

5 Mortality

- Life expectancy
- Potential years of life lost
- Major causes of death
- Infant mortality
- All causes
- Cancer
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 - Skin cancer
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 - Bronchitis, emphysema and asthma
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 - Motor vehicle accidents
 - Suicide
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Life expectancy, males

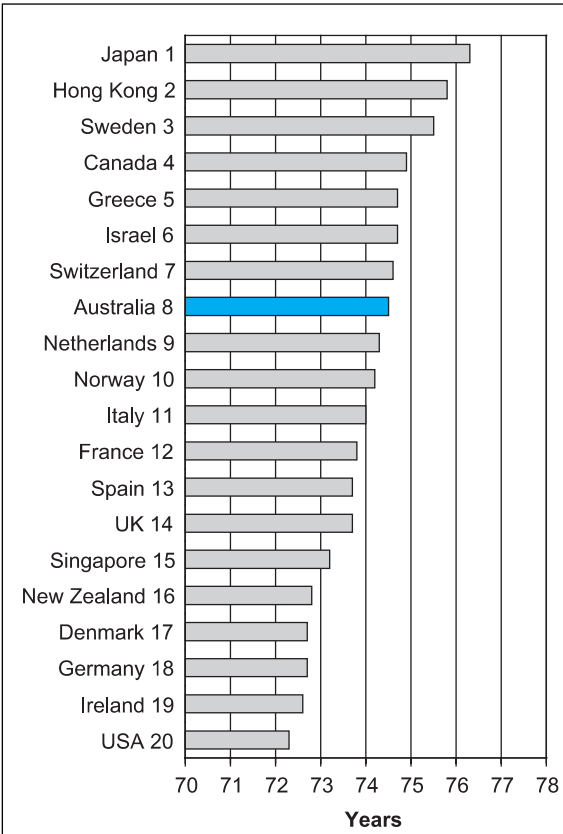


Figure 1: Male life expectancy at birth, 1992

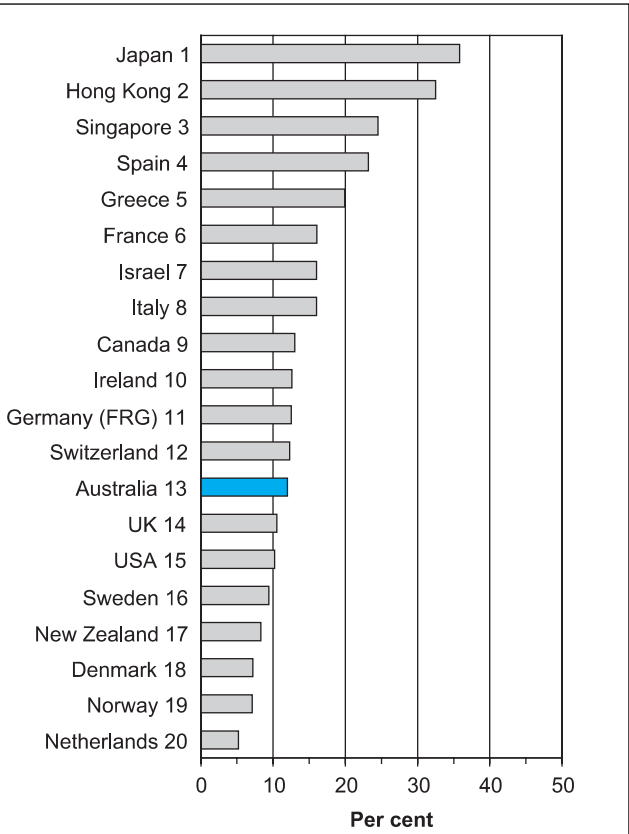


Figure 2: Rise in male life expectancy at birth, 1950 to 1992

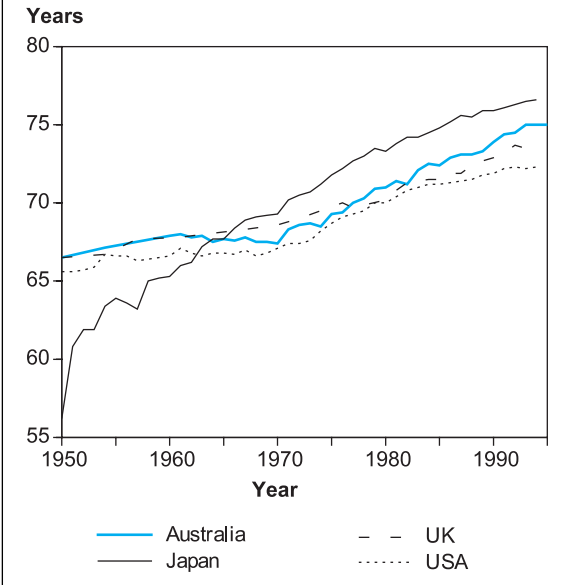


Figure 3: Trends in male life expectancy at birth, 1950 to 1995

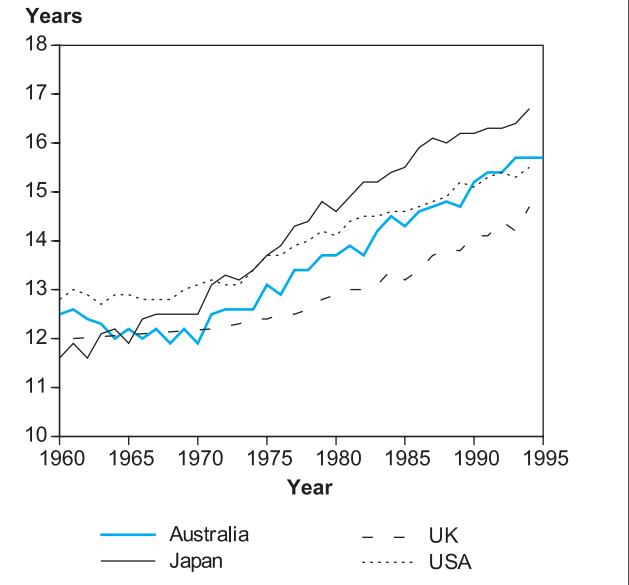


Figure 4: Trends in male life expectancy at age 65, 1960 to 1995

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

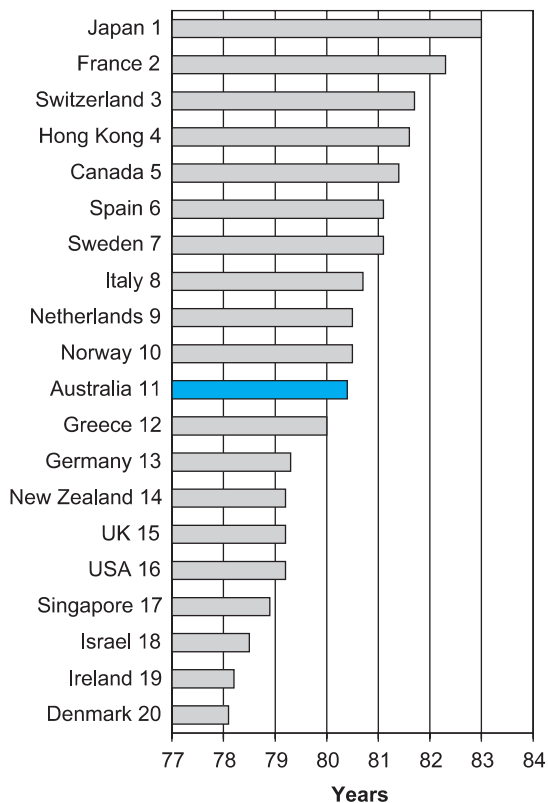


Figure 1: Female life expectancy at birth, 1992

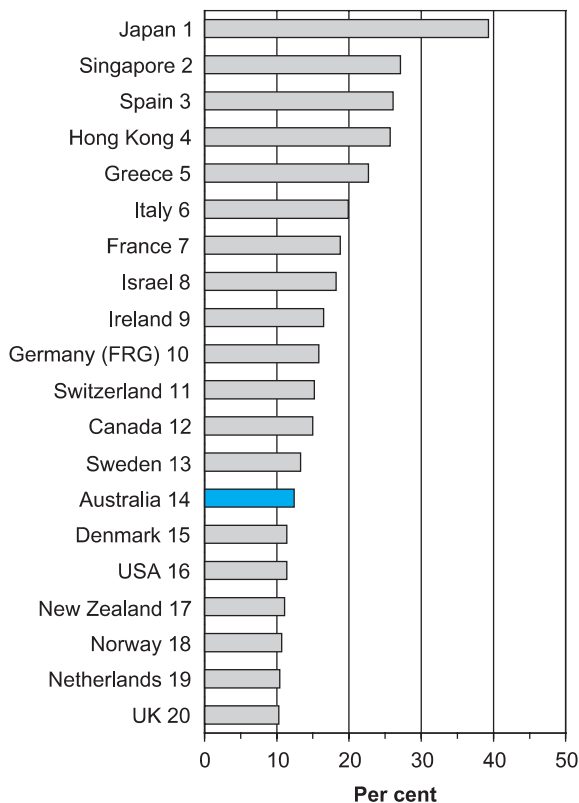


Figure 2: Rise in female life expectancy at birth, 1950 to 1992

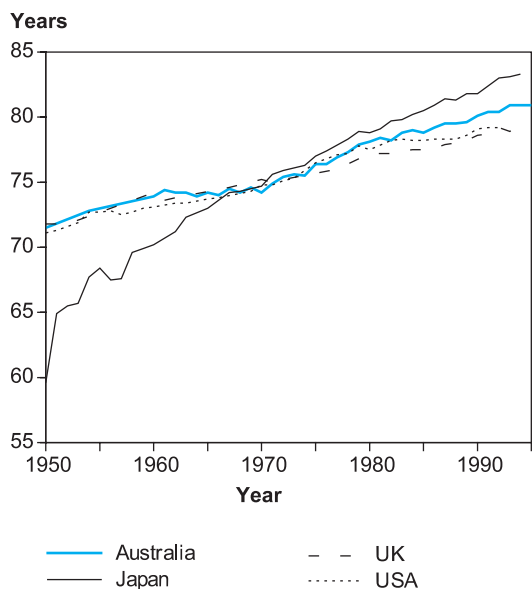


Figure 3: Trends in female life expectancy at birth, 1950 to 1995

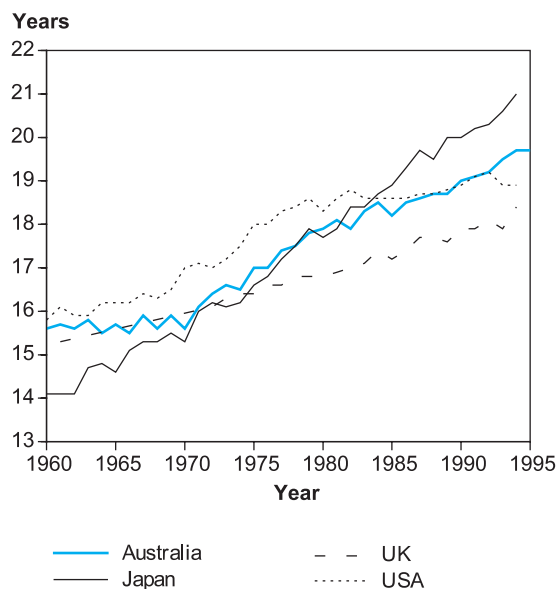


Figure 4: Trends in female life expectancy at age 65, 1960 to 1995

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

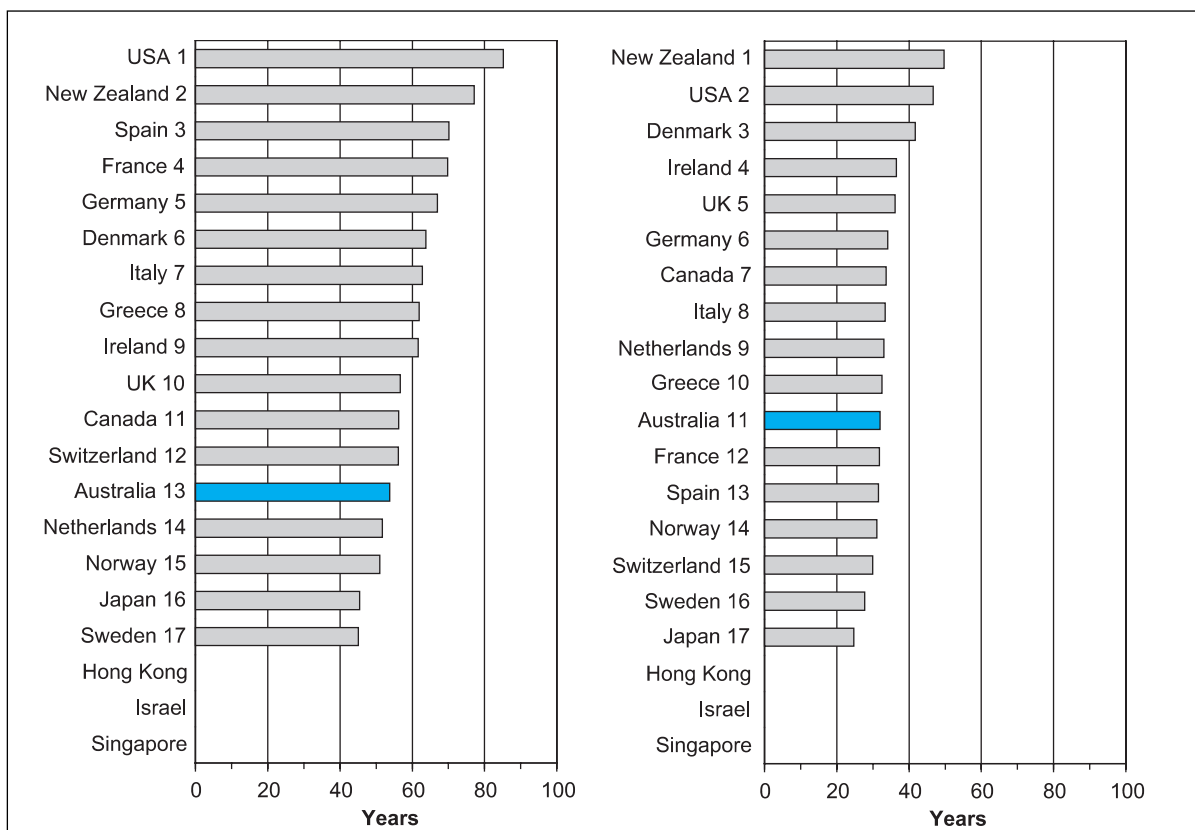


Figure 1: Male PYLL before age 70 per 1,000 persons, 1993-1994

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

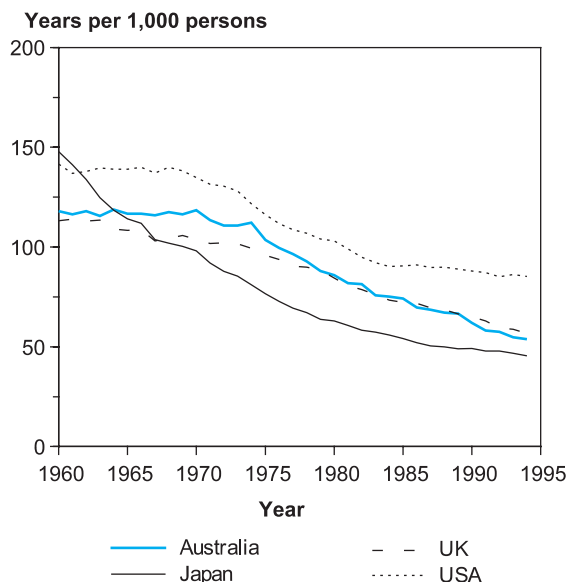


Figure 3: Trends in male PYLL, 1960 to 1995

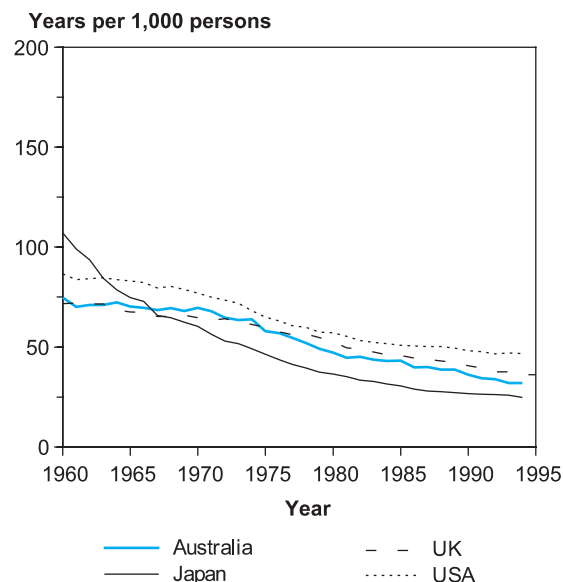


Figure 4: Trends in female PYLL, 1960 to 1995

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)

Country	Year	Males				Females			
		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.

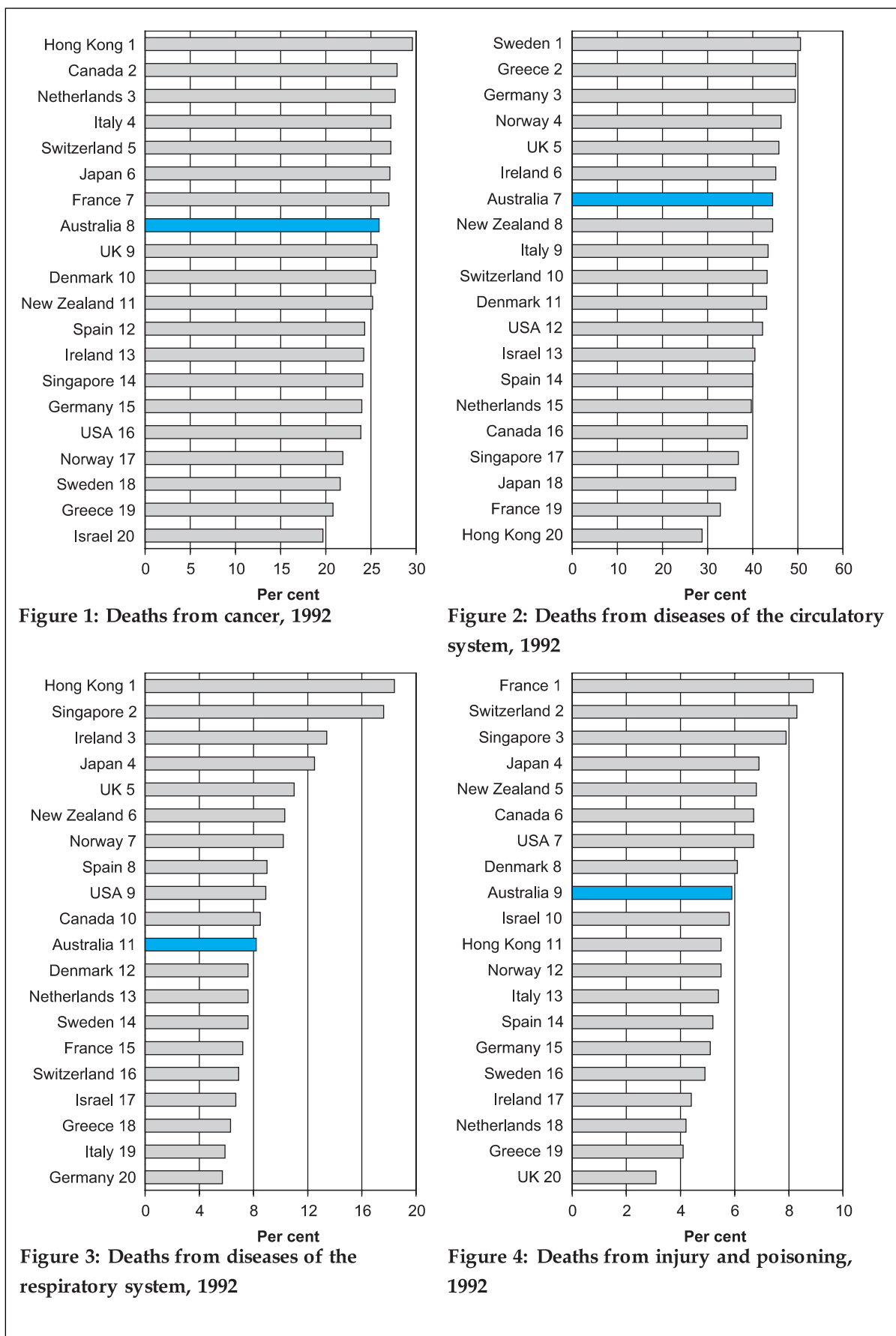
Source: OECD 1998.

- 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



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

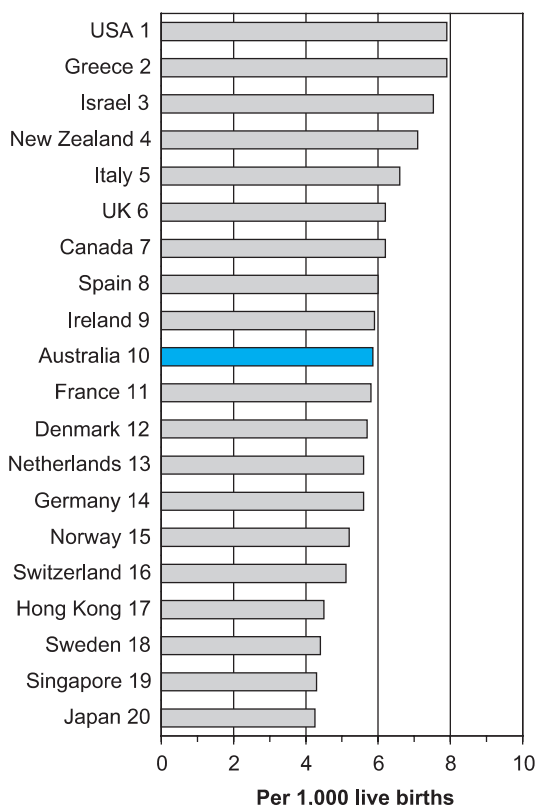


Figure 1: Infant mortality rates, 1994

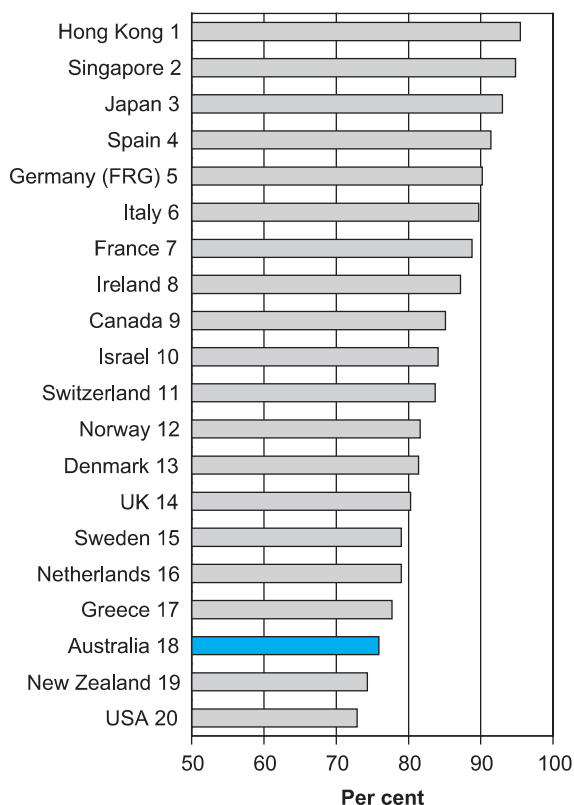


Figure 2: Declines in infant mortality rates, 1950 to 1994

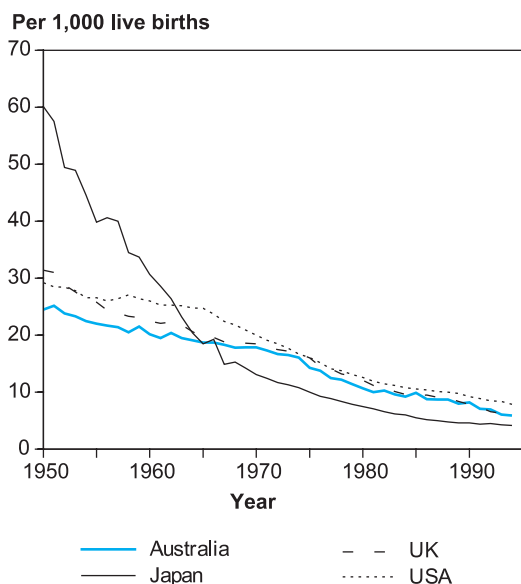


Figure 3: Trends in infant mortality, 1950 to 1994

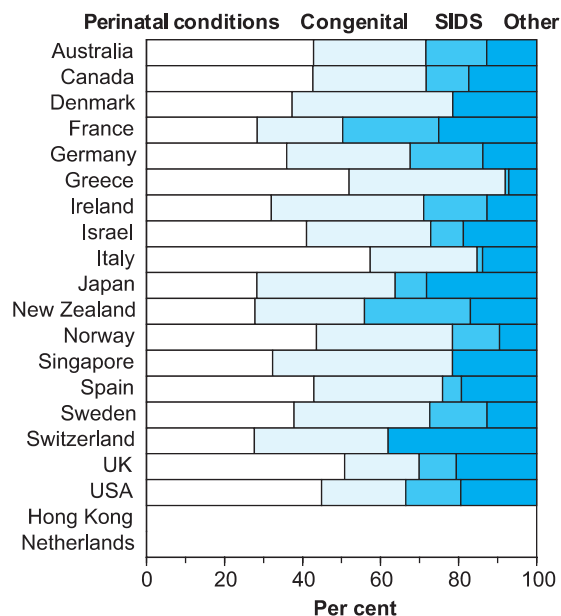


Figure 4: Infant mortality, by cause of death, 1992-1993

Infant mortality

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

Country	Infant mortality rate					Year	Neonatal (<28 days)	Post-neonatal (28–364 days)
	1950	1960	1970	1980	1994			
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)

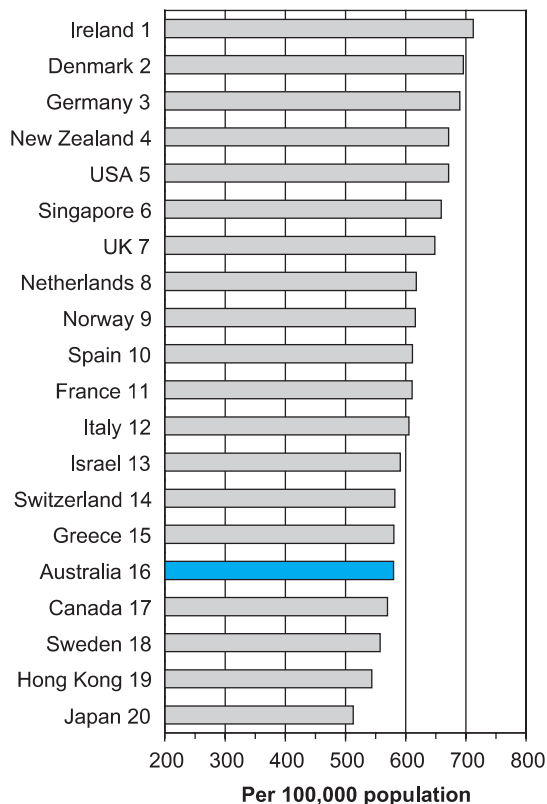


Figure 1: Age-standardised male death rates, all causes, 1992

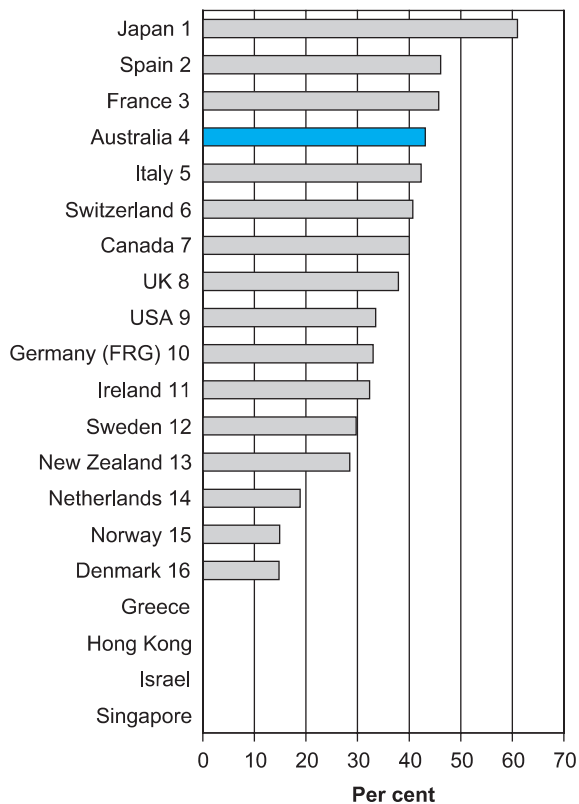


Figure 2: Declines in male death rates, all causes, 1950–54 to 1992

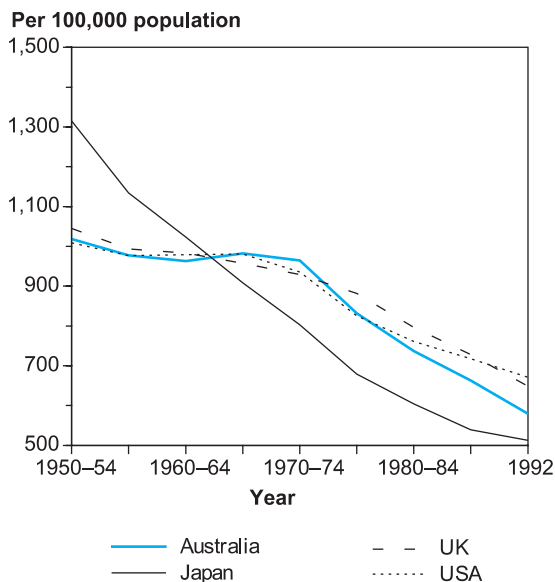


Figure 3: Trends in male death rates, all causes, 1950–54 to 1992

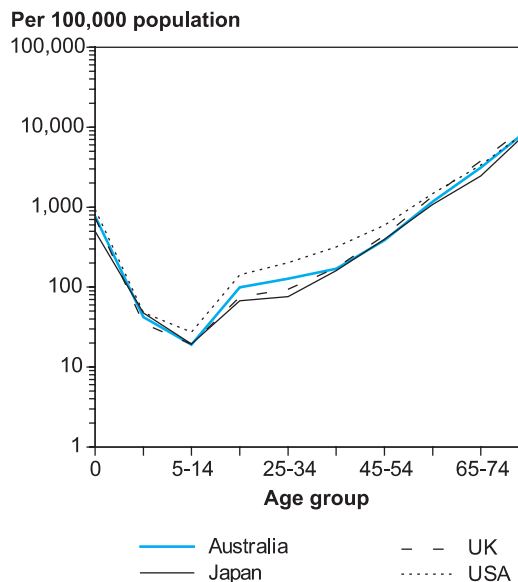


Figure 4: Age-specific male death rates, all causes, 1992

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)

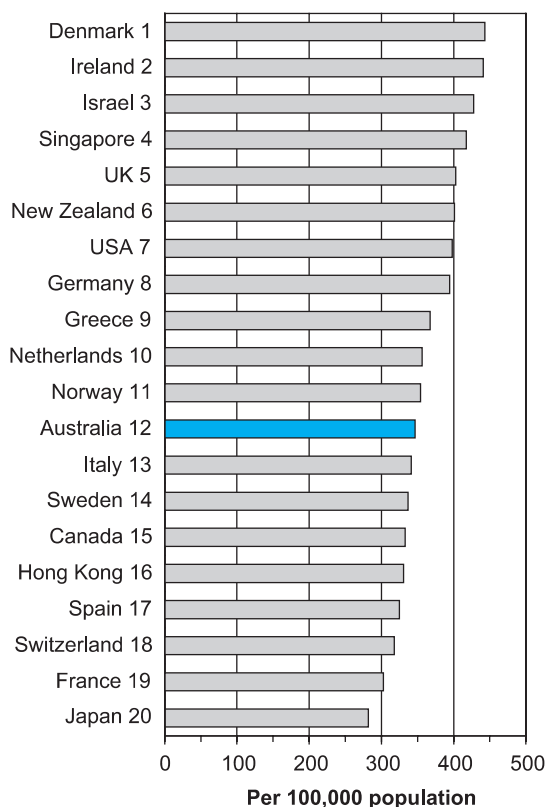


Figure 1: Age-standardised female death rates, all causes, 1992



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

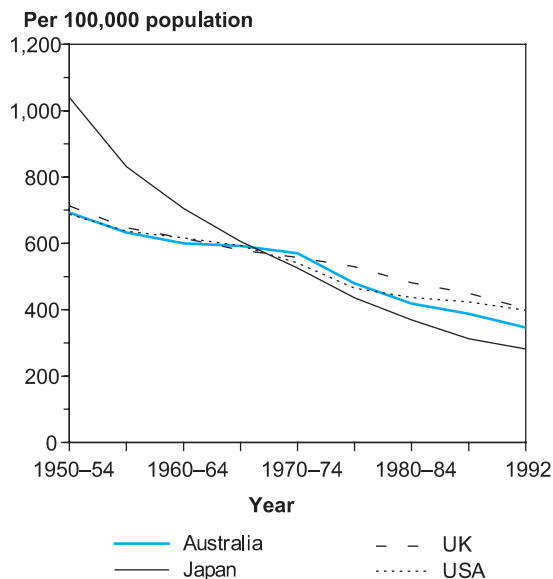


Figure 3: Trends in female death rates, all causes, 1950–54 to 1992

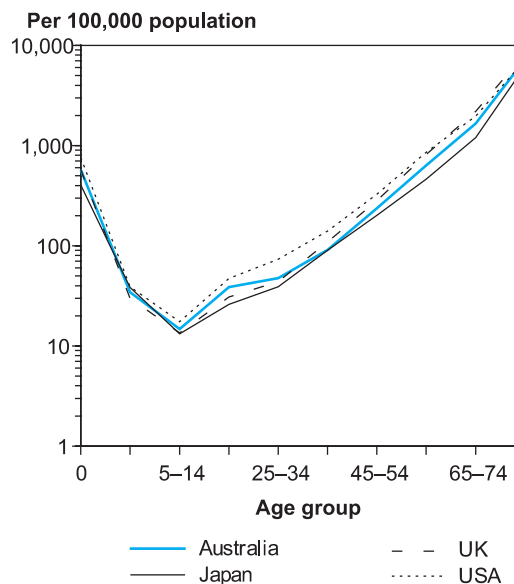


Figure 4: Age-specific female death rates, all causes, 1992

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)

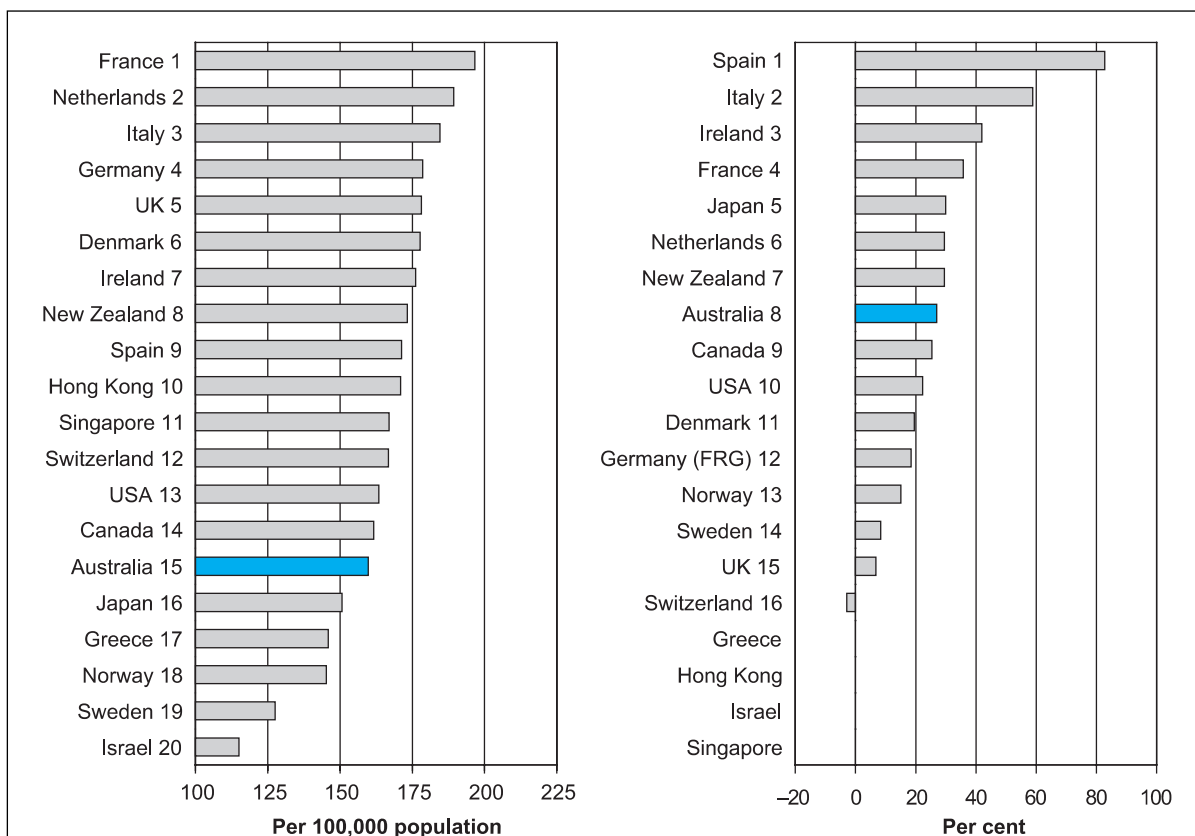


Figure 1: Age-standardised male death rates, all cancers, 1992

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

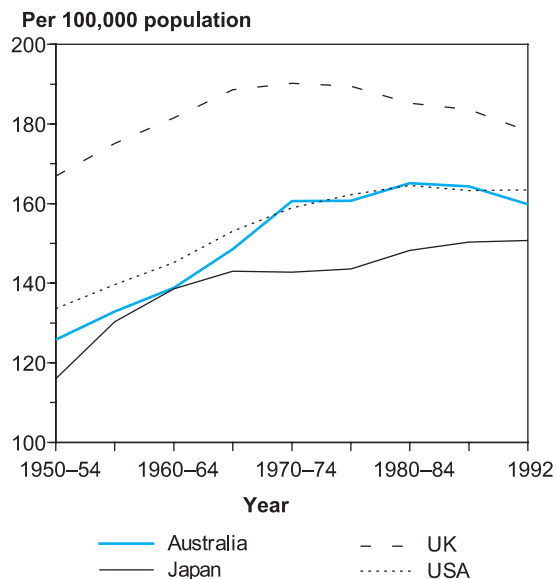


Figure 3: Trends in male death rates, all cancers, 1950–54 to 1992

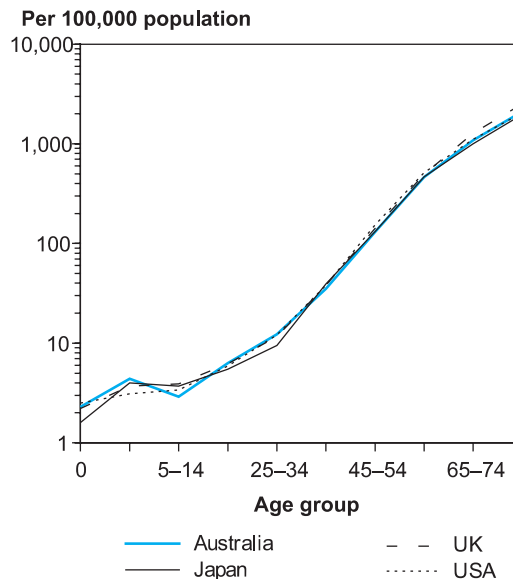


Figure 4: Age-specific male death rates, all cancers, 1992

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)

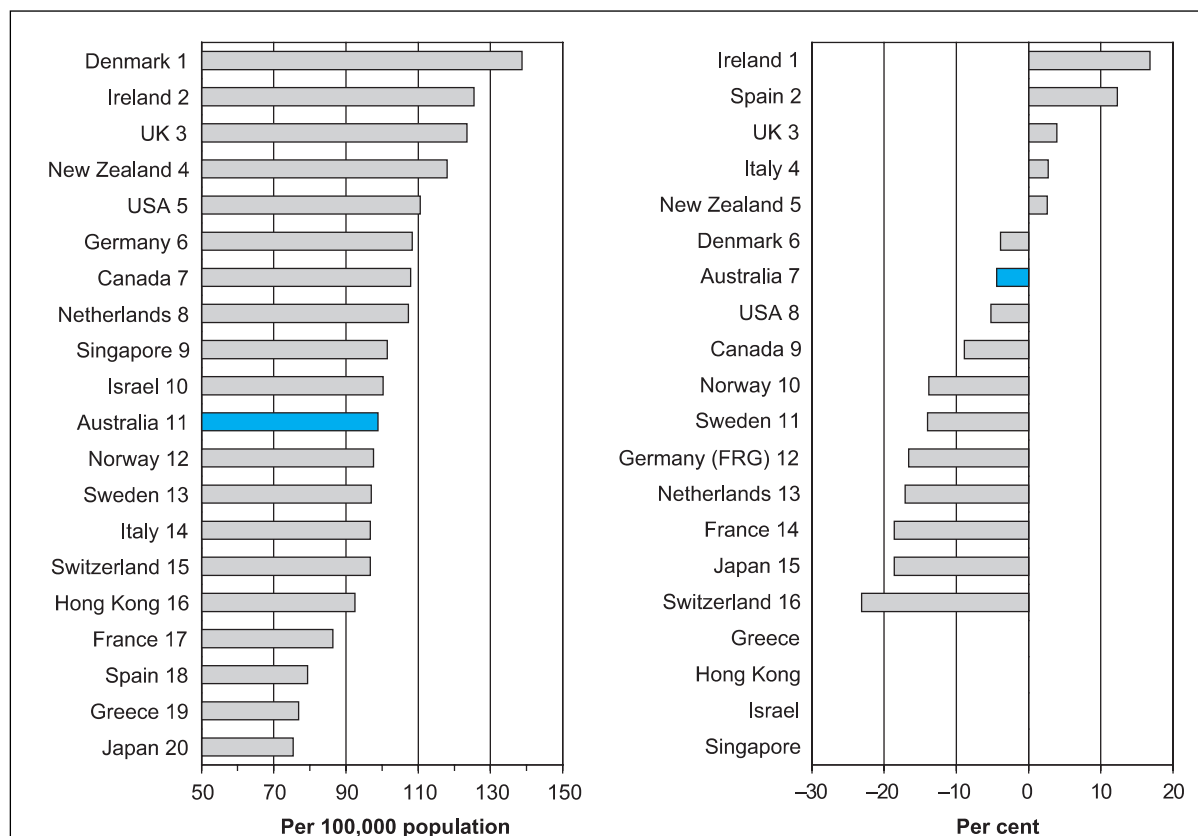


Figure 1: Age-standardised female death rates, all cancers, 1992

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

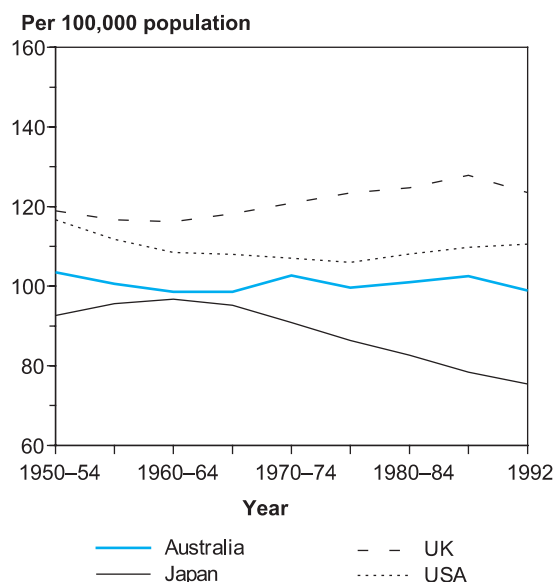


Figure 3: Trends in female death rates, all cancers, 1950–54 to 1992

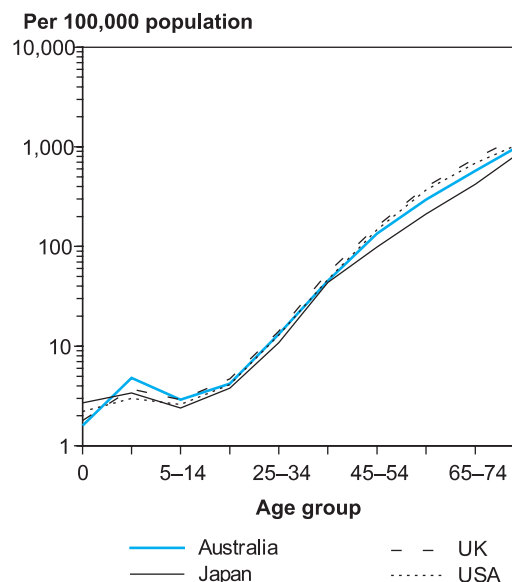


Figure 4: Age-specific female death rates, all cancers, 1992

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)

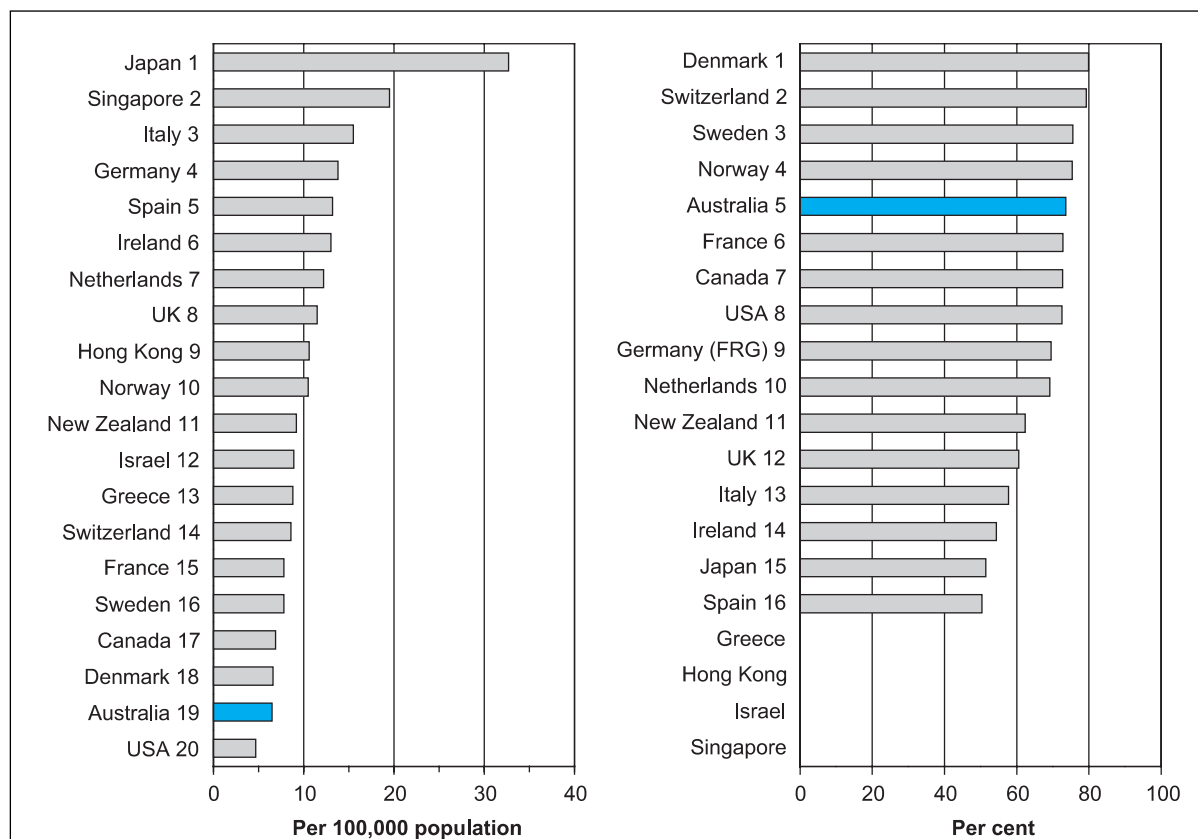


Figure 1: Age-standardised male death rates, stomach cancer, 1992

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

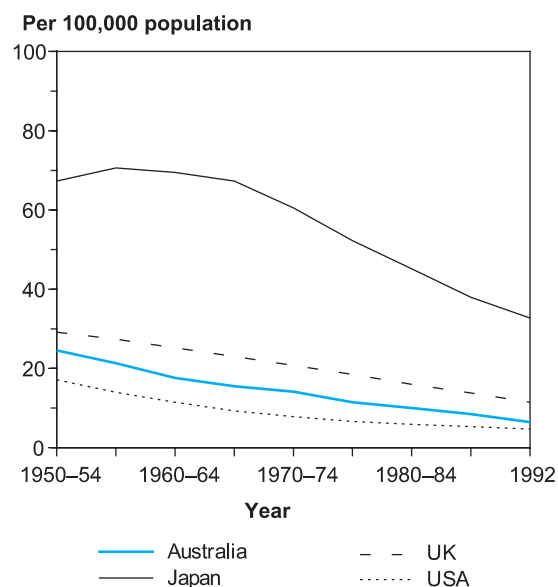


Figure 3: Trends in male death rates, stomach cancer, 1950-54 to 1992

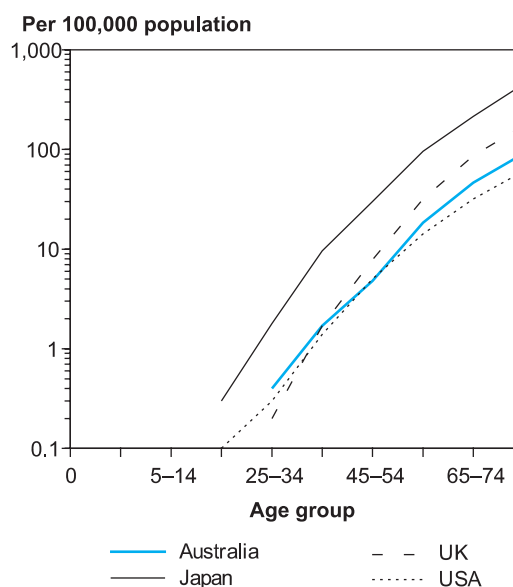


Figure 4: Age-specific male death rates, stomach cancer, 1992

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)

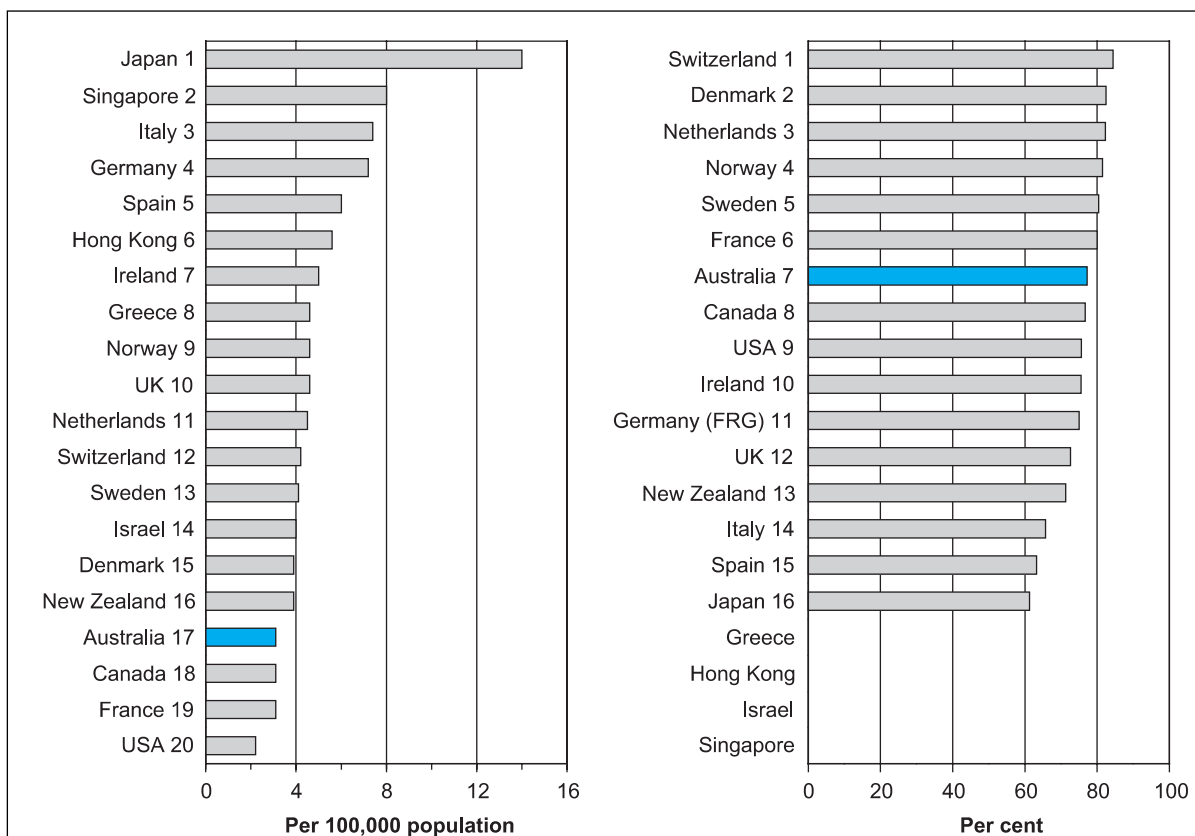


Figure 1: Age-standardised female death rates, stomach cancer, 1992

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

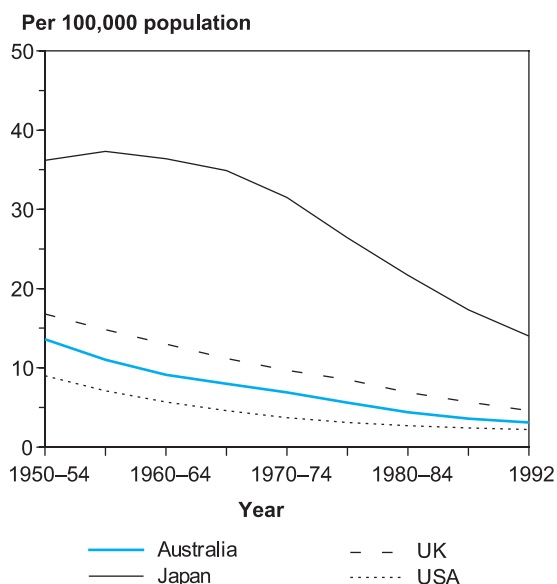


Figure 3: Trends in female death rates, stomach cancer, 1950-54 to 1992

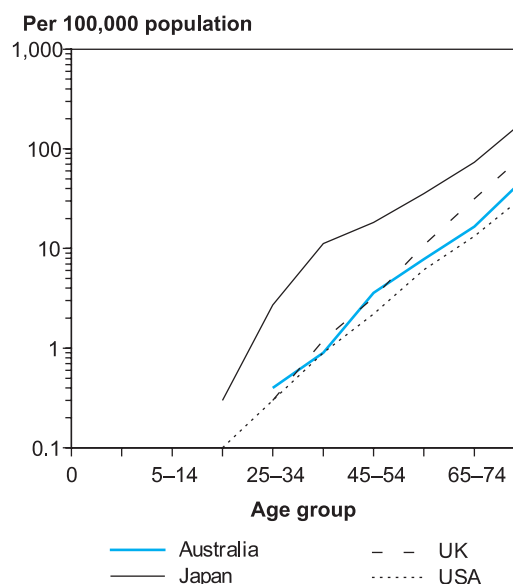


Figure 4: Age-specific female death rates, stomach cancer, 1992

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

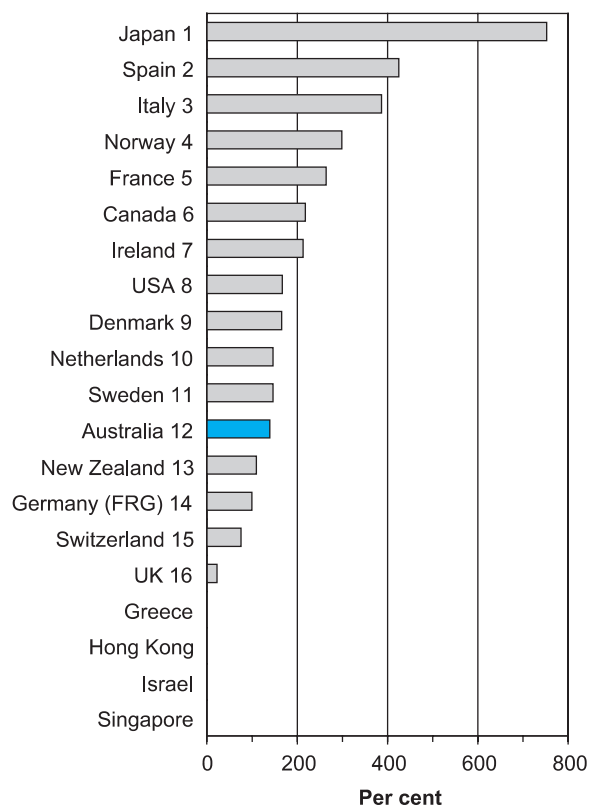


Figure 2: Increases in male death rates, lung cancer, 1950-54 to 1992

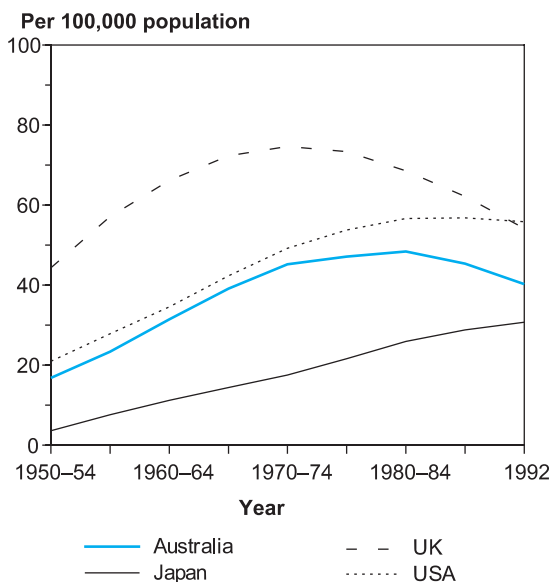


Figure 3: Trends in male death rates, lung cancer, 1950-54 to 1992

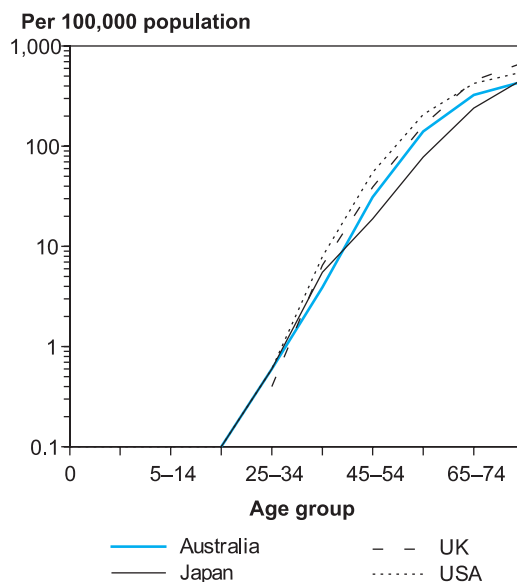


Figure 4: Age-specific male death rates, lung cancer, 1992

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)

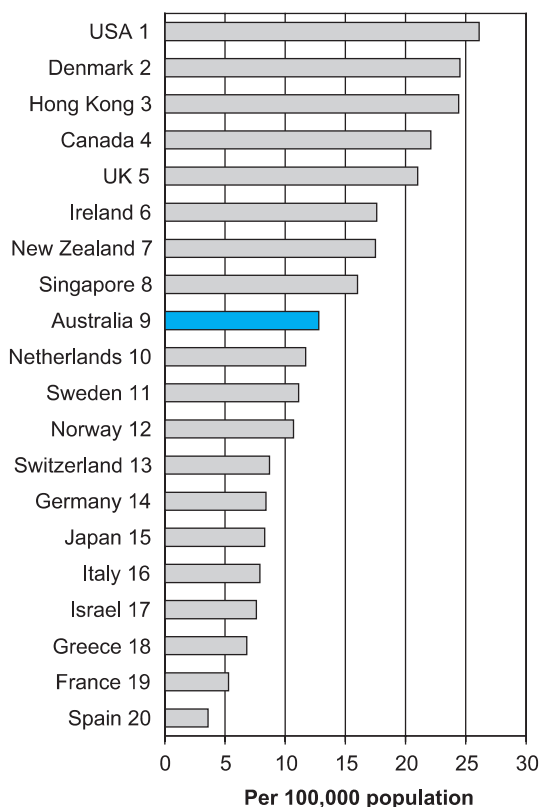


Figure 1: Age-standardised female death rates, lung cancer, 1992

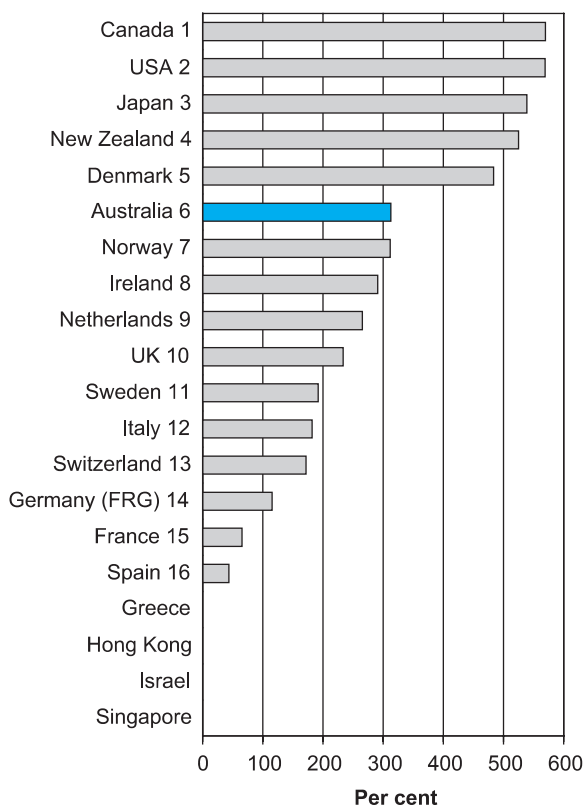


Figure 2: Increases in female death rates, lung cancer, 1950-54 to 1992

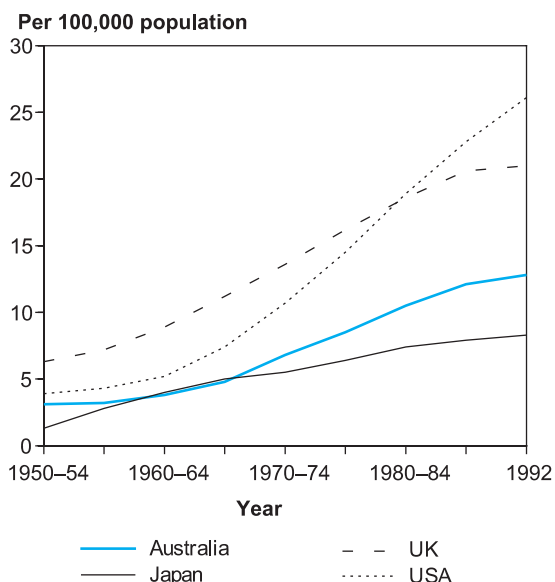


Figure 3: Trends in female death rates, lung cancer, 1950-54 to 1992

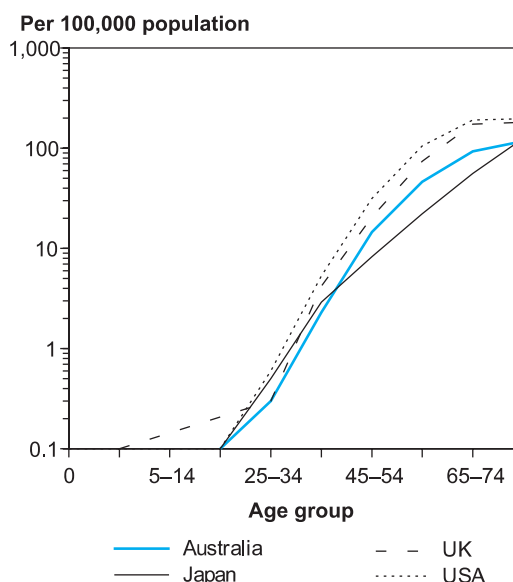


Figure 4: Age-specific female death rates, lung cancer, 1992

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)

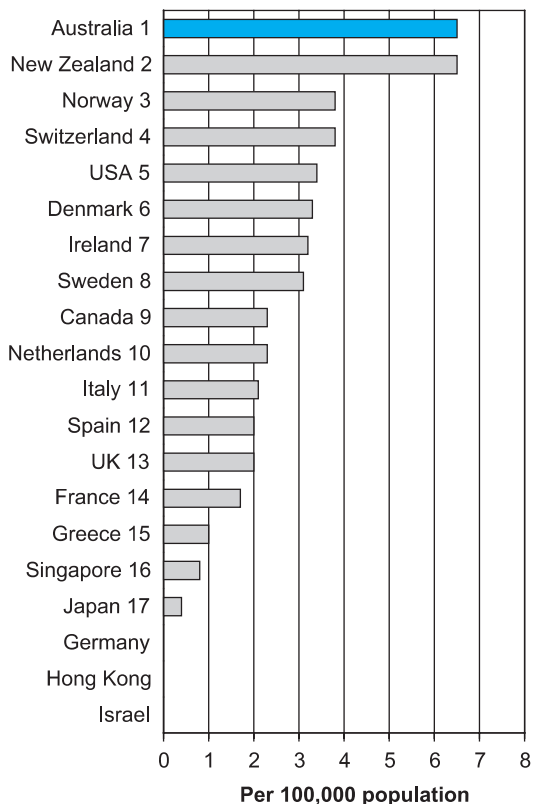


Figure 1: Age-standardised male death rates, skin cancer, 1985–89

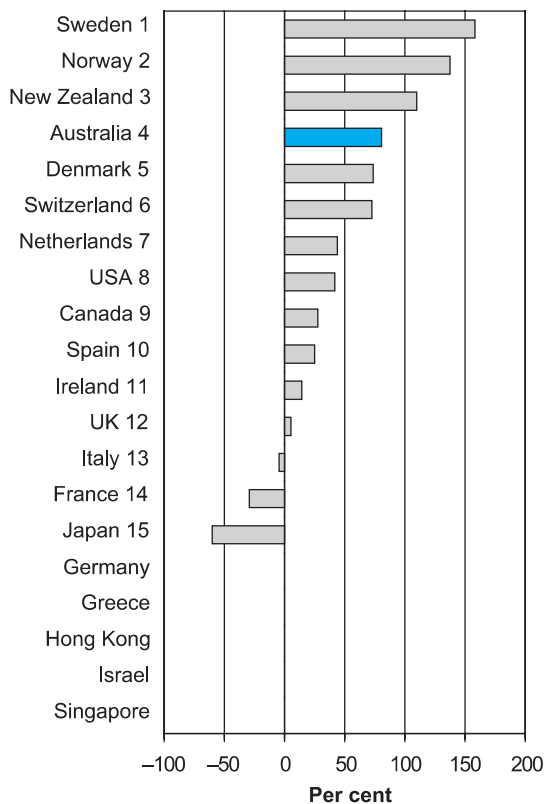


Figure 2: Changes in male death rates, skin cancer, 1950–54 to 1985–89

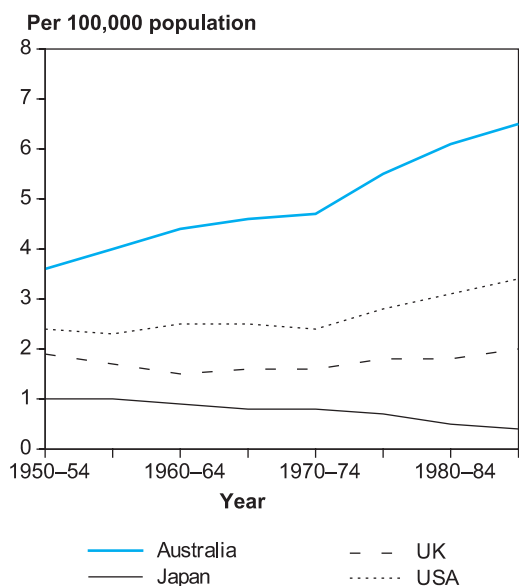


Figure 3: Trends in male death rates, skin cancer, 1950–54 to 1985–89

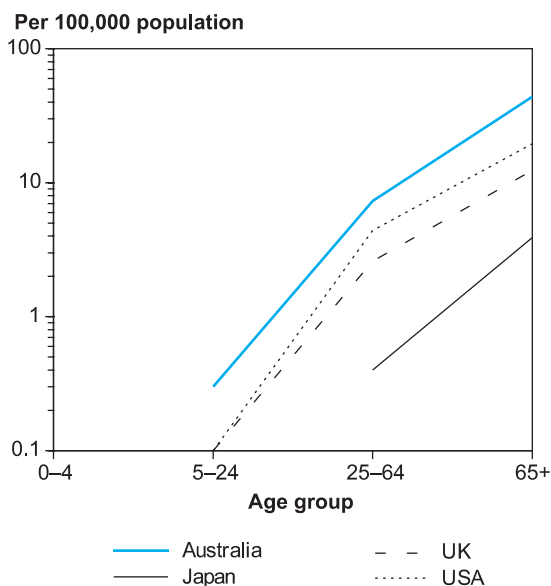


Figure 4: Age-specific male death rates, skin cancer, 1985–89

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)

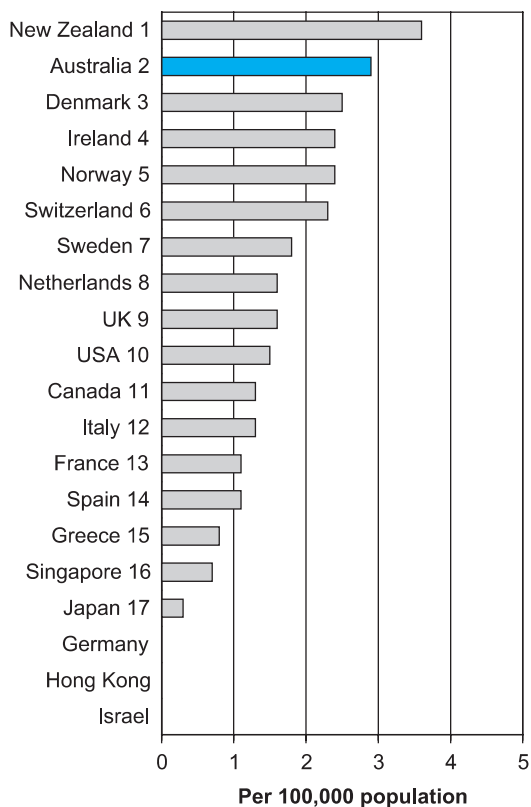


Figure 1: Age-standardised female death rates, skin cancer, 1985–89

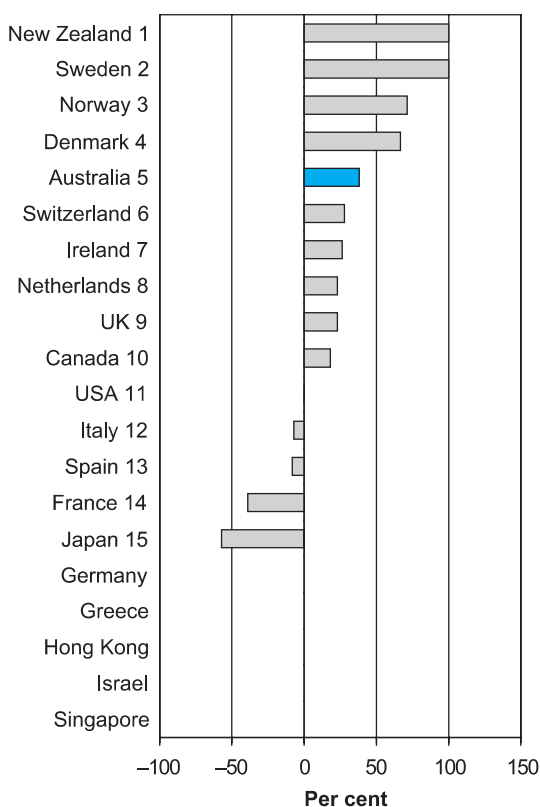


Figure 2: Changes in female death rates, skin cancer, 1950–54 to 1985–89

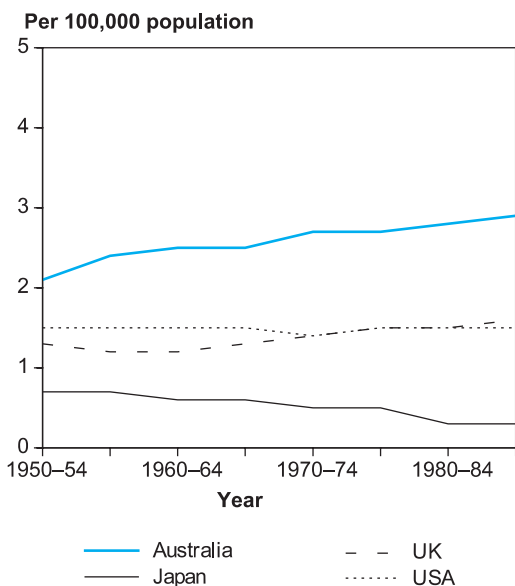


Figure 3: Trends in female death rates, skin cancer, 1950–54 to 1985–89

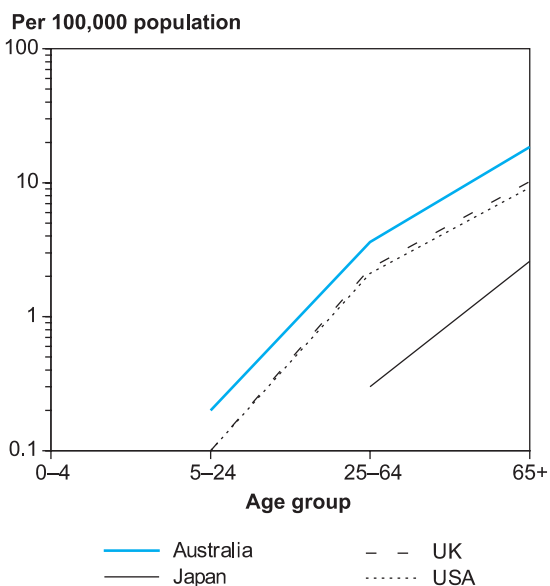


Figure 4: Age-specific female death rates, skin cancer, 1985–89

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 & Kliever 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)

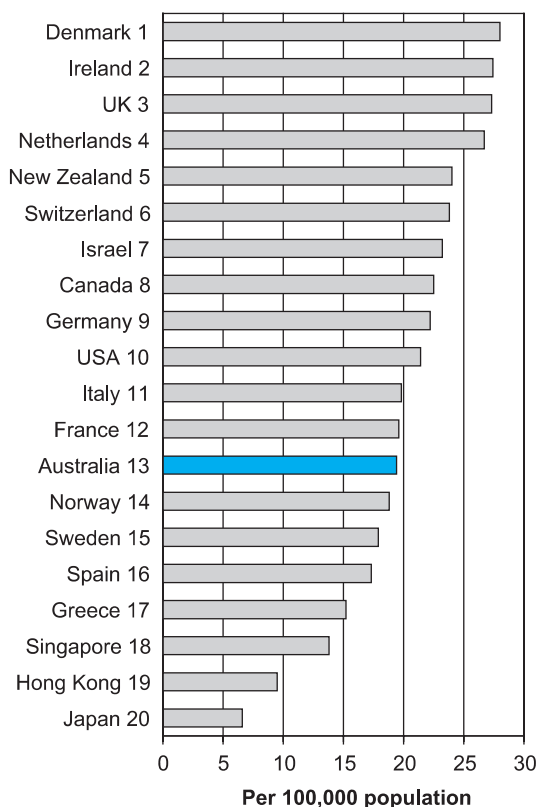


Figure 1: Age-standardised female death rates, breast cancer, 1992



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

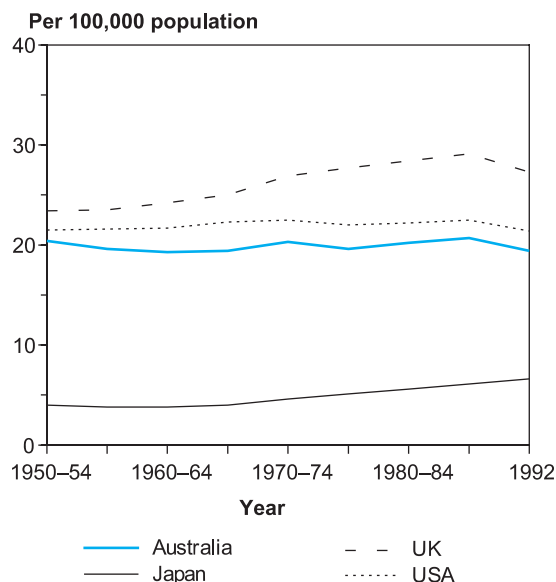


Figure 3: Trends in female death rates, breast cancer, 1950-54 to 1992

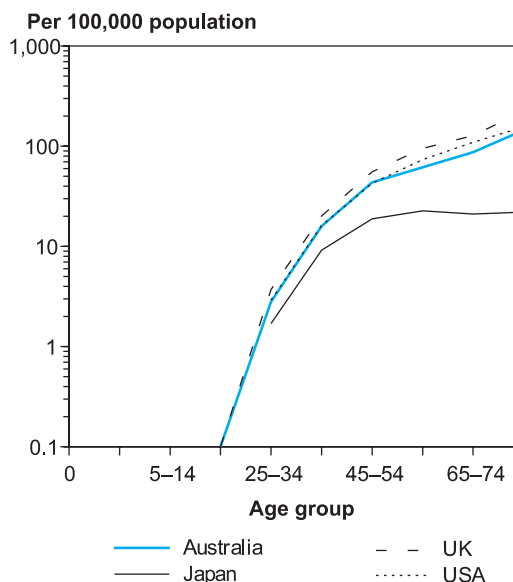


Figure 4: Age-specific female death rates, breast cancer, 1992

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)

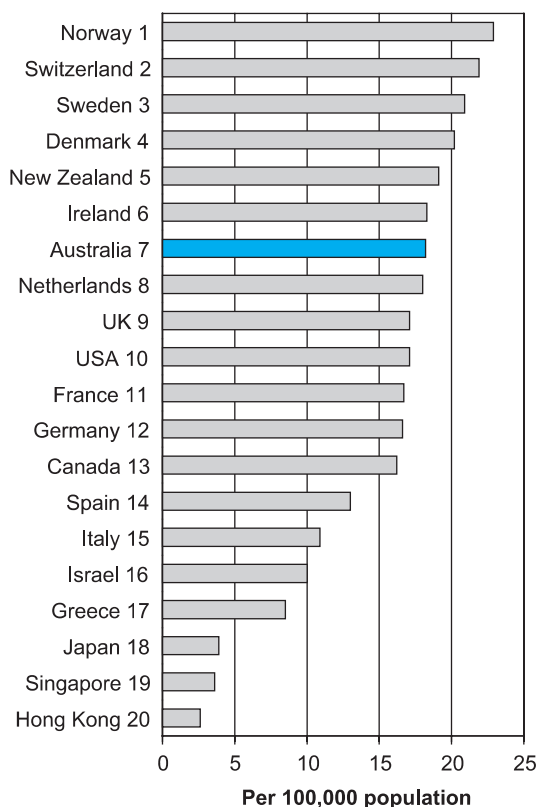


Figure 1: Age-standardised male death rates, prostate cancer, 1992

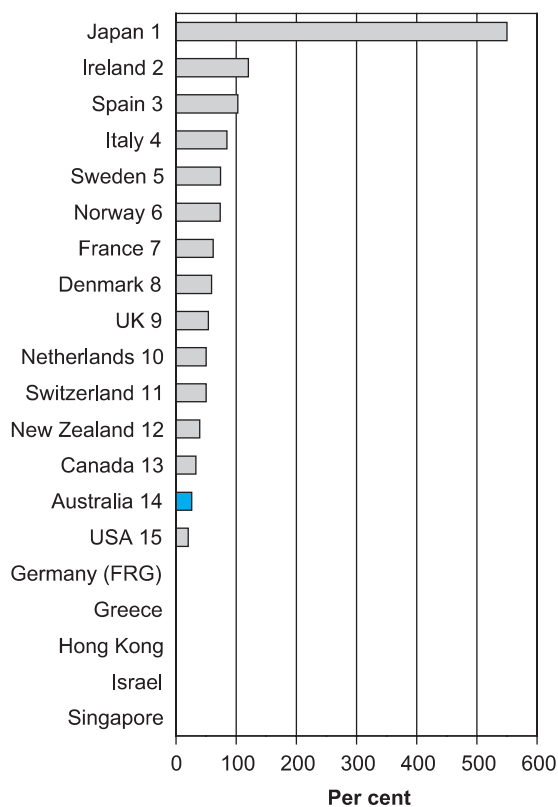


Figure 2: Increases in male death rates, prostate cancer, 1950-54 to 1992

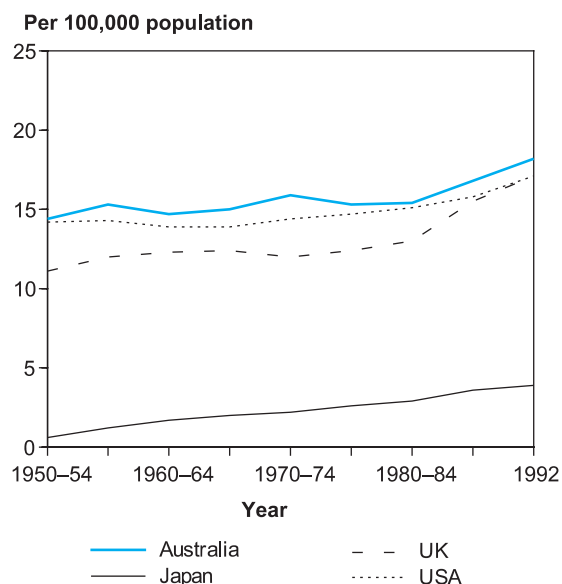


Figure 3: Trends in male death rates, prostate cancer, 1950-54 to 1992

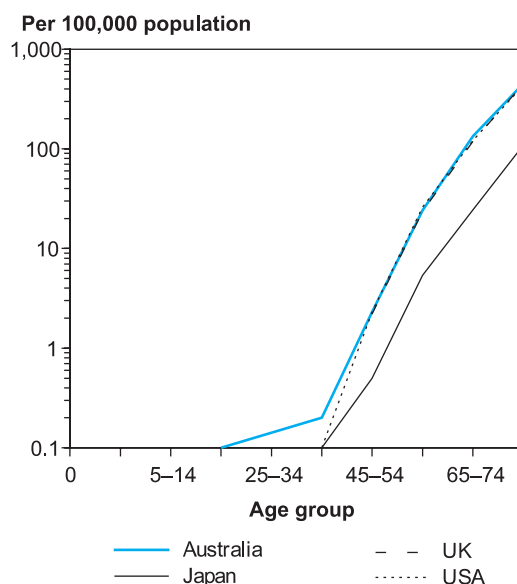


Figure 4: Age-specific male death rates, prostate cancer, 1992

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

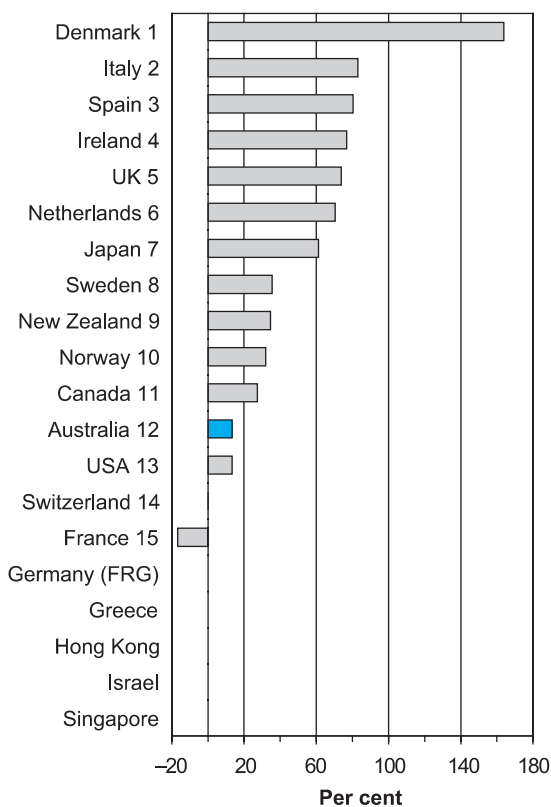


Figure 2: Changes in male death rates, diabetes mellitus, 1950-54 to 1992

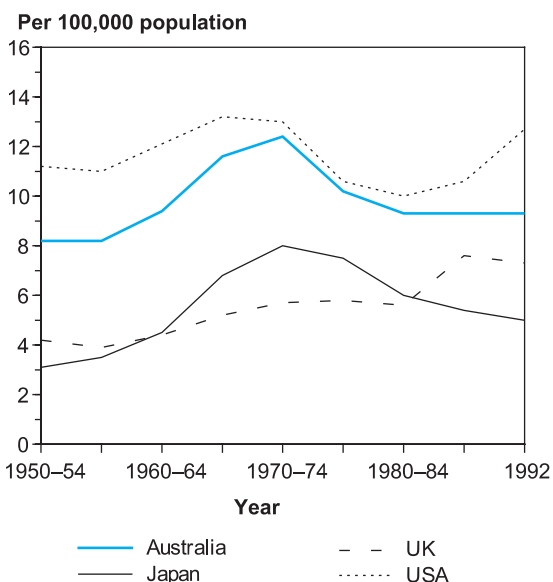


Figure 3: Trends in male death rates, diabetes mellitus, 1950-54 to 1992

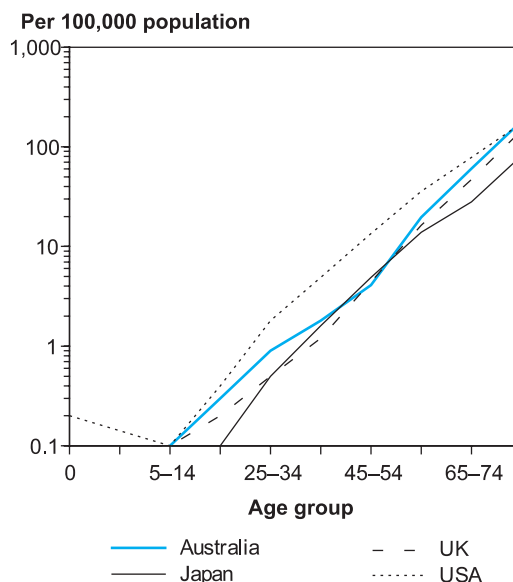


Figure 4: Age-specific male death rates, diabetes mellitus, 1992

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

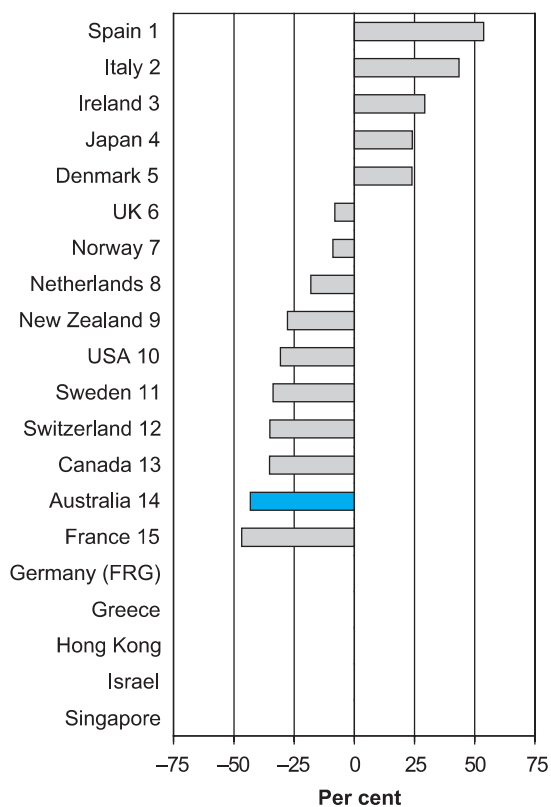


Figure 2: Changes in female death rates, diabetes mellitus, 1950-54 to 1992

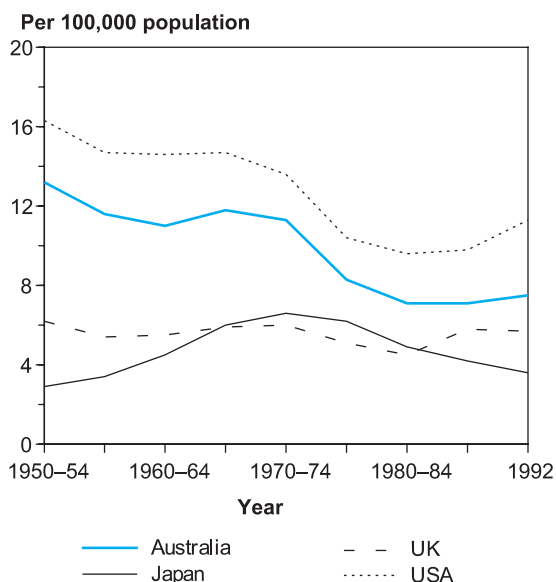


Figure 3: Trends in female death rates, diabetes mellitus, 1950-54 to 1992

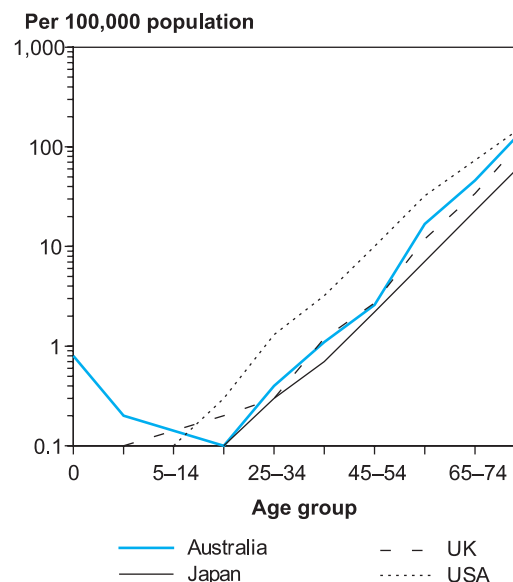


Figure 4: Age-specific female death rates, diabetes mellitus, 1992

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)

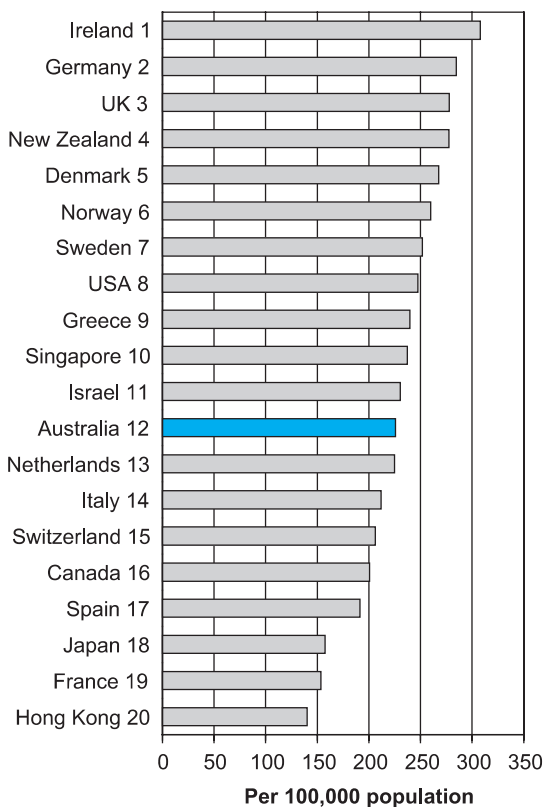


Figure 1: Age-standardised male death rates, cardiovascular disease, 1992

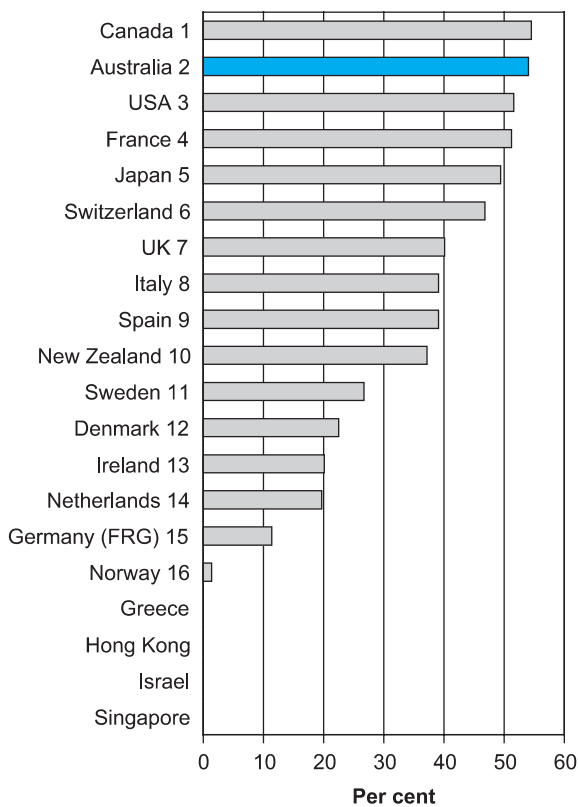


Figure 2: Declines in male death rates, cardiovascular disease, 1950-54 to 1992

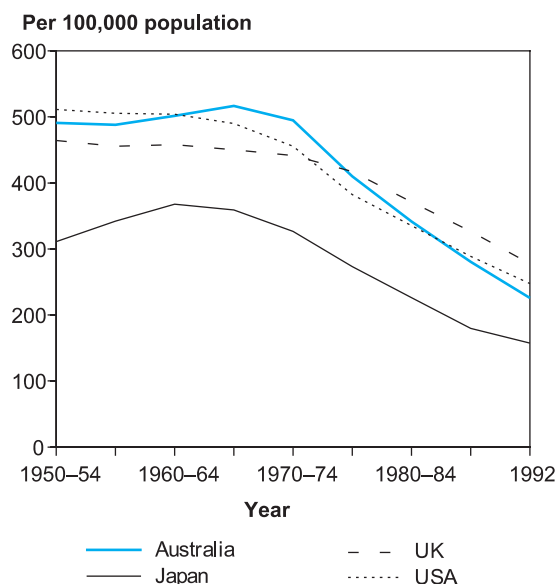


Figure 3: Trends in male death rates, cardiovascular disease, 1950-54 to 1992

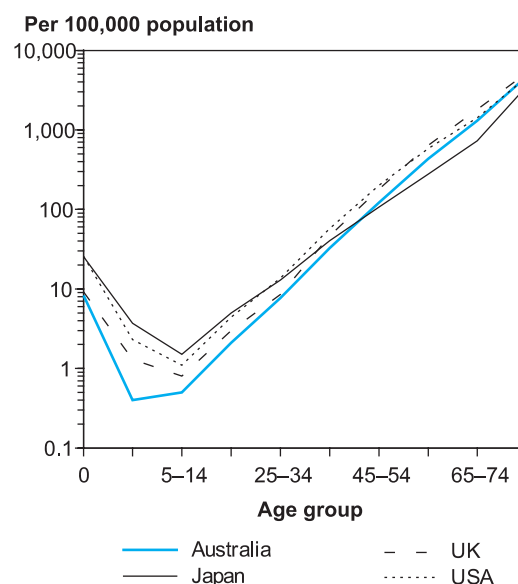


Figure 4: Age-specific male death rates, cardiovascular disease, 1992

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.

Canberra: AIHW.

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

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

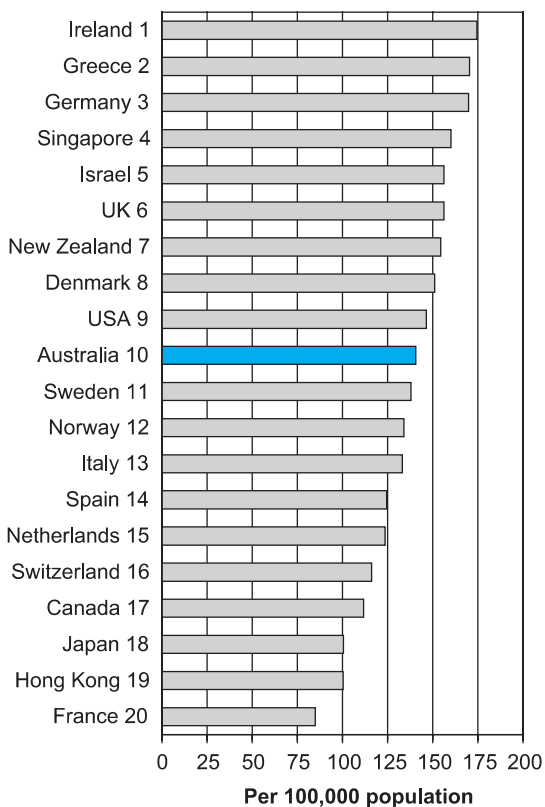


Figure 1: Age-standardised female death rates, cardiovascular disease, 1992

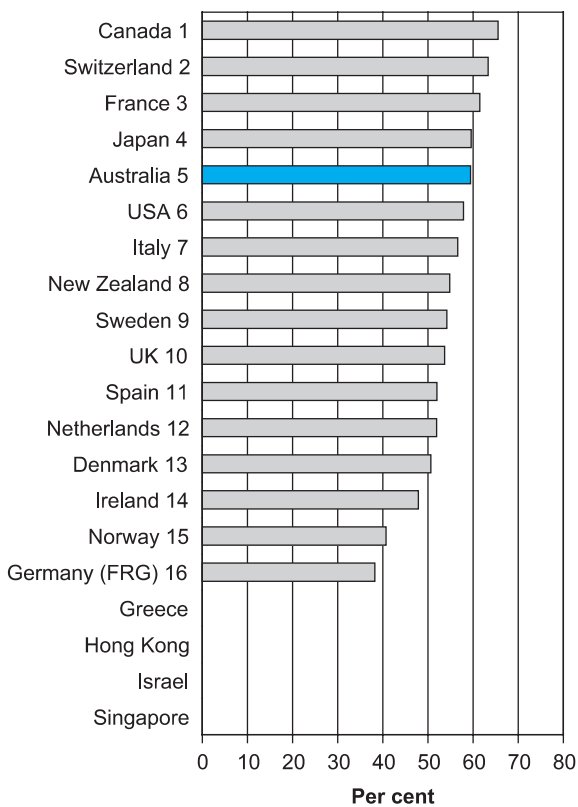


Figure 2: Declines in female death rates, cardiovascular disease, 1950-54 to 1992

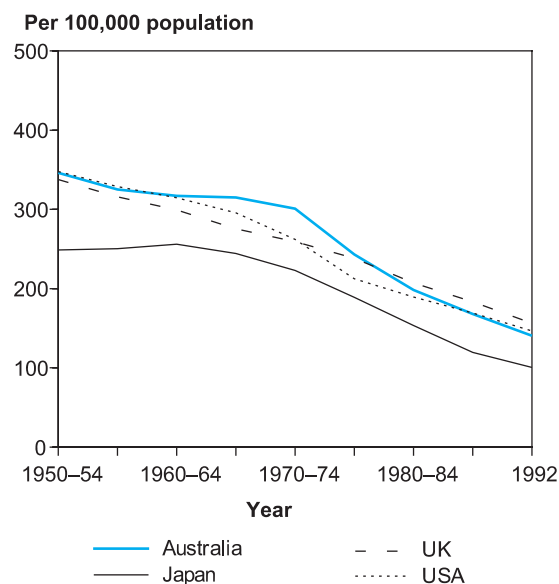


Figure 3: Trends in female death rates, cardiovascular disease, 1950-54 to 1992

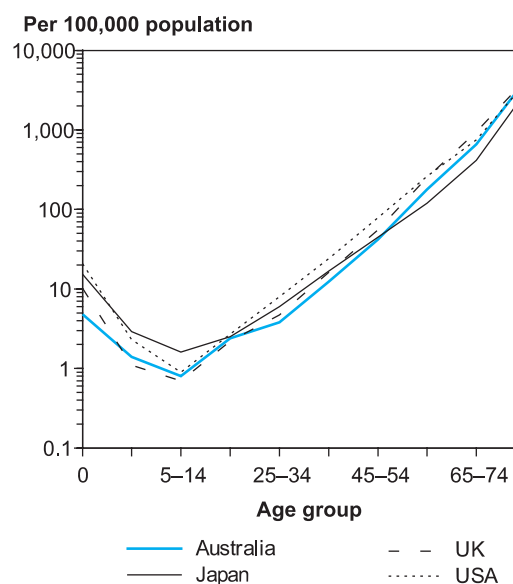


Figure 4: Age-specific female death rates, cardiovascular disease, 1992

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)

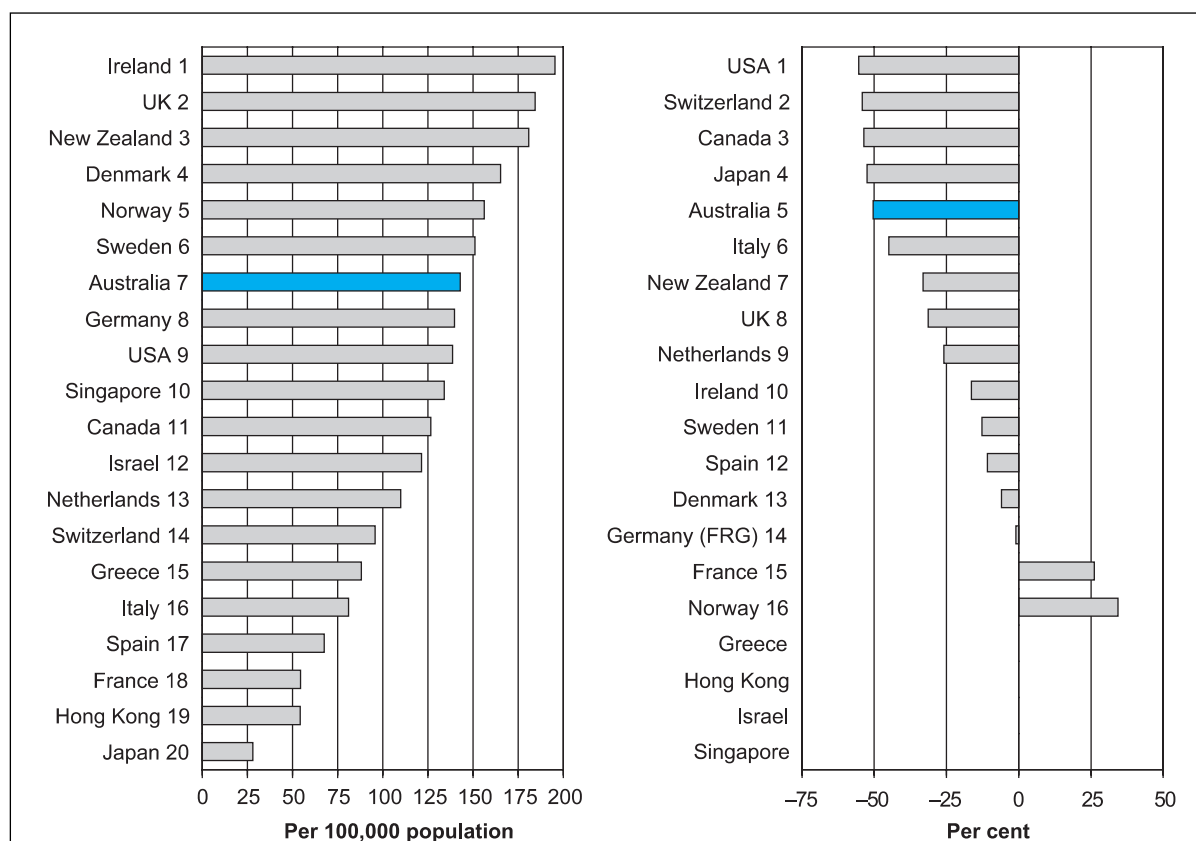


Figure 1: Age-standardised male death rates, ischaemic heart disease, 1992

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

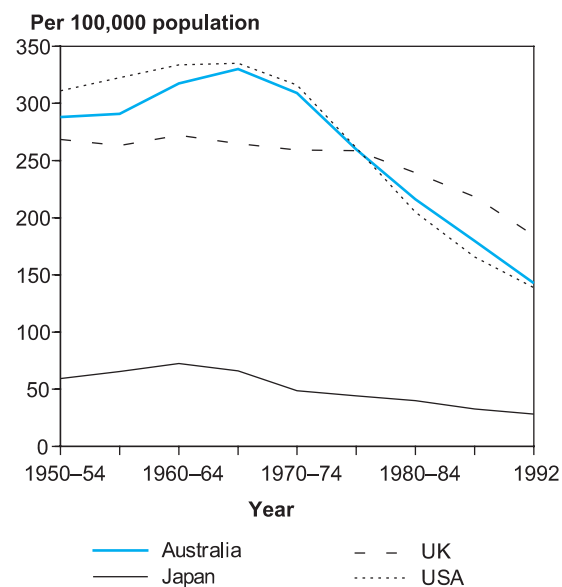


Figure 3: Trends in male death rates, ischaemic heart disease, 1950–54 to 1992

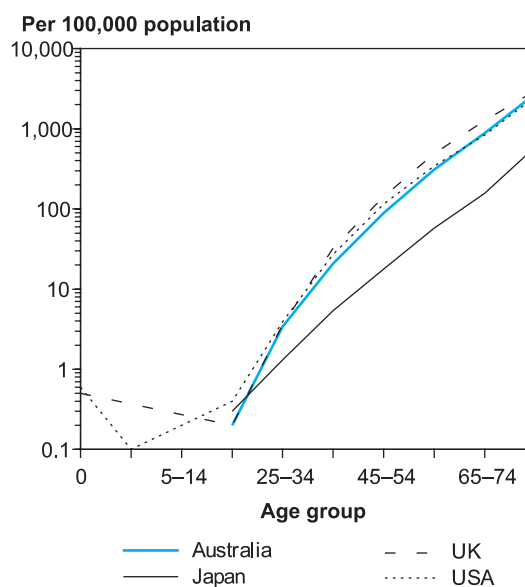


Figure 4: Age-specific male death rates, ischaemic heart disease, 1992

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)

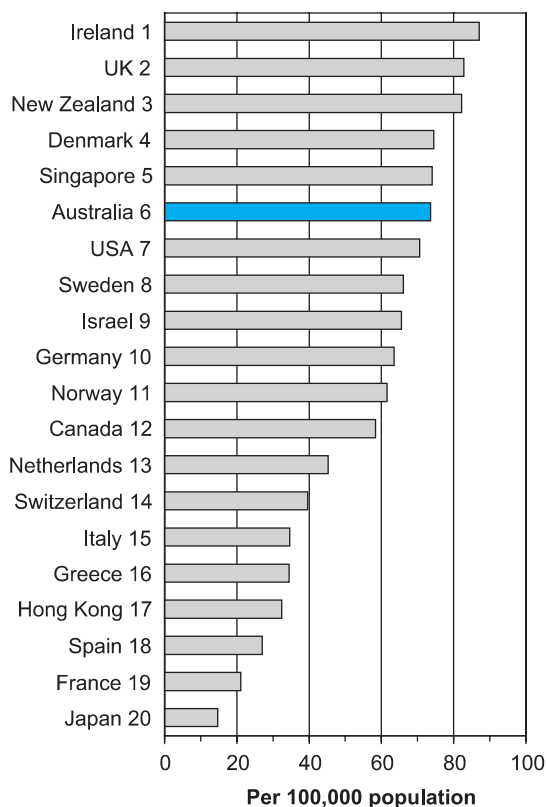


Figure 1: Age-standardised female death rates, ischaemic heart disease, 1992

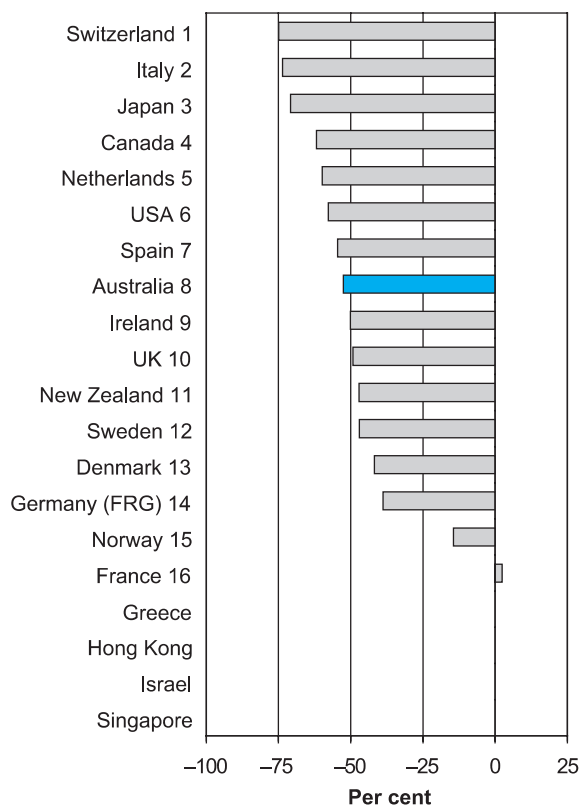


Figure 2: Changes in female death rates, ischaemic heart disease, 1950-54 to 1992

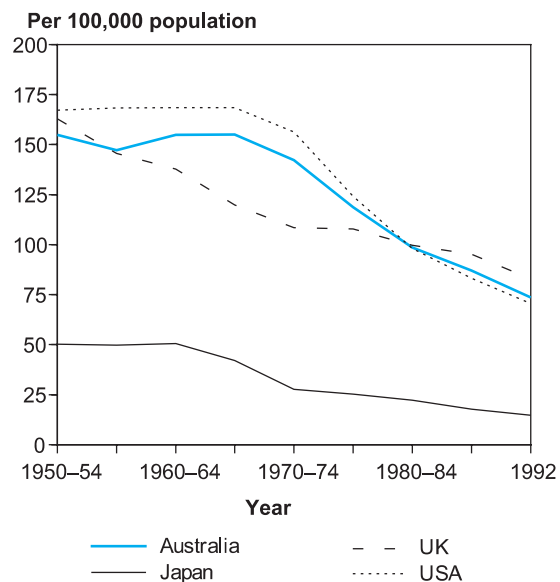


Figure 3: Trends in female death rates, ischaemic heart disease, 1950-54 to 1992

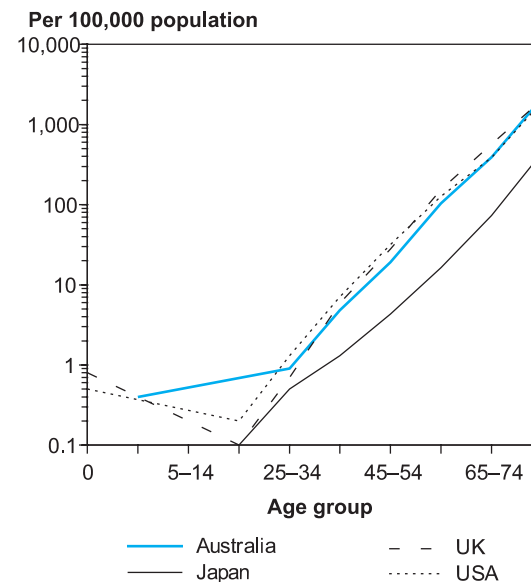


Figure 4: Age-specific female death rates, ischaemic heart disease, 1992

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)

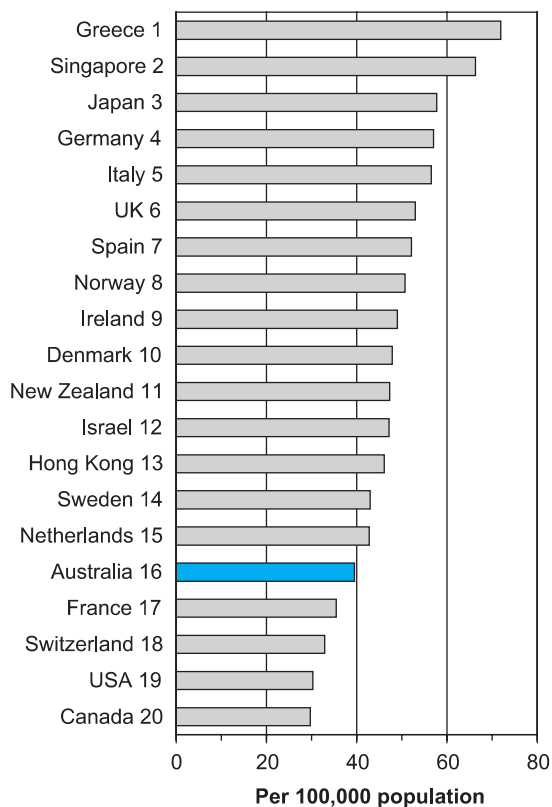


Figure 1: Age-standardised male death rates, stroke, 1992

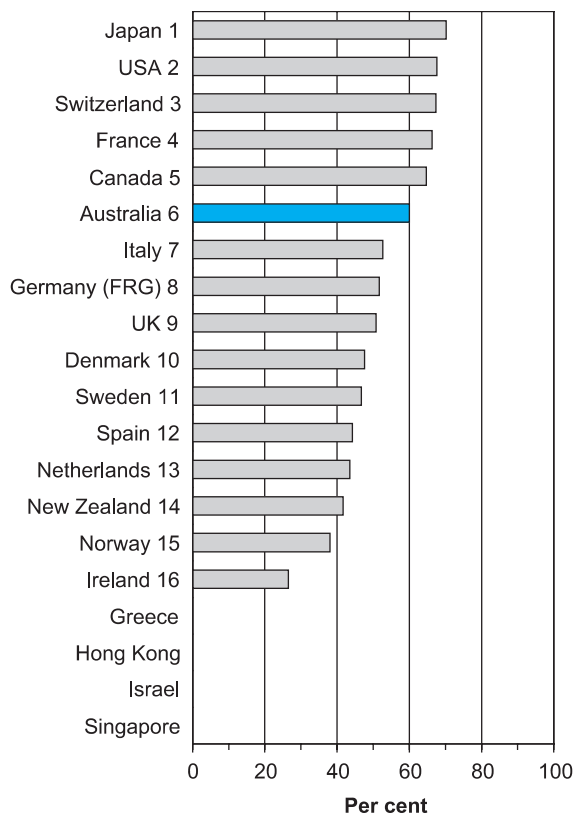


Figure 2: Declines in male death rates, stroke, 1950–54 to 1992

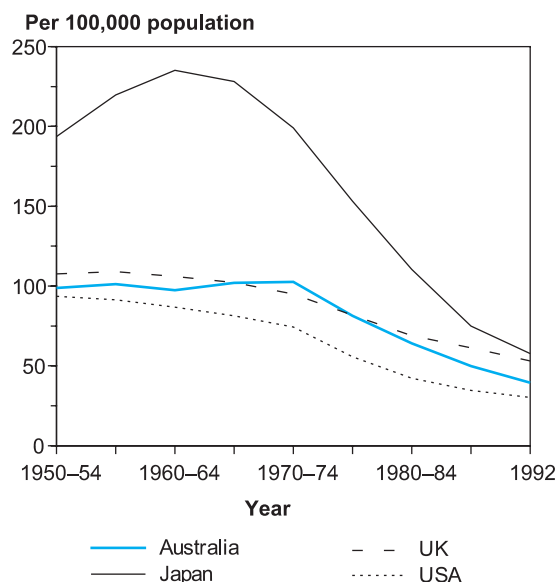


Figure 3: Trends in male death rates, stroke, 1950–54 to 1992

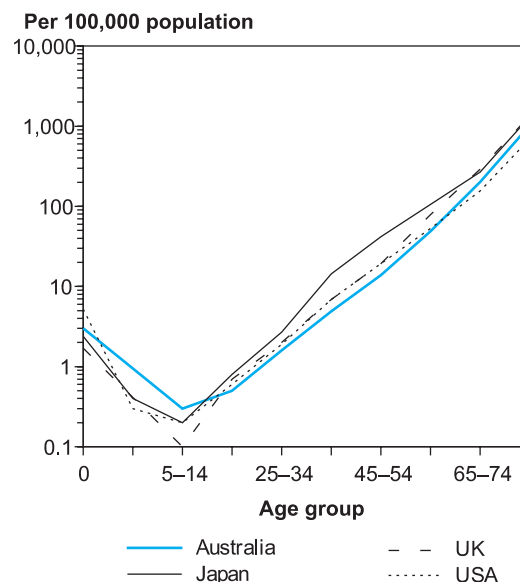


Figure 4: Age-specific male death rates, stroke, 1992

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

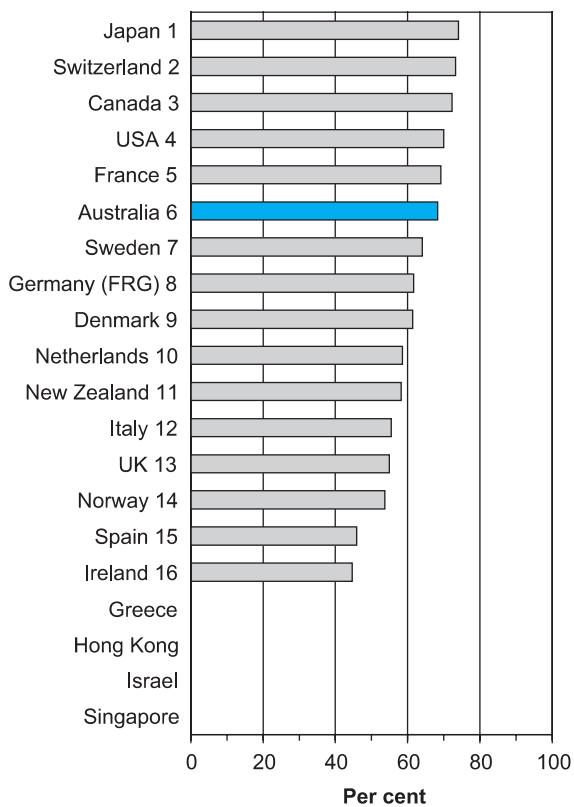


Figure 2: Declines in female death rates, stroke, 1950–54 to 1992

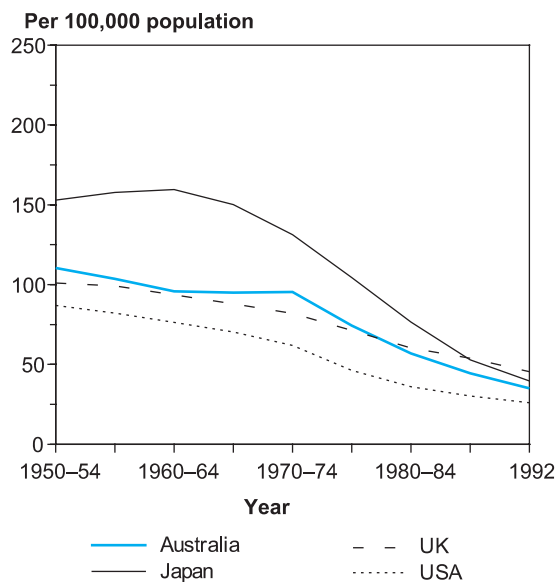


Figure 3: Trends in female death rates, stroke, 1950–54 to 1992

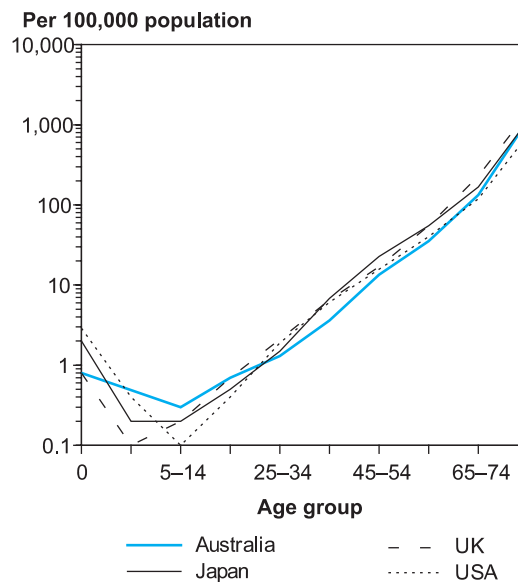


Figure 4: Age-specific female death rates, stroke, 1992

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)

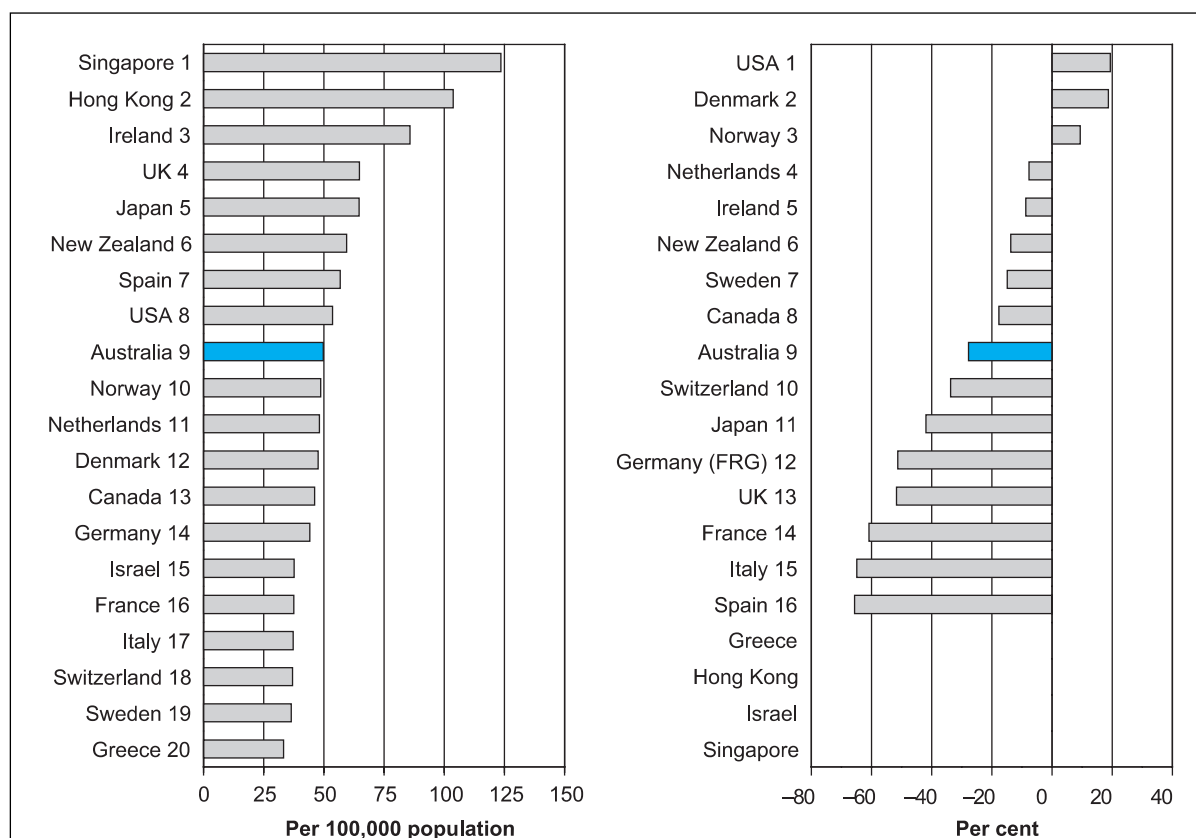


Figure 1: Age-standardised male death rates, respiratory system, 1992

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

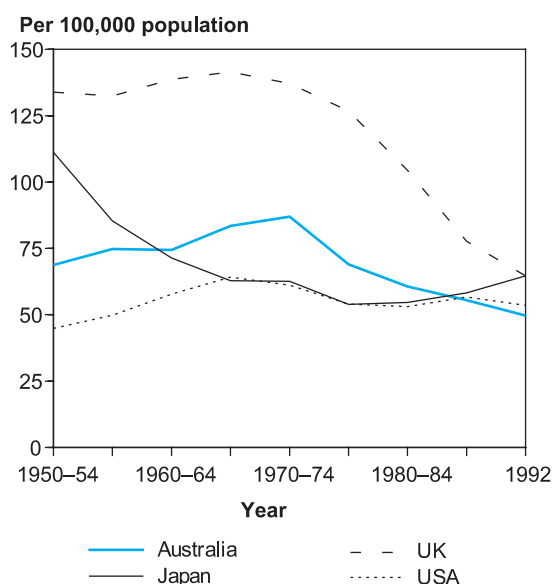


Figure 3: Trends in male death rates, respiratory system, 1950-54 to 1992

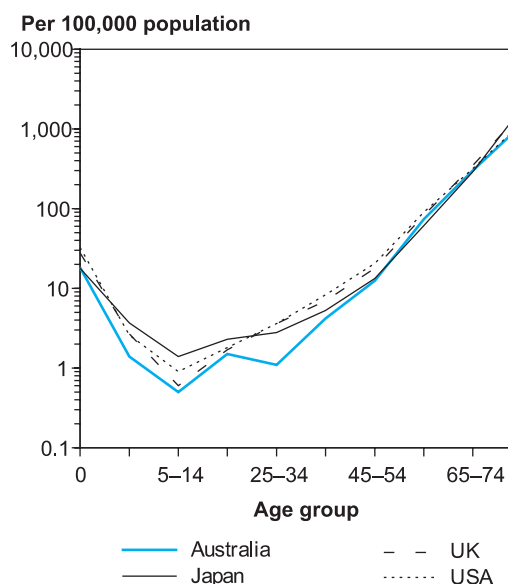


Figure 4: Age-specific male death rates, respiratory system, 1992

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)

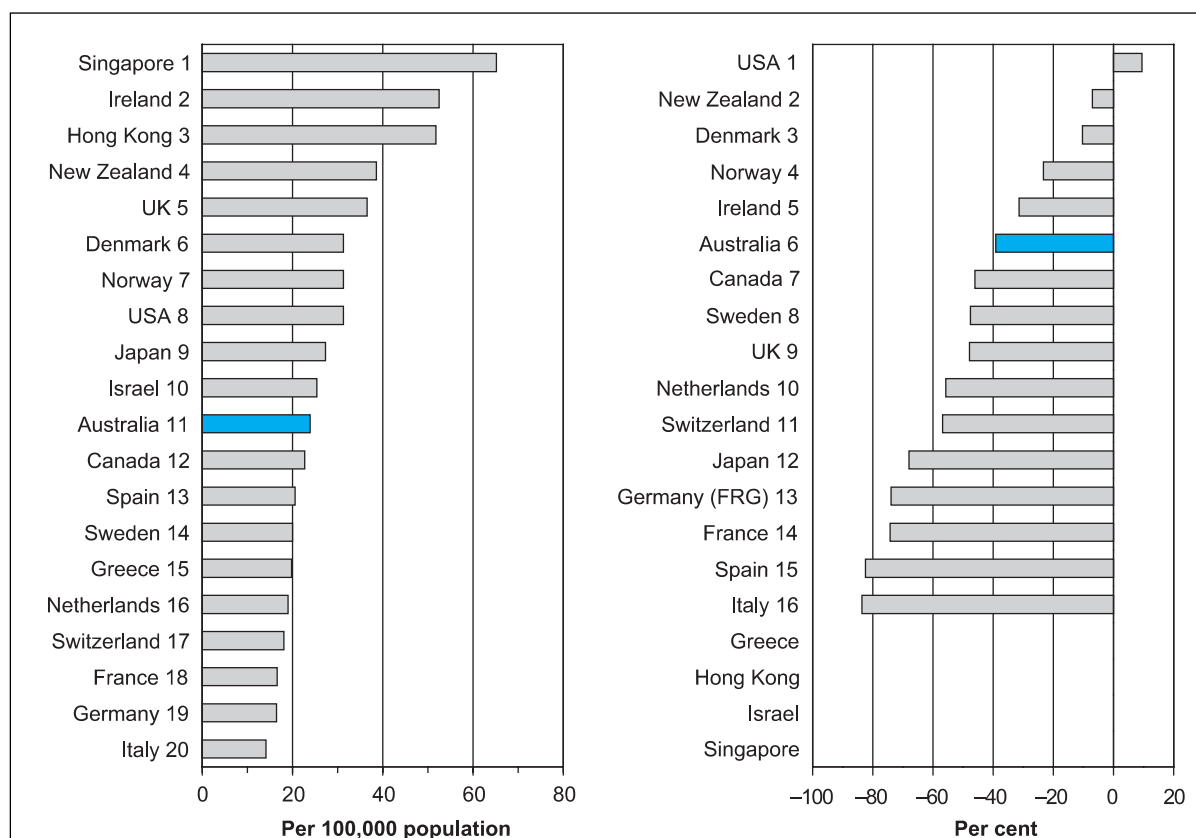


Figure 1: Age-standardised female death rates, respiratory system, 1992

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

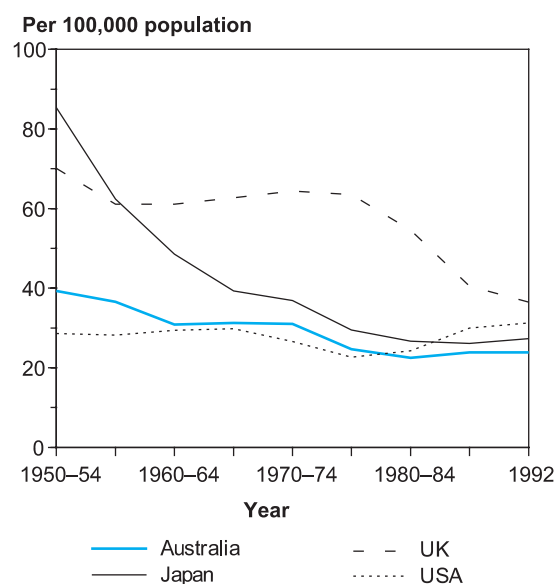


Figure 3: Trends in female death rates, respiratory system, 1950–54 to 1992

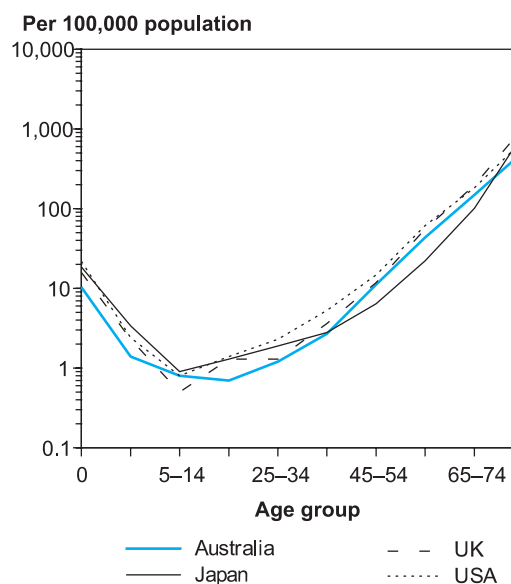


Figure 4: Age-specific female death rates, respiratory system, 1992

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)

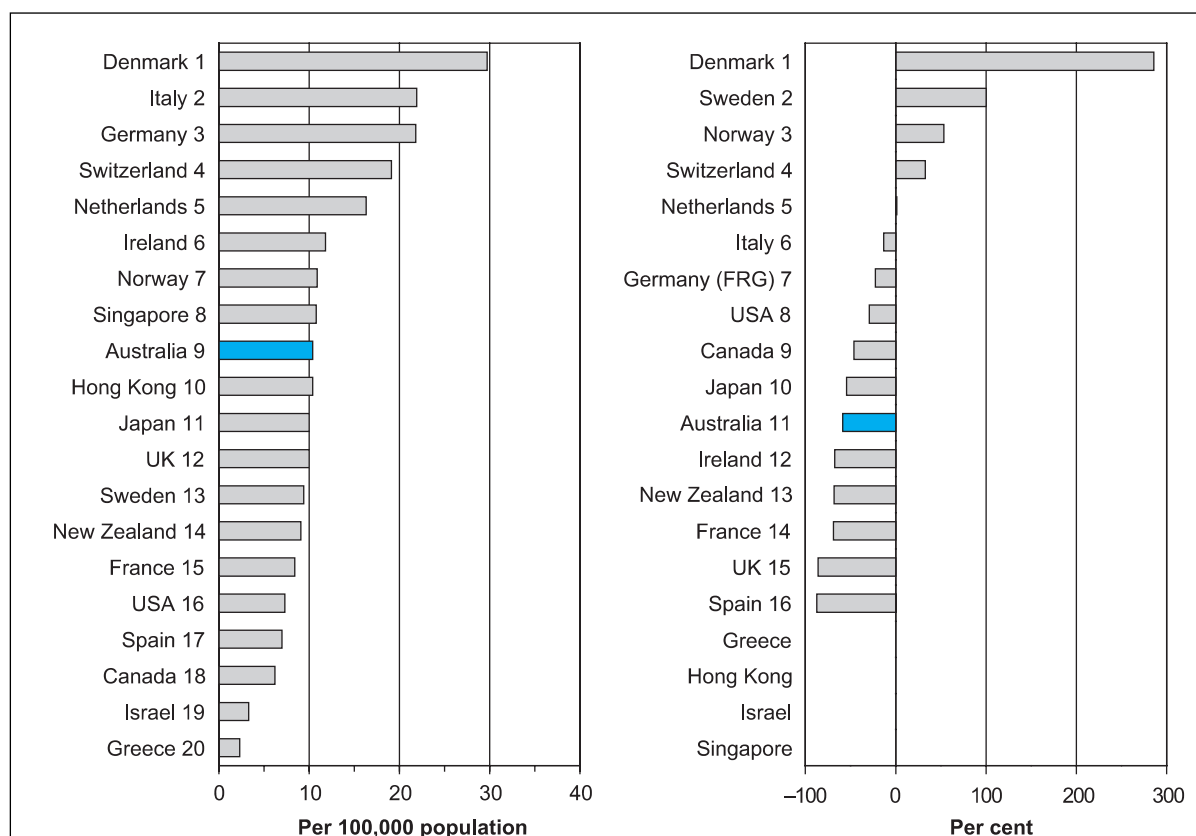


Figure 1: Age-standardised male death rates, bronchitis, emphysema, asthma, 1992

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

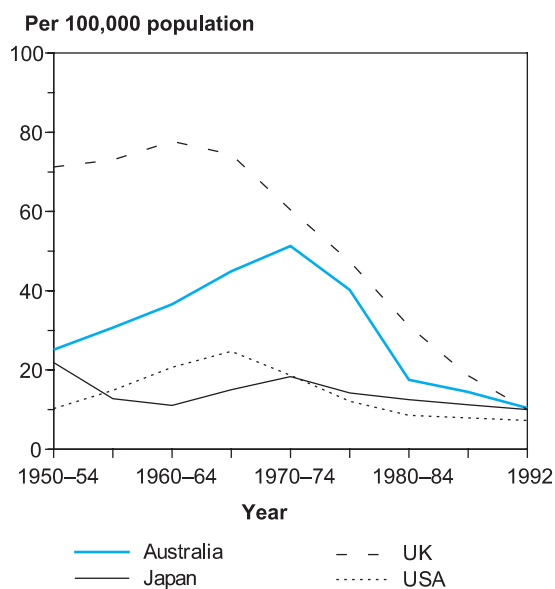


Figure 3: Trends in male death rates, bronchitis, emphysema, asthma, 1950–54 to 1992

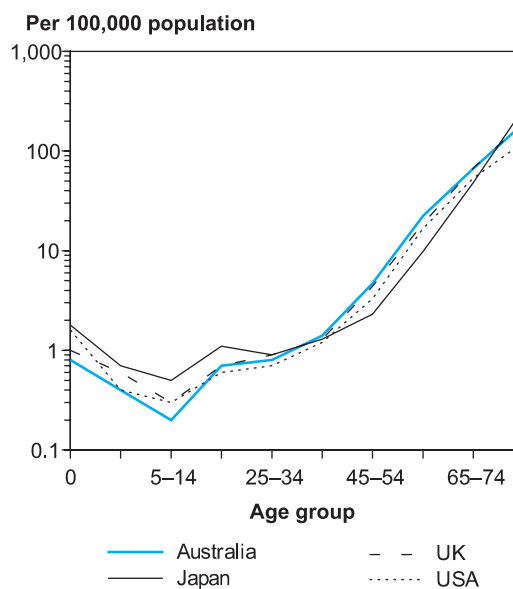


Figure 4: Age-specific male death rates, bronchitis, emphysema, asthma, 1992

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

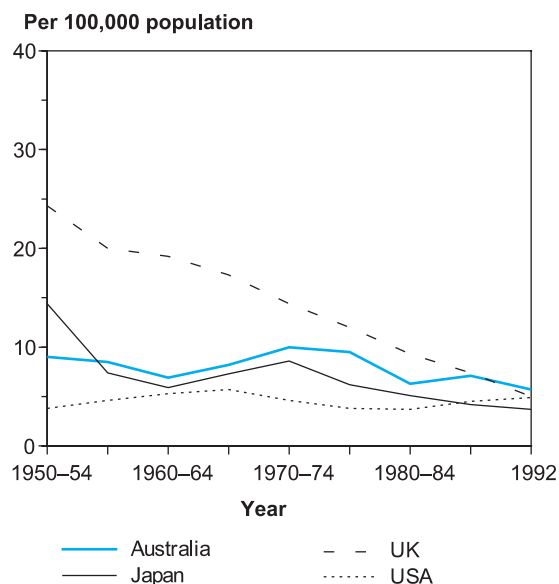


Figure 3: Trends in female death rates, bronchitis, emphysema, asthma, 1950–54 to 1992

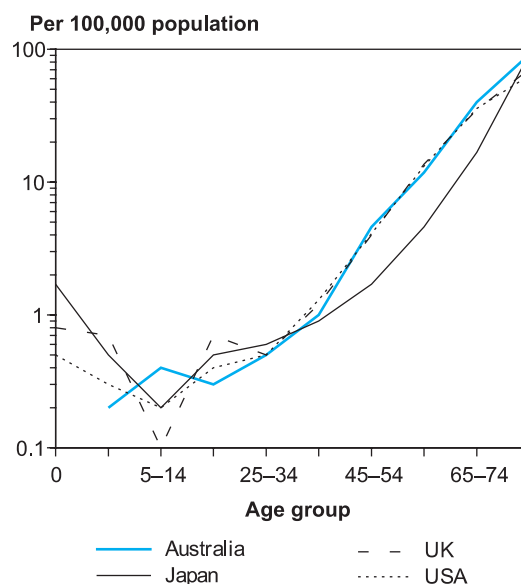


Figure 4: Age-specific female death rates, bronchitis, emphysema, asthma, 1992

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 Tuberc Lung Dis* 66: 85–9.

Mortality, sudden infant death syndrome (ICD 798.0)

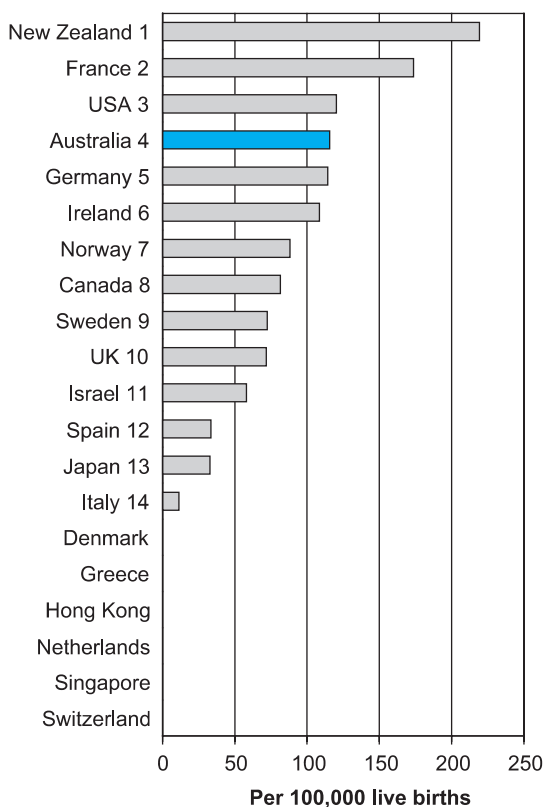


Figure 1: SIDS death rates, 1992

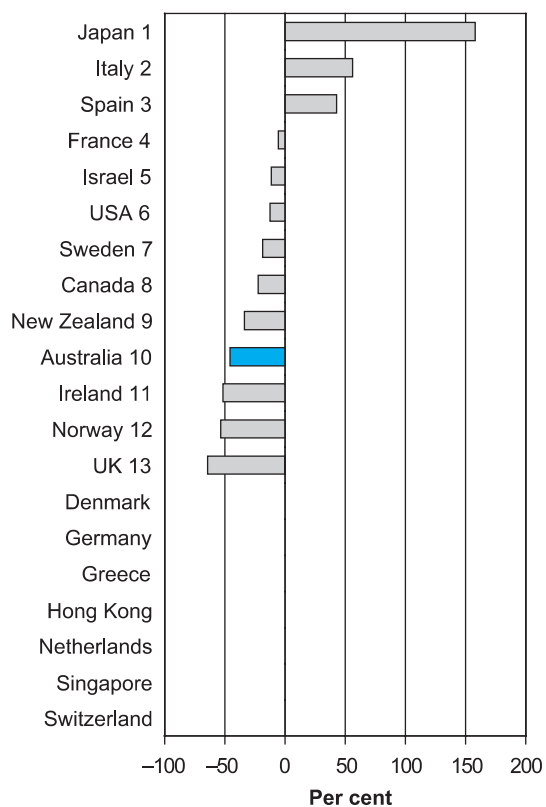


Figure 2: Changes in SIDS death rates, 1987 to 1992

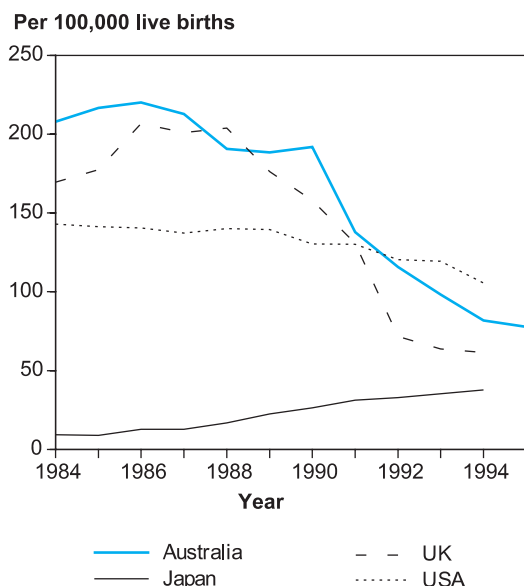


Figure 3: Trends in SIDS death rates, 1984 to 1995

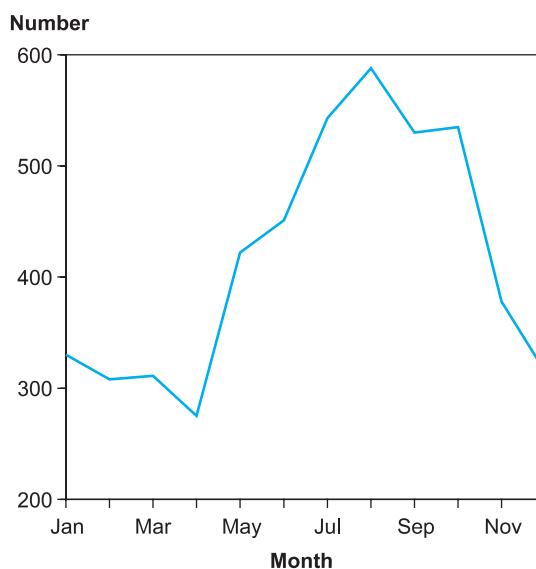


Figure 4: Total SIDS deaths by month, Australia, 1984 to 1995

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

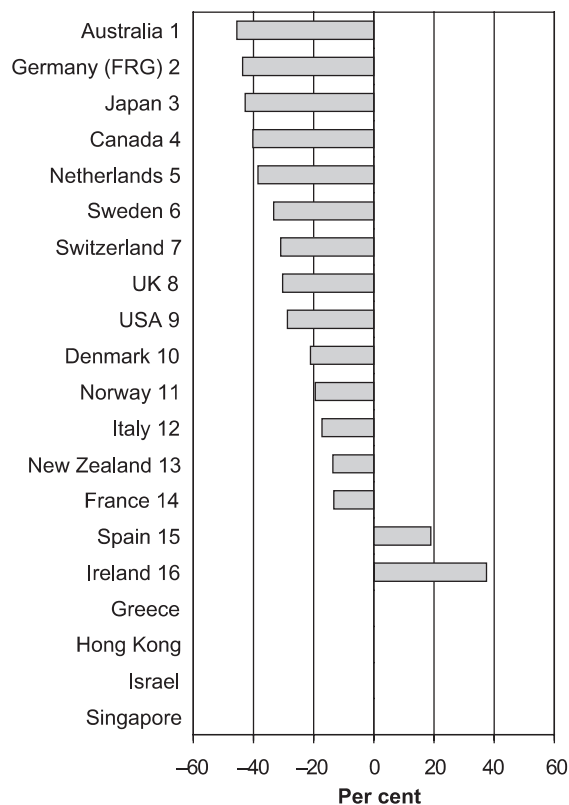


Figure 2: Changes in male death rates, injury and poisoning, 1950-54 to 1992

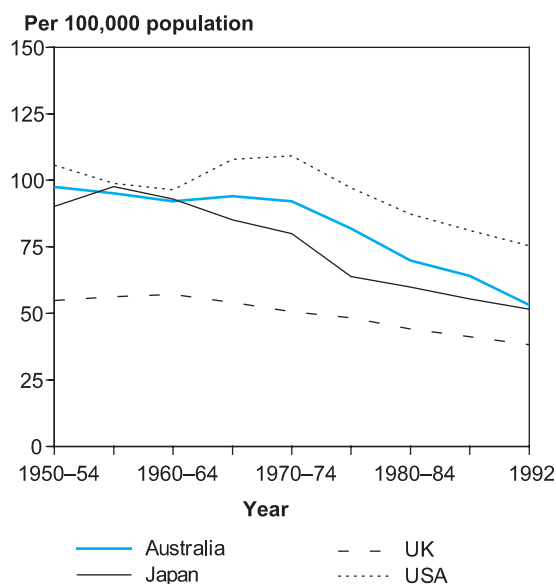


Figure 3: Trends in male death rates, injury and poisoning, 1950-54 to 1992

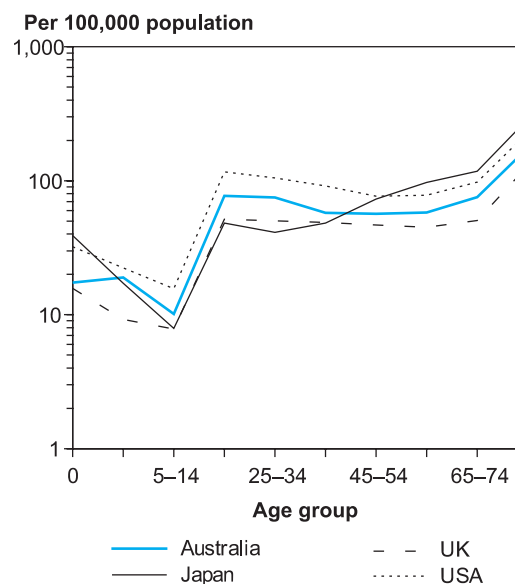


Figure 4: Age-specific male death rates, injury and poisoning, 1992

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)

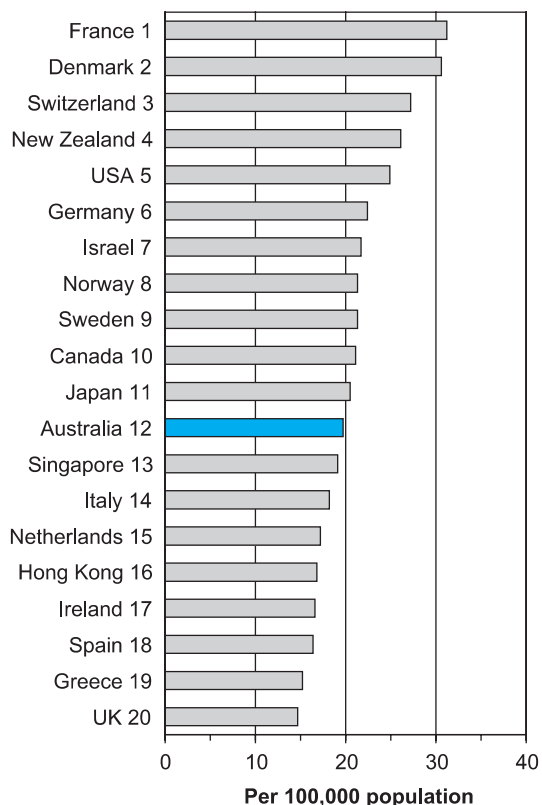


Figure 1: Age-standardised female death rates, injury and poisoning, 1992

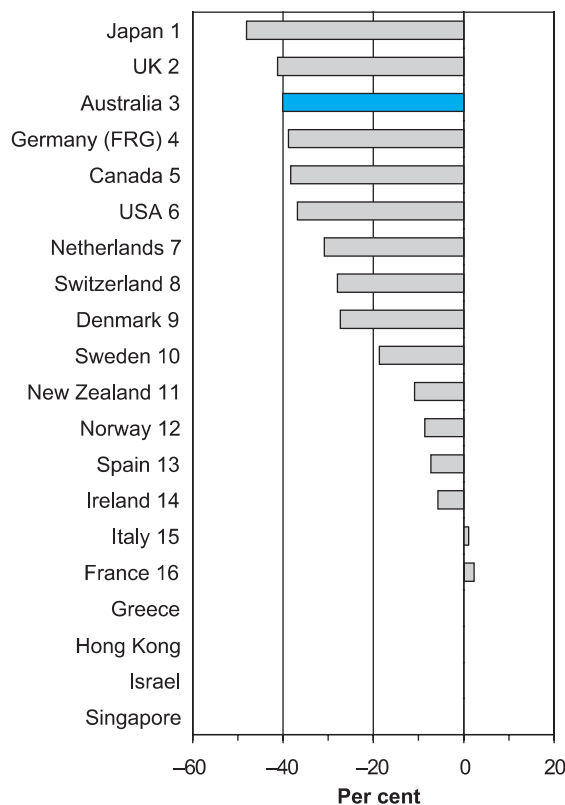


Figure 2: Changes in female death rates, injury and poisoning, 1950-54 to 1992

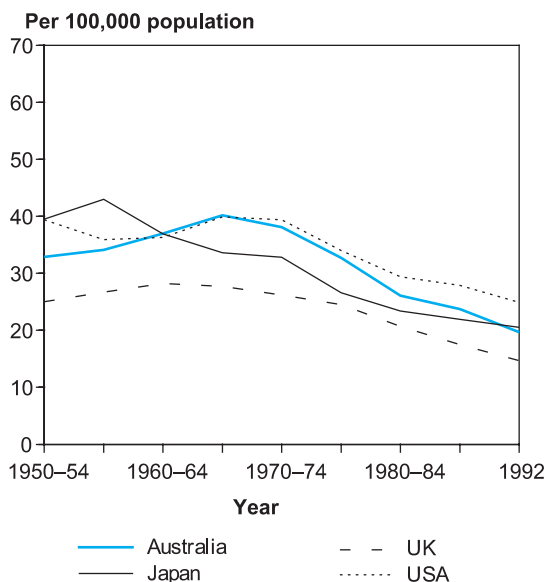


Figure 3: Trends in female death rates, injury and poisoning, 1950-54 to 1992

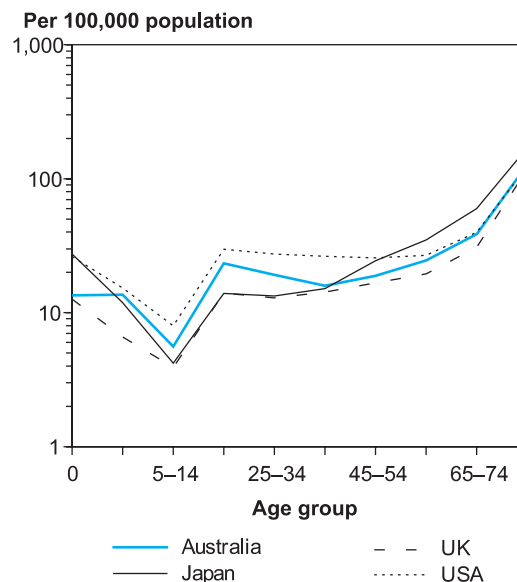


Figure 4: Age-specific female death rates, injury and poisoning, 1992

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)

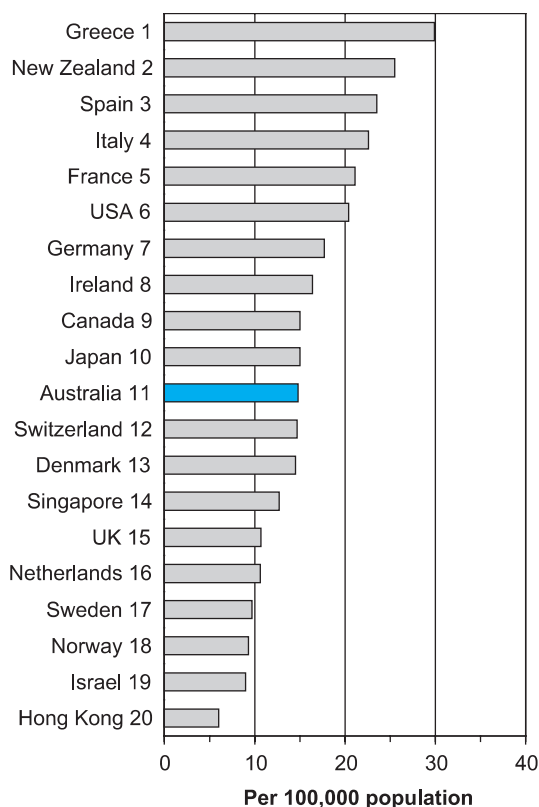


Figure 1: Age-standardised male death rates, motor vehicle accidents, 1992

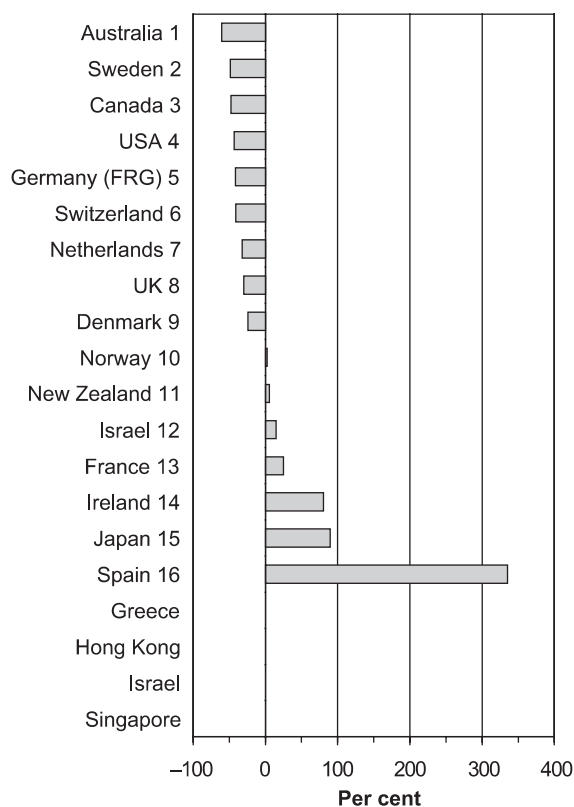


Figure 2: Changes in male death rates, motor vehicle accidents, 1950–54 to 1992

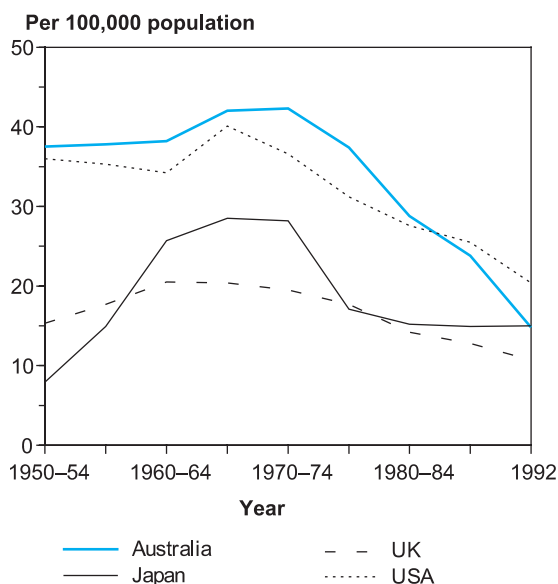


Figure 3: Trends in male death rates, motor vehicle accidents, 1950–54 to 1992

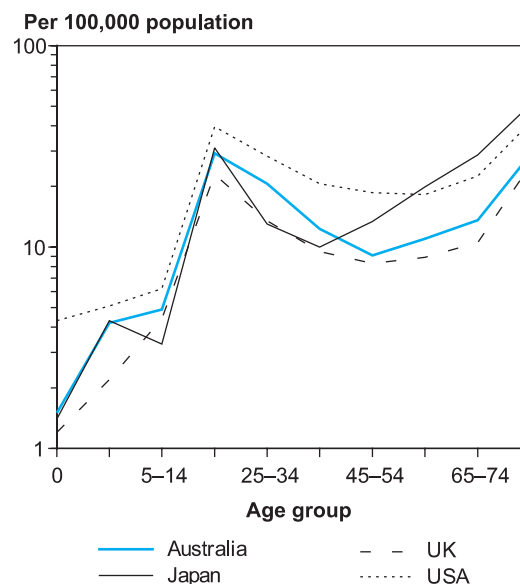


Figure 4: Age-specific male death rates, motor vehicle accidents, 1992

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)

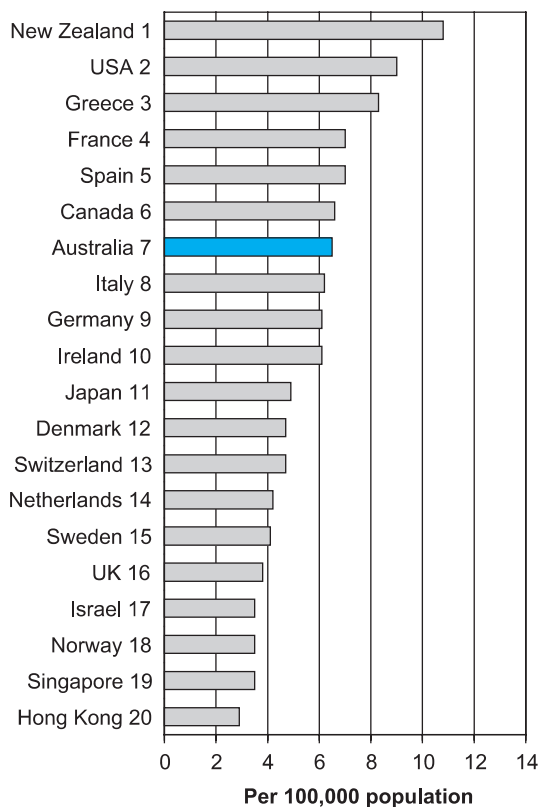


Figure 1: Age-standardised female death rates, motor vehicle accidents, 1992



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

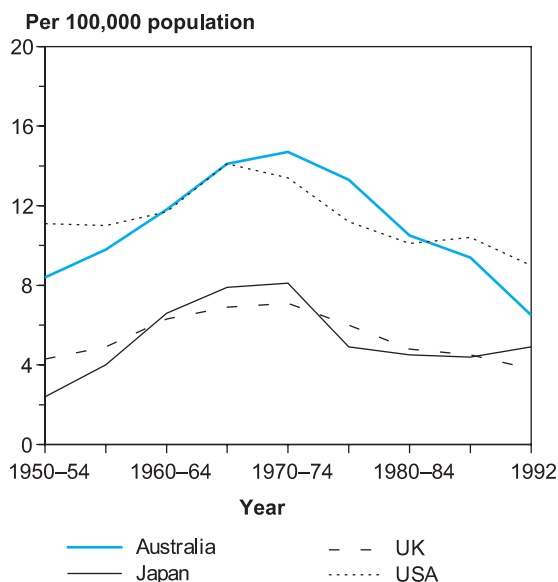


Figure 3: Trends in female death rates, motor vehicle accidents, 1950-54 to 1992

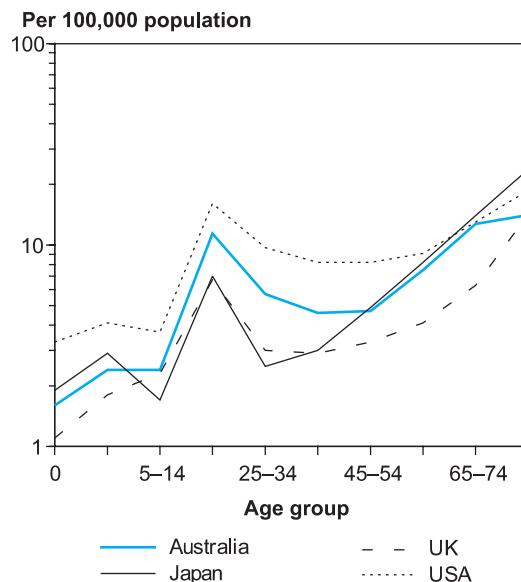


Figure 4: Age-specific female death rates, motor vehicle accidents, 1992

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)

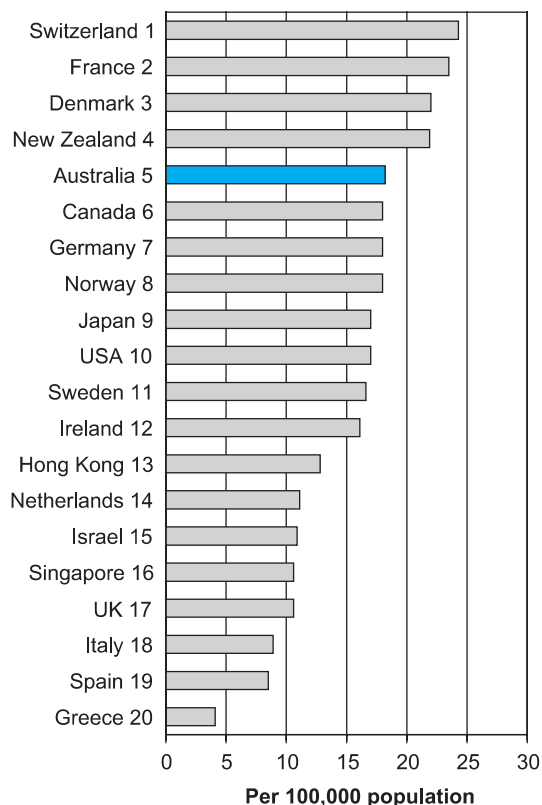


Figure 1: Age-standardised male death rates, suicide, 1992

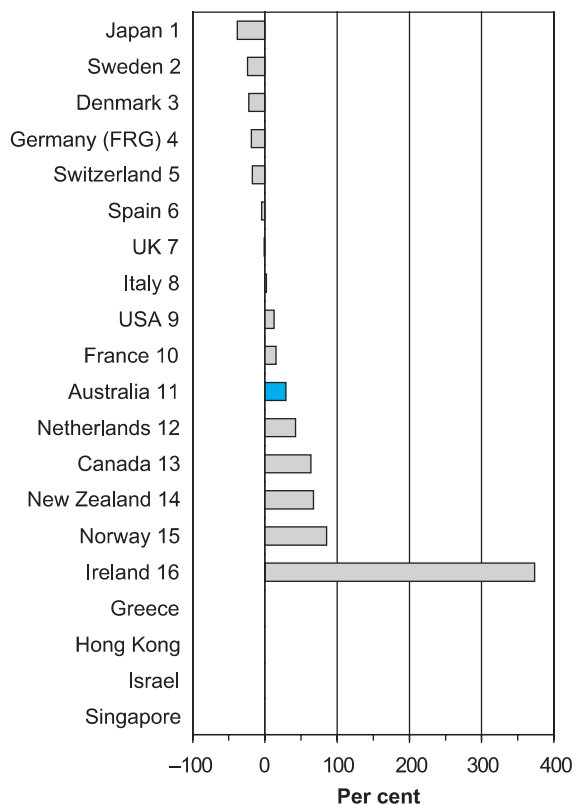


Figure 2: Changes in male death rates, suicide, 1950-54 to 1992

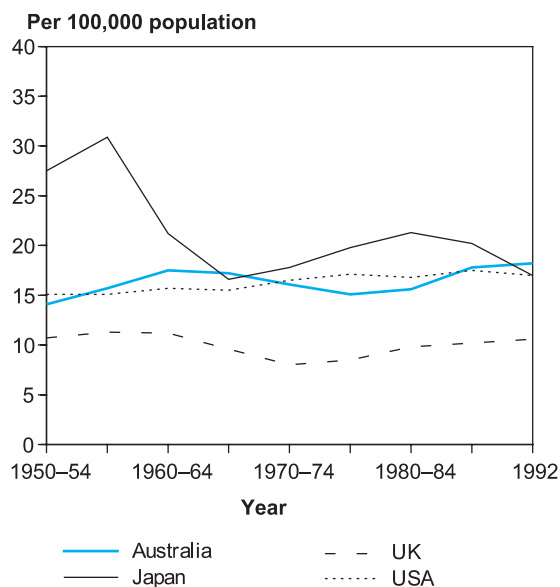


Figure 3: Trends in male death rates, suicide, 1950-54 to 1992

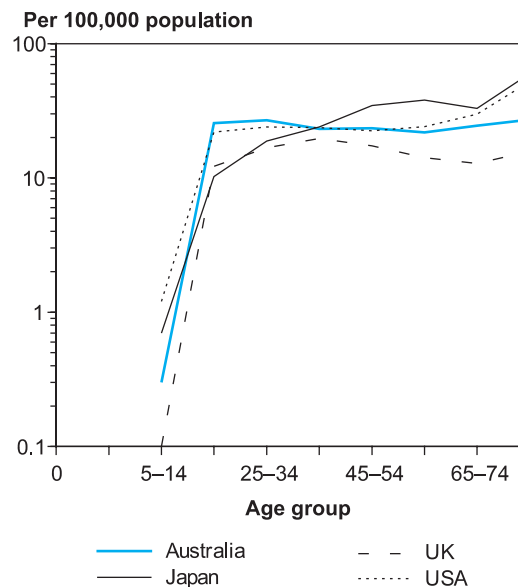


Figure 4: Age-specific male death rates, suicide, 1992

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)

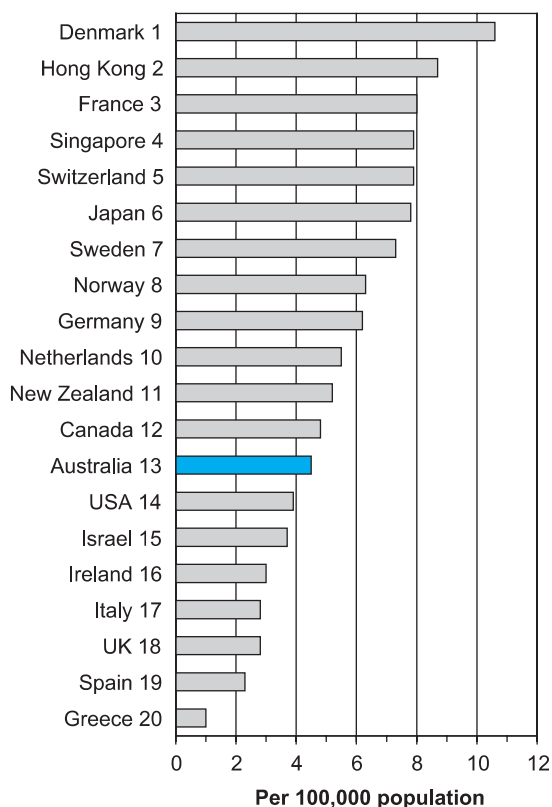


Figure 1: Age-standardised female death rates, suicide, 1992



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

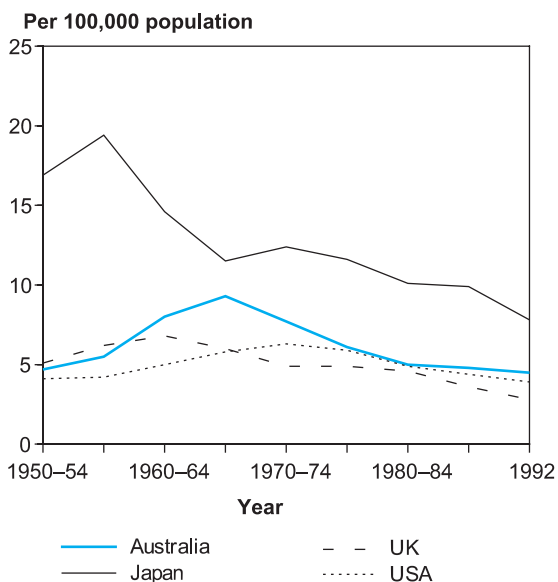


Figure 3: Trends in female death rates, suicide, 1950-54 to 1992

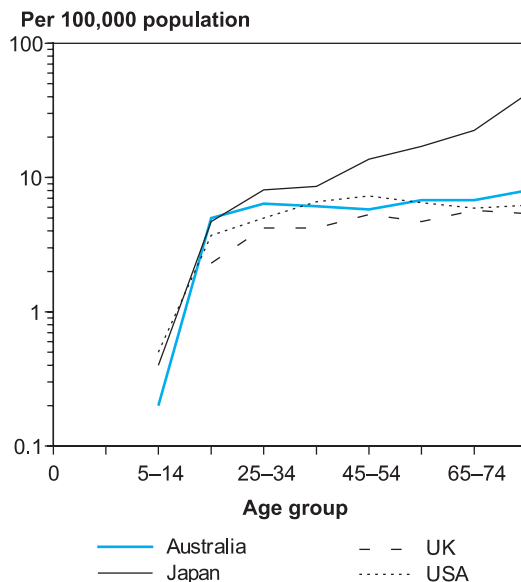


Figure 4: Age-specific female death rates, suicide, 1992

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

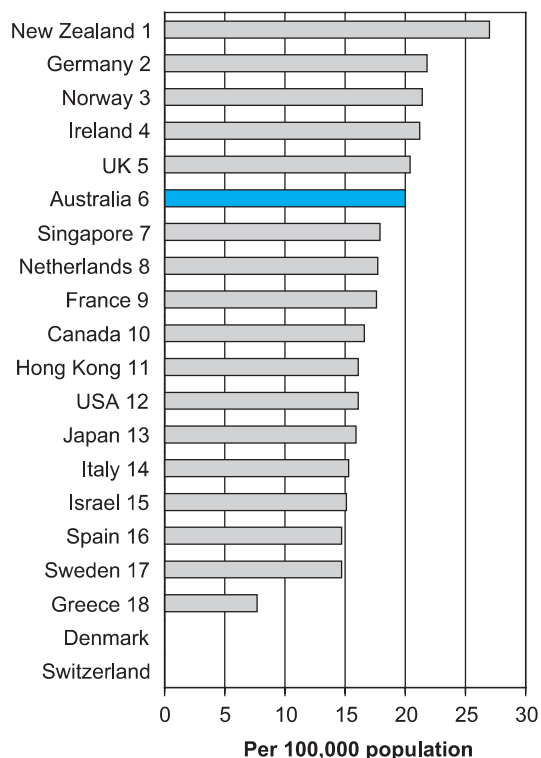


Figure 1: Age-standardised male death rates, colorectal cancer, 1992

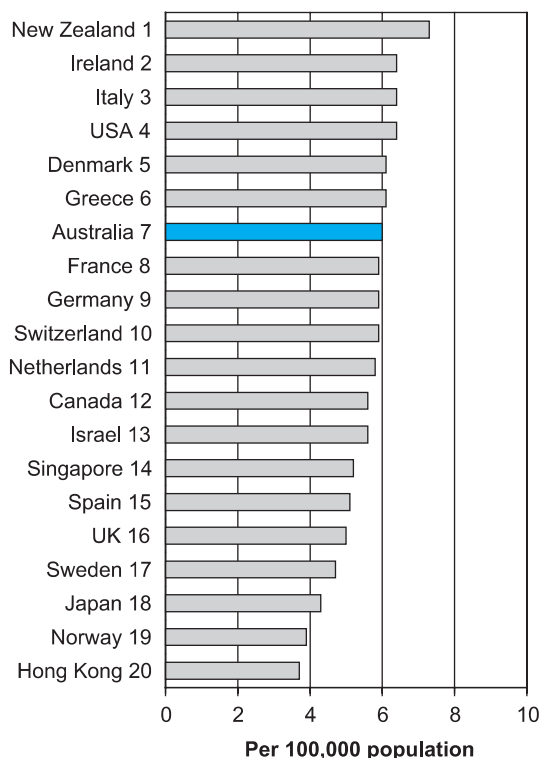


Figure 2: Age-standardised male death rates, leukaemia, 1992

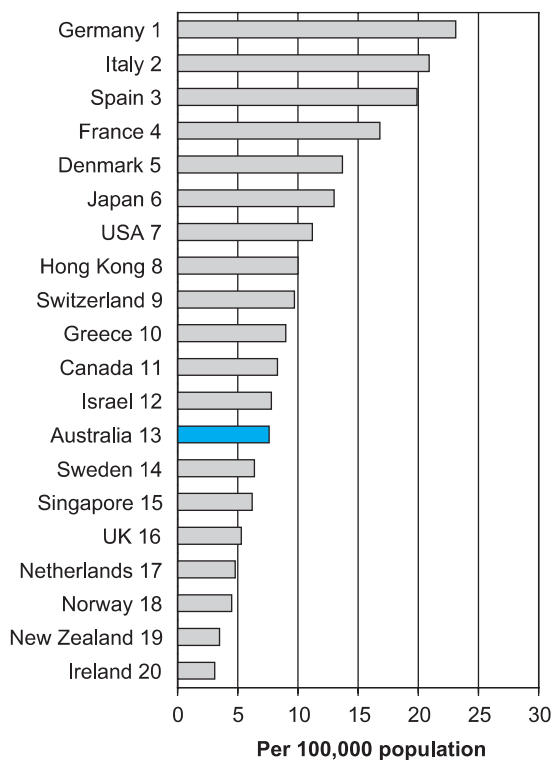


Figure 3: Age-standardised male death rates, chronic liver disease & cirrhosis, 1992



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

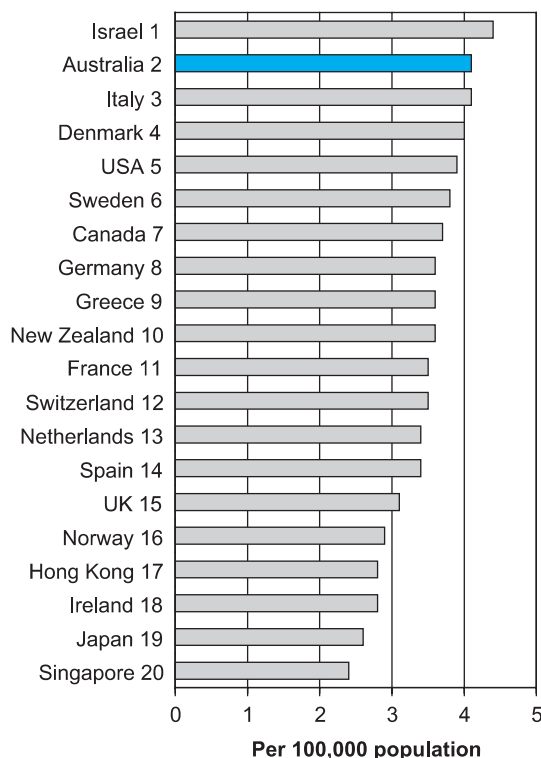


Figure 2: Age-standardised female death rates, leukaemia, 1992

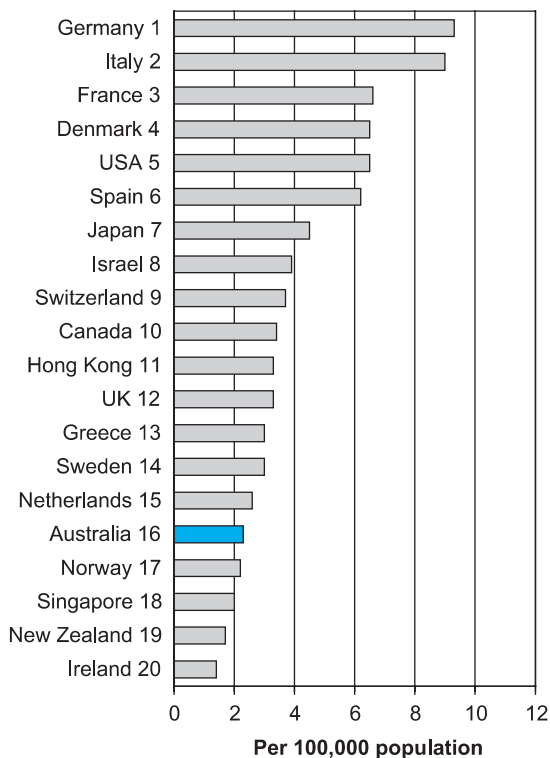


Figure 3: Age-standardised female death rates, chronic liver disease & cirrhosis, 1992

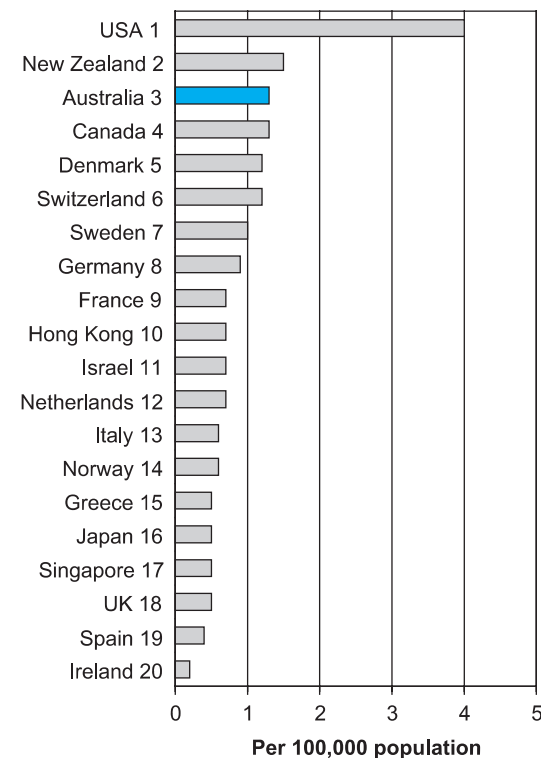


Figure 4: Age-standardised female death rates, homicide, 1992

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.

