

5 Ischaemic heart disease

Disease characteristics

Ischaemic heart disease, also known as coronary heart disease, has been at epidemic levels for much of the twentieth century in Australia and similar countries. Its two main presentations are heart attack and angina (chest pain).

In both heart attack and angina, one or more of the coronary arteries supplying the heart muscle have become narrowed inside by a blocking process that involves build-up of abnormal deposits in the blood vessel walls. In a heart attack, there is a sudden complete blockage when a blood clot forms at a narrowed part of an artery. In angina, there are bouts of temporary chest pain or discomfort when a narrowed coronary artery cannot meet extra demand by the heart during exercise or high emotion.

Prevention aims to reduce the known coronary risk factors, notably high blood cholesterol, cigarette smoking, high blood pressure, physical inactivity and being overweight. Emergency treatment for a heart attack includes cardio-pulmonary resuscitation (CPR) if necessary and 'clot-busting' drugs. Other common treatments are bypass graft surgery, angioplasty to unblock the arteries, and a range of drugs to protect the heart and reduce the demand on it.

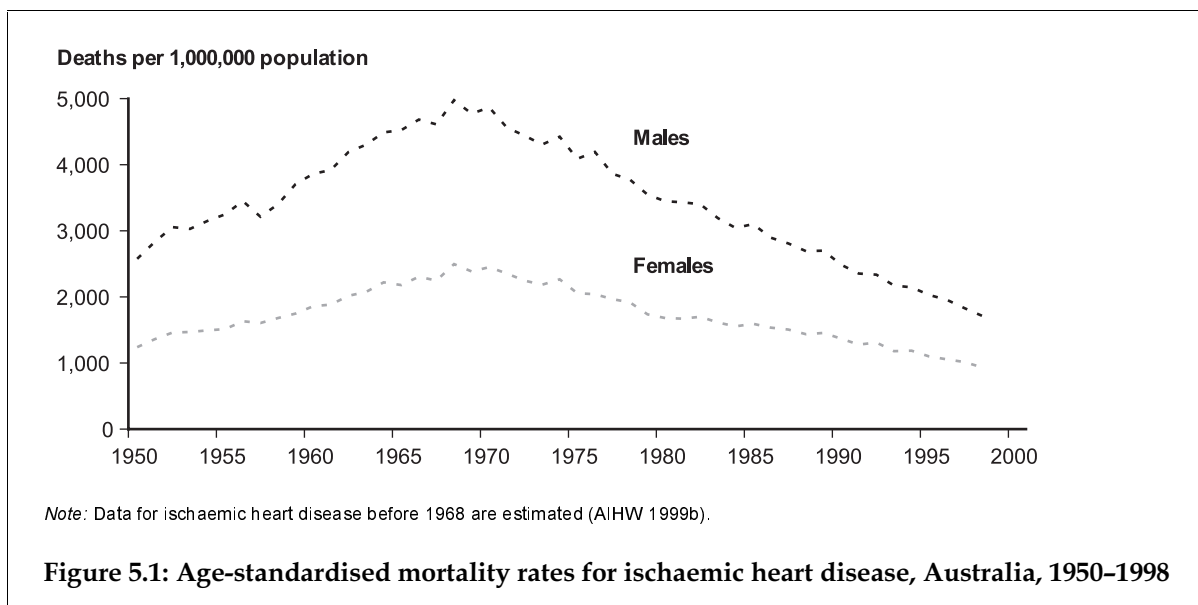
There are about 74,000 PYLL for males under the age of 75 each year because of ischaemic heart disease and 22,000 PYLL for females. This makes ischaemic heart disease the number two cause of premature death for males and number one cause for females.

Historic view

Ischaemic heart disease or heart attack is the leading cause of mortality in Australia, claiming 22% of all deaths in 1998. Long-term trend statistics for this disease do not exist. This is because it was not identified as a specific cause of death within the ICD classification until the introduction of ICD-8 in 1968. However, rates of the disease have been estimated from rates of known components of heart disease recorded from 1950, and show that ischaemic heart disease mortality rates climbed steadily from then to 1968 (d'Espaignet 1993).

In 1950 it was estimated that there were about 2,416 and 1,150 deaths per million population for males and females respectively due to ischaemic heart disease. The rates peaked for males and females in 1968 at 4,668 and 2,314 deaths per million population. Of the 33,381 deaths in that year, 20,342 were male and 13,039 were female. Since 1968, the rates have declined steadily, by 3.6% per year in males and 3.0% per year in females. The decline was steeper over the five years 1994 to 1998, with mortality rates declining annually by about 5.1% for males and 5.2% for females (Figure 5.1).

As medical understanding of ischaemic heart disease has increased, great improvements in the prevention and treatment of the disease have been made. The reduction in the prevalence of smoking, improvement in the types of fat in the diet, control of blood pressure and other advances in treatment are believed to have contributed strongly to the fall in mortality rates.



Age–sex distribution

The age distribution for mortality rates was consistent over the 1987–1998 period, with the risk of death becoming greater from about age 50 for males and age 60 for females. In 1998, the mortality rate for males was 1,730 deaths per million population, about 1.8 times the rate for females (942 deaths per million population). For males, 88% of deaths occurred from the age of 60 and 55% from age 75. For females, 97% occurred from age 60 and 80% from age 75 (Table 5.1).

Twelve-year trends 1987–1998

There has been a consistent and significant decrease in mortality rates due to ischaemic heart disease over the 1987–1998 period for both males (2.6% per year) and females (1.9%) (Figure 5.2). Age-specific mortality rates have decreased significantly over the 1987–1998 period for males in age groups 35–39 years and above, and females in age groups 40–44 years and above. Comparing age groups, the decreases in age-specific mortality rates over the 1987–1998 period have been greatest for males and females in age groups 40–44 to 75–79 years (Table 5.1).

Geographic differences in mortality

As discussed in Chapter 4, geographic differences are a complex interplay of many factors including socioeconomic status, occupational and environmental risk, migrant population, Aboriginal and Torres Strait Islander population, and proportion of the population living in rural and remote areas. Areas with a higher proportion of Aboriginal and Torres Strait Islander people will have higher mortality rates because of the higher mortality rates experienced by the Aboriginal and Torres Strait Islander population. Some of these factors are discussed separately below.

State and Territory comparison

The rates of ischaemic heart disease decreased between the periods 1987–1991 and 1994–1998 for males and females in all States and Territories (Table 5.2). The mortality rates for ischaemic heart disease also showed some variation among the States and Territories. During the 1987–1991 period, compared with the national ischaemic heart disease mortality rate:

- Mortality rates for males in New South Wales, South Australia, and Tasmania were significantly higher.
- Mortality rates for males in Victoria, Western Australia, the Australian Capital Territory and the Northern Territory were significantly lower.
- Mortality rates for females in New South Wales and Queensland were significantly higher.
- Mortality rates for females in Victoria, Western Australia and the Australian Capital Territory were significantly lower.

During the 1994–1998 period:

- Mortality rates for males in Queensland, South Australia, and Tasmania were significantly higher.
- Mortality rates for males in Western Australia and the Australian Capital Territory were significantly lower.
- Mortality rates for females in New South Wales and Queensland were significantly higher.
- Mortality rates for females in Victoria, Western Australia and the Australian Capital Territory were significantly lower.

Geographic category (by metropolitan, rural and remote area)

Ischaemic heart disease mortality rates were significantly lower for males and females living in metropolitan areas (1,883 deaths per million for males and 1,040 for females) compared with males and females living in rural areas (2,055 for males and 1,094 for females) and males living in remote areas (2,053). Compared to mortality rates in metropolitan areas, the mortality rates were 9% higher for males in rural and remote areas, and 5% higher for females in rural areas (Table 5.3).

Country of birth

For the period 1992–1994, the world-standardised mortality rate for ischaemic heart disease for Australian males born in Australia was 1,463 deaths per million population (Table 5.5).

- Mortality rates for Australian males born in Korea, Chile, Japan, Hong Kong and Macau, China, Singapore, Mauritius, Italy, Greece, the Netherlands and the United Kingdom and Ireland were significantly lower than for Australian males born in Australia.
- Mortality rates for Australian males born in Israel and Poland were significantly higher than for Australian males born in Australia.

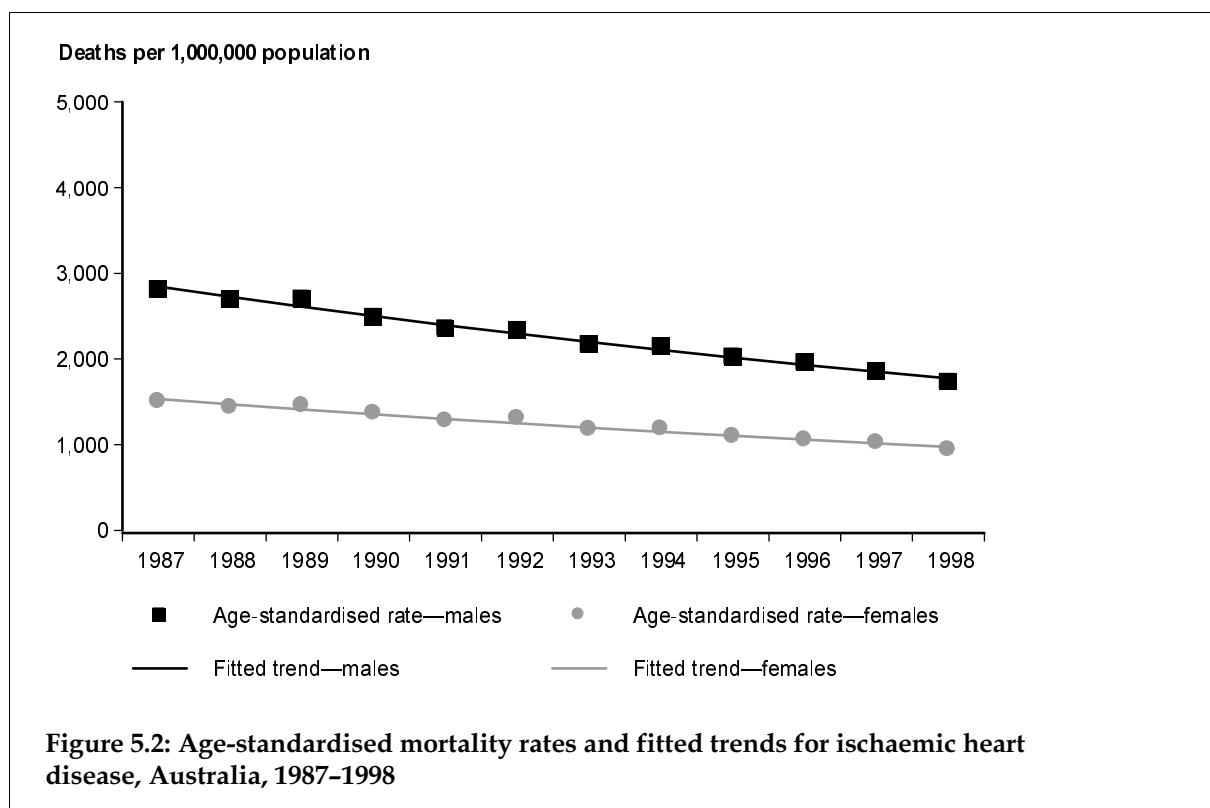
For the period 1992–1994, the world-standardised mortality rate for ischaemic heart disease for Australian females born in Australia was 824 deaths per million population (Table 5.5).

- Of the 25 countries of birth analysed for Australian females, none had significantly higher mortality rates for ischaemic heart disease than Australian females born in Australia.

International comparisons

The world-standardised Australian mortality rates for males and females for ischaemic heart disease were in the medium to high range, and similar to rates for countries of Germany, Austria and Singapore and the USA (see Tables C.2 & C.3 in Appendix C). Compared with Australia:

- The mortality rates were at least 50% higher in Hungary, Mauritius, United Kingdom and Ireland, and Finland for males and females.
- The mortality rates were less than half the Australian rate in Korea, Japan, China, Hong Kong and Macau, and France for males and females.



Socioeconomic status

The risk of death from ischaemic heart disease was higher among males and females with a lower socioeconomic status than among those of higher status, using the SEIFA Index of Relative Socioeconomic Disadvantage (see Appendix D). In the period 1995–1997, the risk of death for males and females in the lowest of the five SEIFA groups (2,096 deaths per million population and 1,129 respectively) was significantly greater than for males and females in the highest SEIFA group (1,639 and 934 respectively) (Table 5.4; Figure 5.3).

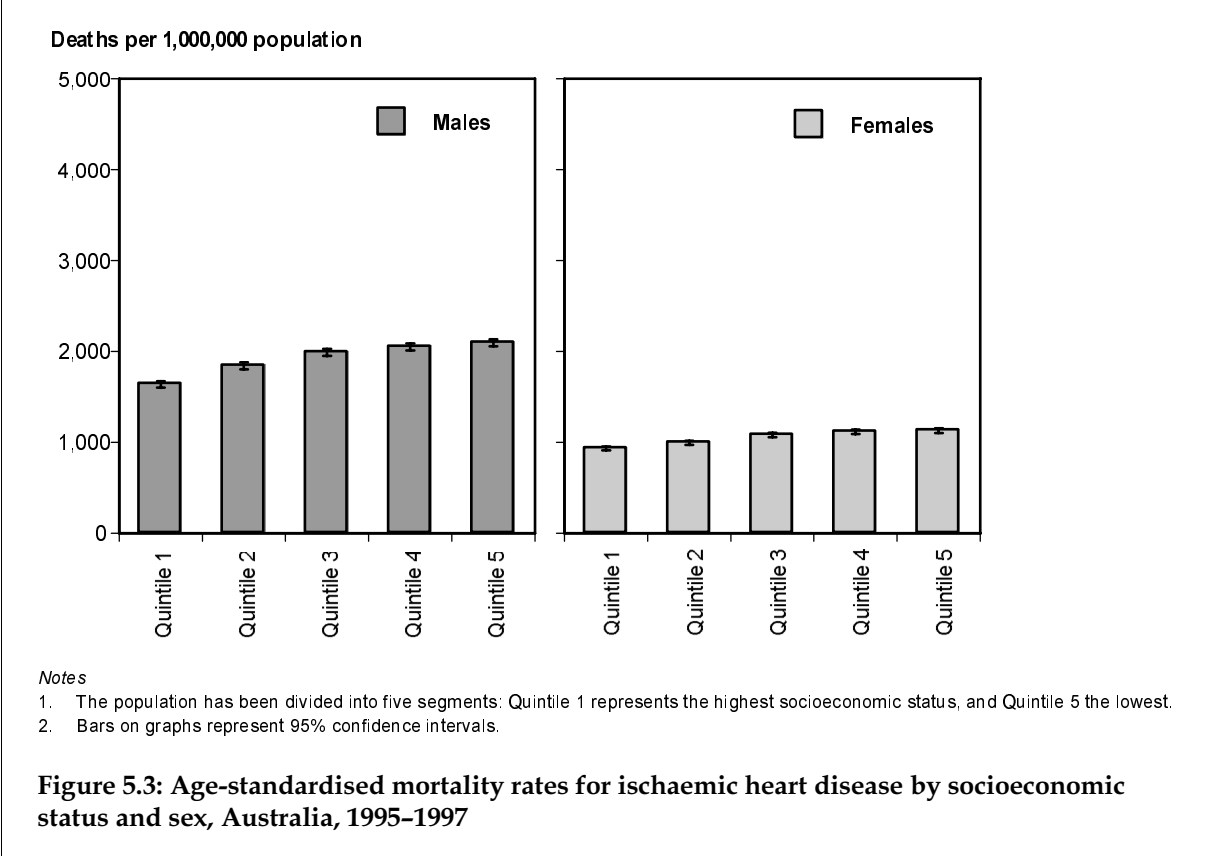


Table 5.1: Age-specific and age-standardised mortality rates for ischaemic heart disease per million population, Australia, 1987-1998

Year	Age																ASMR Aust 1991			
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79		80-84	85+	Crude rate
Males																				
1987	0	0	0	3	12	24	59	162	379	969	1,794	3,373	5,552	9,186	14,998	23,055	33,595	53,236	2,215	2,807
1988	0	0	0	0	7	25	62	189	448	892	1,658	3,099	5,231	9,070	14,403	22,273	31,537	51,181	2,150	2,693
1989	0	0	0	0	1	31	44	180	324	825	1,537	2,891	5,138	8,408	14,383	22,430	33,595	55,278	2,162	2,700
1990	0	0	0	6	10	25	49	140	358	705	1,406	2,840	4,573	8,025	12,727	20,862	31,173	50,498	2,019	2,487
1991	0	0	0	6	10	13	46	148	322	699	1,240	2,429	4,349	7,191	12,127	19,768	31,855	47,241	1,944	2,354
1992	0	0	0	0	7	13	56	124	314	657	1,280	2,266	4,227	7,001	11,834	19,869	30,262	50,585	1,957	2,334
1993	0	0	0	0	7	13	44	153	276	535	1,169	2,180	3,804	6,612	11,154	18,009	28,391	47,489	1,857	2,169
1994	0	0	0	5	5	21	56	127	246	553	1,116	1,833	3,471	6,509	10,367	18,196	28,972	49,774	1,858	2,141
1995	1	0	0	0	10	16	55	141	282	538	1,052	1,913	3,270	5,728	10,158	16,483	27,318	48,019	1,794	2,023
1996	0	0	0	3	6	23	50	107	282	530	987	1,662	3,230	5,473	9,504	15,502	27,906	47,296	1,766	1,955
1997	0	0	0	2	6	11	50	138	263	504	939	1,617	3,066	5,268	8,865	14,306	25,975	45,842	1,706	1,850
1998	0	0	0	1	0	23	60	130	257	443	841	1,585	2,628	4,886	8,193	13,742	24,840	42,536	1,628	1,730
Females																				
1987	0	0	0	1	2	3	17	27	88	199	451	942	1,757	3,812	7,343	13,476	22,613	42,554	1,731	1,504
1988	0	0	0	0	5	1	11	22	67	145	421	853	1,686	3,522	7,128	12,363	22,378	41,357	1,672	1,434
1989	0	0	0	0	2	4	15	29	60	178	383	762	1,646	3,290	6,967	12,636	22,704	44,483	1,722	1,454
1990	0	0	0	1	1	4	12	34	65	132	309	665	1,603	3,259	6,636	11,836	20,750	42,212	1,635	1,367
1991	0	0	0	0	0	6	13	12	59	121	264	652	1,375	2,867	5,945	11,352	19,620	40,899	1,565	1,279
1992	3	0	0	0	0	3	14	27	70	124	304	742	1,380	2,683	5,606	11,131	21,183	43,447	1,642	1,308
1993	0	0	2	0	1	4	19	23	66	103	256	601	1,296	2,460	5,274	10,038	18,175	39,591	1,514	1,178
1994	0	0	0	0	1	0	14	26	53	116	232	534	1,151	2,387	4,721	10,176	19,184	41,841	1,568	1,184
1995	2	0	0	0	1	1	12	31	58	101	252	450	1,079	2,134	4,539	9,045	17,445	39,611	1,485	1,095
1996	0	0	0	3	1	8	12	38	43	97	199	486	995	1,954	4,177	8,482	17,078	39,626	1,472	1,055
1997	0	0	0	0	1	4	18	37	36	110	185	455	1,010	1,890	4,141	7,671	16,836	39,066	1,463	1,024
1998	2	0	0	0	3	8	11	30	59	104	181	370	895	1,750	3,604	7,156	15,443	36,485	1,374	942

Note: ASMR = age-standardised mortality rate.

Table 5.2: Number of deaths and age-standardised mortality rates for ischaemic heart disease per million population, States and Territories, 1987–1991 and 1994–1998

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
Males									
Deaths									
1987–1991	32,189	21,481	14,907	6,984	8,584	2,695	616	340	87,787
1994–1998	28,231	19,308	14,720	6,490	7,467	2,350	720	348	79,625
Deaths per million population									
1987–1991	2,702	2,522	2,652	2,448	2,715	2,778	1,925	2,196	2,602
1994–1998	1,964	1,892	2,036	1,822	1,972	2,088	1,679	1,803	1,933
Confidence intervals (95%)									
1987–1991	2,671– 2,732	2,487– 2,556	2,608– 2,695	2,390– 2,507	2,656– 2,773	2,671– 2,884	1,758– 2,093	1,895– 2,497	2,585– 2,620
1994–1998	1,941– 1,988	1,865– 1,919	2,003– 2,069	1,777– 1,867	1,927– 2,017	2,003– 2,173	1,550– 1,808	1,570– 2,037	1,920– 1,947
Females									
Deaths									
1987–1991	26,354	17,537	11,518	5,177	6,802	2,018	465	146	70,016
1994–1998	24,734	16,854	11,996	5,123	6,378	1,864	521	162	67,634
Deaths per million population									
1987–1991	1,476	1,333	1,466	1,286	1,422	1,463	1,155	1,266	1,405
1994–1998	1,096	1,020	1,139	954	1,042	1,082	860	1,031	1,057
Confidence intervals (95%)									
1987–1991	1,458– 1,494	1,313– 1,353	1,439– 1,493	1,250– 1,321	1,388– 1,456	1,399– 1,527	1,050– 1,261	1,038– 1,495	1,394– 1,415
1994–1998	1,082– 1,110	1,004– 1,036	1,118– 1,160	927– 981	1,016– 1,068	1,032– 1,132	786– 934	858– 1,204	1,049– 1,065

Table 5.3: Age-standardised mortality rates for ischaemic heart disease per million population, by geographic area, 1995–1997

Geographic area	Males		Females	
	ASMR	95% confidence interval	ASMR	95% confidence interval
Metropolitan	1,883	1,856–1,863	1,040	1,028–1,052
Rural	2,055	2,015–2,021	1,094	1,074–1,115
Remote	2,053	1,912–2,125	1,107	1,015–1,199

Note: ASMR = age-standardised mortality rate.

Source: AIHW Mortality Database, based on *Statistical Local Area* resident population estimates compiled by the ABS.

Table 5.4: Age-standardised mortality rates for ischaemic heart disease per million population, by socioeconomic status, 1995–1997

SEIFA quintile	Males		Females	
	ASMR	95% confidence interval	ASMR	95% confidence interval
1 High SES	1,639	1,603–1,675	934	913–954
2	1,841	1,802–1,881	996	973–1,020
3	1,991	1,951–2,031	1,082	1,058–1,106
4	2,049	2,009–2,089	1,116	1,091–1,140
5 Low SES	2,096	2,057–2,135	1,129	1,104–1,153

Notes

1. ASMR = age-standardised mortality rate; SES = socioeconomic status.

2. A description of the SEIFA Index of Relative Socioeconomic Disadvantage may be found in Appendix D.

Source: AIHW Mortality Database, based on *Statistical Local Area* resident population estimates compiled by the ABS.

Table 5.5: Age-standardised mortality rates per million population for ischaemic heart disease, Australians by birthplace, 1992–1994

Males			Females		
Country of birth	ASMR (world)	95% CI	Country of birth	ASMR (world)	95% CI
Israel	2,557	1,492–3,621	Israel	1,068	567–1,570
Poland	1,699	1,541–1,858	Poland	883	785–981
Hungary	1,601	1,396–1,805	Australia	824	813–834
Malta	1,590	1,388–1,793	Malta	784	649–919
New Zealand	1,475	1,347–1,604	Germany	675	606–744
Australia	1,463	1,447–1,479	Finland	665	349–981
Switzerland	1,460	939–1,981	United Kingdom and Ireland	649	629–670
Finland	1,417	932–1,902	Hungary	631	512–751
Canada	1,368	999–1,737	France	628	396–859
Germany	1,350	1,223–1,477	New Zealand	623	551–695
Austria	1,346	1,107–1,584	USA	616	432–801
United Kingdom and Ireland	1,265	1,232–1,297	Netherlands	593	516–671
Portugal	1,195	661–1,730	Switzerland	542	296–787
USA	1,189	935–1,443	Canada	515	301–730
France	1,145	740–1,551	Italy	480	444–516
Netherlands	1,120	1,013–1,227	Greece	465	403–527
Greece	993	901–1,086	Mauritius	456	269–643
Italy	959	906–1,012	Austria	453	338–568
Mauritius	957	615–1,299	Singapore	449	208–690
Singapore	890	461–1,320	Korea	424	128–720
China	681	575–787	China	398	330–466
Hong Kong and Macau	652	371–933	Chile	353	137–569
Japan	370	35–705	Japan	218	0–438
Chile	348	65–630	Portugal	174	1–346
Korea	299	27–571	Hong Kong and Macau	159	40–278

Notes

1. ASMR = age-standardised mortality rate; CI = confidence interval.
2. Age-standardised mortality rates have been standardised to the World Standard Population.