6	43.4	—
Ireland	66.7	85.8	99.6	74.2	49.0			–26.5
Israel	—	—	—	59.2	47.2	46.7		—
Italy	119.4	109.4	96.3	79.6	56.5			–52.7
Japan	193.6	235.2	199.0	110.5	57.7	55.6	54.0	–70.2
Netherlands	75.7	72.1	66.0	51.3	42.8	42.2	41.5	–43.5
New Zealand	81.2	83.5	92.4	66.0	47.3	43.8		–41.7
Norway	81.8	89.6	85.7	60.5	50.7	52.3		–38.0
Singapore	—	—	99.7	84.8	66.3	57.1	61.3	—
Spain	93.3	101.4	99.8	80.1	52.1			–44.2
Sweden	80.6	69.5	52.9	44.4	43.0	42.7		–46.7
Switzerland	100.8	87.9	69.6	52.2	32.9	32.7	31.5	–67.4
UK	107.7	106.0	94.9	69.0	53.0	48.6	46.0	–50.8
USA	93.6	86.7	74.4	42.2	30.3			–67.6

(a) Age-standardised to the World Standard Population.

Sources: WHO 1988, 1994, 1995a, 1996d.

- Cerebrovascular disease (more commonly known as stroke) is the third single leading cause of death in Australia after ischaemic heart disease and lung cancer and was responsible for 12,806 deaths, or 10% of total deaths, in 1996. Stroke is analogous to a heart attack, except the site of the event (the 'stroke') is a vessel supplying blood to the brain. The risk factors for stroke are similar to those for ischaemic heart disease, and include smoking, raised blood cholesterol, high blood pressure, obesity and physical inactivity (Waters & Bennett 1995a).
- In 1992, the age-standardised death rate for stroke among Australian males was 39.5 deaths per 100,000 population. Australia had a relatively low stroke death rate in comparison to other developed countries (Figure 1). Greece, Singapore and Japan had high rates—Greece and Japan's low ischaemic heart disease rates are not replicated for stroke. Stroke rates are comparatively higher in Asia and Eastern Europe (Thom 1993). The North American countries (the United States and Canada) experienced the lowest rates in 1992, about 25% lower than the Australian rate.
- For the two decades between the early 1950s and the early 1970s, there was little change in the Australian male stroke death rate. Since then, the decline has been rapid—a total fall of 62% (or 3.2% per annum) was recorded between 1970–74 and 1992 (Figure 3). Several other countries recorded declines in excess of 60% between 1950–54 and 1992, again most of the decline occurring since the early 1970s. Only two countries—Norway and Ireland—have had declines of less than 40% over the same time period (Figure 2).
- Japan's extremely high male stroke rate peaked in the early 1960s and then declined rapidly (Figure 3). No such peak was noted in Australia, the United Kingdom or the United States.
- Death rates for stroke increase rapidly with age (Figure 4), but the pattern is very different from that noted for IHD death rates, in particular for Japanese males. With ageing populations, cerebrovascular disease is likely to remain a major public health problem in developed countries.

For more information, see:

Thom TJ 1993. Stroke mortality trends. An international perspective. Ann Epidemiol 3: 509–18.

Mortality, females, stroke (ICD 430–438)

Figure 1: Age-standardised female death rates, stroke, 1992

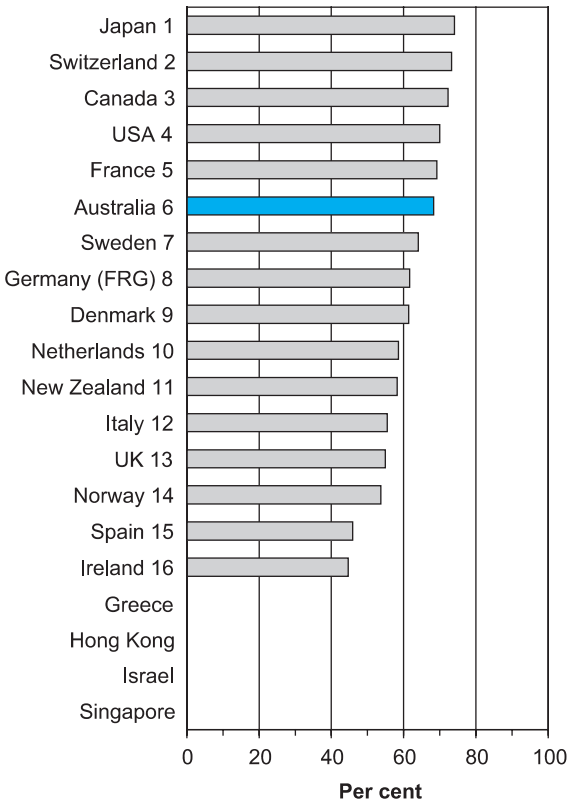


Figure 2: Declines in female death rates, stroke, 1950–54 to 1992

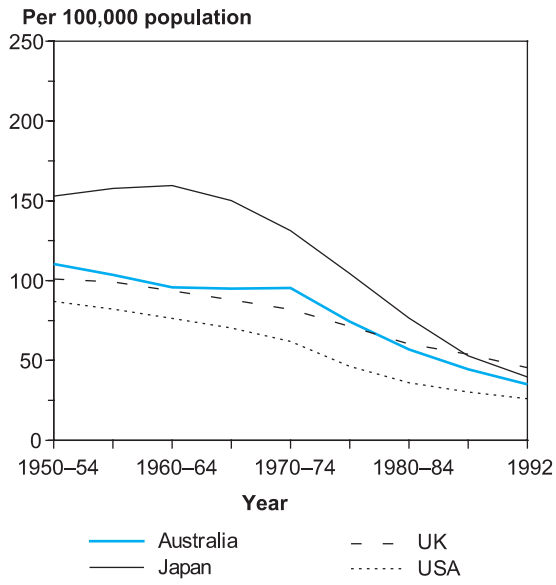


Figure 3: Trends in female death rates, stroke, 1950–54 to 1992

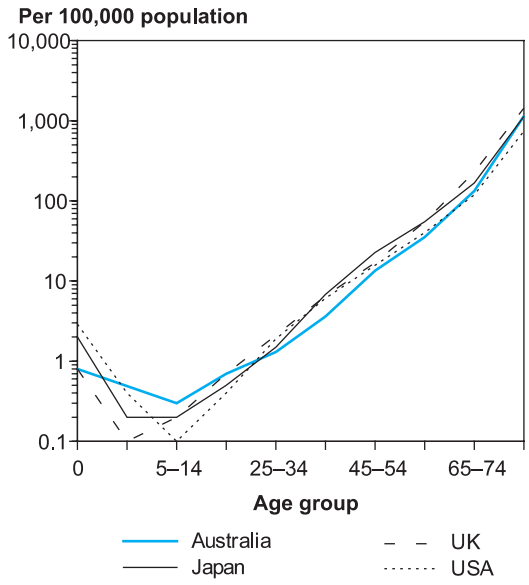


Figure 4: Age-specific female death rates, stroke, 1992

Mortality, females, stroke (ICD 430–438)

Death rates[(a)], females, stroke (per 100,000 population)

Country	1950–54	1960–64	1970–74	1980–84	1992	1993	1994	% change 1950–54 to 1992
Australia	110.4	95.7	95.4	56.9	35.0	33.8	34.0	–68.3
Canada	89.3	72.5	53.2	35.5	24.7	25.5		–72.3
Denmark	98.2	74.7	51.1	40.1	37.9			–61.4
France	80.6	68.4	61.9	42.9	24.8	23.9		–69.2
Germany (FRG)	115.0	104.4	84.7	61.9	44.1	43.1	42.1	–61.7
Greece	—	72.9	78.5	84.7	70.7	66.0	68.6	—
Hong Kong	—	66.6	53.3	56.2	37.1	38.0	35.6	—
Ireland	80.3	92.6	96.8	68.2	44.4			–44.7
Israel	—	—	—	61.1	41.3	41.8		—
Italy	97.9	84.4	72.7	59.9	43.6			–55.5
Japan	153.0	159.6	131.2	76.6	39.6	38.4	37.2	–74.1
Netherlands	86.0	72.2	58.6	40.9	35.6	34.5	32.8	–58.6
New Zealand	99.4	89.0	91.3	59.9	41.5	43.6		–58.2
Norway	85.5	88.9	72.4	48.8	39.6	40.2		–53.7
Singapore	—	—	86.7	84.3	59.1	59.6	55.8	—
Spain	77.1	87.7	85.1	66.6	41.7			–45.9
Sweden	95.9	72.8	51.2	40.2	34.4	33.5		–64.1
Switzerland	96.1	75.1	57.6	41.2	25.7	24.5	24.1	–73.3
UK	100.9	93.5	81.9	60.3	45.5	42.7	40.8	–54.9
USA	86.9	76.3	61.9	36.1	26.1			–70.0

(a) Age-standardised to the World Standard Population.

Sources: WHO 1988, 1994, 1995a, 1996d.

- Death rates for many causes of death are substantially higher for males than for females. However, this is not so for stroke mortality in Australia, where little difference is noted between the male and female rates for the total population. The female rate was marginally higher than the male rate until the early 1960s, but the situation has now reversed. In 1992, the age-standardised death rate for Australian females was 35.0 deaths per 100,000 population—11% below the male rate.
- Of the 20 countries included here for comparison, Greece and Singapore had the highest female stroke death rates in 1992, at 70.7 and 59.1 deaths per 100,000 population respectively (Figure 1). Differences between the next 14 ranked countries were marginal—between 34 and 45 deaths per 100,000 population. The United States, Switzerland, France and Canada had the lowest death rates, all at under 30 deaths per 100,000 population. Australia's rate ranked in the lower third of the comparison countries. There were no large male–female disparities in stroke death rates among these countries.
- Declines in female stroke death rates since the 1950s have been higher than the declines in male rates. None of the countries saw a decline of less than 40% between 1950–54 and 1992, with Japan, Switzerland, Canada and the United States' stroke rates declining by 70% or more during that period (Figure 2). The Australian rate fell by 68%, with most of the decline occurring since the early 1970s.
- The relatively larger contribution of stroke mortality than ischaemic heart disease mortality to CVD death rates in Japan suggests the prevalence of different risk factors when compared to other countries such as the United States or Australia. The Japanese rate has declined significantly in the four decades to 1992, and is already below that of the United Kingdom (Figure 3).
- There was little variation in the age-specific distributions of stroke death rates in Japan, the United Kingdom, the United States and Australia in 1992 (Figure 4).

For more information, see:

Bonita R 1993. Stroke trends in Australia and New Zealand: mortality, morbidity and risk factors. Ann Epidemiol 3: 529–33.

Mortality, males, respiratory system (ICD 460–519)

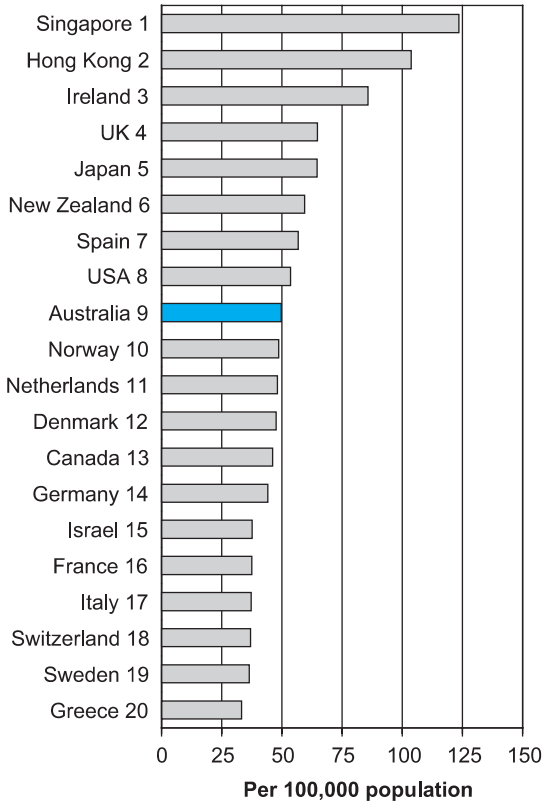


Figure 1: Age-standardised male death rates, respiratory system, 1992

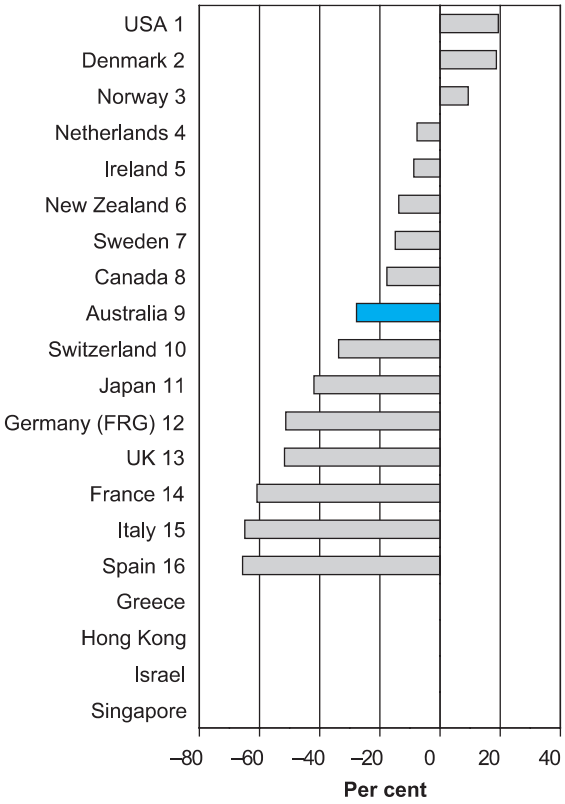


Figure 2: Changes in male death rates, respiratory system, 1950–54 to 1992

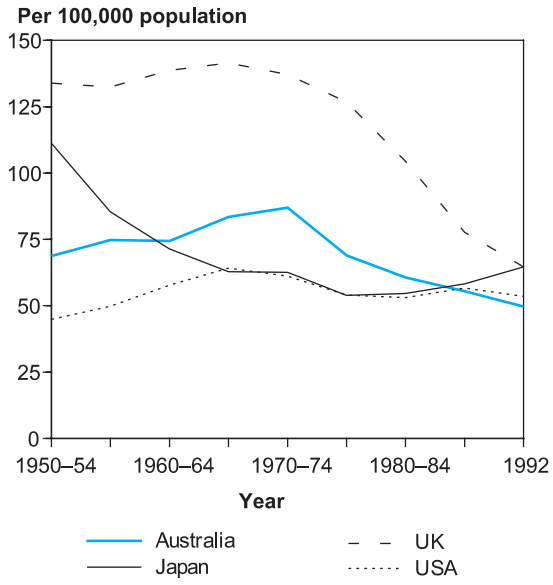


Figure 3: Trends in male death rates, respiratory system, 1950–54 to 1992

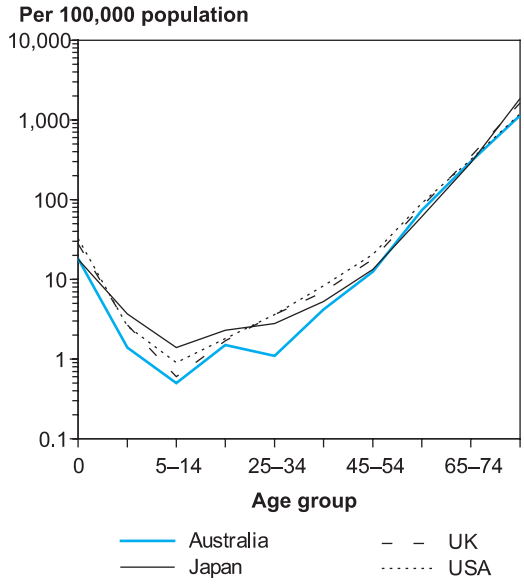


Figure 4: Age-specific male death rates, respiratory system, 1992

Mortality, males, respiratory system (ICD 460–519)

Death rates[(a)], males, respiratory system (per 100,000 population)

Country	1950–54	1960–64	1970–74	1980–84	1992	1993	1994	% change 1950–54 to 1992
Australia	68.8	74.4	87.0	60.6	49.7	43.4	45.4	–27.8
Canada	56.1	53.9	61.0	51.6	46.2	47.2		–17.6
Denmark	40.1	41.8	52.0	53.4	47.6	49.8		18.7
France	95.7	64.7	57.0	45.4	37.5	38.3		–60.8
Germany (FRG)	90.4	77.4	73.0	53.7	44.1	44.5	43.5	–51.2
Greece	—	65.8	65.5	39.5	33.3	29.6	28.6	—
Hong Kong	—	125.2	158.8	112.5	103.7	98.9	90.2	—
Ireland	94.0	100.4	129.4	109.3	85.8			–8.7
Israel	—	—	—	46.9	37.6	27.9		—
Italy	106.4	89.2	81.2	57.3	37.3			–64.9
Japan	111.2	71.4	62.6	54.6	64.6	67.1	66.0	–41.9
Netherlands	52.2	46.3	56.2	47.7	48.2	61.5	51.9	–7.7
New Zealand	68.8	101.8	100.7	88.6	59.4	57.7		–13.7
Norway	44.5	42.9	55.6	50.7	48.7	56.2		9.4
Singapore	—	—	178.6	179.4	123.5	118.5	117.1	—
Spain	165.1	104.8	99.2	63.5	56.8			–65.6
Sweden	42.9	40.7	33.0	40.4	36.5	39.6		–14.9
Switzerland	55.8	51.5	55.1	38.6	37.0	39.1	37.4	–33.7
UK	133.9	138.7	137.1	104.5	64.7	86.7	76.6	–51.7
USA	44.9	57.8	61.2	53.1	53.6			19.4

(a) Age-standardised to the World Standard Population.

Sources: WHO 1988, 1994, 1995a, 1996d.

- Major diseases of the respiratory system include infectious diseases such as pneumonia and influenza, as well as chronic diseases causing long-term lung damage such as asthma, chronic bronchitis and emphysema. Diseases of the respiratory system accounted for 8.0% of all deaths in Australia in 1996—8.4% of male deaths and 7.5% of female deaths.
- In 1992, the age-standardised male death rate for diseases of the respiratory system in Australia was 49.7 per 100,000 population. Asian countries (Singapore, Hong Kong and Japan) and the United Kingdom and Ireland had rates in excess of 60 deaths per 100,000 population. Rates under 40 deaths per 100,000 population were noted in a number of countries in 1992, including Greece, Sweden, Switzerland, Italy, France and Israel. Except for Singapore, Hong Kong and Ireland, differences in rates between countries were marginal (Figure 1).
- Post-war changes in male respiratory disease death rates in developed countries have been variable, with some countries, such as Spain, Italy and France showing large decreases, whereas others, such as the United States, Denmark and Norway showing increases (Figure 2). The death rate in Australia fell by 28% between 1950–54 and 1992.
- The male death rate increased steadily until the early 1970s, before beginning a slow, but steady decline in Australia. A somewhat similar trend was apparent in the United States, although the rate appears to have stabilised lately. A rapid decline in the United Kingdom death rate began around 1970 (Figure 3). The convergence in death rates in these countries over the period 1950–54 to 1992 has been noteworthy, decreasing from a range of 45–134 deaths per 100,000 population to a narrow range of 50–65 deaths.
- Death rates for diseases of the respiratory system increase with age (Figure 4). It should be noted that accuracy in coding of deaths due to respiratory diseases declines significantly after the age of 65. Coding practices may also vary from country to country. In 1992, the death rate for Australian males aged 25–34 was somewhat lower than for other developed countries.

For more information, see:

Cooreman J, Henry C, Neukirch C 1996. Mortality by respiratory disease in ten European and North American countries (1979–1990). Rev Mal Respir 13: 47–53.

Mortality, females, respiratory system (ICD 460–519)

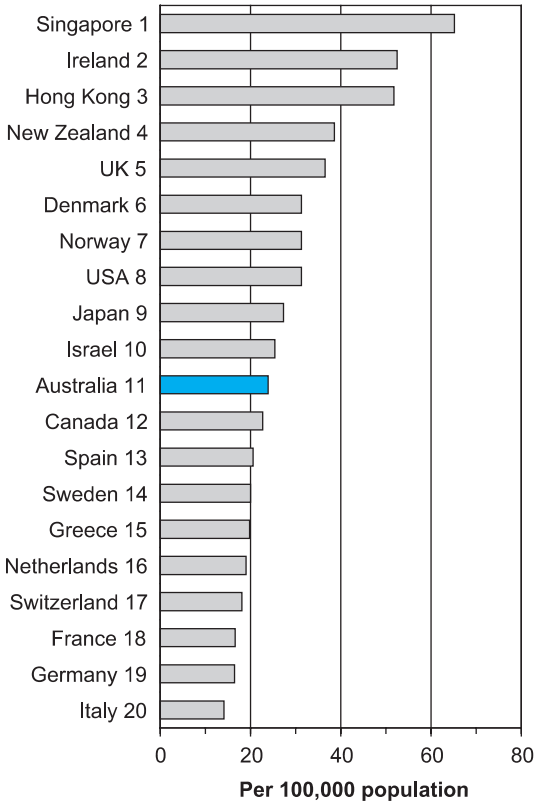


Figure 1: Age-standardised female death rates, respiratory system, 1992

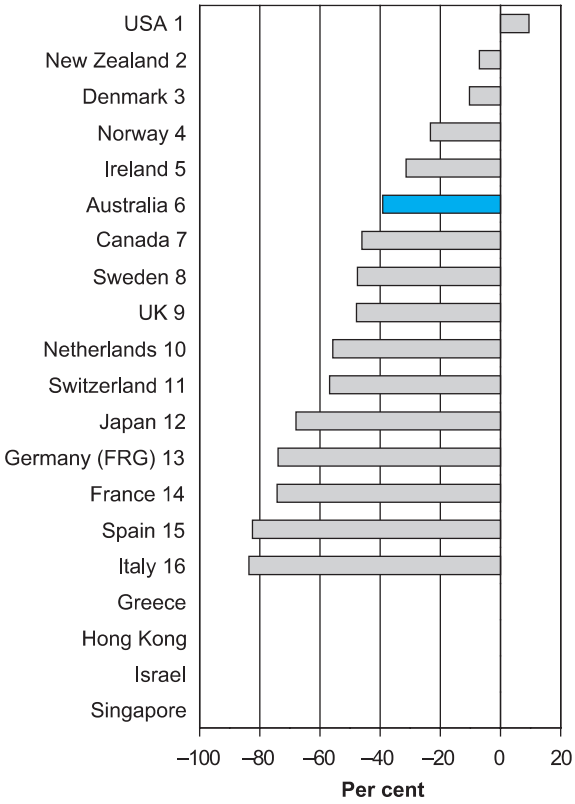


Figure 2: Changes in female death rates, respiratory system, 1950–54 to 1992

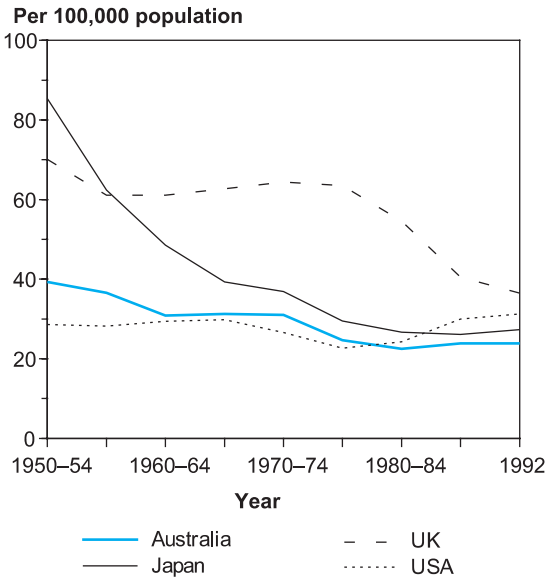


Figure 3: Trends in female death rates, respiratory system, 1950–54 to 1992

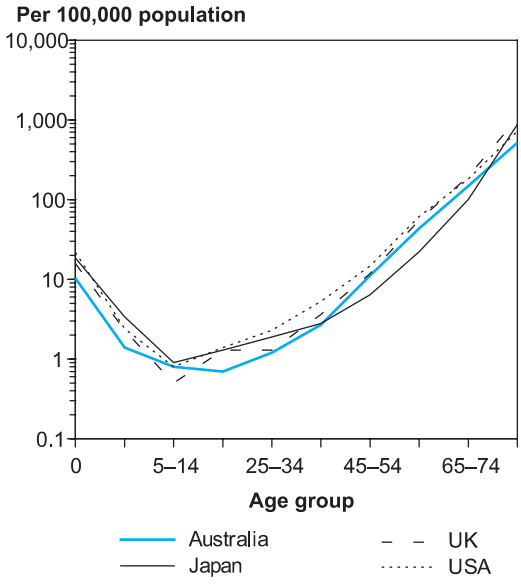


Figure 4: Age-specific female death rates, respiratory system, 1992

Mortality, females, respiratory system (ICD 460–519)

Death rates[(a)], females, respiratory system (per 100,000 population)

Country	1950–54	1960–64	1970–74	1980–84	1992	1993	1994	% change 1950–54 to 1992
Australia	39.3	30.9	31.0	22.5	23.9	21.4	23.0	–39.2
Canada	42.1	31.7	27.2	21.8	22.7	24.4		–46.1
Denmark	34.9	28.2	25.1	27.8	31.3	35.2		–10.3
France	64.3	37.5	26.6	18.3	16.6	17.5		–74.2
Germany (FRG)	63.3	41.1	30.2	20.5	16.5	17.4	17.3	–73.9
Greece	—	55.4	46.7	25.5	19.8	17.6	16.9	—
Hong Kong	—	91.6	87.2	59.8	51.8	50.1	42.2	—
Ireland	76.5	63.7	81.4	62.5	52.5			–31.4
Israel	—	—	—	31.6	25.4	18.5		—
Italy	86.1	57.6	42.4	23.0	14.1			–83.6
Japan	85.4	48.6	36.9	26.7	27.3	28.7	27.1	–68.0
Netherlands	42.9	24.8	25.0	17.7	19.0	26.0	21.8	–55.7
New Zealand	41.5	51.2	50.6	44.2	38.6	34.3		–7.0
Norway	40.8	39.5	40.1	28.9	31.3	37.0		–23.3
Singapore	—	—	94.6	98.0	65.2	67.8	63.6	—
Spain	117.1	71.3	58.0	29.2	20.6			–82.4
Sweden	38.2	31.4	19.2	22.3	20.0	23.7		–47.6
Switzerland	41.9	29.4	24.9	15.2	18.1	18.1	16.5	–56.8
UK	70.1	61.1	64.4	54.6	36.5	53.3	46.9	–47.9
USA	28.6	29.4	26.6	24.3	31.3			9.4

(a) Age-standardised to the World Standard Population.

Sources: WHO 1988, 1994, 1995a, 1996d.

- In Australia, female death rates for diseases of the respiratory system have been appreciably lower than the male rates. In recent years, the male rates have been approximately twice those for females. The rate ratio began to rise in the 1950s, peaking in 1972 at 3.2 male deaths for every female death. Since then there has been a steady decline in the rate ratio (d'Espaignet et al. 1991).
- In 1992, the age-standardised death rate for diseases of the respiratory system among Australian females was 23.9 per 100,000 population. As for males, the Australian rate ranked towards the middle of the 20 comparison countries (Figure 1). Singapore, Hong Kong and Ireland had the highest female rates, in excess of 50 deaths per 100,000 population. In comparison, six countries—Italy, Germany, France, Switzerland, the Netherlands, Greece and Sweden—had rates of 20 deaths per 100,000 population or lower.
- Post-war death rates fell in all countries except in the United States which recorded a small net increase (Figure 2). Between 1950–54 and 1992, mortality for respiratory diseases fell by 39% among Australian females. Several countries had greater declines, mortality falling by more than 80% in Spain and Italy.
- Death rates for respiratory diseases in the United States have remained steady since the early 1950s. The rate in Japan has also been steady for the last decade, following rapid declines until the mid-1970s. The United Kingdom rate began to decline in the late 1970s, although this decline has slowed in recent years (Figure 3). These parallel declines have led to a significant convergence of rates.
- Diseases of the respiratory system are a collection of entities with disparate origins and courses of development. Overall trends may mask significant variation in disease-specific trends. Nonetheless, there have been marked declines in respiratory system deaths in developed countries.

For more information, see:

d'Espaignet ET et al. 1991. Trends in Australian mortality, 1921–1988. Australian Institute of Health: Mortality Series No. 1. Canberra: AGPS.

Mortality, males, bronchitis, emphysema, asthma (ICD 490–493)

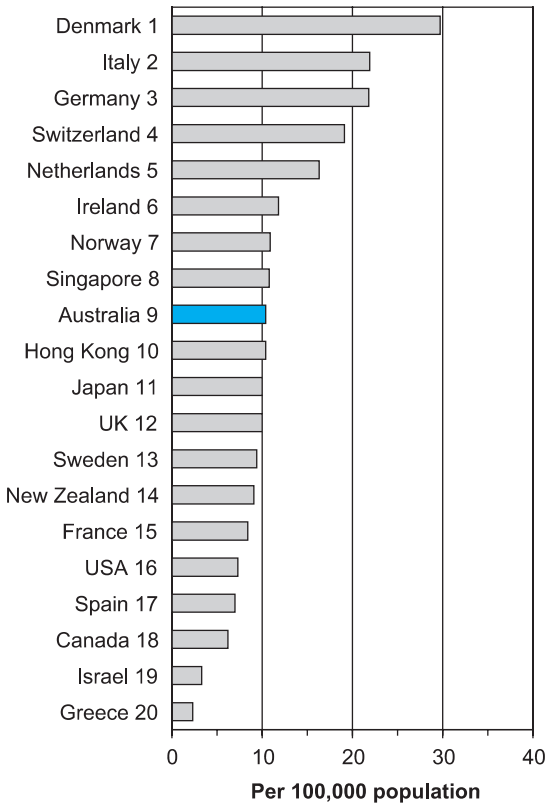


Figure 1: Age-standardised male death rates, bronchitis, emphysema, asthma, 1992

Figure 2: Changes in age-standardised male death rates, bronchitis, emphysema, asthma, 1950–54 to 1992

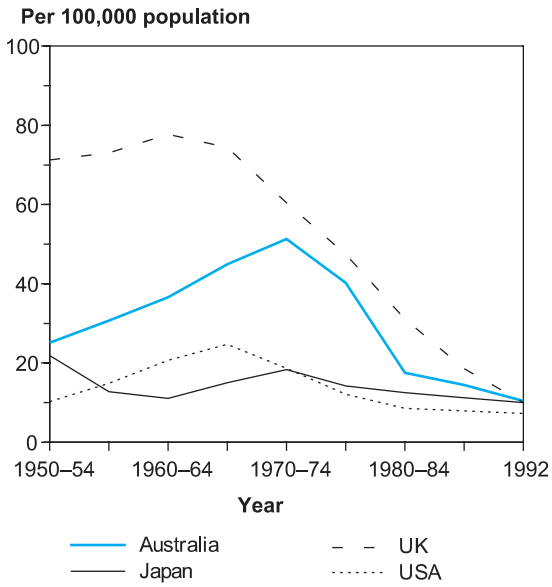


Figure 3: Trends in male death rates, bronchitis, emphysema, asthma, 1950–54 to 1992

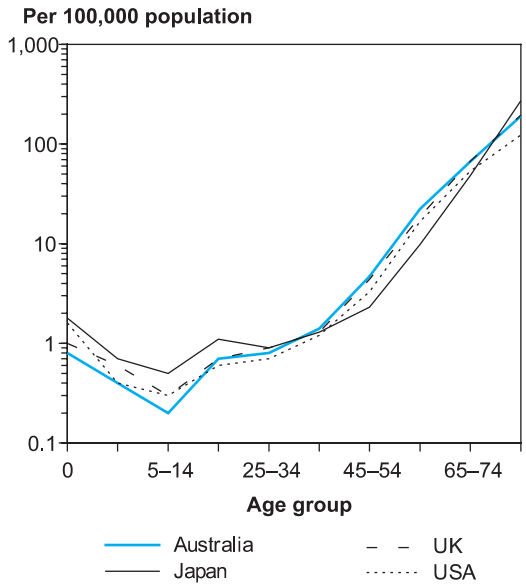


Figure 4: Age-specific male death rates, bronchitis, emphysema, asthma, 1992

Mortality, males, bronchitis, emphysema, asthma (ICD 490–493)

Death rates[(a)], males, bronchitis, emphysema and asthma (per 100,000 population)

Country	1950–54	1960–64	1970–74	1980–84	1992	1993	1994	% change 1950–54 to 1992
Australia	25.1	36.6	51.3	17.5	10.4	9.0	9.0	–58.6
Canada	11.5	17.8	23.2	11.4	6.2	6.1		–46.1
Denmark	7.7	15.7	27.2	29.8	29.7	30.2		285.7
France	26.9	28.1	11.5	10.4	8.4	8.2		–68.8
Germany (FRG)	28.1	33.6	38.4	32.1	21.8	20.0	18.0	–22.4
Greece	—	17.5	21.7	12.6	2.3	2.1	1.6	—
Hong Kong	—	17.5	47.5	18.5	10.4	8.7	7.6	—
Ireland	36.2	51.4	59.2	28.0	11.8			–67.4
Israel	—	—	—	4.8	3.3	3.3		—
Italy	25.3	36.9	36.6	30.2	21.9			–13.4
Japan	21.9	11.1	18.3	12.5	10.0	10.2	10.2	–54.3
Netherlands	16.1	25.3	29.6	20.8	16.3	18.6	15.1	1.2
New Zealand	28.6	49.0	51.0	28.8	9.1	9.5		–68.2
Norway	7.1	8.2	12.2	17.0	10.9	10.4		53.5
Singapore	—	—	49.0	14.5	10.8	6.7	5.8	—
Spain	55.9	41.5	36.9	16.2	7.0			–87.5
Sweden	4.7	6.6	10.9	13.4	9.4	9.1		100.0
Switzerland	14.4	18.3	23.6	20.7	19.1	18.9	18.6	32.6
UK	71.3	77.7	60.4	31.1	10.0	9.4	8.2	–86.0
USA	10.3	20.7	18.7	8.6	7.3			–29.1

(a) Age-standardised to the World Standard Population.

Sources: WHO 1988, 1994, 1995a, 1996d.

- Bronchitis, emphysema and asthma are three separate, but often related, diseases. Bronchitis is often associated with asthma, and in itself does not lead to much mortality. Emphysema is also often secondary to other diseases and conditions, and is usually due to smoking. Asthma has a large genetic component, and is often complicated by chronic obstructive pulmonary disease (Lancaster 1990).
- Asthma is a major public health problem, both in economic and quality-of-life terms. The prevalence of asthma in Australia is difficult to ascertain but has been estimated at 15–20% of children and adolescents and 6–7% of adults (Peat et al. 1994). Asthma affects mostly children, although death rates increase with age, with very little childhood mortality.
- In 1992, the death rate for bronchitis, emphysema and asthma among Australian males was 10.4 deaths per 100,000 population. Denmark, Italy and Germany had more than double the Australian rate, whereas Israel and Greece had less than one-half of the Australian rate (Figure 1).
- Long-term international trends in mortality from these diseases are variable, but the rates have generally decreased. Australian male mortality increased steadily until the early 1970s, then fell sharply until the early 1980s, a net decrease of 59% between 1950–54 and 1992 (Figures 2 and 3). Death rates in the United Kingdom and Spain have shown large declines, especially since the mid-1960s for the United Kingdom. Rates have increased dramatically in the Scandinavian countries (Denmark, Sweden and Norway).
- Asthma is often associated with avoidable factors such as cigarette smoke exposure and household allergens. Deaths from asthma highlight the need for asthma sufferers to pay close attention to the management of their condition.

For more information, see:

Weiss KB et al. 1993. Breathing better or wheezing worse? The changing epidemiology of asthma morbidity and mortality. Annu Rev Public Health 14: 491–514.

Mortality, females, bronchitis, emphysema, asthma (ICD 490–93)

Figure 1: Age-standardised female death rates, bronchitis, emphysema, asthma, 1992

Figure 2: Changes in female death rates, bronchitis, emphysema, asthma, 1950–54 to 1992

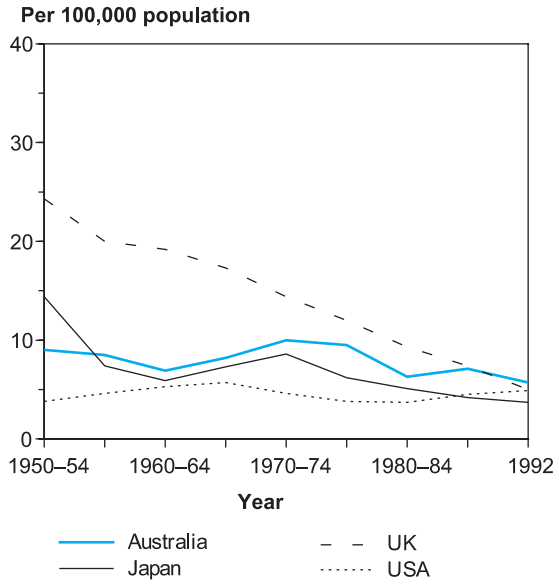


Figure 3: Trends in female death rates, bronchitis, emphysema, asthma, 1950–54 to 1992

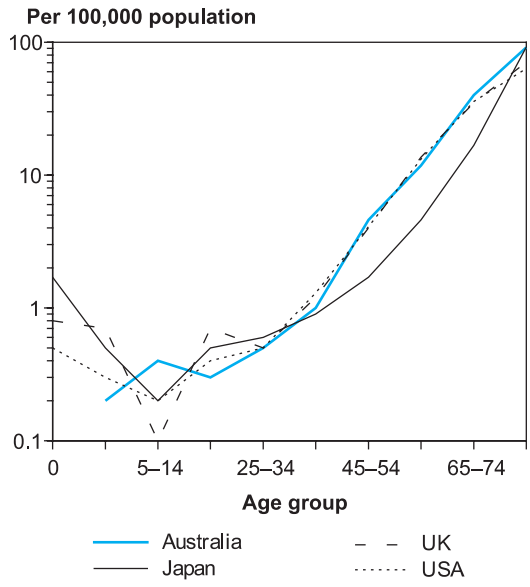


Figure 4: Age-specific female death rates, bronchitis, emphysema, asthma, 1992

Mortality, females, bronchitis, emphysema, asthma (ICD 490–93)

Death rates[(a)], females, bronchitis, emphysema and asthma (per 100,000 population)

Country	1950–54	1960–64	1970–74	1980–84	1992	1993	1994	% change 1950–54 to 1992
Australia	9.0	6.9	10.0	6.3	5.7	5.9	6.0	–36.7
Canada	5.8	5.4	5.3	3.9	3.0	3.1		–48.3
Denmark	4.2	6.0	8.4	12.3	19.6	21.3		366.7
France	13.9	12.5	3.5	3.6	3.9	4.1		–71.9
Germany (FRG)	11.2	9.5	10.3	8.8	6.6	6.6	6.2	–41.1
Greece	—	11.3	11.1	6.4	1.2	0.8	0.7	—
Hong Kong	—	11.4	19.5	8.1	3.9	3.5	2.6	—
Ireland	23.4	23.5	24.3	12.7	6.5			–72.2
Israel	—	—	—	3.4	3.2	2.7		—
Italy	17.6	16.4	11.9	8.6	6.4			–63.6
Japan	14.4	5.9	8.6	5.1	3.7	3.6	3.4	–74.3
Netherlands	8.6	8.0	6.6	4.3	4.3	4.6	4.0	–50.0
New Zealand	10.5	15.0	14.7	12.1	6.8	5.8		–35.2
Norway	4.7	4.1	5.0	6.2	6.0	6.5		27.7
Singapore	—	—	22.1	7.4	6.1	4.0	4.1	—
Spain	30.8	20.3	15.6	6.0	2.6			–91.6
Sweden	3.2	3.3	5.1	6.3	4.7	5.0		46.9
Switzerland	7.6	5.8	5.6	4.9	5.6	5.2	5.7	–26.3
UK	24.3	19.2	14.4	9.3	5.0	4.7	4.1	–79.4
USA	3.8	5.3	4.6	3.7	4.9			28.9

(a) Age-standardised to the World Standard Population.

Sources: WHO 1988, 1994, 1995a, 1996d.

- Mortality from bronchitis, emphysema and asthma among Australian females is lower than for males. In the 1960s and 1970s, there were approximately 5 male deaths for every female death. By 1992, this ratio had fallen to 1.8 male deaths for every female death. Most other developed countries also exhibit notable male–female disparities in mortality from these diseases. In recent years Australian male and female death rates for asthma have been very similar.
- In 1992, the age-standardised death rate for bronchitis, emphysema and asthma among Australian females was 5.7 per 100,000 population. Differences in death rates between countries are slight, except for Denmark, whose rate of 19.6 deaths per 100,000 population in 1992 was almost three times that of the next highest rate—for New Zealand (Figure 1).
- The Scandinavian countries (Denmark, Sweden and Norway) and the United States were the only countries that recorded net increases in death rates between 1950–54 and 1992 (Figure 2). All other countries, including Australia, recorded decreases of between 25% and 100%.
- Female mortality for these diseases has declined slowly in Australia. Declines in the United Kingdom have been consistent since the early 1950s, the death rate converging recently to be similar in magnitude to those found in Australia, Japan and the United States (Figure 3). These declines in mortality point to better disease management and improved drug therapies.
- Asthma and its causes are becoming important health priorities in developed countries. Standardising definitions and the identification of risk factors are important issues that have arisen recently (Asher et al. 1995). Preliminary data from the International Study on Asthma and Allergies in Children (ISAAC) confirm that rates of childhood asthma in New Zealand and Australia are particularly high, although childhood mortality from asthma is low.

For more information, see:

Woolcock AJ 1991. Worldwide trends in asthma morbidity and mortality. Explanation of trends. Bull Int Union Tuber Lung Dis 66: 85–9.

Mortality, sudden infant death syndrome (ICD 798.0)

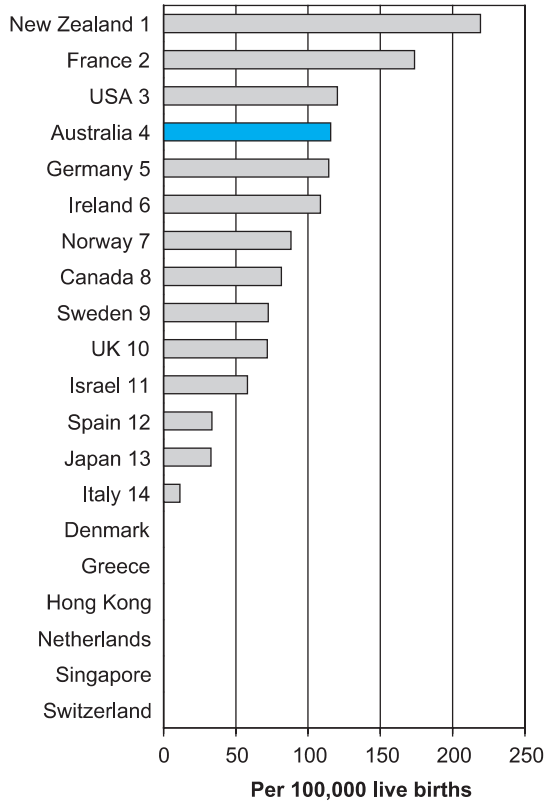


Figure 1: SIDS death rates, 1992

Figure 2: Changes in SIDS death rates, 1987 to 1992

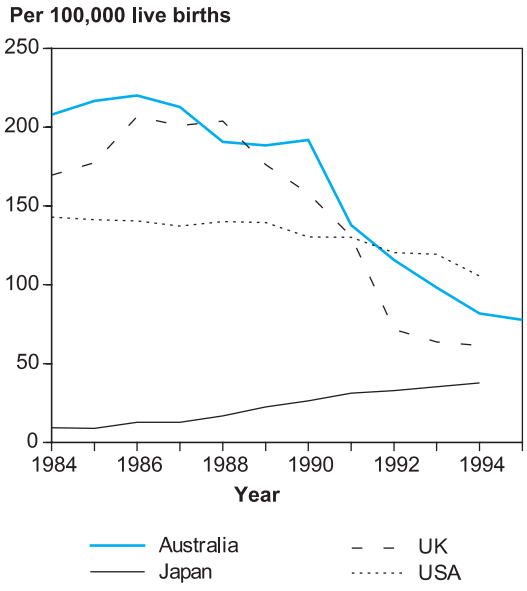


Figure 3: Trends in SIDS death rates, 1984 to 1995

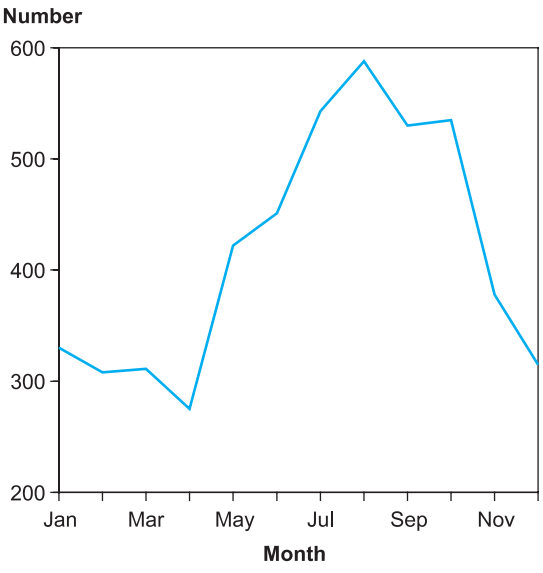


Figure 4: Total SIDS deaths by month, Australia, 1984 to 1995

Mortality, sudden infant death syndrome (ICD 798.0)

Crude death rate for infants aged 0, sudden infant death syndrome (per 100,000 live births)

Country	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
Australia	207.8	216.6	220.0	212.8	190.6	188.3	191.8	137.8	115.7	98.2	81.8
Canada				104.8			81.1	87.0	81.5	68.5	
Denmark											
France	158.5	160.2	173.3	183.8	180.4	183.5	141.7	192.9	173.6	159.2	
Germany (FRG)	138.1	158.5	162.9		161.4	167.1	173.4	154.8	114.2	109.0	97.1
Greece	3.2	6.0	18.6	16.0	21.4	22.7	8.8			7.7	39.5
Hong Kong											
Ireland	185.3	214.8	250.7	224.2	219.8	198.0	184.8	138.5	108.6		
Israel				65.6	51.8	69.5	61.0	54.9	58.1	65.9	
Italy	1.5	3.8	4.1	7.3	11.6	12.5	10.8	14.7	11.4		
Japan	9.3	8.9	12.7	12.7	16.9	22.6	26.4	31.3	32.8	35.3	37.8
Netherlands	125.0	108.3	109.5	92.1	57.9	70.4	56.6				
New Zealand	428.0	372.6	354.0	331.2	352.8	347.7	271.0	235.0	219.4	198.8	
Norway			194.2	188.8	212.1	239.4	136.2	121.7	88.2	62.0	
Singapore											
Spain	15.4	20.4	23.5	23.4	25.8	26.0	33.4	41.2	33.5		
Sweden				88.8	78.5	105.2	117.8	106.7	72.4	70.4	
Switzerland										113.8	
UK	169.6	177.5	206.7	200.9	203.9	176.3	157.9	130.7	71.7	63.8	61.4
USA	142.9	141.3	140.5	137.3	140.1	139.4	130.3	130.1	120.3	119.4	105.6

Sources: WHO 1996d, and previous issues.

- Sudden infant death syndrome (SIDS) is one of the major causes of infant mortality in Australia and other developed countries. It is defined as the sudden and unexplained death of an infant where the death remains unexplained despite complete post mortem examination.
- Although deaths attributed to SIDS are by definition unexplained, various risk factors have been identified, and appropriate preventive measures have been suggested—avoiding the prone sleeping position, a preference for breast-feeding babies, avoiding exposure to cigarette smoke and ensuring that babies are not over-heated. A seasonal effect is also known to be associated with SIDS deaths, with greater mortality in colder months (Figure 4).
- In 1984, the SIDS death rate in Australia was 208 deaths per 100,000 live births. By 1995 this rate had fallen to 78 deaths per 100,000 live births. This noteworthy fall has been largely attributed to a national SIDS prevention campaign that began in the early 1990s.
- Death rates for SIDS are variable among developed countries. New Zealand and France had rates exceeding 150 deaths per 100,000 live births in 1992, whereas Spain, Japan and Italy recorded rates below 50 deaths per 100,000 live births (Figure 1). Coding-of-death and autopsy procedures vary widely internationally; the comparisons provided here therefore should be interpreted with caution.
- SIDS death rates in Australia and Northern Europe, however, have decreased significantly, in particular in conjunction with recommendations to place infants on their back to sleep (Willinger 1995, Forsdahl & Andersen 1996). However, rates in the United States continue to decline slowly, despite education campaigns (Figure 3).
- Between 1987 and 1992, Australia, Ireland, New Zealand, Norway and the United Kingdom recorded falls in mortality of 30% or more (Figure 2). Italy, Japan and Spain on the other hand recorded increases, although these may reflect no more than changing coding practices.

For more information, see:

Dwyer T, Ponsonby AL 1992. Sudden infant death syndrome—insights from epidemiological research. J Epidemiol Community Health 46: 98–102.

Willinger M 1995. SIDS prevention. Pediatr Ann 24: 358–64.

Mortality, males, injury and poisoning (ICD E800–E999)

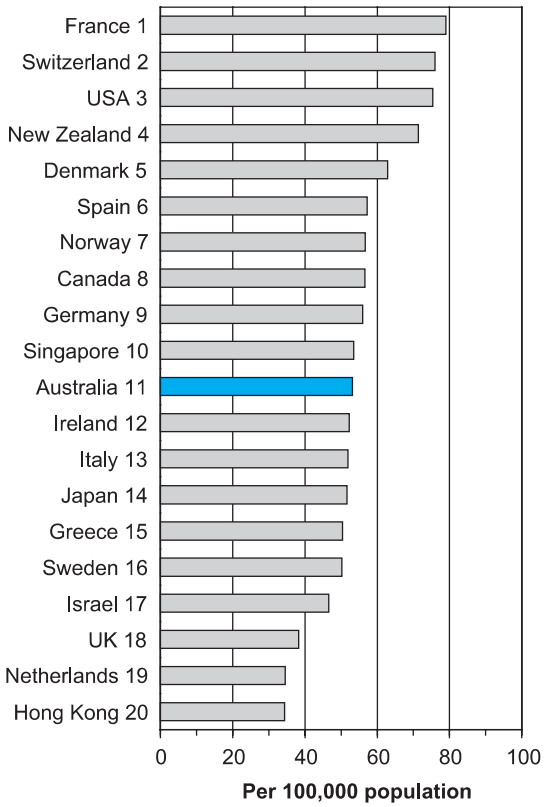


Figure 1: Age-standardised male death rates, injury and poisoning, 1992

Figure 2: Changes in male death rates, injury and poisoning, 1950–54 to 1992

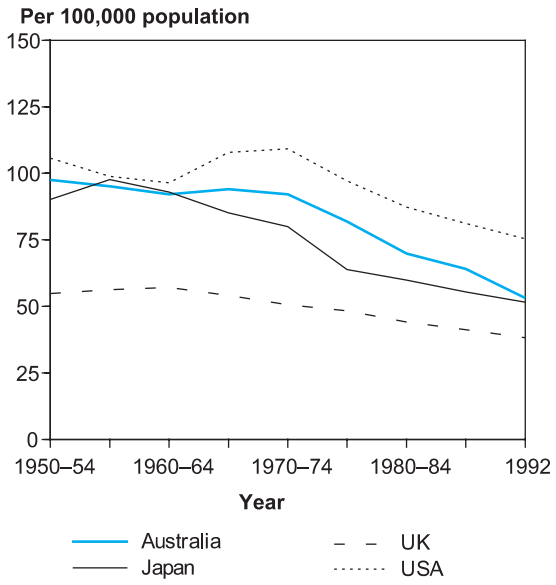


Figure 3: Trends in male death rates, injury and poisoning, 1950–54 to 1992

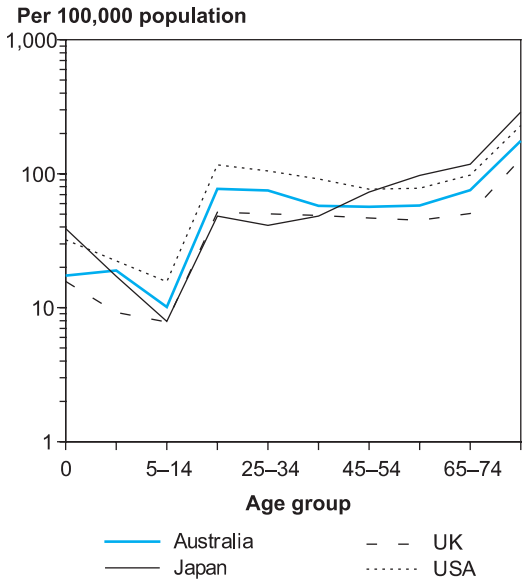


Figure 4: Age-specific male death rates, injury and poisoning, 1992

Mortality, males, injury and poisoning (ICD E800–E999)

Death rates[(a)], males, injury and poisoning (per 100,000 population)

Country	1950–54	1960–64	1970–74	1980–84	1992	1993	1994	% change 1950–54 to 1992
Australia	97.5	92.1	92.1	69.8	53.1	50.9	51.2	–45.5
Canada	94.6	92.3	102.0	78.3	56.6	56.6		–40.2
Denmark	79.7	72.7	79.0	74.3	62.9			–21.1
France	91.1	98.5	107.2	96.6	79.0	78.2		–13.3
Germany (FRG)	99.3	97.8	98.9	72.0	56.0	53.4	52.6	–43.6
Greece	—	51.2	53.3	56.8	50.4	51.7	52.3	—
Hong Kong	—	56.9	61.4	44.1	34.3	32.9	30.4	—
Ireland	38.0	43.0	64.3	60.3	52.2			37.4
Israel	—	—	—	47.1	46.6	45.7		—
Italy	62.7	71.5	69.5	57.9	51.9			–17.2
Japan	90.2	93.0	79.9	59.8	51.6	50.4	51.3	–42.8
Netherlands	56.1	59.5	62.8	44.1	34.5	33.8	33.6	–38.5
New Zealand	82.6	74.6	85.7	73.2	71.4	67.0		–13.6
Norway	70.4	69.8	74.1	67.4	56.7	54.1		–19.5
Singapore	—	—	77.1	59.1	53.5	49.5	52.6	—
Spain	48.1	55.4	59.6	54.2	57.2			18.9
Sweden	75.3	75.3	79.4	65.5	50.2	49.1		–33.3
Switzerland	110.1	106.6	99.1	85.4	76.0	68.7	68.6	–31.0
UK	54.8	57.1	50.6	44.1	38.2	36.3	36.1	–30.3
USA	105.7	96.4	109.2	87.3	75.4			–28.7

(a) Age-standardised to the World Standard Population.

Sources: WHO 1988, 1994, 1995a, 1996d.

- The category 'Injury and poisoning' includes several different causes of death, such as road accidents, suicide, accidental falls and homicide. Although the numbers of deaths due to injury and poisoning are evenly distributed among age groups, it is a leading cause of death among adolescents and young adults. In 1996, injury and poisoning accounted for 6% of all deaths in Australia, and 71% of deaths among persons aged 15–24 (ABS 1997).
- The 1992 male death rate for injury and poisoning varied by as much as 100% between developed countries. The rate among Australian males (53 deaths per 100,000 population) is moderate compared to countries such as France, Switzerland, the United States and New Zealand, which had rates in excess of 70 deaths per 100,000 population that year (Figure 1). In contrast, the United Kingdom, the Netherlands and Hong Kong had rates lower than 40 deaths per 100,000 population in 1992. There was only a small variation between the sixth ranked country, Spain, and the 16th ranked country, Sweden.
- Death rates for injury and poisoning have been declining over the past several decades in most developed countries (Figures 2 and 3). The rate for males in Australia declined by an average of 1.1% per annum between 1950–54 and 1992. This rate of decline was the largest among all comparison countries, and is attributed largely to the decline in fatal road accidents. In contrast, death rates in Spain and Ireland increased since 1950–54.
- Injury and poisoning death rates are the highest in old age (Figure 4). In 1996, accidental falls accounted for 61% of all injury and poisoning deaths for persons aged 75 and over in Australia. This rose to 77% for persons aged 85 and over.

For more information, see:

Commonwealth Department of Health and Family Services and Australian Institute of Health and Welfare 1998. National Health Priority Areas Report: Injury Prevention and Control 1997. Canberra: DHFS and AIHW.

Bordeaux S & Harrison J 1996. Injury mortality Australia, 1994. Australian Injury Prevention Bulletin, Issue 13. Adelaide: AIHW National Injury Surveillance Unit.

Mortality, females, injury and poisoning (ICD E800–E999)

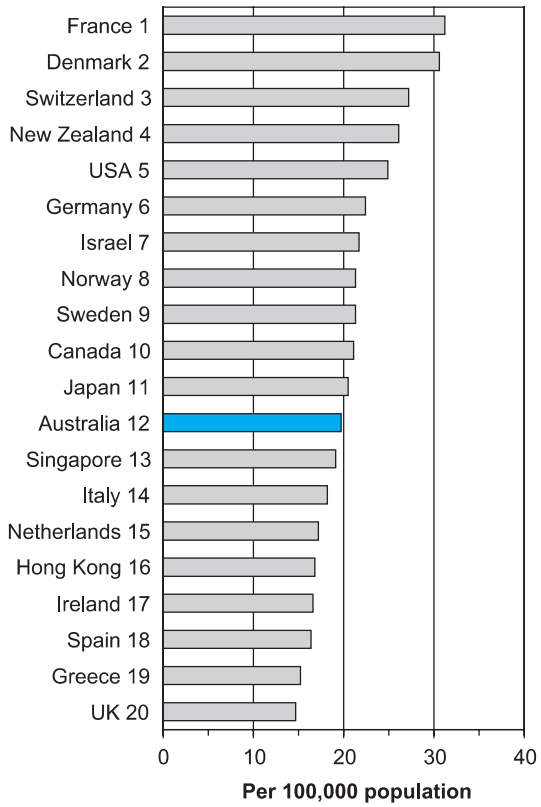


Figure 1: Age-standardised female death rates, injury and poisoning, 1992

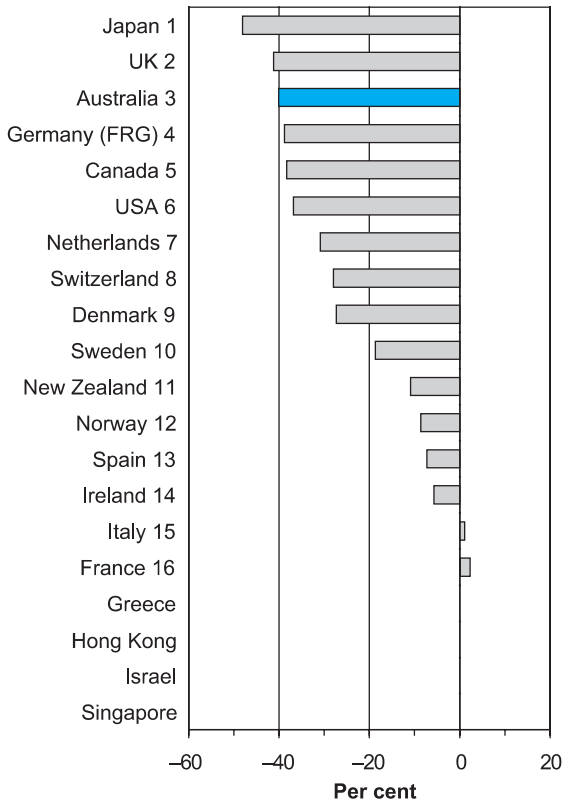


Figure 2: Changes in female death rates, injury and poisoning, 1950–54 to 1992

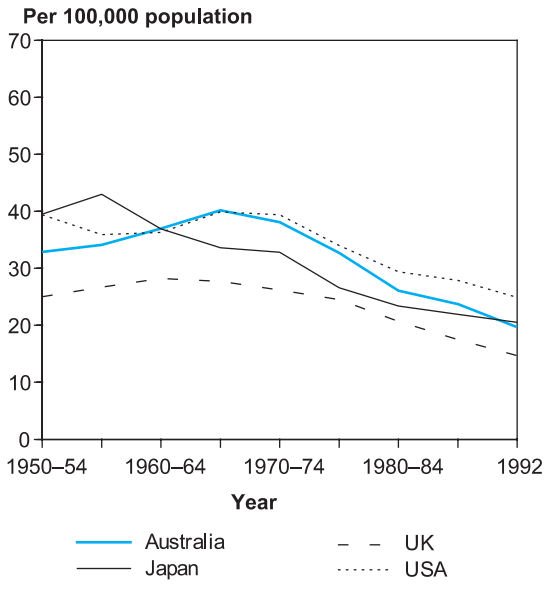


Figure 3: Trends in female death rates, injury and poisoning, 1950–54 to 1992

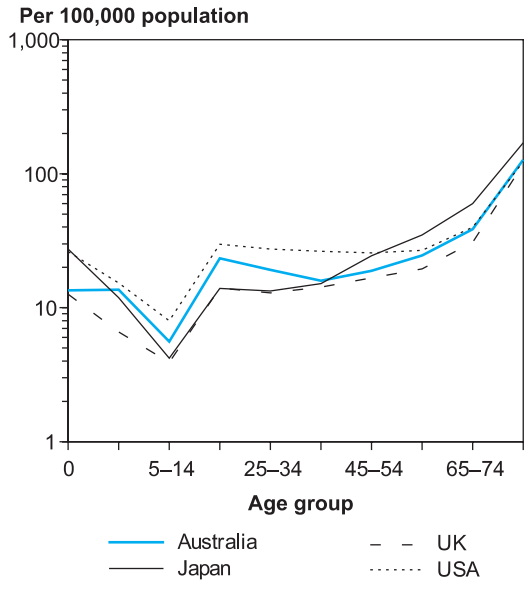


Figure 4: Age-specific female death rates, injury and poisoning, 1992

Mortality, females, injury and poisoning (ICD E800–E999)

Death rates[(a)], females, injury and poisoning (per 100,000 population)

Country	1950–54	1960–64	1970–74	1980–84	1992	1993	1994	% change 1950–54 to 1992
Australia	32.9	37.0	38.1	26.1	19.7	17.2	17.9	–40.1
Canada	34.2	33.4	39.8	28.9	21.1	21.6		–38.3
Denmark	42.1	40.3	40.7	38.7	30.6			–27.3
France	30.5	36.8	43.8	40.1	31.2	31.2		2.3
Germany (FRG)	36.6	40.1	44.2	31.9	22.4	20.9	19.6	–38.8
Greece	—	22.5	22.5	23.4	15.2	15.8	16.4	—
Hong Kong	—	30.7	30.9	23.6	16.8	15.9	17.8	—
Ireland	17.6	19.2	27.8	24.3	16.6			–5.7
Israel	—	—	—	21.9	21.7	19.3		—
Italy	18.0	22.7	24.5	21.9	18.2			1.1
Japan	39.5	36.9	32.8	23.4	20.5	19.7	19.7	–48.1
Netherlands	24.9	26.8	32.5	22.7	17.2	15.7	15.6	–30.9
New Zealand	29.3	32.3	40.2	31.6	26.1	23.9		–10.9
Norway	23.3	24.4	25.1	24.3	21.3	19.6		–8.6
Singapore	—	—	26.2	21.9	19.1	16.7	17.3	—
Spain	17.7	16.2	19.2	18.2	16.4			–7.3
Sweden	26.2	29.4	33.2	25.9	21.3	20.7		–18.7
Switzerland	37.8	39.8	39.2	34.1	27.2	26.5	27.3	–28.0
UK	25.0	28.2	26.2	20.7	14.7	14.2	13.5	–41.2
USA	39.4	36.3	39.4	29.4	24.9			–36.8

(a) Age-standardised to the World Standard Population.

Sources: WHO 1988, 1994, 1995a, 1996d.

- Death rates from injury and poisoning are known to be consistently lower for females than for males. In 1992, male:female rate ratios varied from 2.0 in the Netherlands and Hong Kong to 3.5 in Spain. In Australia in 1992, the male rate was 2.7 times higher than the female rate. Death rates for accidental falls, however, are usually higher among females than males.
- Like the male rate, the Australian female death rate of 19.7 per 100,000 population in 1992 was moderate when compared to many other developed countries (Figure 1). France, Denmark, Switzerland and New Zealand had the highest rates—in excess of 25 deaths per 100,000 population—and the United Kingdom the lowest rate at under 15 deaths per 100,000 population.
- In 1992, the contribution of various causes of injury and poisoning fatal outcomes varied markedly between countries. Road accidents accounted for only a small proportion (9–12%) of injury and poisoning deaths in the Scandinavian countries (Denmark, Norway and Sweden), but a large proportion in Greece and Spain (51% and 36%). Suicide accounted for small proportions of injury and poisoning deaths in Greece, Spain and Italy (7–16%), but larger proportions in Asian countries such as Hong Kong and Singapore (53% and 43% respectively). Accidental falls were low in Asian countries (6–10%), and higher in Denmark and Norway (47% and 57% respectively). In Australia, road accidents, suicide and accidental falls accounted for 29%, 21% and 23% respectively of all female injury and poisoning deaths in 1992.
- Injury and poisoning death rates among females in Australia declined by over 40% between 1950–54 and 1992 (Figure 2). This decline was similar in magnitude to that for males. Japan and the United Kingdom also recorded declines in excess of 40%, whereas Italy and France experienced slight increases. The decline in rates for Australian males accelerated in the early 1970s; in contrast, the decline for females began in the mid-1960s (Figure 3).
- Age-specific death rates for injury and poisoning do not rise significantly with increasing age, except for the oldest age groups (Figure 4). The nature and type of injury, however, varies markedly with age.

For more information, see:

Bordeaux S & Harrison J 1996. Injury mortality Australia, 1994. Australian Injury Prevention Bulletin, Issue 13. Adelaide: AIHW National Injury Surveillance Unit.

Mortality, males, motor vehicle accidents (ICD E810–E819)

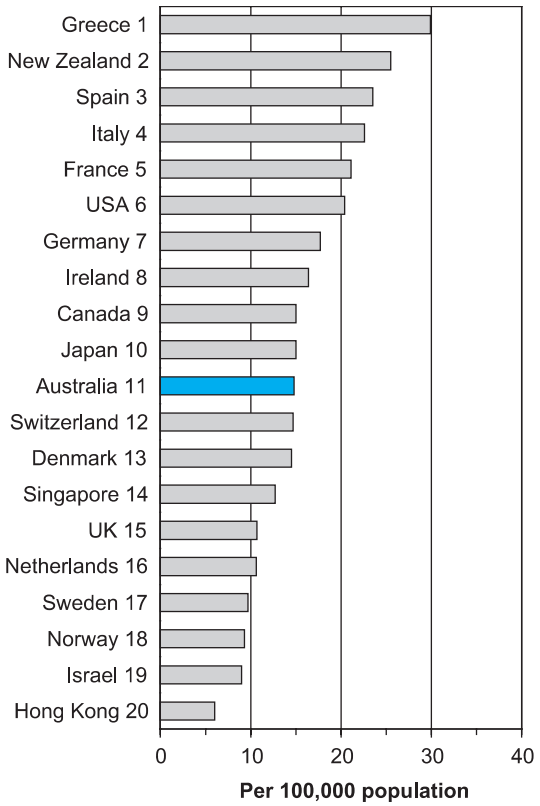


Figure 1: Age-standardised male death rates, motor vehicle accidents, 1992

Figure 2: Changes in male death rates, motor vehicle accidents, 1950–54 to 1992

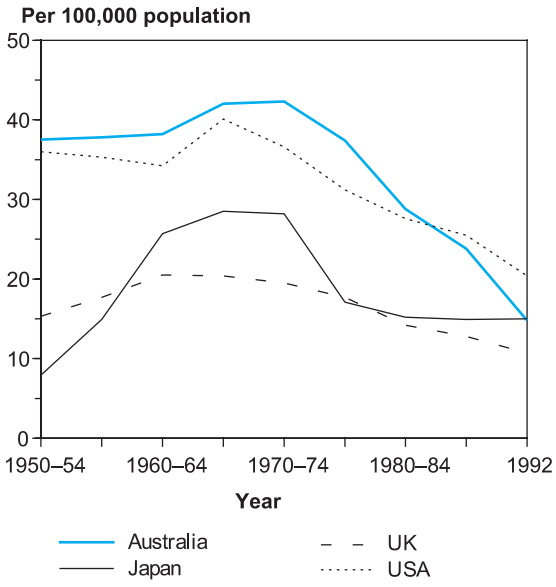


Figure 3: Trends in male death rates, motor vehicle accidents, 1950–54 to 1992

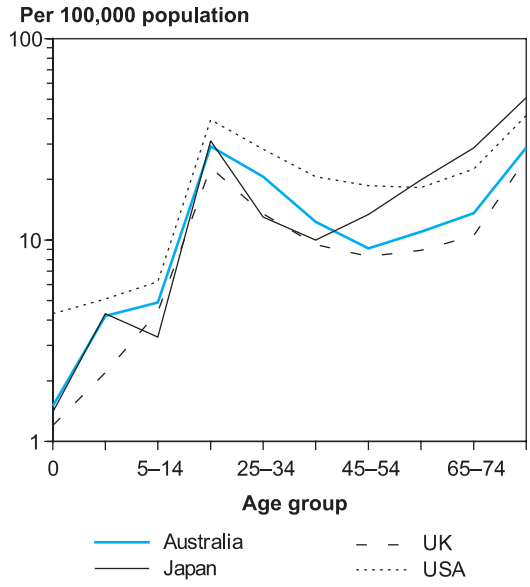


Figure 4: Age-specific male death rates, motor vehicle accidents, 1992

Mortality, males, motor vehicle accidents (ICD E810–E819)

Death rates[(a)], males, road accidents (per 100,000 population)

Country	1950–54	1960–64	1970–74	1980–84	1992	1993	1994	% change 1950–54 to 1992
Australia	37.5	38.2	42.3	28.8	14.8	14.8	14.4	–60.5
Canada	28.7	35.0	38.7	24.9	15.0	15.2		–47.7
Denmark	19.1	24.9	29.0	16.8	14.5			–24.1
France	16.9	30.2	34.6	27.8	21.1	20.4		24.9
Germany (FRG)	30.2	39.1	41.0	24.3	17.7	16.8	16.4	–41.4
Greece	—	12.7	19.1	26.9	29.9	26.5	28.6	—
Hong Kong	—	11.0	15.0	9.9	6.0	6.2	5.6	—
Ireland	9.1	15.0	28.1	22.4	16.4			80.2
Israel	—	—	—	14.1	9.0	13.5		—
Italy	19.7	32.3	36.2	24.6	22.6			14.7
Japan	7.9	25.7	28.2	15.2	15.0	14.0	13.4	89.9
Netherlands	15.6	26.6	31.8	15.8	10.6	10.4	10.2	–32.1
New Zealand	24.2	25.1	34.7	27.6	25.5	23.9		5.4
Norway	9.1	15.2	19.9	13.7	9.3	8.2		2.2
Singapore	—	—	28.8	19.6	12.7	14.6	14.3	—
Spain	5.4	14.3	21.1	20.7	23.5			335.2
Sweden	18.8	21.5	19.9	12.9	9.7	8.1		–48.4
Switzerland	25.0	35.3	36.3	25.0	14.7	13.8	12.1	–41.2
UK	15.3	20.5	19.5	14.2	10.7	8.9	8.5	–30.1
USA	36.0	34.2	36.6	27.6	20.4			–43.3

(a) Age-standardised to the World Standard Population.

Sources: WHO 1988, 1994, 1995a, 1996d.

- Mortality from motor vehicle accidents is the leading cause of death among young men aged 15–24 in Australia. Road deaths also account for a large proportion of total injury deaths, second only behind suicide. In 1996, 1,398 males and 544 females died as a result of motor vehicle traffic accidents—1.5% of total deaths. Most of these were vehicle occupants.
- In 1992, the death rate for motor vehicle traffic accidents among Australian males was 14.8 per 100,000 population. Compared to other developed countries, this is a moderate rate (Figure 1). High death rates were noted in Greece (29.9 deaths per 100,000 population) and New Zealand (25.5 deaths per 100,000 population). Rates under 10 per 100,000 population were noted in Hong Kong, Israel, Norway and Sweden in 1992.
- Although prominent as a cause of injury mortality, road death rates have been declining steadily in Australia since the early 1970s (Figure 3). Between 1950–54 and 1992, male death rates declined by 61% (Figure 2). No other developed country has had a greater decline, although compared with other countries Australia had high male road accident death rates until the mid-1980s. Spain, Japan and Ireland had notable increases in death rates for motor vehicle accidents.
- In Australia, the decline in death rates is attributed to a number of initiatives, including compulsory use of seat-belts and helmets, targeting drink-driving, improved road design and lower speed limits. Besides the use of alcohol, a number of other factors have been linked to increased road accident mortality. These include the gross national product per capita (which relates to the ability to purchase motor vehicles), economic activity (which influences the extent of travel), population density and vehicle miles travelled.
- Age-specific death rates for motor vehicle accidents increase sharply to age 25, decline to age 45 and then increase again for older age groups (Figure 4). This pattern varies little among Australia, Japan, the United Kingdom and the United States, although United States rates are somewhat higher in early adulthood and middle age, and Japanese rates are also higher in middle and old age.

For more information, see:

Soderlund N, Zwi AB 1995. Traffic-related mortality in industrialized and less developed countries. Bull World Health Organ 73: 175–82.

Mortality, females, motor vehicle accidents (ICD E810–E819)

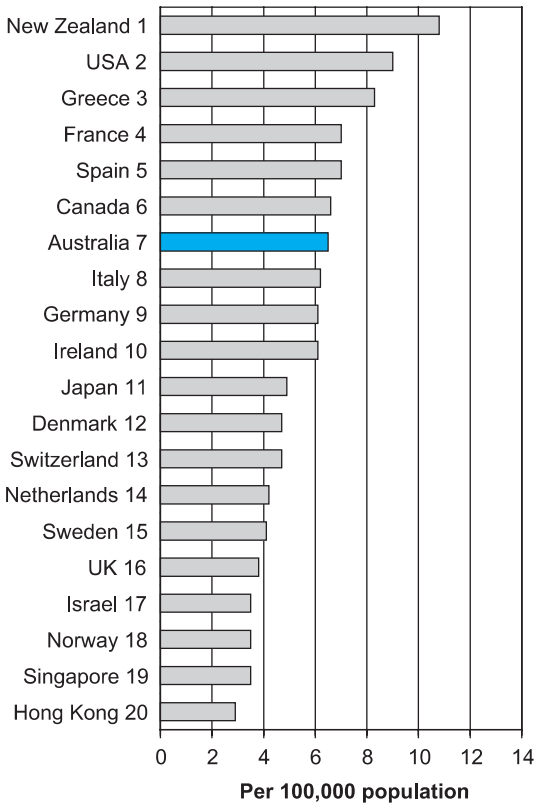


Figure 1: Age-standardised female death rates, motor vehicle accidents, 1992

Figure 2: Changes in female death rates, motor vehicle accidents, 1950–54 to 1992

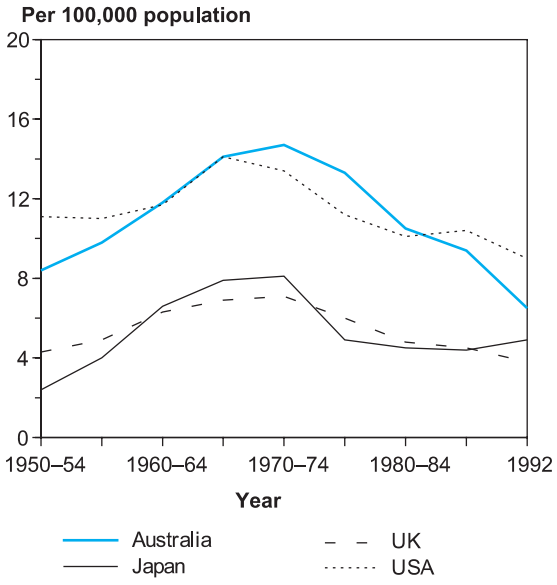


Figure 3: Trends in female death rates, motor vehicle accidents, 1950–54 to 1992

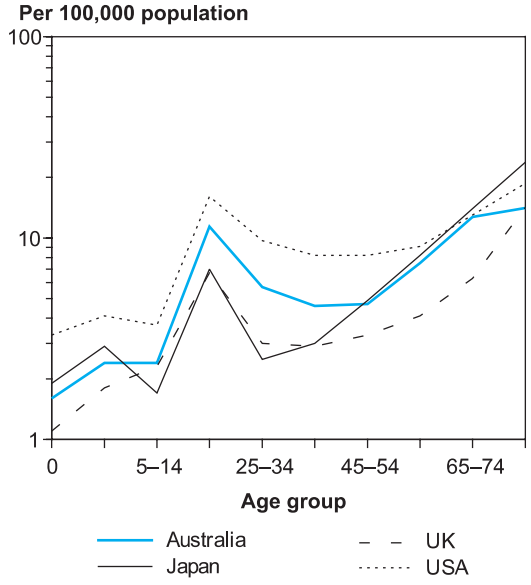


Figure 4: Age-specific female death rates, motor vehicle accidents, 1992

Mortality, females, motor vehicle accidents (ICD E810–E819)

Death rates[(a)], females, road accidents (per 100,000 population)

Country	1950–54	1960–64	1970–74	1980–84	1992	1993	1994	% change 1950–54 to 1992
Australia	8.4	11.8	14.7	10.5	6.5	5.7	6.0	–22.6
Canada	9.5	11.9	14.5	9.4	6.6	7.1		–30.5
Denmark	5.3	8.5	11.7	6.8	4.7			–11.3
France	3.9	9.0	11.7	9.5	7.0	7.2		79.5
Germany (FRG)	6.7	9.8	13.4	8.5	6.1	5.5	5.3	–9.0
Greece	—	3.2	5.9	7.9	8.3	6.9	8.3	—
Hong Kong	—	5.0	7.3	5.4	2.9	2.9	3.5	—
Ireland	2.3	4.1	8.3	7.8	6.1			165.2
Israel	—	—	—	5.7	3.5	5.5		—
Italy	3.3	6.3	9.1	6.8	6.2			87.9
Japan	2.4	6.6	8.1	4.5	4.9	4.7	4.5	104.2
Netherlands	4.2	7.2	10.9	5.8	4.2	3.5	3.9	0.0
New Zealand	5.5	8.0	13.5	11.2	10.8	9.9		96.4
Norway	2.8	4.6	6.1	4.7	3.5	3.2		25.0
Singapore	—	—	7.4	5.1	3.5	4.0	3.2	—
Spain	1.9	3.4	6.1	6.3	7.0			268.4
Sweden	4.5	7.2	8.3	4.9	4.1	3.7		–8.9
Switzerland	6.3	8.9	11.2	8.0	4.7	4.2	4.2	–25.4
UK	4.3	6.3	7.1	4.8	3.8	3.2	3.1	–11.6
USA	11.1	11.7	13.4	10.1	9.0			–18.9

(a) Age-standardised to the World Standard Population.

Sources: WHO 1988, 1994, 1995a, 1996d.

- Males in developed countries die at two to four times the rate of females from motor vehicle traffic accidents. In 1992, the difference was lowest in Hong Kong—2.1 male deaths for every female death, and highest in Greece, Italy and Singapore—3.6 male deaths for every female death. In Australia in 1992, the ratio of male-to-female deaths was 2.3 to one.
- In 1992, the age-standardised death rate for motor vehicle traffic accidents among Australian females was 6.5 per 100,000 population. Australia ranked seventh amongst developed countries for female road accident mortality in 1992; rates being high in New Zealand, the United States and Greece (all over 8 deaths per 100,000 population), and low in Hong Kong, Singapore, Norway, Israel and the United Kingdom (all under 4 deaths per 100,000 population) (Figure 1).
- Like the male rates, Australian female death rates have declined substantially since the 1970s—a decline of 23% between 1950–54 and 1992 (Figures 2 and 3). Canada and Switzerland also recorded notable post-war mortality declines. A number of developed countries recorded large increases during the same period—greater than the corresponding increases for males—due mainly to a higher proportion of women driving motor vehicles.
- Vehicle kilometres travelled is a useful proxy measure for the risks of road travel—the greater the distance travelled, the greater the risk of accident. In 1994, the United States recorded 10.7 fatalities for every billion kilometres travelled, the United Kingdom 8.8, Germany 16.6, France 18.5 and Japan 19.4 (OECD 1996d). The latest available figure for Australia (1991) was 14.0 fatalities for every billion kilometres travelled. The amount of rural travel is also an important consideration.
- Time trends in motor vehicle accident death rates for Australia, Japan, the United Kingdom and the United States show similar patterns (Figure 3). Rates increased steadily to the early 1970s, and declined steadily thereafter.
- Age-specific rates among the four countries are also similar (Figure 4). High rates in the 15–24 year-old age group are noteworthy.

For more information, see:

O'Connor PJ 1995. Road injury in Australia, 1991. Adelaide: AIHW National Injury Surveillance Unit.

Mortality, males, suicide (ICD E950–E959)

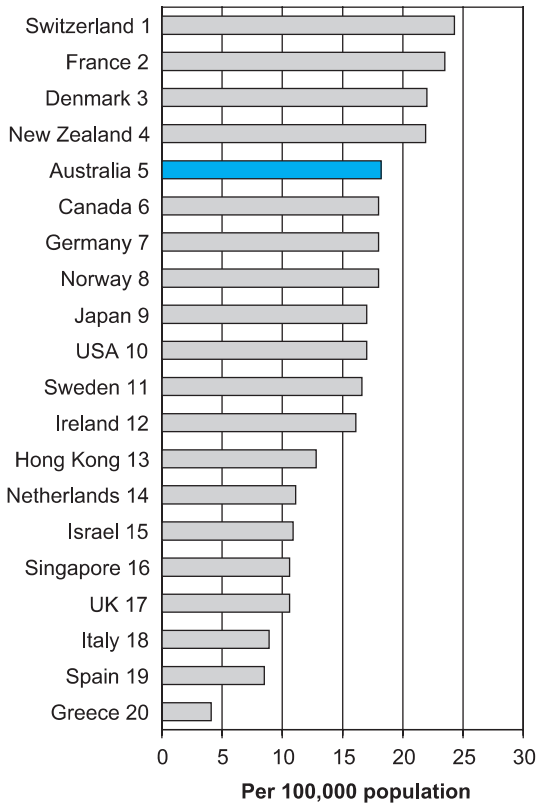


Figure 1: Age-standardised male death rates, suicide, 1992

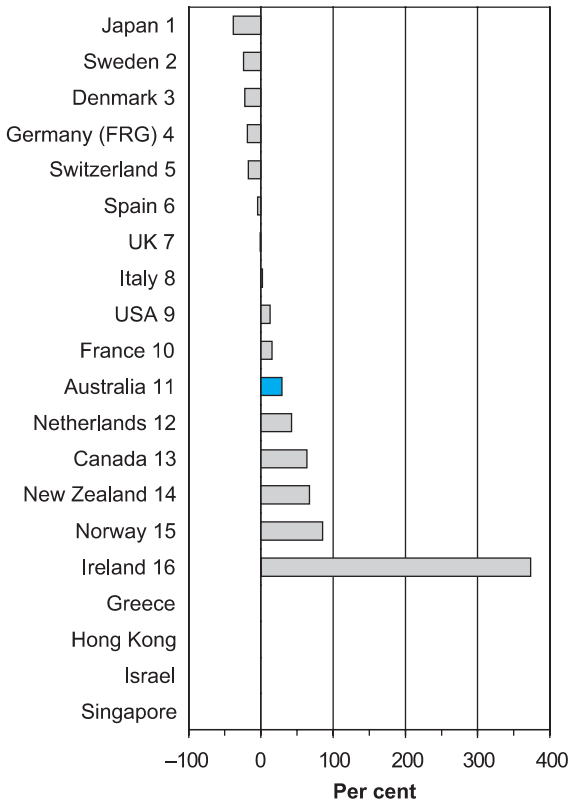


Figure 2: Changes in male death rates, suicide, 1950–54 to 1992

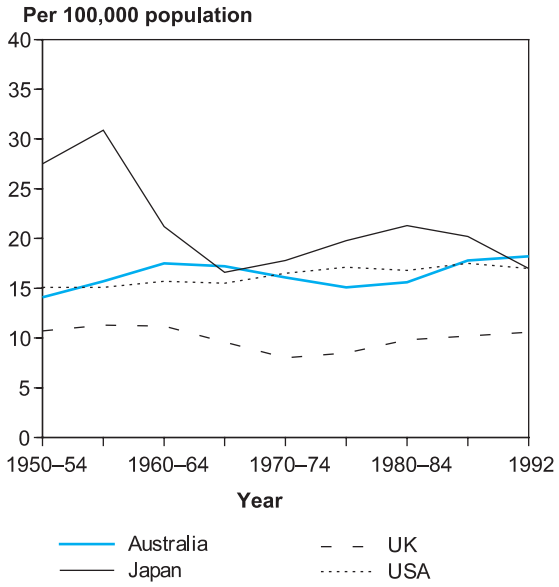


Figure 3: Trends in male death rates, suicide, 1950–54 to 1992

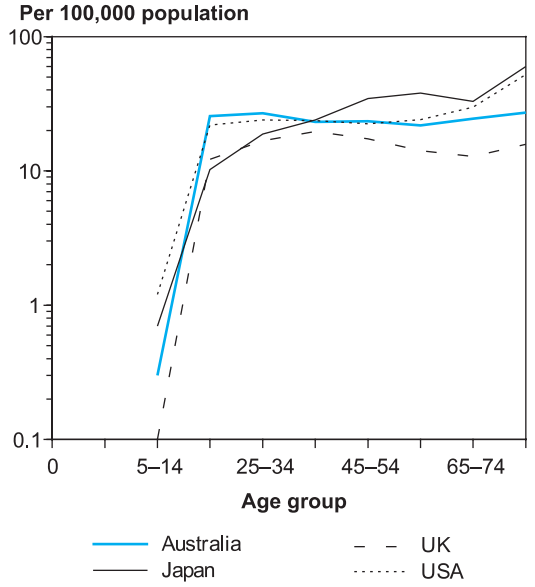


Figure 4: Age-specific male death rates, suicide, 1992

Mortality, males, suicide (ICD E950–E959)

Death rates[(a)], males, suicide (per 100,000 population)

Country	1950–54	1960–64	1970–74	1980–84	1992	1993	1994	% change 1950–54 to 1992
Australia	14.1	17.5	16.1	15.6	18.2	16.4	18.1	29.1
Canada	11.0	12.2	17.3	19.6	18.0	18.2		63.6
Denmark	28.3	22.0	26.0	31.3	22.0			–22.3
France	20.4	20.1	19.5	24.6	23.5	24.6		15.2
Germany (FRG)	22.2	22.2	24.1	23.4	18.0	17.1	17.4	–18.9
Greece	—	4.6	3.8	4.3	4.1	4.7	4.3	—
Hong Kong	—	16.0	16.2	11.1	12.8	10.1	11.4	—
Ireland	3.4	3.6	4.4	9.8	16.1			373.5
Israel	—	—	—	7.3	10.9	10.1		—
Italy	8.7	7.0	6.9	8.4	8.9			2.3
Japan	27.5	21.2	17.8	21.3	17.0	16.8	17.3	–38.2
Netherlands	7.8	7.5	9.3	11.6	11.1	10.9		42.3
New Zealand	13.1	12.2	12.0	14.9	21.9	18.7		67.2
Norway	9.7	9.8	11.7	17.8	18.0	17.6		85.6
Singapore	—	—	17.4	11.4	10.6	11.8	13.1	—
Spain	8.9	7.4	5.7	6.8	8.5			–4.5
Sweden	21.8	22.0	24.3	21.9	16.6	17.0		–23.9
Switzerland	29.5	23.4	24.4	29.8	24.3	23.4	24.6	–17.6
UK	10.7	11.2	8.0	9.8	10.6	10.2	10.1	–0.9
USA	15.1	15.7	16.5	16.8	17.0			12.6

(a) Age-standardised to the World Standard Population.

Sources: WHO 1988, 1994, 1995a, 1996d.

- Suicide, especially among males, has emerged as a major mental health issue in developed countries. Suicide rates are often used as one of the few available indicators of mental health, since suicides are often seen as breakdowns in social integration and cohesion.
- At 18.2 deaths per 100,000 population in 1992, Australia has a high male suicide rate, but is exceeded by Switzerland, France, Denmark and New Zealand (Figure 1). Many other countries have similar rates, including Canada, Germany and Norway. The rates for the Mediterranean countries (Greece, Spain, Italy and Israel) in comparison are low.
- Australia's male suicide rate has shown a 29% increase between 1950–54 and 1992—from 14.1 to 18.2 deaths per 100,000 population (Figures 2 and 3). Several other countries, including Ireland, Norway, New Zealand and Canada have shown marked post-war rate increases. In comparison, other countries—including Japan, Sweden and Denmark—have recorded declines. Japan's post-war suicide rate rose steadily until the mid-1950s, then declined sharply until the mid-1960s.
- The issue of suicide among young Australian males continues to receive prominence. In the early 1990s, the rate was similar to that for Canada and Norway, lower than in New Zealand and Switzerland and higher than in most European countries, Japan and Singapore (Harrison, Moller & Bordeaux 1997). The rate is consistently amongst the upper third of developed countries for which data are available.
- Unlike the all-ages rate, the rate among Australian males aged 15 to 24 years has trebled from 1960 to 1990, a trend mirrored in New Zealand, Canada, the United States and certain other European countries.
- Suicide rates are invariably underestimated, as it is often not possible to fully determine the intent in many cases of suspected accident. Underreporting of suicide also occurs, although this may have lessened over the past several decades with improved coronial determinations of suicide as the cause of death.

For more information, see:

Cantor CG et al. 1996. Suicide trends in eight predominantly English-speaking countries 1960–1989. Soc Psychiatry Psychiatr Epidemiol 31: 364–73.

Pritchard C 1996. New patterns of suicide by age and gender in the United Kingdom and the Western world 1974–1992. Soc Psychiatry Psychiatr Epidemiol 31: 227–34.

Mortality, females, suicide (ICD E950–E959)

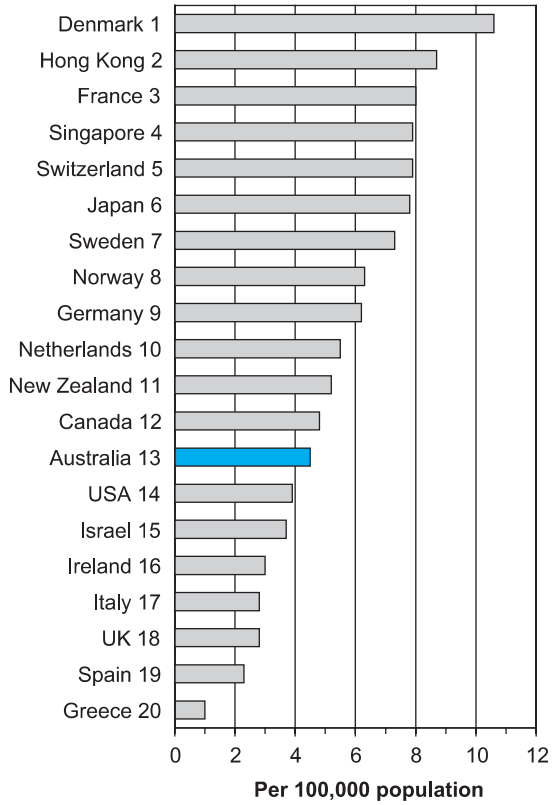


Figure 1: Age-standardised female death rates, suicide, 1992

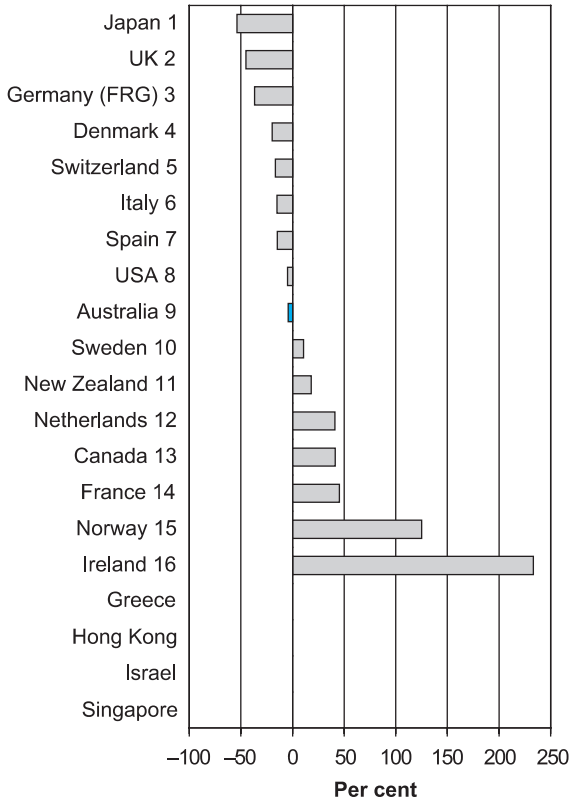


Figure 2: Changes in female death rates, suicide, 1950–54 to 1992

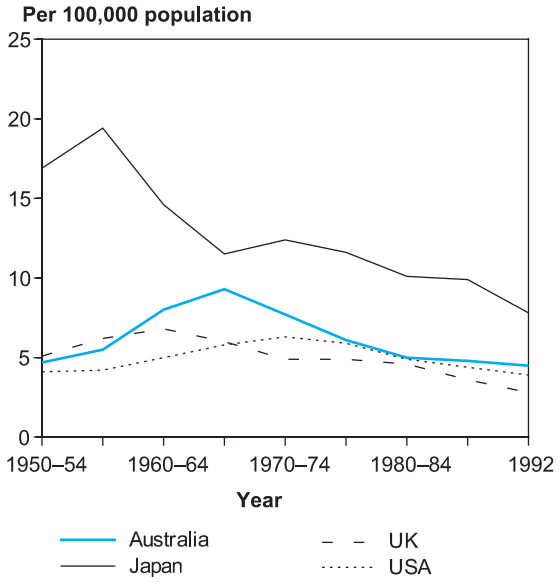


Figure 3: Trends in female death rates, suicide, 1950–54 to 1992

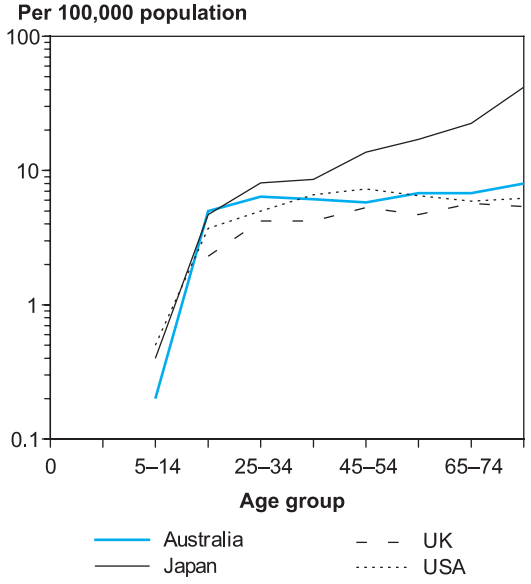


Figure 4: Age-specific female death rates, suicide, 1992

Mortality, females, suicide (ICD E950–E959)

Death rates[(a)], females, suicide (per 100,000 population)

Country	1950–54	1960–64	1970–74	1980–84	1992	1993	1994	% change 1950–54 to 1992
Australia	4.7	8.0	7.7	5.0	4.5	3.8	4.1	–4.3
Canada	3.4	3.5	6.7	5.9	4.8	4.6		41.2
Denmark	13.2	11.0	14.4	16.6	10.6			–19.7
France	5.5	6.0	6.8	8.8	8.0	8.5		45.5
Germany (FRG)	9.8	10.1	11.1	9.8	6.2	5.7	5.6	–36.7
Greece	—	2.3	1.6	1.6	1.0	1.4	1.0	—
Hong Kong	—	10.4	10.6	7.6	8.7	6.9	9.1	—
Ireland	0.9	1.1	1.5	4.1	3.0			233.3
Israel	—	—	—	3.7	3.7	3.2		—
Italy	3.3	2.9	2.9	3.2	2.8			–15.2
Japan	16.9	14.6	12.4	10.1	7.8	7.3	7.2	–53.8
Netherlands	3.9	4.3	6.0	7.0	5.5	5.3	5.1	41.0
New Zealand	4.4	5.5	5.7	5.5	5.2	4.9		18.2
Norway	2.8	2.7	4.0	6.1	6.3	5.2		125.0
Singapore	—	—	10.1	8.4	7.9	7.2	8.5	—
Spain	2.7	2.2	1.8	2.1	2.3			–14.8
Sweden	6.6	7.8	10.0	8.9	7.3	7.4		10.6
Switzerland	9.5	8.6	9.2	11.3	7.9	8.3	8.7	–16.8
UK	5.1	6.8	4.9	4.6	2.8	2.7	2.6	–45.1
USA	4.1	5.0	6.3	4.9	3.9			–4.9

(a) Age-standardised to the World Standard Population.

Sources: WHO 1988, 1994, 1995a, 1996d.

- In Australia, the female suicide rate is less than one-quarter the male rate. In 1992, the female age-standardised suicide rate was 4.5 deaths per 100,000 persons.
- The Australian female suicide rate falls in the bottom half of the 20 developed countries for which data are available (Figure 1). In 1992, Denmark had the highest rate at 10.6 deaths per 100,000 persons, followed by Hong Kong's 8.7 deaths per 100,000 persons. As in the case for males, the Mediterranean countries—Greece, Spain, Italy and Israel—all experience lower suicide rates. The United Kingdom and Ireland also had rates lower than 4 deaths per 100,000 persons (Figure 1).
- The Australian death rate has not changed appreciably over the last ten years. The period from the mid-1950s to the mid-1960s saw a steady increase, followed by a steady decrease until the early 1980s. The current Australian rate is similar to that of the early 1950s—in 1992 it was only 4.3% lower than for the period 1950–54 (Figure 3). Self-poisoning, mostly by pharmaceuticals, was the most frequent method of female suicide in the 1960s. The decreasing prescription of barbiturates since that time has lowered the frequency of this method.
- Ireland and Norway have seen increases of well over 100% since the early 1950s. In Japan and the United Kingdom on the other hand, female suicide rates have decreased by approximately 50%. The immediate post-war Japanese suicide rate was especially high, however.
- The age-specific rates for females in Australia, the United Kingdom and the United States are similar for all age groups from the late teenage years onward (Figure 4). In Japan, however, the rate increases with age.

For more information, see:

Cantor CG et al. 1996. Suicide trends in eight predominantly English-speaking countries 1960–1989. Soc Psychiatry Psychiatr Epidemiol 31: 364–73.

Pritchard C 1996. New patterns of suicide by age and gender in the United Kingdom and the Western world 1974–1992. Soc Psychiatry Psychiatr Epidemiol 31: 227–34.

Mortality, males, other selected causes

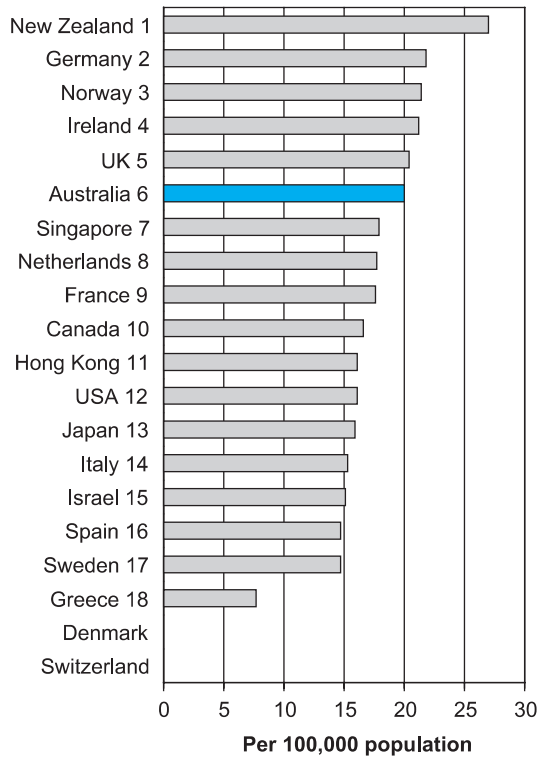


Figure 1: Age-standardised male death rates, colorectal cancer, 1992

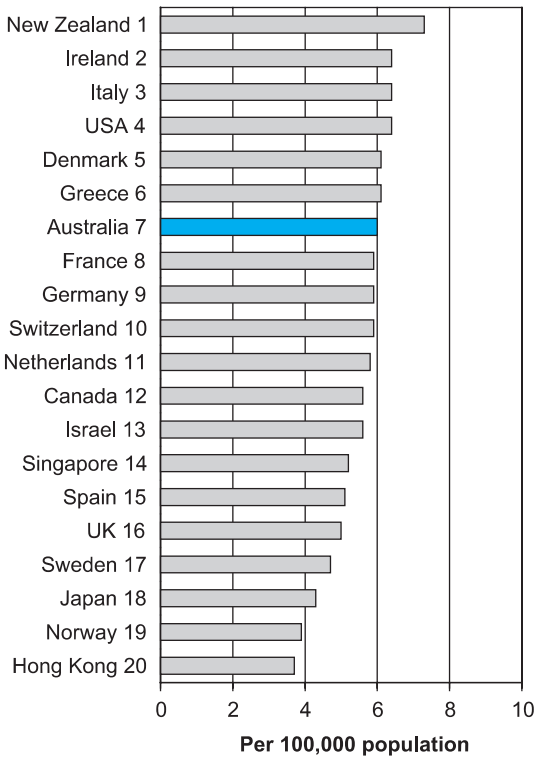


Figure 2: Age-standardised male death rates, leukaemia, 1992

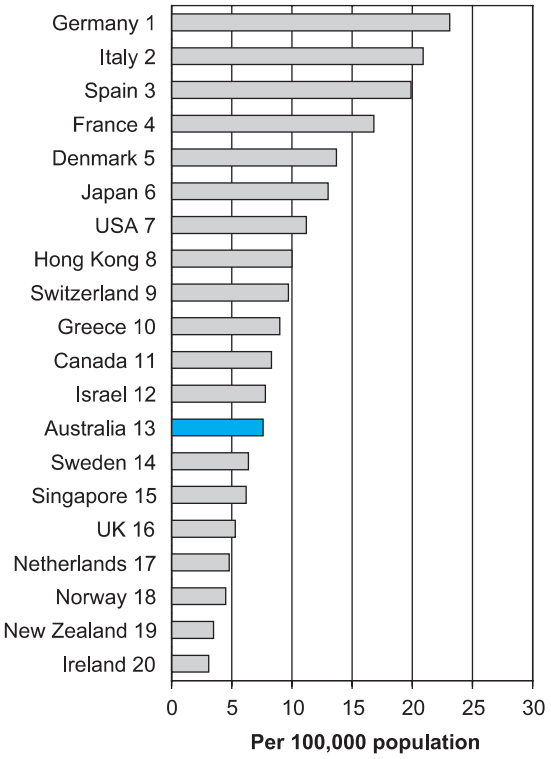


Figure 3: Age-standardised male death rates, chronic liver disease & cirrhosis, 1992

Figure 4: Age-standardised male death rates, homicide, 1992

Mortality, males, other selected causes

Death rates[(a)], males, other selected causes, 1992 (per 100,000 population)

Country	Colorectal cancer (153–154)	Leukaemia (204–208)	Chronic liver disease & cirrhosis (571)	Homicide (E960–E969)
Australia	20.0	6.0	7.6	1.9
Canada	16.6	5.6	8.3	2.6
Denmark	—	6.1	13.7	1.3
France	17.6	5.9	16.8	1.2
Germany	21.8	5.9	23.1	1.2
Greece	7.7	6.1	9.0	1.7
Hong Kong	16.1	3.7	10.0	1.6
Ireland	21.2	6.4	3.1	1.1
Israel	15.1	5.6	7.8	1.6
Italy	15.3	6.4	20.9	3.4
Japan	15.9	4.3	13.0	0.7
Netherlands	17.7	5.8	4.8	1.7
New Zealand	27.0	7.3	3.5	3.2
Norway	21.4	3.9	4.5	1.5
Singapore	17.9	5.2	6.2	2.2
Spain	14.7	5.1	19.9	1.2
Sweden	14.7	4.7	6.4	1.6
Switzerland	—	5.9	9.7	1.6
UK	20.4	5.0	5.3	1.1
USA	16.1	6.4	11.2	15.2

(a) Age-standardised to the World Standard Population.

Sources: WHO 1994, 1995a, 1996d.

- Colorectal cancer is the second most common cause of cancer mortality in Australia. In 1996, 3.7% of all male deaths were due to colorectal cancer. The disease correlates strongly with the adoption of a western lifestyle and diet (McMichael & Giles 1994).
- In 1992, New Zealand had the highest death rate for colorectal cancer among developed countries (27.0 per 100,000 population), and Greece the lowest (7.7 per 100,000 population) (Figure 1). Australia's rate (20.0) ranked sixth in 1992.
- Leukaemia remains the major cause of cancer mortality for younger age groups. In 1996, there were 768 male leukaemia deaths in Australia, accounting for 1.1% of all male deaths. Australia's rate of 6.0 deaths per 100,000 population in 1992 was amongst the upper half of rates for developed countries. New Zealand had the highest rate, and Hong Kong the lowest (Figure 2).
- Cases of chronic liver disease and cirrhosis are largely precipitated by the excessive intake of alcohol. There is great variation in death rates between countries for this particular cause of death. In 1992, Germany and Italy had rates in excess of 20 deaths per 100,000 population, whereas Ireland, New Zealand, Norway and the Netherlands had rates of less than 5. Australia's rate of 7.6 was moderate (Figure 3).
- In 1992, the Australian male homicide rate of 1.9 deaths per 100,000 population was in the upper third of rates for 20 developed countries (Figure 4). The 1992 homicide rate in the United States of 15.2 deaths per 100,000 population was more than four times higher than that for the next ranked country, Italy.
- The high homicide rate in the United States is largely attributable to the very high rate of firearm ownership. In 1992, male firearm homicides in Australia accounted for 29% of all homicides, while in the United States it accounted for over 70% of all homicides.

For more information, see:

McMichael AJ, Giles GG 1994. Colorectal cancer. Cancer Surv 19–20: 77-98.

Stiller CA, Parkin DM 1996. Geographic and ethnic variations in the incidence of childhood cancer. Br Med Bull 52: 682–703.

Lehto J 1993. Alcohol consumption and related problems. World Health Stats Q 46: 195–8.

Bourbeau R 1993. Comparative analysis of mortality due to violence during the 1985–1989 period. World Health Stats Q 46: 4–32.

Mortality, females, other selected causes

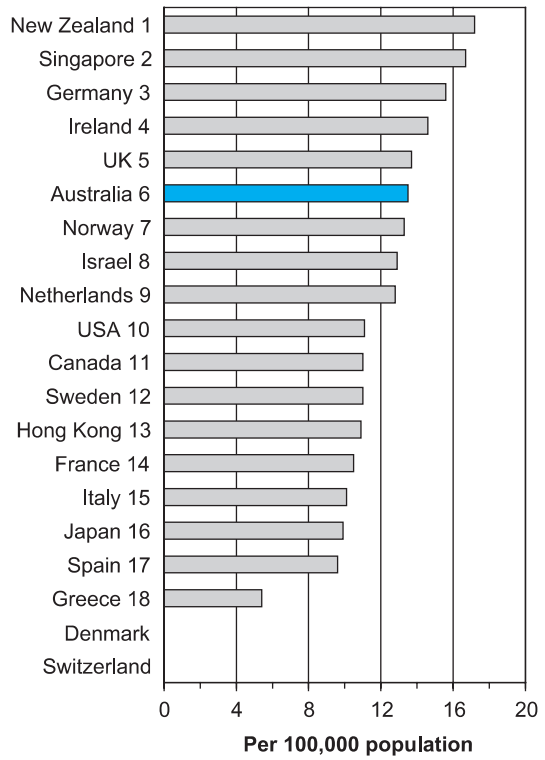


Figure 1: Age-standardised female death rates, colorectal cancer, 1992

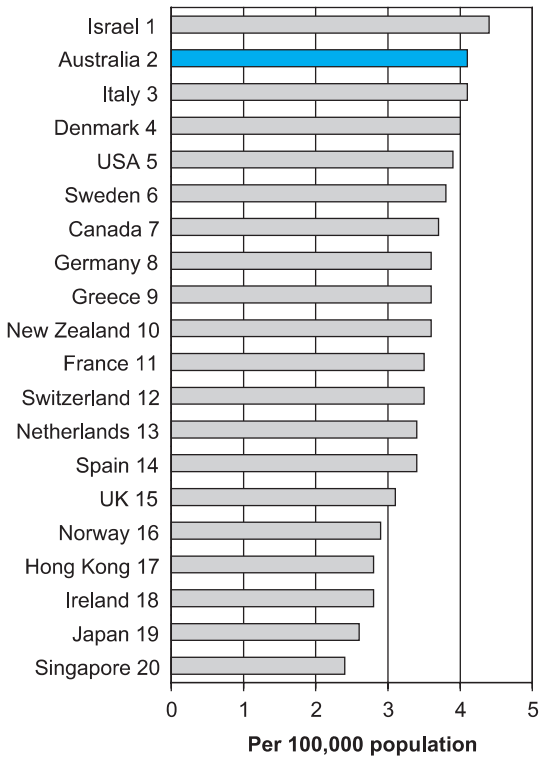


Figure 2: Age-standardised female death rates, leukaemia, 1992

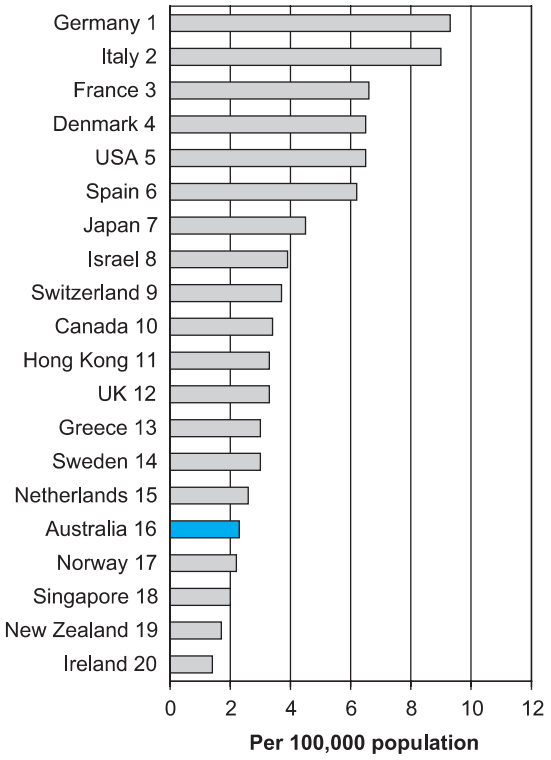


Figure 3: Age-standardised female death rates, chronic liver disease & cirrhosis, 1992

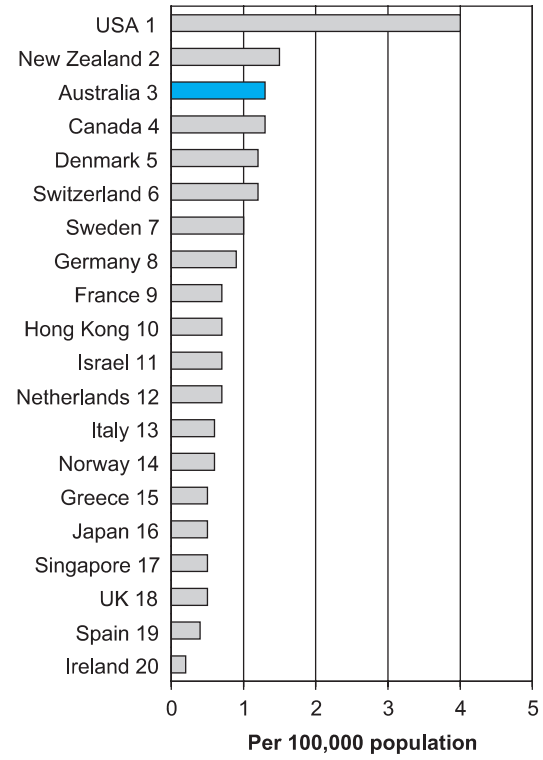


Figure 4: Age-standardised female death rates, homicide, 1992

Mortality, females, other selected causes

Death rates[(a)], females, other selected causes, 1992 (per 100,000 population)

Country	Colorectal cancer (153–154)	Leukaemia (204–208)	Chronic liver disease & cirrhosis (571)	Homicide (E960–E969)
Australia	13.5	4.1	2.3	1.3
Canada	11.0	3.7	3.4	1.3
Denmark	—	4.0	6.5	1.2
France	10.5	3.5	6.6	0.7
Germany	15.6	3.6	9.3	0.9
Greece	5.4	3.6	3.0	0.5
Hong Kong	10.9	2.8	3.3	0.7
Ireland	14.6	2.8	1.4	0.2
Israel	12.9	4.4	3.9	0.7
Italy	10.1	4.1	9.0	0.6
Japan	9.9	2.6	4.5	0.5
Netherlands	12.8	3.4	2.6	0.7
New Zealand	17.2	3.6	1.7	1.5
Norway	13.3	2.9	2.2	0.6
Singapore	16.7	2.4	2.0	0.5
Spain	9.6	3.4	6.2	0.4
Sweden	11.0	3.8	3.0	1.0
Switzerland	—	3.5	3.7	1.2
UK	13.7	3.1	3.3	0.5
USA	11.1	3.9	6.5	4.0

(a) Age-standardised to the World Standard Population.

Sources: WHO 1994, 1995a, 1996d.

- In 1992, the age-standardised death rate for colorectal cancer among Australian females was 13.5 per 100,000 population. Among developed countries, Australian females ranked similar to Australian males—sixth—for colorectal cancer death rates (Figure 1).
- There are notable male–female death rate differentials in all countries. Singapore, however, in an exception, with similar rates for males and females. Australian mortality was 33% higher for males than females in 1992.
- Although differences are small, Australian females had a higher rate of leukaemia mortality compared to most other developed countries in 1992, 4.1 deaths per 100,000 population, and second only to Israel (Figure 2). Lower rates are noted among the Asian countries (Singapore, Japan and Hong Kong), and Ireland.
- Female rates of death from chronic liver disease and cirrhosis are much lower than male rates. The 1992 Australian female rate of 2.3 deaths per 100,000 population was only 30% of the male rate. In the United Kingdom and the United States, however, female rates are approximately 60% of male rates. Germany and Italy had rates of 9.3 and 9.0 deaths per 100,000 population in 1992—higher than male rates in many countries. Ireland and New Zealand on the other hand, had very low rates in 1992, at under 2 deaths per 100,000 population (Figure 3).
- The homicide rate among United States females was almost three times that of New Zealand females in 1992, the country with the second highest rate (Figure 4). Australia's rate of 1.3 deaths per 100,000 population was comparatively high, ranking equal third with Canada. Most countries had homicide rates of less than one death per 100,000 population.

For more information, see:

McMichael AJ, Giles GG 1994. Colorectal cancer. Cancer Surv 19–20: 77–98.

Stiller CA, Parkin DM 1996. Geographic and ethnic variations in the incidence of childhood cancer. Br Med Bull 52: 682–703.

Lehto J 1993. Alcohol consumption and related problems. World Health Stats Q 46: 195–8.

Bourbeau R 1993. Comparative analysis of mortality due to violence during the 1985–1989 period. World Health Stats Q 46: 4–32.

6 Health services and resources

- Health expenditure
- Acute care hospital admissions and patient days
- Acute care hospital beds and length of stay
- Nursing homes
- Health workforce
- Medical practitioners

Health expenditure

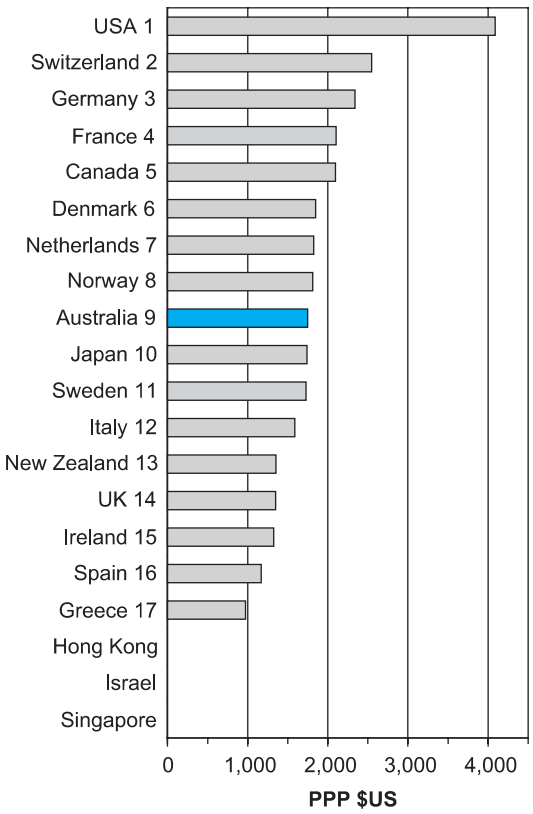


Figure 1: Health expenditure per capita, 1997

Figure 2: Health expenditure as a proportion of GDP, 1997

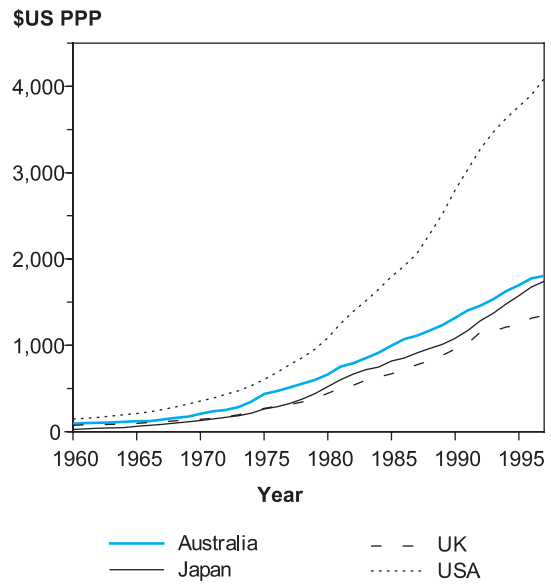


Figure 3: Trends in health expenditure per capita, 1960 to 1997

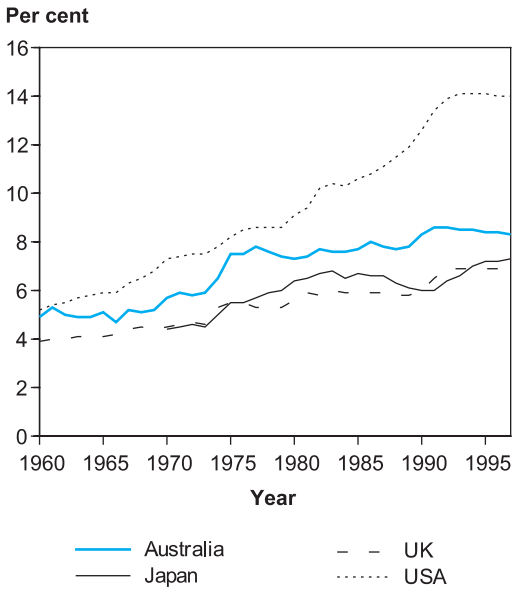


Figure 4: Trends in health expenditure as a proportion of GDP, 1960 to 1997

Health expenditure

Health expenditure indicators, 1997

Country	Health expenditure (billion US$ PPP)[a]	Amount per capita (US$ PPP)	Proportion of GDP (per cent)	Public contribution (per cent)
Australia[b]	32.2	1,750	8.4	68.7
Canada	63.3	2,095	9.3	68.7
Denmark	9.7	1,848	7.7	65.0
France	123.2	2,103	9.9	78.4
Germany	192.2	2,339	10.4	77.4
Greece	10.2	974	7.1	74.8
Hong Kong	—	—	—	—
Ireland	4.8	1,324	7.0	75.0
Israel	—	—	8.4	44.0
Italy	91.3	1,589	7.6	69.9
Japan	219.6	1,741	7.3	77.4
Netherlands	28.5	1,825	8.5	72.0
New Zealand	5.0	1,352	7.6	77.4
Norway	8.5	1,814	7.4	82.2
Singapore	—	—	—	—
Spain	46.4	1,168	7.4	78.7
Sweden	15.3	1,728	8.6	83.3
Switzerland	18.2	2,547	10.2	69.9
UK	79.2	1,347	6.7	84.5
USA	1,095.1	4,090	14.0	46.7

(a) Purchasing power parities (PPP) are used here to convert health expenditure. PPPs show the rate at which a given amount of one currency can be converted into the other in order to purchase the same quantity of a particular item in both countries (OECD 1998).
(b) Australian data is for 1996–97.

Sources: OECD 1998; Israel CBS 1996.

- Expenditure on health care comprises a significant proportion of government budgets in developed countries, and provides some indication of the priority placed by a society on health and health care. The provision of health care services is also an important industry that in itself contributes to national production.
- A number of factors combine to make international comparisons of health expenditure problematic, most notably the lack of standard definitions and data.
- In 1996–97, Australia spent US$32.2 billion on health services, or US$1,750 per person. The amount spent was 8.4% of Australia's gross domestic product (GDP). Almost 69% of this amount was government expenditure, the rest being sourced from the private sector. This is in contrast to expenditure in the United States and Israel, where less than half of the total health expenditure was publicly funded in 1997.
- Australian spending per capita and as a proportion of GDP ranks towards the middle for the developed countries which have data available (Figures 1 and 2). The United States spends more on health services than any other country, both in absolute dollar terms, and as a proportion of GDP—exceeding the next highest country by more than US$1,000 per capita and 3.6% of GDP (Figures 1 and 2). Expenditure per capita in the United States has increased six-fold in the 20 years between 1975 and 1995 (Figure 3).
- Since the mid-1970s, health expenditure as a proportion of GDP has stabilised in many developed countries—including Australia, Japan and the United Kingdom—due largely to government control of public sector health expenditure (Figure 4). However, in the United States, the proportion of GDP spent on health has only recently begun to plateau.

For more information, see:

OECD 1990. Health care systems in transition—the search for efficiency. OECD Social Policy Studies No. 7. Paris: OECD.

AIHW 1996. Health expenditure bulletin, No. 12. Canberra: AIHW.

Acute care hospital admissions and occupancy

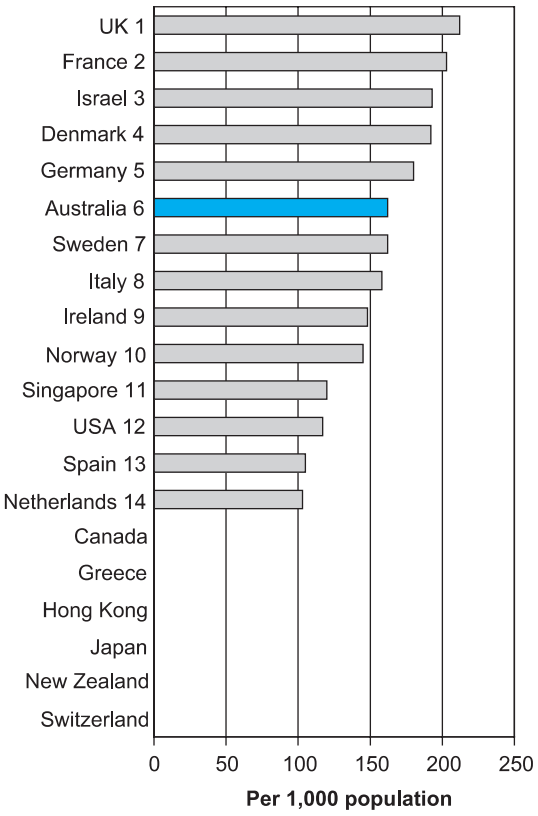


Figure 1: Acute care hospital admissions, 1993

Figure 2: Acute care patient days, 1995

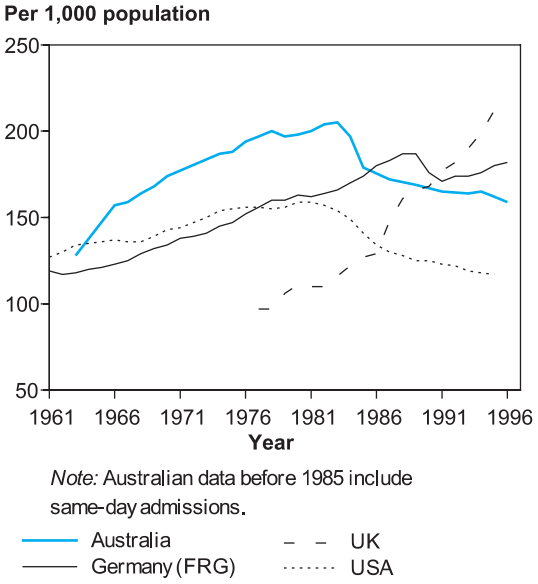


Figure 3: Trends in acute care hospital admissions, 1960 to 1996

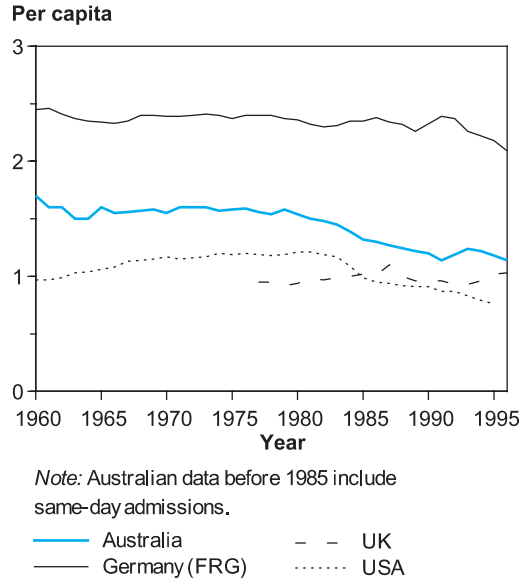


Figure 4: Trends in acute care patient days, 1960 to 1996

Acute care hospital admissions and patient days

Acute care hospital admission rate and patient days per capita[a]

Country	Acute care hospital admissions (per 1,000 pop.)				Acute care hospital patient days (per capita)			
	1970	1980	Latest year		1970	1980	Latest year	
Australia[b]	174	198	1996–97	159	1.6	1.6	1996–97	1.1
Canada	—	146	1992	114	—	1.6	1995	1.3
Denmark	143	176	1995	192	—	1.6	1995	1.2
France	—	175	1995	203	—	1.8	1997	1.2
Germany (FRG)	134	163	1996	182	2.4	2.4	1996	2.0
Greece	—	—	—	—	—	—	—	—
Hong Kong	—	—	—	—	—	—	—	—
Ireland	156	172	1995	148	1.7	1.7	1997	0.9
Israel	129	154	1995	193	—	—	—	—
Italy	151	177	1995	158	2.1	1.9	1997	1.3
Japan	—	—	—	—	—	—	—	—
Netherlands	97	112	1997	103	1.8	1.6	1997	1.0
New Zealand	—	—	—	—	—	—	—	—
Norway	123	143	1996	145	1.8	1.6	1996	1.0
Singapore	—	—	1995	120	—	—	—	—
Spain	—	—	1994	105	—	—	1996	0.8
Sweden	144	156	1996	159	1.6	1.3	1996	0.8
Switzerland	—	130	1993	142	—	2.0	1996	1.7
UK	—	111	1996	214	—	0.9	1995	0.8
USA	143	159	1996	116	1.2	1.2	1995	0.8

(a) Definitions may vary between countries. Australian data are for public acute and private hospitals, and exclude psychiatric hospitals.
(b) Data for 1970 and 1980 include same-day admissions.

Sources: OECD 1998; Israel CBS 1996.

- The rate of hospital admission constitutes an indicator of the number of episodes of hospital care per person. Patterns and trends in hospital admissions are influenced by several factors, including the level of illness in the population, the age and sex composition of the population, access to hospitals, repeated admissions, medical attitudes in treating an illness or injury in hospital, and financial considerations.
- In 1996–97, there were 1,167 public acute and private hospitals in Australia, with 77,191 beds available on average. The public acute and private hospital admission rate was 159 per 1,000 population. If same-day admissions are included, this figure rises to 288 per 1,000 population. Australia ranks towards the middle among developed countries for which data were available (Figure 1).
- Admission rates to Australian acute care hospitals have fluctuated over the last two decades—an increase during the 1970s was followed by a slight downturn beginning in the early 1980s, a pattern similar to that found in the United States (Figure 3).
- This downturn in admission rates has been noted in many developed countries, triggered by financial pressures and new medical technologies (OECD 1993). Two exceptions, however, were Germany and the United Kingdom, which both saw steady increases in admission rates throughout the 1980s.
- A hospital bed occupied by an admitted patient for all or part of a day is known as a 'patient day'. In 1996–97, the Australian crude patient day rate per capita was 1.1 for public acute and private hospitals. Again, Australia ranks towards the middle among developed countries for which data are available (Figure 2).
- Patient days per capita have declined for a number of developed countries, including Australia, over the previous decade (Figure 4). These declines reflect both changes in admission rates and lengths of stay. Most developed countries have seen notable declines in average lengths of stay; only some have seen declines in admission rates.

For more information, see:

OECD 1994. The reform of health care systems—a review of seventeen OECD countries. Paris: OECD.

AIHW 1998. Australian hospital statistics 1996–97. Canberra: AIHW (Health Services Series No. 11).

Acute care hospital beds and length of stay

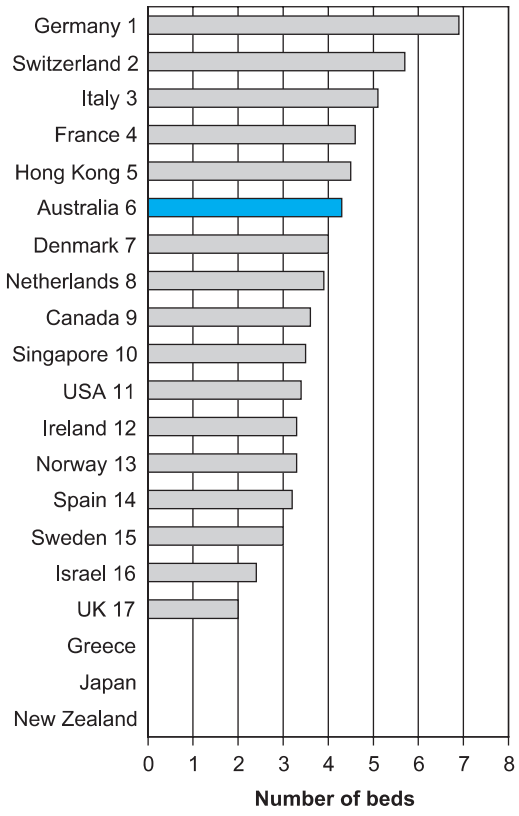


Figure 1: Acute care hospital beds per 1,000 population, 1993–1995

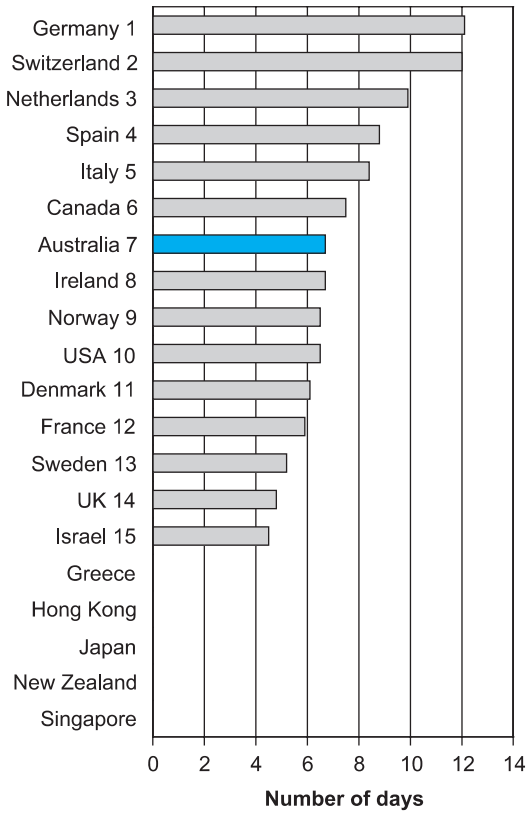


Figure 2: Average length of stay in acute care hospitals, 1995

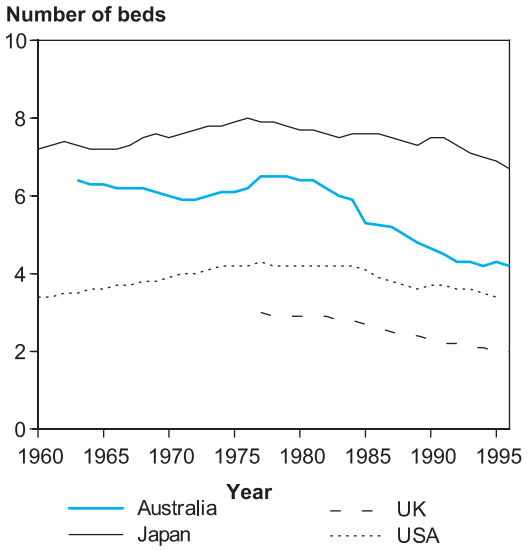


Figure 3: Trends in acute care hospital bed ratio per 1,000 population, 1960 to 1996

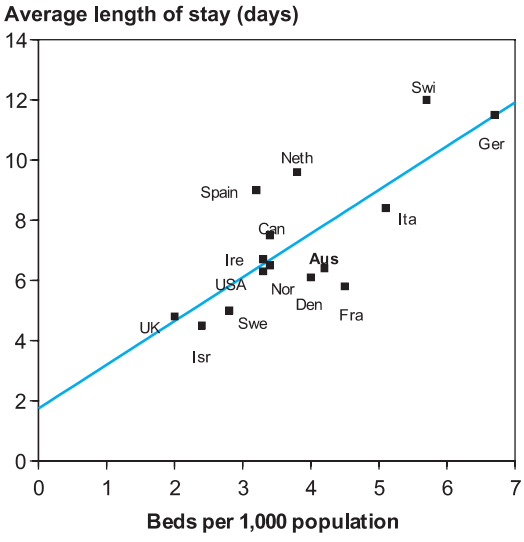


Figure 4: Utilisation of hospital beds, mid-1990s

Acute care hospital beds and length of stay

Acute care hospital beds and average length of stay

Country	Acute care hospital beds (per 1,000 pop.)				Average length of stay (days)			
	1970	1980	Latest year		1970	1980	Latest year	
Australia[(a)]	6.0	6.4	1996–97	4.2	8.9	7.8	1996–97	6.4
Canada	—	4.6	1993	3.6	—	10.2	1996	7.5
Denmark	5.9	5.6	1995	4.0	12.5	9.1	1996	6.0
France	—	6.2	1996	4.5	16.0	9.9	1996	5.8
Germany (FRG)	7.5	7.7	1996	6.7	18.3	14.9	1996	11.5
Greece	—	4.7	1992	3.9	—	—	—	—
Hong Kong	—	—	1993	4.5	—	—	—	—
Ireland	—	5.6	1996	3.4	13.3	9.7	1995	6.7
Israel	—	3.0	1994	2.4	8.6	6.8	1995	4.5
Italy	—	7.6	1995	5.1	—	—	1995	8.4
Japan	—	—	—	—	—	—	—	—
Netherlands	5.5	5.2	1996	3.8	18.8	14.0	1997	9.3
New Zealand	—	—	1991	7.2	—	—	—	—
Norway	5.9	5.4	1996	3.3	14.8	10.9	1996	6.3
Singapore	—	—	1995	3.5	—	—	—	—
Spain	—	—	1994	3.2	—	—	1996	8.5
Sweden	5.9	5.1	1996	2.8	11.0	8.5	1996	5.0
Switzerland	7.1	7.1	1994	5.7	—	15.5	1996	12.0
UK	—	2.9	1996	2.0	—	8.5	1996	4.8
USA	3.9	4.2	1995	3.4	8.2	7.6	1996	6.5

(a) Data for 1970 and 1980 include same-day admissions.
Note: Definitions and concepts may vary between countries. Australian data are for public acute and private hospitals, and exclude psychiatric hospitals.

Sources: OECD 1998; United Nations 1995b; Israel CBS 1996.

- The number of acute care hospital beds per 1,000 population is a useful indicator for measuring the supply of health care services. It should be noted, however, that for this particular indicator some countries count the number of beds 'approved' for use by government health authorities, whereas others, such as Australia, count 'available' beds—those immediately able to be filled if needed.
- The bed ratio in public acute and private Australian hospitals has been falling since the late 1970s. In 1996–97, there were 4.2 beds per 1,000 population in Australian hospitals, down from 6.4 beds per 1,000 population in 1980. Germany, the United Kingdom and the United States have also exhibited declining bed ratios since 1980, although the decline has not been as pronounced as that for Australia (Figure 3).
- The current Australian bed ratio is within the top half of the developed countries included for comparison purposes (Figure 1). The United Kingdom (2.0 beds per 1,000 population) and Israel (2.4) both have low ratios. New Zealand (7.2 in 1991), Germany (6.7) and Switzerland (5.7) exhibit higher ratios.
- In 1996–97, the average length of stay in public acute and private Australian hospitals, excluding same-day patients, was 6.4 days. Germany (11.5 days in 1996) and Switzerland (12.0 days) exhibited longer average stays in 1995, whereas the United Kingdom (4.8 days) and Israel (4.5 days in 1995) had shorter average stays (Figure 2).
- Average lengths of stay in hospitals continue to decrease. Changes to community-based care following discharge, improvements in technology and technique and a decline in 'nursing-home type' patients are some of the contributory factors.
- There is an apparent correlation between availability of beds and length of stay. The higher the bed density per thousand population, the longer the hospital stay (Figure 4).

For more information, see:

Australian Institute of Health and Welfare 1998. Australian hospital statistics 1996–97. Health Services Series No. 11. Canberra: AIHW.

Nursing homes

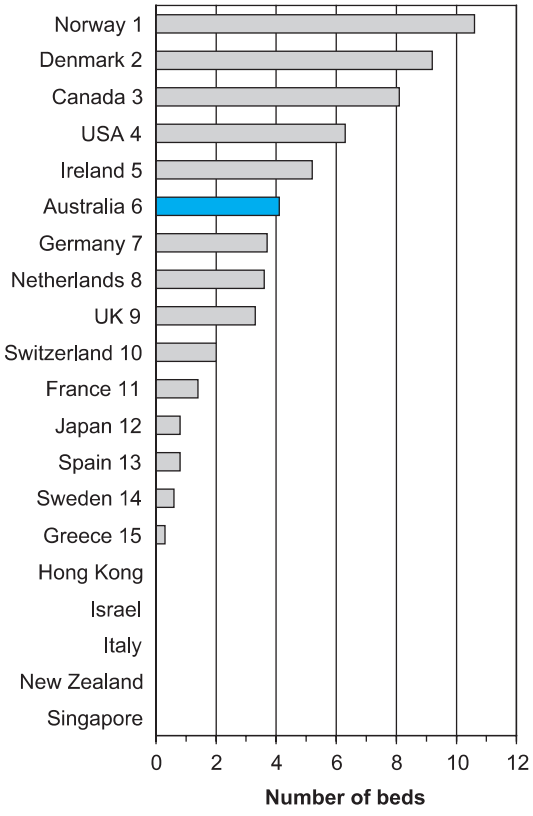


Figure 1: Nursing home beds per 1,000 population, mid-1990s

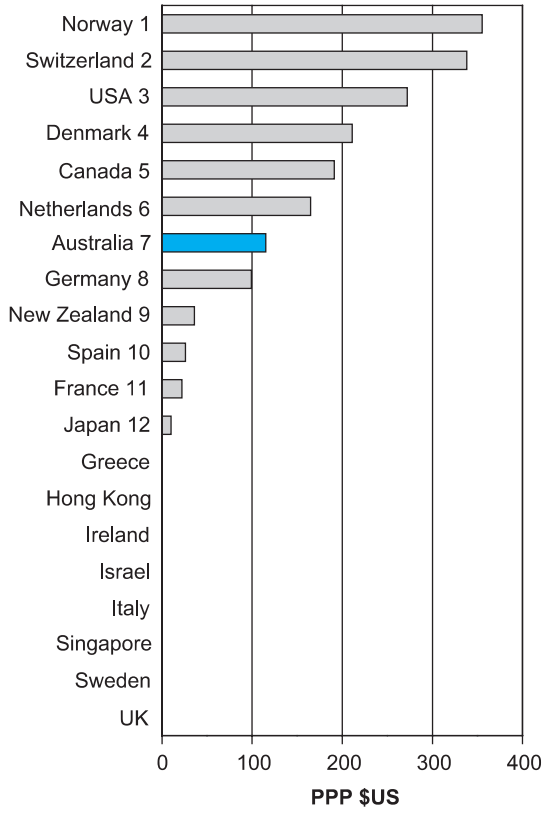


Figure 2: Expenditute per capita on nursing homes, mid-1990s

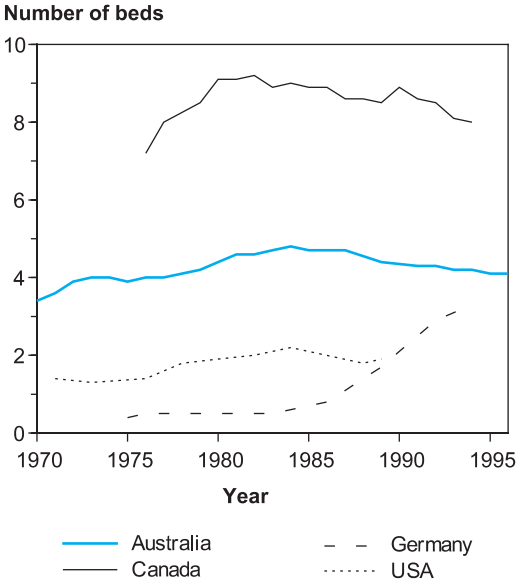


Figure 3: Nursing home beds per 1,000 population, 1970 to 1996

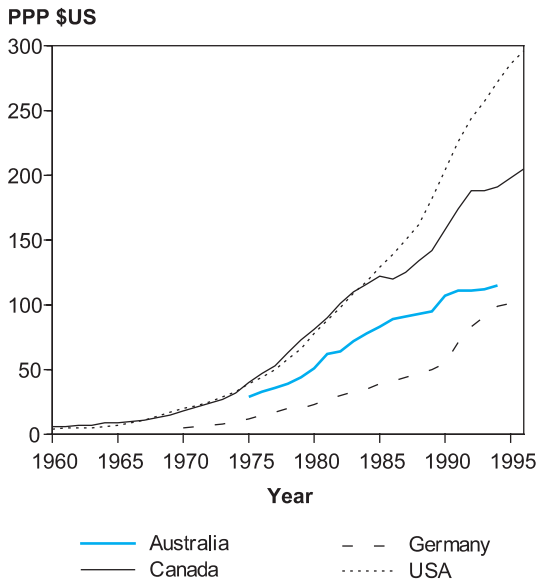


Figure 4: Nursing home expenditure per capita, 1960 to 1996

Nursing homes

Nursing home beds and expenditure

Country	Year	Nursing home beds (per 1,000 pop.)	Expenditure per capita ($US PPP)[(a)]	% of total health expenditure	% government funded
Australia	1994	4.2	115	7.1	76.6
Canada	1994	8.0	191	9.5	69.3
Denmark	1990	9.2	211	15.5	100.0
France	1995	1.4	23	1.2	100.0
Germany	1995	3.7	101	4.7	100.0
Greece	1989	0.3	—	—	—
Hong Kong	—	—	—	—	—
Ireland	1995	5.2	—	—	—
Israel	—	—	—	—	—
Italy	—	—	—	—	—
Japan	1995	0.8	15	0.9	100.0
Netherlands	1996	3.6	180	10.2	97.0
New Zealand	1992	—	36	3.3	95.7
Norway	1993	10.6	355	20.6	100.0
Singapore	—	—	—	—	—
Spain	1994	0.8	26	2.5	19.5
Sweden	1996	0.5	—	—	100.0
Switzerland	1994	2.0	338	14.8	—
UK	1994	3.3	—	—	—
USA	1994	6.3	272	7.5	59.5

(a) Purchasing power parities (PPP) are used here to convert health expenditure. PPPs show the rate at which a given amount of one currency can be converted into the other in order to purchase the same quantity of a particular item in both countries (OECD 1998).

Source: OECD 1998.

- Different countries exhibit different methods of care for their frail and disabled aged persons. In some countries, the burden of responsibility traditionally falls upon the immediate family, who resort to home care. Other countries have well-developed frameworks of community and residential care, involving nursing homes, hostels and domiciliary care.
- In 1994, Australia had 4.2 nursing home beds per 1,000 population, ranking in the upper half of developed countries for which data were available (Figure 1). Norway had the highest bed ratio at 10.6 per 1,000 population in 1993. Sweden, Spain, Greece and Japan had much lower ratios.
- Australia's nursing home bed ratio has shown a slight increase since the mid-1970s, peaking in the mid-1980s (Figure 3). This trend is similar to those for the United States and Canada. There have been substantial increases in the United Kingdom nursing home bed ratio since 1985.
- Japan's 'Gold Plan', implemented in 1990, recognised the weak infrastructure for supplying nursing and rehabilitation services for the elderly, and devoted significant resources towards improvement (Watanabe in OECD 1994). Bed ratios have increased from 0.2 to 0.8 per 1,000 population between 1990 and 1995.
- Care for the aged accounts for a significant proportion of the health budget in several developed countries. In 1994, Australia spent US$115 per capita, or 7.1% of total health expenditure, on nursing home care. Norway, Switzerland and the United States exhibited much higher expenditure on nursing home care at over US$250 per capita (Figure 2). Norway, Denmark, Switzerland and the Netherlands each spent in excess of 10% of their total health expenditure on nursing home care.
- Some 77% of Australian nursing home funding is provided by Commonwealth, State and Territory governments—the balance is sourced privately. In several countries, most notably the Scandinavian countries, health care is entirely provided by government. A large proportion of nursing homes in the United States, in contrast, are privately operated.

For more information, see:
Australian Institute of Health and Welfare 1997. Australia's welfare 1997: services and assistance. Canberra: AIHW.

Health workforce

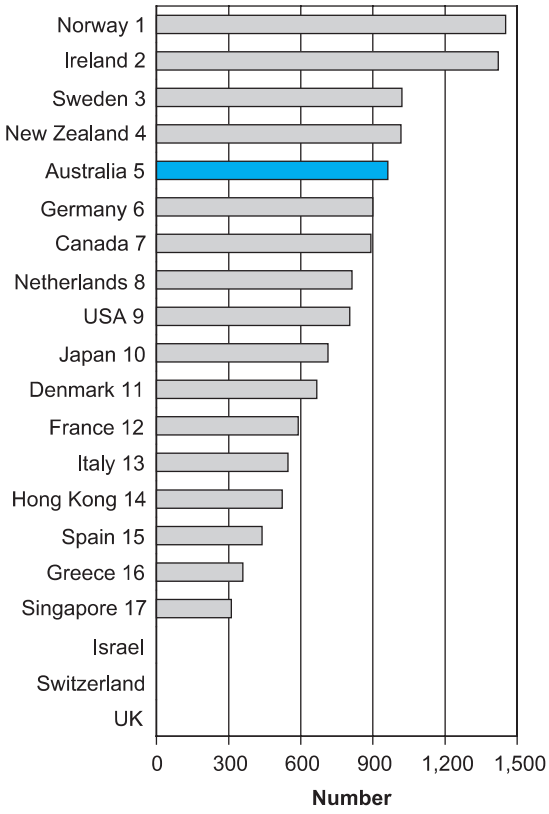


Figure 1: Nurses per 100,000 population, 1995

Figure 2: Dentists per 100,000 population, 1995

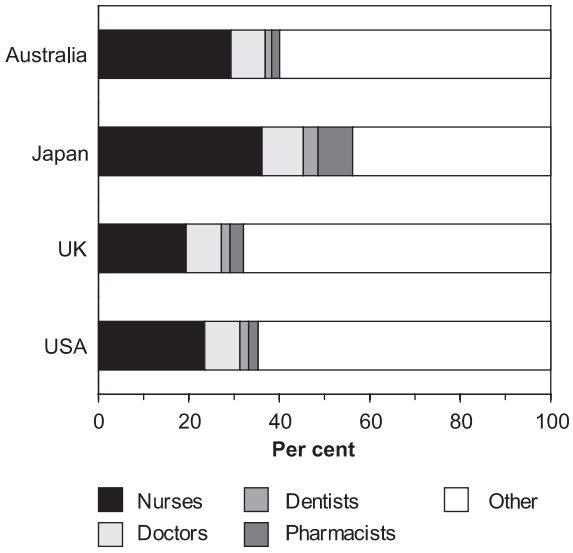


Figure 3: Health professions as a proportion of total health industry, 1993

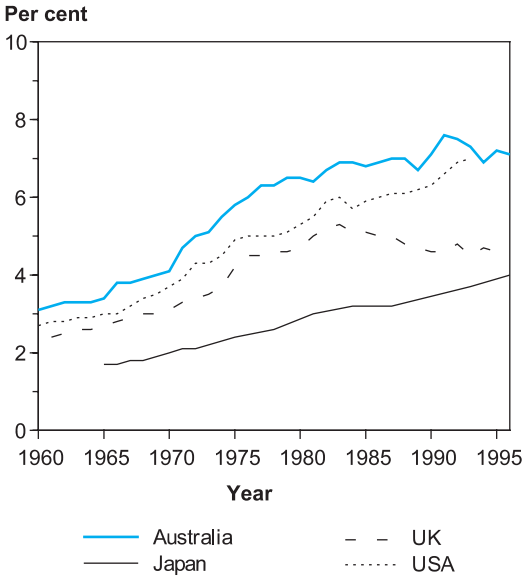


Figure 4: Proportion of the labour force employed in the health industry, 1960 to 1996

Health workforce

Proportion of the workforce employed in the health industry[(a)], and nurses, dentists and pharmacists per 100,000 population

Country	% workforce in health industry		Registered nurses (per 100,000 pop.)		Dentists (per 100,000 pop.)		Community pharmacists (per 100,000 pop.)	
Australia	1996	7.1	1995	962	1995	43	1995	59
Canada	1994	5.5	1995	892	1997	54	1991	62
Denmark	1993	4.3	1995	667	1995	52	1996	18
France	1994	6.9	1995	589	1995	68	1996	99
Germany	1995	6.7	1995	900	1996	75	1996	56
Greece	1992	3.4	1993	359	1995	103	1994	78
Hong Kong	—	—	1993	523	1993	26	1993	15
Ireland	1996	5.1	1996	1,479	1996	44	1996	70
Israel	1994	2.0	—	—	—	—	—	—
Italy	1992	4.8	1995	547	1996	52	1992	96
Japan	1996	4.0	1996	738	1994	63	1994	85
Netherlands	1995	5.3	1993	813	1995	47	1995	17
New Zealand	1991	4.0	1996	1,017	1996	37	1996	66
Norway	1994	15.2	1996	1,489	1996	84	1996	42
Singapore	—	—	1994	311	1994	26	1994	26
Spain	1992	3.8	1996	451	1996	38	1995	106
Sweden	1995	8.0	1995	1,021	1995	100	1996	68
Switzerland	1991	9.5	1990	1,380	1995	49	1990	49
UK	1996	4.5	1988	430	1995	37	1993	59
USA	1993	7.0	1996	814	1996	63	1996	70

(a) Definitions and concepts may vary between countries.

Sources: OECD 1998, United Nations 1996a, Israel CBS 1996.

- The number of health personnel, their distribution and supply reflect changing needs and demands for the provision of health services. Workers employed in the health industry include health professionals (e.g. medical practitioners and nurses), other professionals (e.g. social workers and accountants) and support staff (e.g. clerks and orderlies).
- In the past 15 years, workers employed in the health industry have comprised between 6 and 7% of the total workforce in Australia (Figure 4). In 1996, an estimated 7.1% of the Australian workforce was employed in the health industry. The health industry in Norway, Sweden and Switzerland comprises 8% or more of the workforce. In Greece, Israel, Japan, New Zealand and Spain the health industry comprises 4% or less of the total workforce. However, there may be considerable definitional differences between countries in the data provided to OECD.
- The proportion of the workforce employed in the health industry in Australia, Japan and the United States has steadily increased over the past several decades (Figure 4). A similar increase occurred in the United Kingdom, but plateaued in the mid-1980s.
- Nursing is the largest of the health professions. In 1995, Australia had more registered nurses per 100,000 population than most other developed countries, but the numbers were well below New Zealand and some European countries. Greece and Singapore had comparatively low ratios (Figure 1).
- Australia had a lower ratio of dentists than many other developed countries—7,700 active dentists with a ratio of 43 per 100,000 population in 1995 (Figure 2). Pharmacists numbered approximately 10,700 in 1995—a ratio of 59 per 100,000 population—similar to the ratio for Canada, the United Kingdom and the United States.

For more information, see:

AIHW 1998. Australia's health 1998: the sixth biennial health report of the Australian Institute of Health and Welfare. Canberra: AIHW.

WHO 1997. The world health report 1997: conquering suffering, enriching humanity. Geneva: WHO.

Medical practitioners

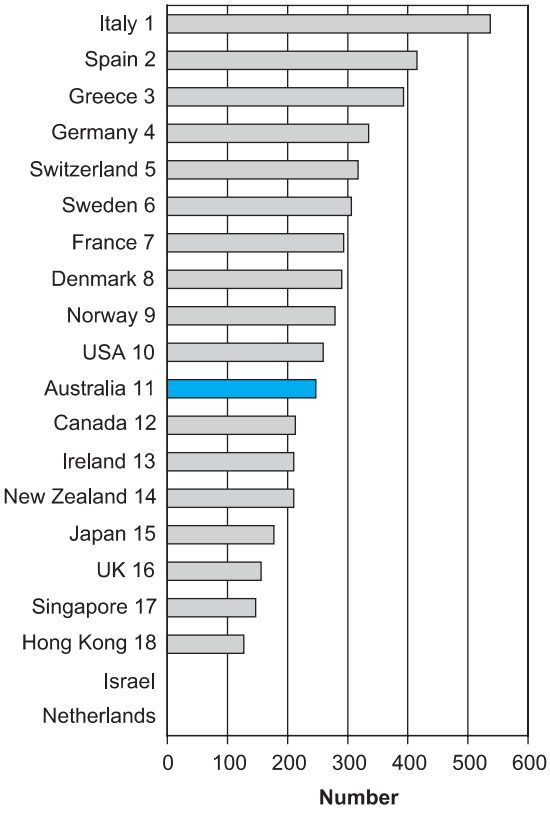


Figure 1: Medical practitioners per 100,000 population, 1995

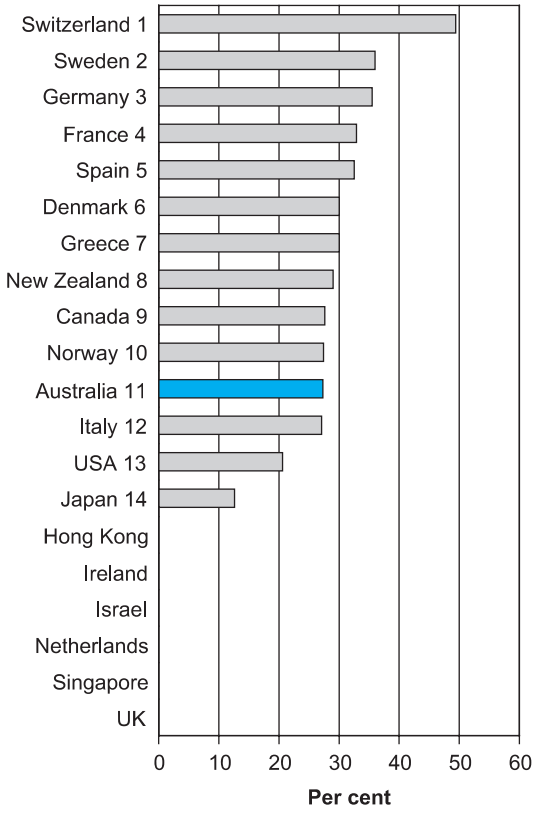


Figure 2: Proportion of medical practitioners who are female, 1995

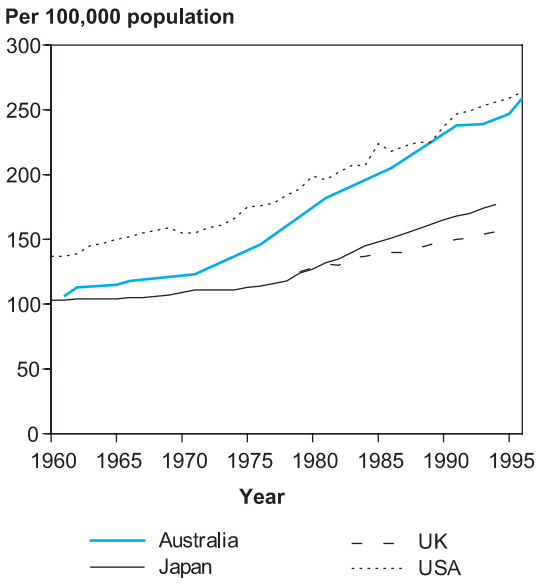


Figure 3: Trends in physician availability, 1960 to 1996

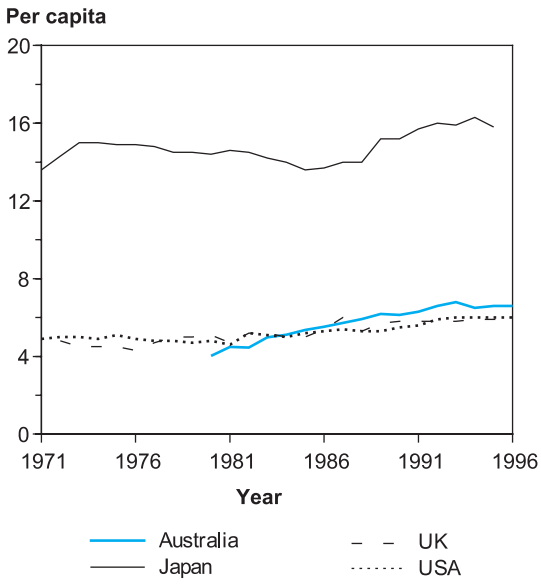


Figure 4: Trends in medical practitioner consultations, 1970 to 1996

Medical practitioners

Numbers and proportions of practising medical practitioners, and medical services per capita[(a)]

Country	Year	Estimated number	Per 100,000 population	Per cent specialists	Per cent female	Medical services per capita	
Australia	1996	47,700	259	33	28	1996–97	6.5
Canada	1996	63,100	211	42	29	1993	6.8
Denmark	1994	15,100	290	5	30	1996	5.3
France	1996	171,800	294	50	34	1993	6.3
Germany	1996	279,300	341	63	36	1995	6.4
Greece	1995	41,100	393	56	31	—	—
Hong Kong	1993	7,600	127	—	—	—	—
Ireland	1996	7,600	210	15	—	1988	6.6
Israel	—	—	—	—	—	—	—
Italy	1996	313,700	546	—	28	1988	11.0
Japan	1994	221,700	177	—	13	1995	15.8
Netherlands	1991	39,100	261	36	23	1996	5.4
New Zealand	1996	7,600	210	30	29	—	—
Norway	1997	12,900	276	64	29	1991	3.8
Singapore	1994	4,300	147	—	—	—	—
Spain	1996	165,700	422	—	32	1989	6.2
Sweden	1996	27,300	309	71	36	1996	2.9
Switzerland	1996	22,900	322	36	49	1992	11.0
UK	1994	91,200	156	–	[(b)]26	1996	5.9
USA	1996	701,200	264	[(b)]51	21	1996	6.0

(a) Definitions and concepts may vary between countries.
(b) 1990 data.

Sources: OECD 1998; United Nations 1996b.

- In 1996, there were 47,700 employed medical practitioners in Australia, or 259 per 100,000 population. The countries that are most similar to Australia in terms of their population age structure and their health systems are Canada and New Zealand. Both have approximately 18% fewer medical practitioners per 100,000 population than does Australia (Figure 1). Most countries have seen a marked increase in the doctor-to-population ratio since 1960, well in excess of population growth (Figure 3).
- The medical workforce is predominantly male, although the percentage of female medical practitioners is increasing in most developed countries. Women comprise a substantial proportion of the medical workforce in Switzerland, Germany and Sweden (Figure 2). Woman are under-represented in Japan and the United States. In 1971, women comprised 13% of the Australian medical workforce; in 1996 this had risen to 28%.
- On average, each Australian person received 6.5 medical services in 1996–97, comprising visits to general practitioners and specialists. Each Australian also received 4.2 other services in 1996–97, mainly comprising pathology tests and diagnostic imaging services.
- International comparisons for medical services per person are complicated by differing definitions between countries—what is counted as a 'physician contact' can vary widely. Many countries include telephone consultations or contacts with hospital in-patients, but others do not.
- Australians receive, on average, around the same number of medical services per capita as most other OECD countries for which data are available. Data for Italy, Japan and Switzerland may include additional items. The Australian rate continues to increase steadily, possibly related to a 40% increase in GPs and specialists between 1984 and 1993. A number of other countries, such as Japan, the United Kingdom and United States, have shown little increase in the rate since 1980 (Figure 4).

For more information, see:

Australian Institute of Health and Welfare 1998. Medical labour force 1996. Canberra: AIHW.

7 Health determinants

- Smoking
- Alcohol
- Child immunisation
- Dietary intake
- Physiological and anthropometric measures
- Social and economic environment
- Physical environment

Smoking

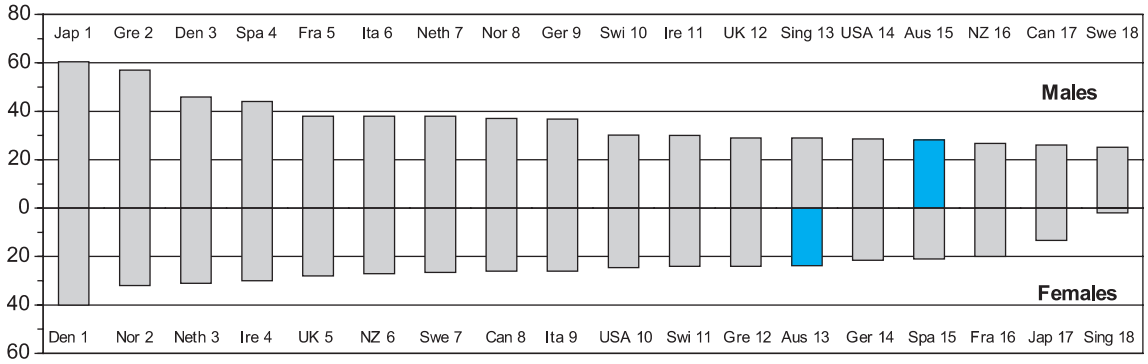


Figure 1: Proportion of population aged 15 years and over who are regular smokers, 1992

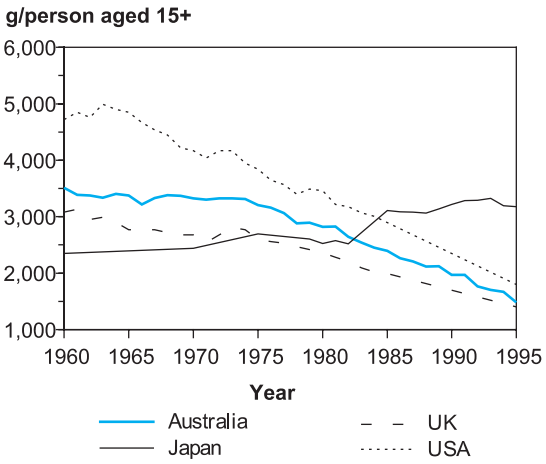


Figure 2: Tobacco consumption, 1960 to 1995

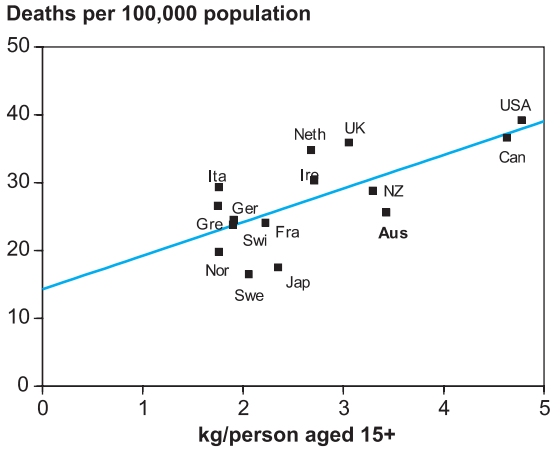


Figure 3: Tobacco consumption, 1960–62 and lung cancer mortality, 1990–92

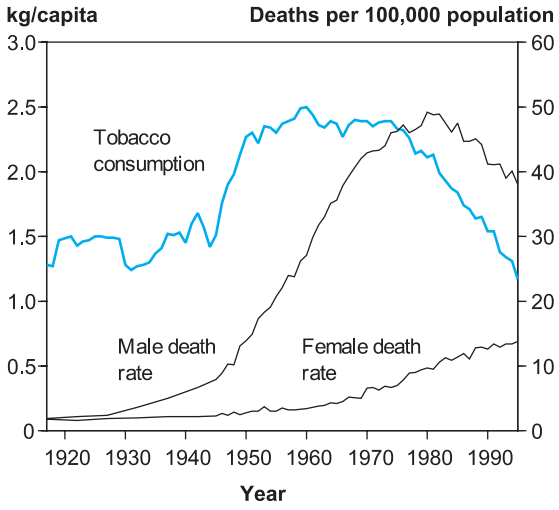


Figure 4: Tobacco consumption and lung cancer mortality, Australia, 1917–1995

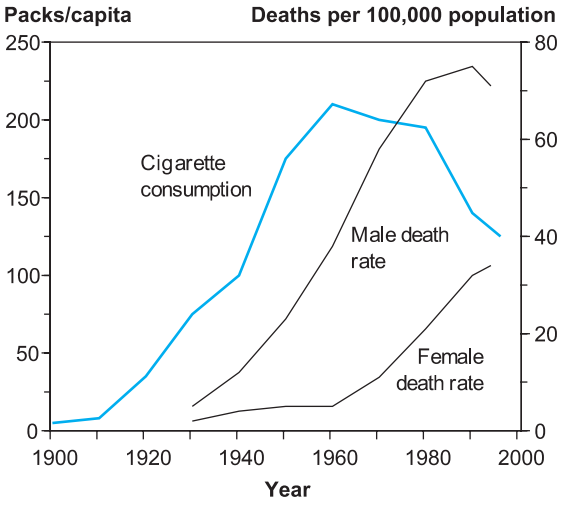


Figure 5: Cigarette consumption and lung cancer mortality, United States, 1900–1994

Smoking

Self-reported cigarette smoking and apparent tobacco consumption

Country	Proportion who smoke regularly			Tobacco consumption (g/capita aged 15+)	
	Year	% males	% females	Average number of cigarettes per day	
Australia	1995	27.1	23.2	18.9	1995–96 1,480
Canada	1993	30.0	28.0	20.0	1995 1,800
Denmark	1996	36.0	36.0	15.8	1996 2,170
France	1992	38.0	20.0	14.7	1996 2,010
Germany	1995	35.6	21.5	15.6	1995 1,800
Greece	1994	46.0	28.0	—	1995 2,500
Hong Kong	1990	29.0	3.0	—	— —
Ireland	1994	29.0	28.0	21.5	1995 1,800
Israel	—	—	—	—	1995 1,600
Italy	1994	38.0	26.0	—	1995 1,600
Japan	1996	57.5	14.2	23.2	1995 3,180
Netherlands	1995	40.9	31.2	—	1995 2,300
New Zealand	1995	27.0	26.0	14.6	1995 1,420
Norway	1996	34.0	33.0	12.8	1997 1,550
Singapore	1992	29.0	2.0	—	1995 2,500
Spain	1995	43.5	24.5	16.8	1995 2,100
Sweden	1994	21.6	23.8	15.3	1996 1,710
Switzerland	1992	30.1	24.1	—	1995 2,000
UK	1994	28.0	26.0	—	1995 1,400
USA	1992	28.6	24.6	—	1995 1,800

Note: Self-reported smoking data are for persons aged 15 years and over, except for Australia, Sweden and the United Kingdom (16+ years), the United States (18+ years) and Japan (20+ years). Definitions and concepts may vary between countries.

Sources: OECD 1998; Winstanley et al. 1995; Doyle 1997; World Bank 1997; AIHW unpublished.

- Tobacco smoking is a major risk factor for several diseases, including heart disease, stroke, lung cancer and chronic lung disease, and is the largest single preventable cause of premature mortality and illness. Nearly one in five deaths in developed countries are attributed to the effect of cigarette smoking (Peto et al. 1992).
- Self-reported figures indicate that approximately one-quarter of the Australian population were regular smokers in 1995 (27% males, 23% females), smoking an average of 19 cigarettes per day. Tobacco smoking in Australia, especially of manufactured cigarettes, increased markedly following World War II, due to wide availability and low cost (Winstanley et al. 1995). However, apparent consumption has decreased steadily since the 1960s, from an estimated 3,500 g per capita in 1960–61 to 1,500 g in 1995–96.
- In 1992, among 18 developed countries, only New Zealand, Canada and Sweden reported a lower proportion of men smoking regularly than did Australia. For women, Germany, Spain, France, Japan and Singapore reported lower rates. There were large male–female disparities in tobacco smoking for France, Greece, Japan, Spain and Singapore (Figure 1).
- Tobacco consumption is decreasing in most developed countries except, notably, in Japan (Figure 2). Smoking prevalence is increasing in a number of developing regions, especially Asia, as levels of disposable income increase along with economic development.
- Trends in tobacco consumption are closely reflected in lung cancer mortality—a major consequence of cigarette smoking—given a time lag. The two variables are closely correlated, both over time and across international boundaries (Figures 3, 4 and 5).
- The slow decline of cigarette smoking among Australian and United States women in recent decades, in contrast to more rapid declines among men, is also reflected in lung cancer mortality trends. Whereas mortality among men appears to have peaked almost a quarter of a century after the peak of tobacco consumption in 1960, it is still on the rise among women.

For more information, see:

Winstanley M, Woodward S, Walker N 1995. Tobacco in Australia: facts and issues. Carlton South: Victorian Smoking and Health Program.

Alcohol

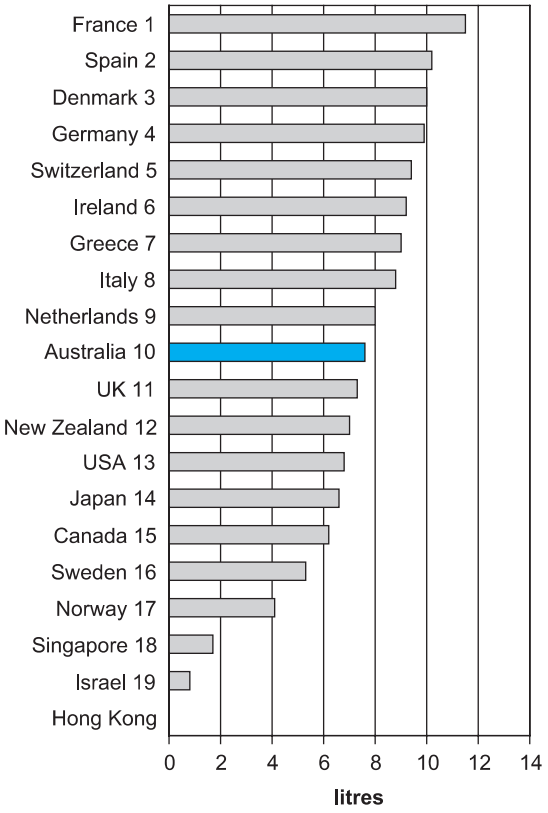


Figure 1: Apparent alcohol consumption per capita, 1995

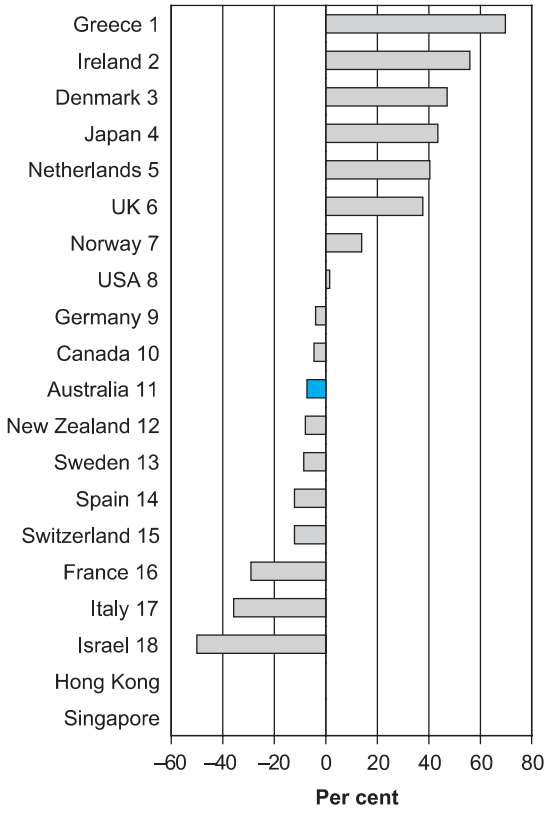


Figure 2: Changes in apparent alcohol consumption per capita, 1970–1995

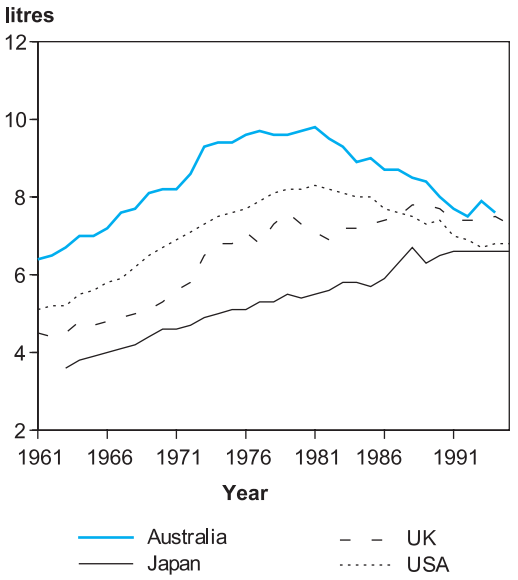


Figure 3: Trends in apparent alcohol consumption per capita, 1961 to 1995

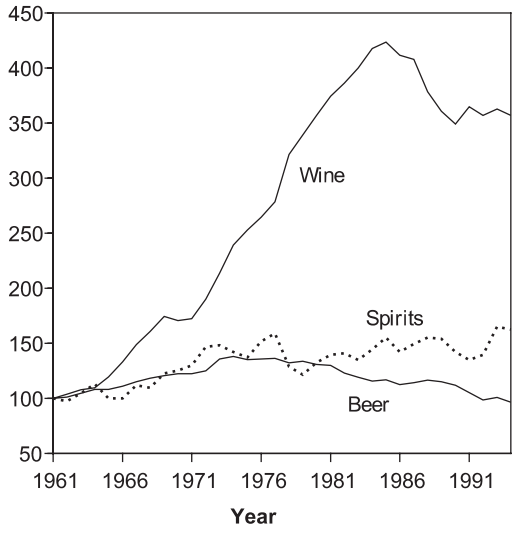


Figure 4: Trends in alcohol consumption in Australia (base year 1961–62 = 100)

Alcohol

Apparent per capita consumption of alcohol (in litres), by beverage type, 1995

Country	Beer	Wine	Spirits (pure alcohol)	Total (pure alcohol)
Australia	95.4	18.2	1.35	7.6
Canada	70.0	8.2	1.75	6.2
Denmark	120.1	27.6	1.07	10.0
France	39.1	63.5	2.52	11.5
Germany	137.7	22.2	2.20	9.9
Greece	42.2	34.5	2.70	9.0
Hong Kong	—	—	—	—
Ireland	141.3	16.1	1.70	9.2
Israel	8.4	3.1	—	0.8
Italy	25.4	60.4	0.90	8.8
Japan	58.0	1.0	2.00	6.6
Netherlands	85.8	16.6	1.74	8.0
New Zealand	98.8	16.8	1.13	7.0
Norway	53.5	7.1	0.81	4.1
Singapore	22.0	0.7	0.50	1.7
Spain	66.6	36.3	2.50	10.2
Sweden	64.5	12.7	1.46	5.3
Switzerland	62.2	43.6	1.49	9.4
UK	102.7	12.8	1.33	7.3
USA	87.9	6.8	1.97	6.8

Note: Calculated by converting the amount of beverage consumed into litres of pure alcohol based on an average alcoholic strength of 5% for beer and 12% for wine unless official strengths were known for the country concerned. Spirits are shown in terms of pure alcohol.

Source: Produktschap voor Gedistilleerde Dranken 1996.

- Alcohol abuse is a dominant drug problem in developed countries. Its excessive use can lead to serious health problems, including liver disease, gastrointestinal cancers and cardiovascular disorders. It plays a major role in deaths and disabilities due to injury, and is a leading cause of road traffic accidents. Fetal exposure to alcohol may also cause mental retardation.
- Data for apparent per capita consumption of pure alcohol indicate that in 1995, Australia ranked tenth amongst 20 developed countries (Figure 1)—it also ranked sixth for beer consumption, eighth for wine consumption and 12th for spirits consumption per capita. Alcohol consumption per capita peaked in Australia and the United States in the early 1980s. However, it continues to rise in many countries, including the United Kingdom and Japan (Figures 2 and 3).
- Ireland, Germany and Denmark had high per capita consumption of beer in 1995. France and Italy had high per capita wine consumption, and Greece, France and Spain high per capita consumption of spirits. It should be noted that the 'French paradox' of low ischaemic heart disease mortality despite a high saturated fat intake has been at least partly attributed to high alcohol consumption and the intake of antioxidant vitamins, both being supplied by wine (Burr 1995).
- Per capita data regarding alcohol consumption give little information as to the number of persons engaging in risk drinking behaviour. Drinking patterns, including binge drinking, frequency of intoxication and amount of consumption, are revealed through population-based surveys, which by and large are not comparable between countries.
- In Australia, the 1995 National Drug Strategy Household Survey revealed that 28% of males and 33% of females aged 14 or more usually consumed alcohol at hazardous or harmful levels. In the two weeks prior to the survey, 8% of male current drinkers and 5% of female current drinkers had consumed alcohol at very harmful levels, i.e. more than 8 standard drinks for females, and more than 12 for males.

For more information, see:

Lader M, Edwards G, Drummond DC (eds.) 1992. The nature of alcohol and drug related problems. Society For the Study of Addiction Monograph No. 2. Oxford: Oxford University Press.

Child immunisation

Figure 1: 1-year-old children fully vaccinated for DPT, 1990–1995

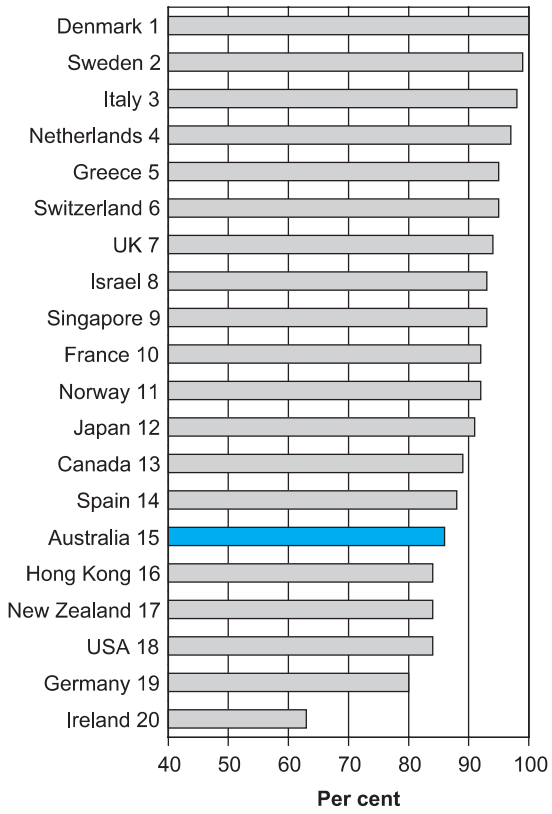


Figure 2: 1-year-old children fully vaccinated for polio, 1990–1995

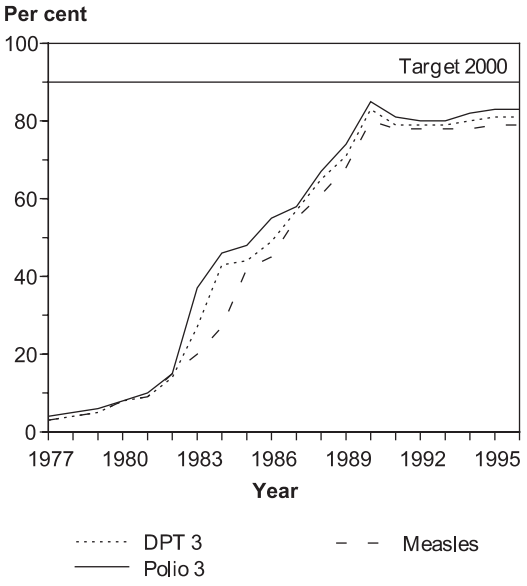


Figure 3: Global EPI coverage, 1-year-old children, 1977 to 1996

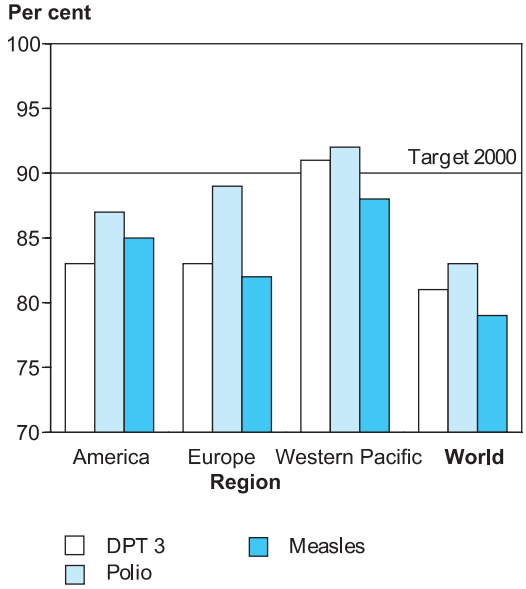


Figure 4: Vaccination coverage of 1-year-old children by selected WHO regions, 1996

Child immunisation

Estimated proportion of 1-year-old children fully vaccinated[(a)]

Country	Year	DPT 3	Polio 3	Measles
Australia	1995	89	86	86
Canada	1994	93	89	98
Denmark	1994	89	100	88
France	1991–92	89	92	76
Germany	1994	80	80	75
Greece	1994	78	95	70
Hong Kong	1994	83	84	77
Ireland	1990–91	65	63	78
Israel	1994	92	93	94
Italy	1995	50	98	50
Japan	1993	85	91	68
Netherlands	1993	97	97	95
New Zealand	1994	84	84	87
Norway	1993	92	92	93
Singapore	1995	95	93	88
Spain	1994	88	88	90
Sweden	1994	99	99	96
Switzerland	1991	89	95	83
UK	1994	92	94	92
USA	1994	94	84	89
Global average	1996	81	83	79

(a) Coverage for children aged up to 2 years are included for countries recommending vaccination at, or later than, 12 months. Three primary doses of polio and DPT vaccine, and one of measles and BCG vaccine (not shown here).

Sources: WHO 1996a; ABS 1996a.

- Lack of immunity is a risk factor for several devastating infectious diseases. Immunisation against preventable diseases such as diphtheria, pertussis (whooping cough), tetanus, measles and poliomyelitis is an effective public health measure. In 1990 alone, immunisation is estimated to have prevented 3.2 million deaths from measles, neonatal tetanus and pertussis, and 445,000 cases of paralysis from poliomyelitis worldwide (WHO 1992a).
- The Expanded Programme on Immunisation (EPI), initiated by the World Health Organization in 1974, aims to achieve global coverage against a number of vaccine-preventable diseases. Most developed countries are on target to achieve the year 2000 WHO goals of 90% immunisation and the global eradication of poliomyelitis (Figures 1 and 2). By 1996, some 83% of the world's infants were estimated to have received all three primary doses of polio vaccine. Global coverage was estimated to be 81% for all three primary doses of DPT (diphtheria–pertussis–tetanus) vaccine and 79% for measles (Figures 3 and 4).
- The endorsement of immunisation targets such as those for the year 2000 aids in spurring the international community to action. To date, success in immunisation has been achieved through the cooperative efforts of national governments and development agencies, WHO, UNICEF and other nongovernment organisations. Investment in immunisation not only saves lives but also reduces the need for costly curative and rehabilitative care.
- Although in 1995 Australian vaccination levels at 12 months of age were considered satisfactory, levels after this age declined substantially. To be fully vaccinated according to the NHMRC schedule, children need to attend a clinic or visit a doctor at least six times, at 2, 4, 6, 12, 18 months of age and prior to school entry. Recent outbreaks of preventable diseases have spurred efforts to address low immunisation levels.

For more information, see:

Kim-Farley R 1992. Global immunization. Ann Rev Public Health 13: 223–38.

Dietary intake

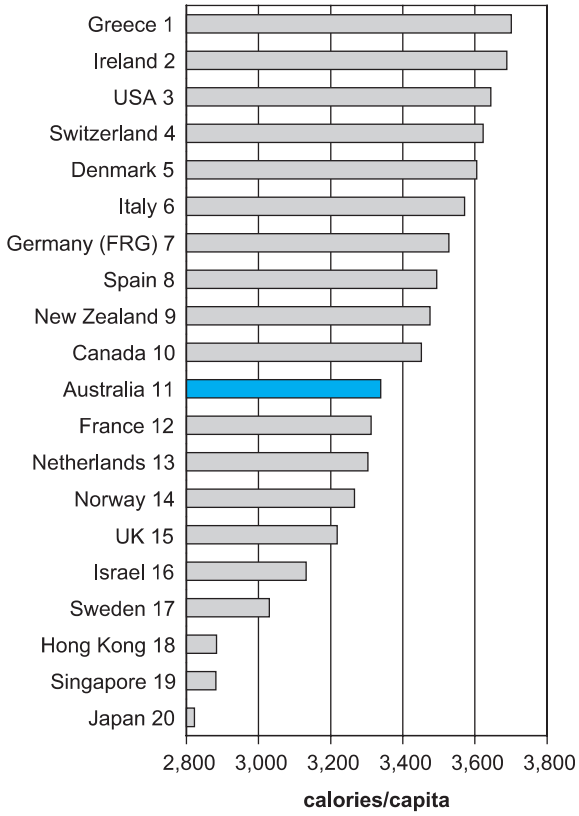


Figure 1: Daily energy intake, 1986–88

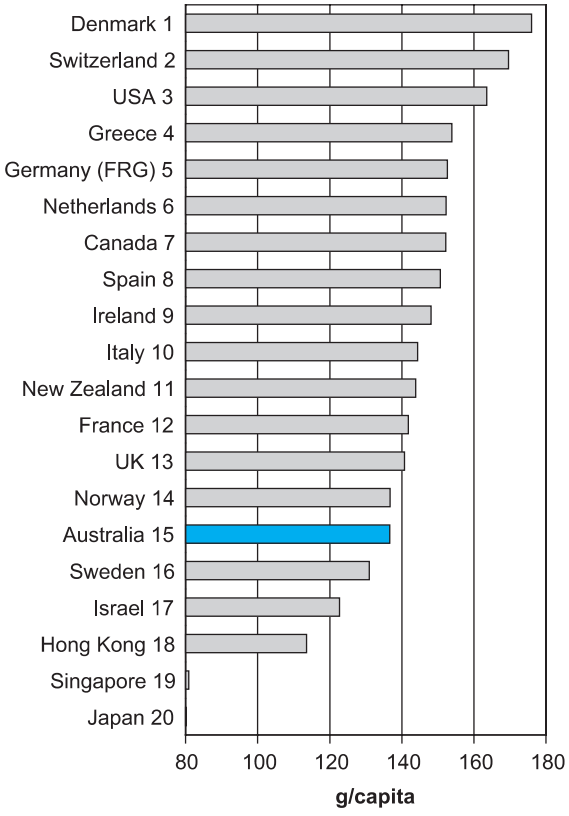


Figure 2: Daily fat intake, 1986–88

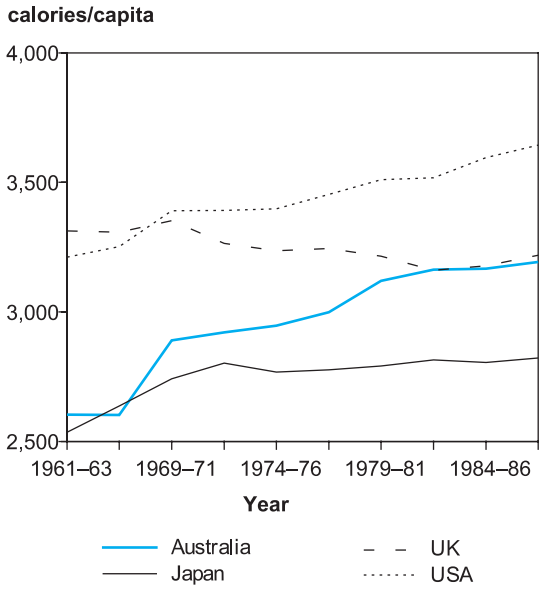


Figure 3: Trends in daily energy intake, 1961–63 to 1986–88

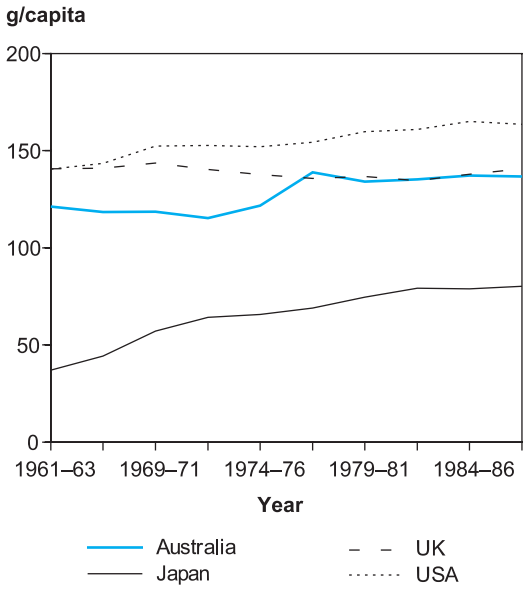


Figure 4: Trends in daily fat intake, 1961–63 to 1986–88

Dietary intake

Components of dietary intake

Country	Estimated daily nutrient intake (1986–88)			Apparent annual consumption			
	Energy (calories/capita)	Protein (g/capita)	Fat (g/capita)	Butter (kg/capita)		Sugar (kg/capita)	
Australia	3,339	99.4	136.6	1996	2.8	1995	47
Canada	3,451	98.8	152.2	1995	2.7	1992	42
Denmark	3,605	100.5	176.0	1992	6.2	1996	43
France	3,312	112.5	141.8	1992	8.9	—	—
Germany	3,528	103.5	152.6	1992	6.8	1992	34
Greece	3,701	113.0	153.9	1991	1.0	—	—
Hong Kong	2,883	88.3	113.6	—	—	1993	26
Ireland	3,688	108.5	148.1	1991	3.7	1991	35
Israel	3,132	98.3	122.7	1994	0.6	1994	36
Italy	3,571	110.4	144.4	1992	2.3	1992	27
Japan	2,822	89.8	80.2	1995	0.7	1993	22
Netherlands	3,303	97.6	152.3	1994	3.3	1991	40
New Zealand	3,475	109.7	143.8	1996	8.0	1996	44
Norway	3,266	100.5	136.7	1996	2.2	1993	43
Singapore	2,882	81.4	80.9	—	—	1993	73
Spain	3,494	100.9	150.7	1991	0.6	1991	27
Sweden	3,030	96.2	131.0	1992	3.8	1993	44
Switzerland	3,623	100.1	169.6	1995	5.5	1993	45
UK	3,218	89.4	140.7	1992	3.1	1992	39
USA	3,644	109.0	163.5	1995	2.2	1993	32

Sources: FAO 1991; OECD 1998; United Nations 1995b; Israel CBS 1996.

- Health and diet are closely related. In developed countries, undernutrition is rare—diet-related diseases are largely associated with inactivity and the over-consumption of food. Coronary heart disease, stroke, hypertension, certain cancers, Type 2 diabetes and tooth decay can all be prevented or alleviated by a balanced diet.
- Several indicators are currently used for comparing the nutritional status of various populations. Prominent among these are daily energy, protein and fat consumption per capita. The Food and Agriculture Organisation of the United Nations (FAO) publishes three-year average food balance sheets for specified countries. Derived from food supply data, they act as surrogate indicators of food consumption in the population, hence they are termed 'apparent consumption'.
- The latest FAO publication, covering 1986–88, ranks Australia 11th out of 20 developed countries for energy intake, and 15th for fat intake (Figures 1 and 2). Greece, the United States, Switzerland and Denmark have high intakes of both energy and fats. Hong Kong, Singapore and Japan have comparatively lower intakes of both energy and fats. Australians have comparatively higher sugar consumption and moderate butter consumption.
- Australian per capita calorie intake has increased since the early 1960s (Figure 3), but energy derived from fats and oils has remained relatively constant (Figure 4). The relative contribution of saturated and unsaturated fats in Australia is not known. Per capita energy intake from Australian and United Kingdom diets are similar, and are higher than for Japan, but not as high as for the United States.
- Australia's food supply characteristics are similar to those of Northern Europe and the United States, but different from Italy, Greece and Asian countries. Energy derived from fats and oils continues to be much higher in European countries and the United States.
- The 1995 National Nutrition Survey provides information which will serve as a baseline for future analyses of Australian dietary intake. Similar surveys are also currently being undertaken or planned in other developed countries.

For more information, see:

Food and Agriculture Organisation of the United Nations 1991. FAO food balance sheets, 1984-1986 average. Rome: FAO.

Lester IH 1994. Australia's food and nutrition. Canberra: AGPS.

Physiological and anthropometric measures

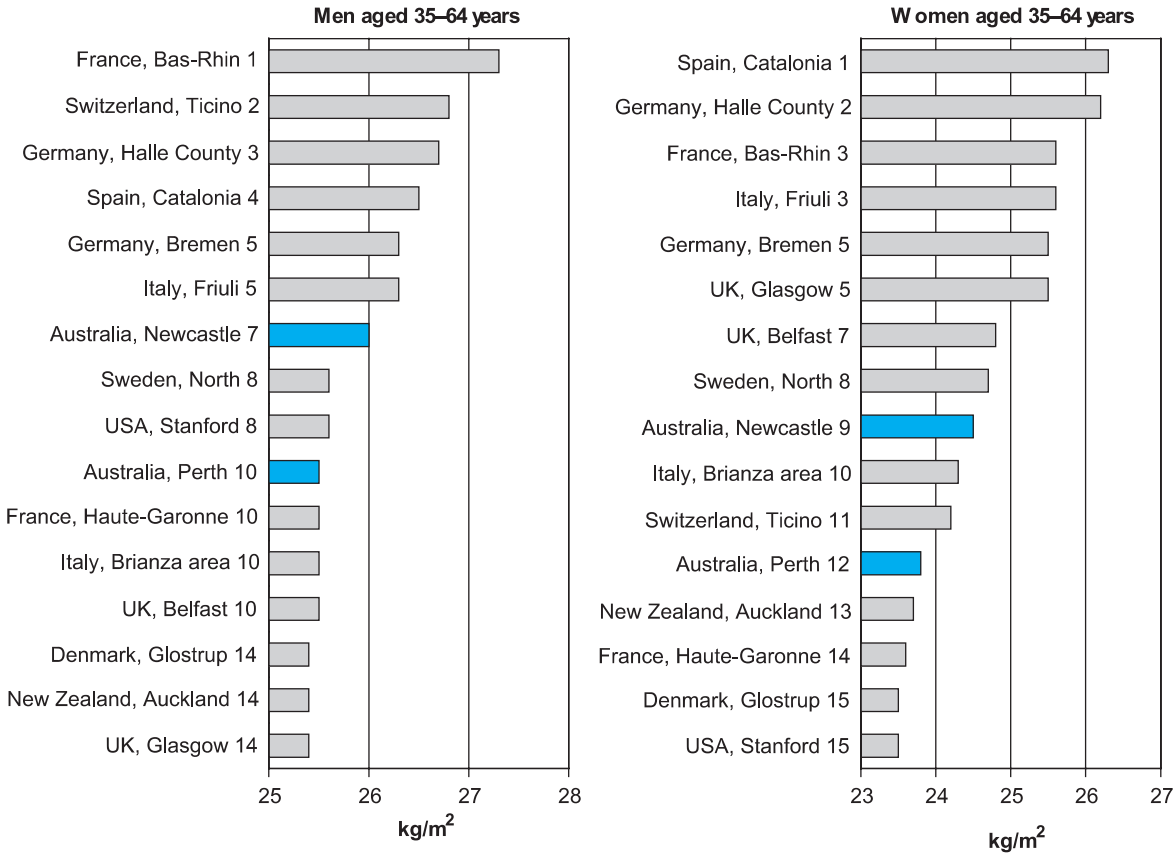


Figure 1: Mean body mass index, WHO MONICA project, 1982–1987

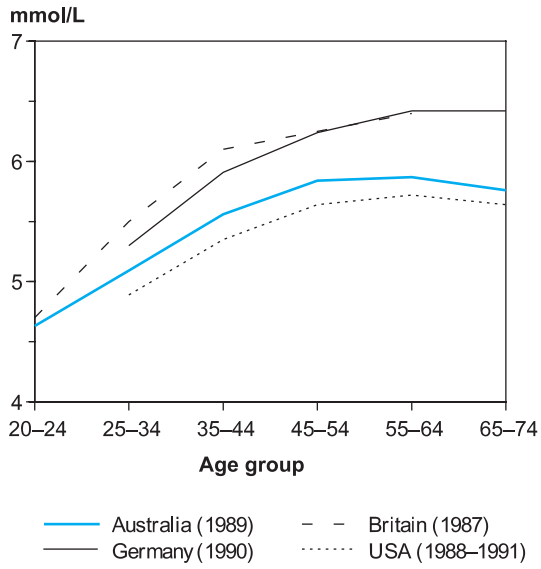


Figure 2: Mean total plasma cholesterol levels for men, by age group

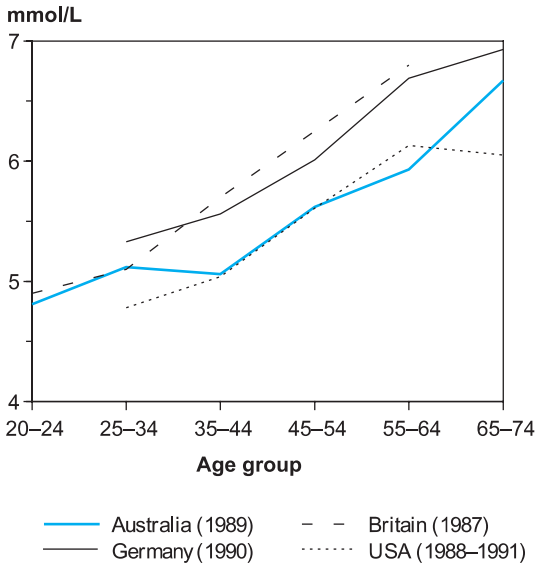


Figure 3: Mean total plasma cholesterol levels for women, by age group

Physiological and anthropometric measures

Total cholesterol levels, systolic blood pressure and body mass index, by sex, selected studies and WHO MONICA project

	Men			Women		
Region or country	Total cholesterol	Systolic blood pressure	Body mass index	Total cholesterol	Systolic blood pressure	Body mass index
Selected studies[(a)]	mmol/L	mmHg	% BMI > 30	mmol/L	mmHg	% BMI > 30
Australia (1989)	5.6	126	9	5.1	116	8
Britain (1987)	6.1	126	11	5.7	118	10
Canada (1986–1990)	5.4	123	16	4.9	114	15
Germany (1990)	5.9	129	14	5.6	119	9
New Zealand (1989)	6.2	—	13	5.8	—	13
Sweden (1988–89)	—	—	6	—	—	6
USA (1988–1991)	5.4	126	12	5.0	119	16
WHO MONICA project[(b)]	mmol/L	mmHg	kg/m^2	mmol/L	mmHg	kg/m^2
Australia, Newcastle	5.7	129	26.0	5.6	125	24.5
Australia, Perth	5.8	131	25.5	5.7	122	23.8
Denmark, Glostrup	6.2	125	25.4	6.1	121	23.5
France, Bas-Rhin	5.5	143	27.3	5.4	133	25.6
France, Haute-Garonne	5.9	130	25.5	5.7	125	23.6
Germany, Bremen	6.0	139	26.3	6.0	135	25.5
Germany, Halle County	—	137	26.7	—	138	26.2
Italy, Brianza area	5.6	136	25.5	5.5	131	24.3
Italy, Friuli	—	140	26.3	—	136	25.6
New Zealand, Auckland	5.7	131	25.4	5.7	123	23.7
Spain, Catalonia	—	121	26.5	—	118	26.3
Sweden, North	6.1	131	25.6	6.0	126	24.7
Switzerland, Ticino	5.5	131	26.8	5.2	126	24.2
UK, Belfast	5.9	132	25.5	6.0	129	24.8
UK, Glasgow	6.2	134	25.4	6.4	131	25.5
USA, Stanford	5.3	127	25.6	5.2	120	23.5

(a) Mean values for men and women aged 35 to 44 years, except Britain and New Zealand (35 to 49 years) and Germany (30 to 39 years).
(b) Age-standardised 50th percentiles for men and women aged 35 to 64 years, early to mid-1980s.

Sources: Waters & Bennett 1995a; WHO MONICA Project 1989.

- High cholesterol levels, blood pressure and obesity may predispose persons to severe health problems such as cardiovascular disease, perhaps the greatest health problem in the developed world. The World Health Organization's MONICA study provides internationally comparable data for these and other health determinants (WHO MONICA project 1989).
- Mean values of total plasma cholesterol, as measured through national sample surveys, vary in range from 5.4–6.2 mmol/L among men and from 4.9–5.8 mmol/L among women. In comparison, mean values are somewhat higher among women sampled in the MONICA study. Mean levels in Australia are at the lower end of the distribution, and persist throughout life (Figures 2 and 3). Yet the 1989 Risk Factor Prevalence Survey found that 16.0% of men and 14.2% of women aged 20–69 years in Australia were at high risk of developing coronary heart disease, with cholesterol levels above 6.5 mmol/L (Waters & Bennett 1995a).
- Variation in mean systolic blood pressure was found to be much smaller in the national sample surveys than that obtained in the MONICA study. Australian values fall in the middle of the range noted in the MONICA study. The 1989 Risk Factor Prevalence Survey found 18.3% of men and 14.3% of women in Australia to be hypertensive, with systolic blood pressures ≥ 160mmHg.
- Both men and women in Australia in the mid-1980s rank mid-way internationally with respect to body mass index (BMI); however, the BMI values varied between Newcastle and Perth women included in the study (Figure 1). In terms of obesity, 9% of Australian men and 8% of Australian women have a BMI ≥ 30.

For more information, see:

Waters A-M, Bennett S 1995. Risk factors for cardiovascular disease: a summary of Australian data. Cardiovascular Disease Series No. 1. Canberra: AIHW.

Social and economic environment

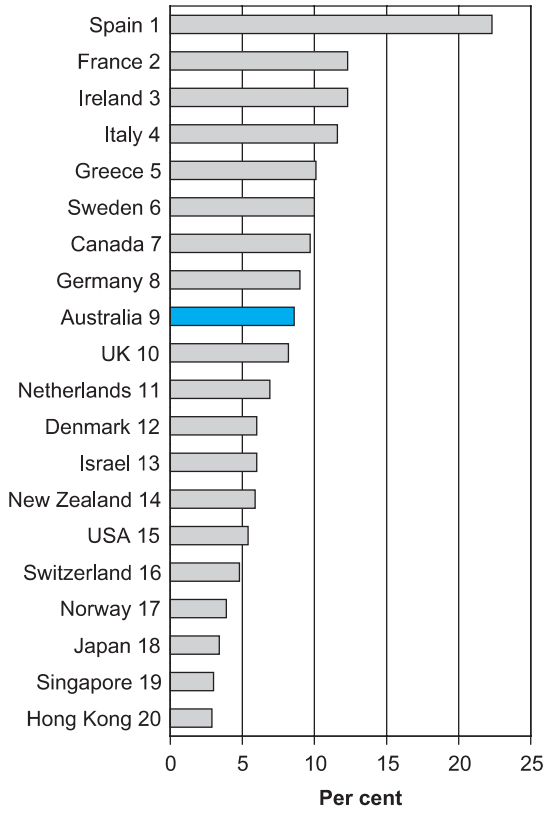


Figure 1: Proportion of labour force unemployed, 1996

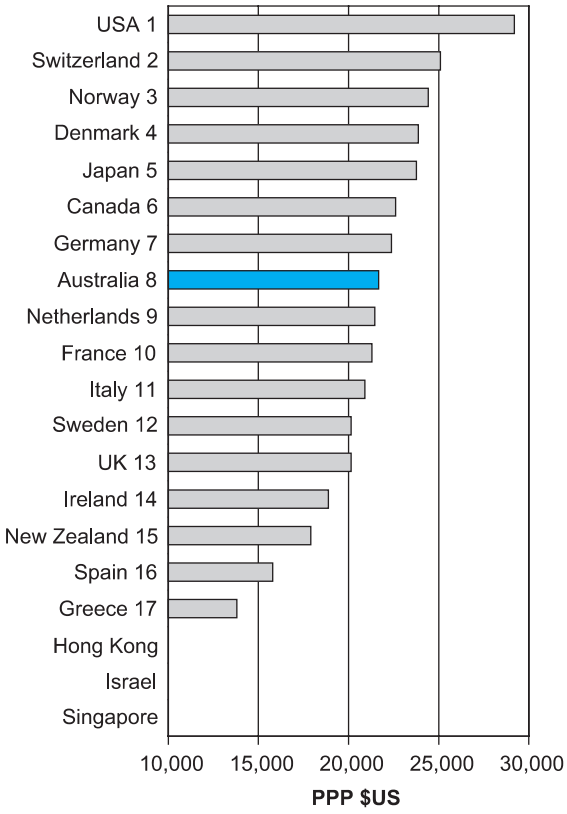


Figure 2: GDP per capita, 1997

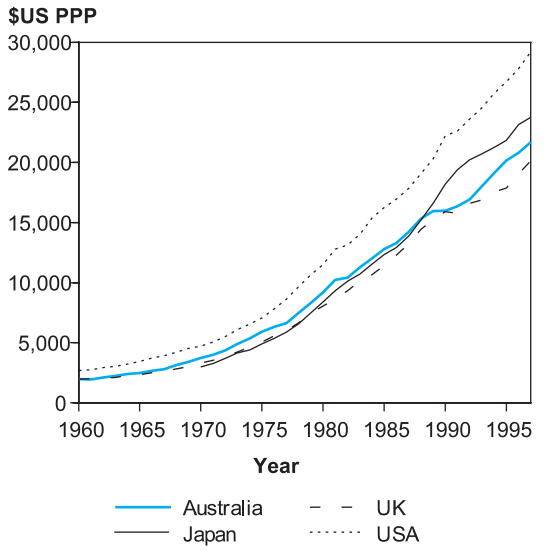


Figure 3: Trends in GDP per capita, 1960 to 1997

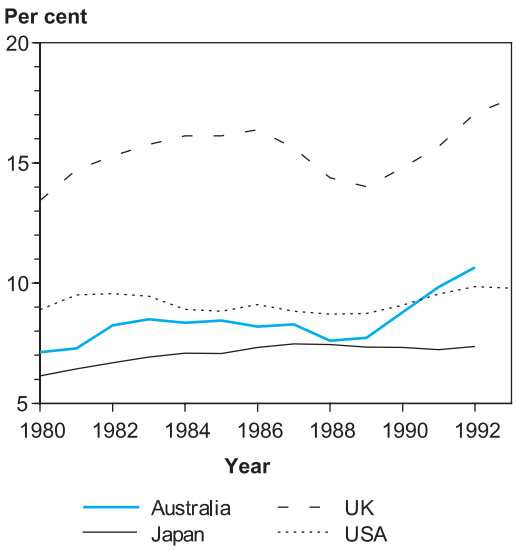


Figure 4: Trends in social expenditure as a proportion of GDP, 1980 to 1993

Social and economic environment

Unemployment, inflation, GDP per capita and social expenditure as a proportion of GDP

Country	Unemployed labour force, 1996 (per cent)	Inflation rate (per cent)[a]		GDP per capita, 1997 (US$ PPP)[b]	Social expenditure, 1993 (per cent GDP)[c]
Australia	8.6	1994–95	2.5	21,671	10.7
Canada	9.7	1994–95	1.7	22,606	12.6
Denmark	6.0	1994–95	1.8	23,874	25.4
France	12.3	1993–94	1.4	21,290	21.5
Germany	9.0	1994–95	2.2	22,385	21.8
Greece	10.1	1993–94	11.0	13,805	13.7
Hong Kong	2.9	—	—	—	—
Ireland	12.3	1993–94	1.2	18,875	14.9
Israel	6.0	—	—	—	—
Italy	11.6	1993–94	3.6	20,914	18.7
Japan	3.4	1992–93	0.6	23,765	7.4
Netherlands	6.9	1993–94	2.3	21,450	23.4
New Zealand	5.9	1993–94	1.8	17,903	16.7
Norway	3.9	1993–94	0.3	24,423	22.5
Singapore	3.0	—	—	—	—
Spain	22.3	1994–95	4.8	15,800	16.8
Sweden	10.0	1993–94	3.0	20,150	31.8
Switzerland	4.8	1994–95	1.5	25,088	14.9
UK	8.2	1993–94	2.2	20,139	17.7
USA	5.4	1993–94	2.0	29,195	9.8

(a) Measured as the change in GDP deflators.
(b) Purchasing power parities (PPP) show the rate at which a given amount of one currency can be converted into the other in order to purchase the same quantity of a particular item in both countries (OECD 1998).
(c) Includes cash benefits and services for the elderly, the disabled and families, as well as occupational injury and disease, sickness benefits, survivors (e.g. widows), labour market programmes, unemployment, housing benefits and other. Does not include public expenditure on health.

Sources: United Nations 1995b; OECD 1996b, 1996c, 1998.

- There is increasing evidence that social and economic factors such as poverty, unemployment, illiteracy, poor housing and social isolation impact upon health status. These determinants are characteristic features of certain segments of the population in developed countries.
- Unemployed persons are more likely to report poor health, use medical services, have a greater prevalence of disability and handicap, and have higher rates of ill-health and mortality (Mathers 1994; Dooley et al. 1996). Poverty is also known to impact upon life expectancy although the effect is more marked at very low levels of income (World Bank 1993).
- A relatively large proportion of the Australian labour force is unemployed (8.6% in 1996) compared to other OECD countries (Figure 1). Long-term effects of unemployment on health status or specific health conditions have not been fully established, but it is now generally accepted that unemployment is causally related to ill-health (Mathers 1994).
- Increased income allows people to buy more food, better housing and health care, although by international standards variation in income levels is generally low among OECD countries. In 1997, Australia was ranked eighth among 17 OECD countries for gross domestic product (GDP) per capita (Figure 2). The United States, Switzerland, Norway and Denmark have comparatively high GDP per capita. Since the mid-1970s, Japan's GDP per capita has increased rapidly (Figure 3).
- Australia spends only a moderate proportion of its GDP on social expenditure compared to other developed countries. The proportion has increased since the late 1980s (Figure 4), but is still low among OECD countries. Welfare spending in Scandinavian countries is especially high.
- Like many other countries, Australia's stable and low rate of inflation affords the opportunity to improve the health status of those who are currently disadvantaged. However, unless addressed, long-term unemployment in conjunction with other social and economic factors may produce harmful health effects in the coming decades.

For more information, see:

Dooley D, Fielding J, Levi L 1996. Health and unemployment. Annu Rev Public Health 17: 449–66.

Australian Institute of Health and Welfare 1997. Australia's welfare 1997: services and assistance. Canberra: AIHW.

Physical environment

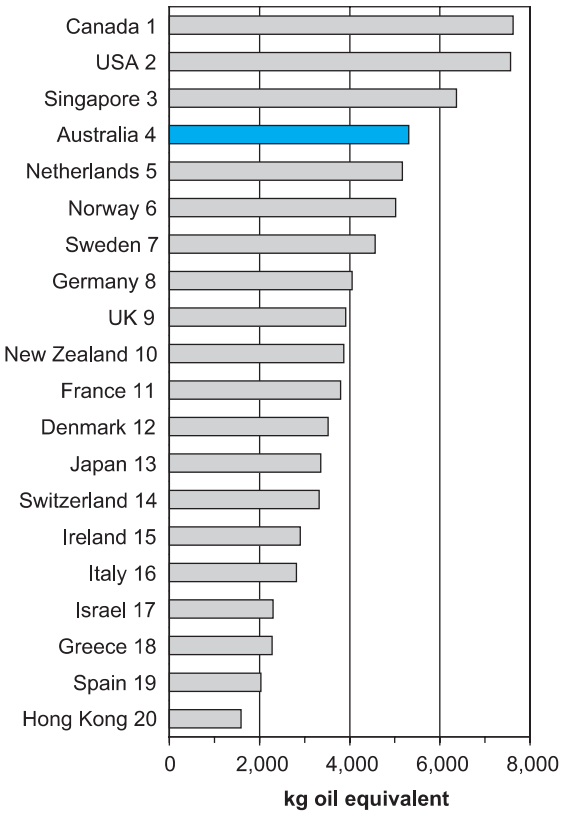


Figure 1: Energy consumption per capita, 1993

Figure 2: A 'green' ranking, 1993

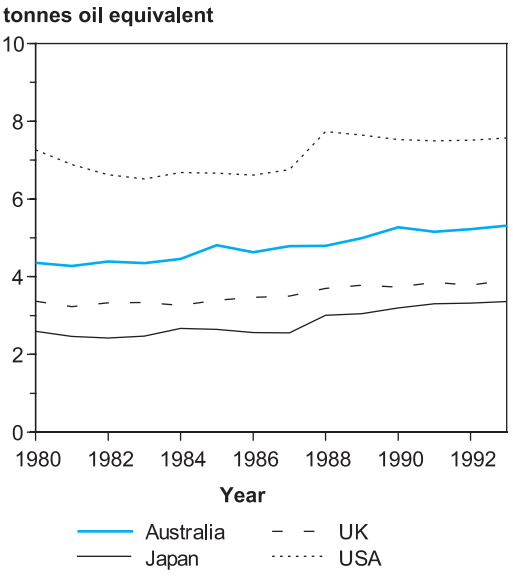


Figure 3: Trends in energy consumption per capita, 1980 to 1993

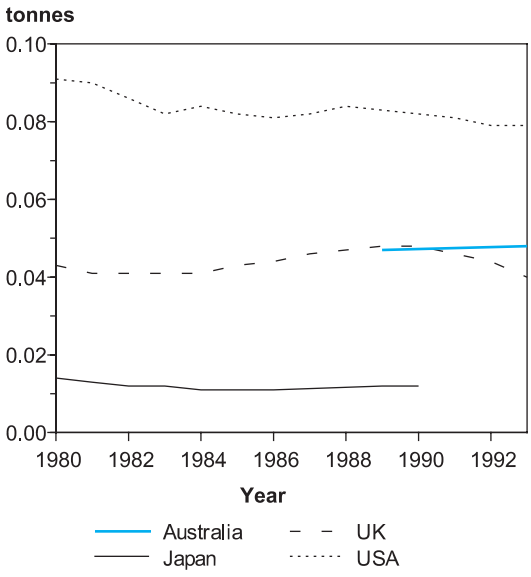


Figure 4: Trends in emissions of nitrogen oxides per capita, 1980 to 1993

Physical environment

Per capita emission of 'greenhouse gases', energy consumption and municipal waste, 1993[(a)]

Country	SO_x emissions (kg)	NO_x emissions (kg)	CO_2 emissions (tonnes)	Energy consumption (kg oil equivalent)	Municipal waste (kg)
Australia	90	48	16	5,310	776 (1989)
Canada	107	68	15	7,624	660
Denmark	30	51	11	3,522	460
France	21	26	6	3,800	470
Germany	48	36	11	4,054	360
Greece	51	34	7	2,276	310
Hong Kong	—	—	—	1,588	—
Ireland	53	37	9	2,904	—
Israel	53	35	2	2,297	—
Italy	30	36	7	2,820	350
Japan	7	12	9	3,357	410
Netherlands	11	36	11	5,167	500
New Zealand	—	43	8	3,871	—
Norway	8	53	7	5,020	510
Singapore	—	—	—	6,371	—
Spain	57	32	6	2,031	360
Sweden	12	46	6	4,561	370
Switzerland	8	22	6	3,321	400
UK	55	40	10	3,910	350
USA	76	82	20	7,570	730

(a) Or latest available year, including provisional figures and OECD estimates. Varying definitions can limit comparability across countries.

Sources: OECD 1996c; New Economics Foundation 1993; United Nations 1995c

- The links between the environment and health are receiving increasing prominence. At a broad level, direct causality is difficult to determine although it is generally recognised that depletion of the environment can lead to adverse health consequences, and that improvements in health are gained through limiting harmful environmental impacts. In some cases, such as the relationship between solar radiation and melanoma, causality is better understood via epidemiological studies.
- Air quality, as determined on the basis of per capita emission of oxides of sulphur, nitrogen and carbon, shows large variation across OECD countries. Australia ranks high in terms of these gas emissions (see table above). This high ranking is accompanied by per capita energy consumption statistics which continue to show an increasing trend (Figures 1 & 3).
- Australia ranks low in a 'green league' of nations. A 1993 report (New Economics Foundation 1993), based on 11 key environmental indicators, judges Australia to be a poor performer among OECD countries (Figure 2). In addition to high greenhouse gas emissions and low energy efficiency, Australia generates large amounts of waste per capita. It should be noted that among the three worst performers, Australia performed notably better than the United States or Canada. Each of these countries are geographically vast in comparison to other OECD countries, and although highly urbanised, the dispersion of their populations across large areas contributes significantly to their rankings.
- Japan was judged to be one of the better OECD performers because of the efficiency of its economy and low pollutant emissions. The United States was the worst performer, cited as having excessive energy consumption, output of noxious gases, waste generation, car use and water consumption.
- It is not possible to provide a comprehensive assessment of Australia's air quality due to issues such as a lack of consistent standards, inadequate or non-existent monitoring, fragmented data and the lack of a clear relationship between air quality and health. Australian data are based on the best available estimates (State of the Environment Advisory Council 1996).

For more information, see:

State of the Environment Advisory Council 1996. Australia: state of the environment 1996. Collingwood: CSIRO Publishing.

McMichael AJ 1993. Global environmental change and human population health. Int J Epidemiol 22: 1–8.

Abbreviations

ABS	Australian Bureau of Statistics
AIDS	Acquired immune deficiency syndrome
AIHW	Australian Institute of Health and Welfare
AZT	Zidovudine
BCG	Bacillus Calmette-Guérin
BMI	Body mass index
CI	Confidence interval
CVD	Cardiovascular disease
DALY	Disability-adjusted life year
DFLE	Disability-free life expectancy
DMFT	Decayed, missing or filled permanent teeth
DPT	Diphtheria–pertussis–tetanus
EPI	Expanded Programme on Immunization
FAO	Food and Agriculture Organisation of the United Nations
GDP	Gross domestic product
HIV	Human immunodeficiency virus
ICD	International Classification of Diseases
IHD	Ischaemic heart disease
ISAAC	International Study of Asthma and Allergies in Children
LE	Life expectancy
MONICA	Multinational MONItoring of trends and determinants in CArdiovascular disease
NCHECR	National Centre in HIV Epidemiology and Clinical Research
NHL	Non-Hodgkin's lymphoma
NHMRC	National Health and Medical Research Council
NMSC	Non-melanocytic skin cancer
OECD	Organisation for Economic Cooperation and Development
PPP	Purchasing power parities
PYLL	Potential years of life lost
SIDS	Sudden infant death syndrome
UNICEF	United Nations International Children's Emergency Fund
WHO	World Health Organization

Symbols

–	Not available
$	dollars
%	per cent
>	greater than
<	less than
CO_2	Carbon dioxide
g	gram
kg	kilogram
kg/m^2	kilograms per square metre
km	kilometres
L	litres
mm Hg	millimetres of mercury
mmol/L	millimoles per litre
NO_x	Nitrogen oxides

Abbreviations

pop.	population
SO_x	Sulphur oxides

Abbreviations of countries

Aus	Australia
Can	Canada
Den	Denmark
Fra	France
FRG	Former Federal Republic of Germany
GDR	Former German Democratic Republic
Ger	Germany
Gre	Greece
HK	Former Hong Kong
Ire	Ireland
Isr	Israel
Ita	Italy
Jap	Japan
Neth	Netherlands
NZ	New Zealand
Nor	Norway
Sing	Singapore
Spa	Spain
Swe	Sweden
Swi	Switzerland
UK	United Kingdom
USA	United States of America

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d'Espaignet ET, van Ommeren M, Taylor F, Briscoe N, Pentony P 1991. Trends in Australian mortality, 1921–1988. Australian Institute of Health: Mortality Series No. 1. Canberra: AGPS.

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