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**Australian Institute of
Health and Welfare**

Trends in coronary heart disease mortality: age groups and populations

CARDIOVASCULAR DISEASE SERIES NO. 38



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**Australian Institute of
Health and Welfare**

*Authoritative information and statistics
to promote better health and wellbeing*

CARDIOVASCULAR DISEASE SERIES

Number 38

Trends in coronary heart disease mortality: age groups and populations

Australian Institute of Health and Welfare
Canberra

Cat. no. CVD 67

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Abbreviations

| | |
|-------|--|
| AAPC | annual average percentage change |
| ABS | Australian Bureau of Statistics |
| AIHW | Australian Institute of Health and Welfare |
| AMI | acute myocardial infarction |
| ASGC | Australian Standard Geographical Classification |
| CHD | coronary heart disease |
| CVD | cardiovascular disease |
| IRSD | Index of Relative Socio-economic Disadvantage |
| ICD | International Classification of Diseases |
| OECD | Organisation for Economic Co-operation and Development |
| SEIFA | Socio-Economic Indexes for Areas |
| SES | socioeconomic status |

Summary

This report examines how trends in the decline of coronary heart disease (CHD) mortality differ among age groups, and by Aboriginal and Torres Strait Islander status, geographic location and socioeconomic status (SES).

All Australians

Although the CHD death rate has declined in Australia between 1979 and 2010, the average annual rate of change for all Australians has varied between age groups and over time:

- Less favourable trends have been observed in people aged 25–39, 40–54, and 55–69, with a recent slowing in the annual average rate of decline.
- For men aged 40–54, the decline slowed from -6.6% to -3.2%, and for women from -7.4% to -2.7%. For men aged 55–69, from -6.8% to -5.1%, and for women from -8.4% to -5%.
- For men and women aged 70 years and over, who are most at risk of CHD death, mortality declines have continued to improve and are currently -5.1% per year.

Unfavourable trends in some key risk factors for cardiovascular diseases are thought to underlie the slowing of the decline in CHD deaths among younger age groups.

Aboriginal and Torres Strait Islander people

CHD mortality rates for Aboriginal and Torres Strait Islander people remain higher than for other Australians, although between 2001–2002 and 2009–2010 there was improvement in the gap for all age groups, more so for Indigenous women than men:

- Annual average declines in CHD death rates were greater for Indigenous women than for other Australian women for the age groups 40–54 (-4.3% compared to -2.2%) and 70 or over (-3.8% compared to -3.3%).

Geographic location

Overall trends in CHD mortality decline were less favourable among people living in the most remote areas of Australia:

- Between 2001–2002 and 2009–2010, annual average declines were greatest in *Major cities*, for both men (-4.1%) and women (-4.3%).
- Annual average declines were greatest for men at age 55–69 in *Inner regional* and *Outer regional* areas (both -4.8%), and for women at age 55–69 in *Inner regional* areas (-6%).

Socioeconomic status

Overall trends in CHD mortality decline were less favourable among the lowest SES group:

- In the highest SES group, there was a 47% decline among both men and women aged 25 or over, compared to 40% for men and women in the lowest SES group between 1997 and 2007.
- For men and women in younger age groups, the CHD mortality gap narrowed between the lowest and highest SES groups, whereas the gap widened for those aged for 70 or over.

Snapshot of key statistical findings:

Is CHD mortality declining?

| | Age group | | | | |
|--|-----------|-----------------|-------|-----|-----|
| | 25–39 | 40–54 | 55–69 | 70+ | 25+ |
| All Australians, 1979–2010 | | | | | |
| Men | ✓ | ✓ | ✓ | ✓ | ✓ |
| Women | n.s. | ✓ | ✓ | ✓ | ✓ |
| Aboriginal and Torres Strait Islander people, 2001–2010 | | | | | |
| Indigenous men | | ✓ | ✓ | ✓ | ✓ |
| Indigenous women | | ✓ | ✓ | ✓ | ✓ |
| Geographic location, 2001–2010 | | | | | |
| Major cities men | | ✓ | ✓ | ✓ | ✓ |
| Major cities women | | ✓ | ✓ | ✓ | ✓ |
| Remote and very remote men | | * | ✓ | ✓ | ✓ |
| Remote and very remote women | | * | * | ✓ | ✓ |
| Socioeconomic status, 1997–2007 | | | | | |
| Lowest SES men | | ✓ ^{1.} | ✓ | ✓ | ✓ |
| Lowest SES women | | ✓ ^{1.} | ✓ | ✓ | ✓ |
| Highest SES men | | ✓ ^{1.} | ✓ | ✓ | ✓ |
| Highest SES women | | ✓ ^{1.} | ✓ | ✓ | ✓ |

Are CHD mortality declines improving?

| | Age group | | | | |
|-----------------------------------|-----------|-------|-------|-----|-----|
| | 25–39 | 40–54 | 55–69 | 70+ | 25+ |
| All Australians, 1979–2010 | | | | | |
| Men | * | * | * | ✓ | ✓ |
| Women | n.s. | * | * | ✓ | ✓ |

Has the CHD mortality gap narrowed?

| | Age group | | | | |
|--|-----------|-----------------|-------|-----|-----|
| | 25–39 | 40–54 | 55–69 | 70+ | 25+ |
| All Australians, 1979–2010 | | | | | |
| Men / women | ✓ | ✓ | ✓ | ✓ | ✓ |
| Aboriginal and Torres Strait Islander people, 2001–2010 | | | | | |
| Indigenous / Other Australian men | | ✓ | ✓ | ✓ | ✓ |
| Indigenous / Other Australian women | | ✓ | ✓ | ✓ | ✓ |
| Geographic location, 2001–2010 | | | | | |
| Major cities / Remote and very remote men | | * | * | * | * |
| Major cities / Remote and very remote women | | * | ✓ | ✓ | ✓ |
| Socioeconomic status, 1997–2007 | | | | | |
| Lowest SES / Highest SES men | | * ^{1.} | ✓ | * | * |
| Lowest SES / Highest SES women | | * ^{1.} | ✓ | * | * |

Notes:

1. Ages 25–54

2. n.s. Not significant.

Source: AIHW National Mortality Database

1. Introduction

Coronary heart disease (CHD), also known as ischaemic heart disease, is the largest single cause of death in Australia. It contributes to significant illness, disability, poor quality of life and premature mortality, and results in high health care costs (AIHW 2012a). CHD is common, affecting an estimated 585,900 Australians in 2011–12 (ABS 2013c). It was the underlying cause of 21,513 deaths in 2011 (15% of all deaths).

CHD occurs when there is a blockage in the blood vessels that supply blood to the heart muscle. There are two major clinical forms of CHD: *heart attack*—an acute life-threatening event where the blood vessel is completely blocked requiring prompt treatment; and *angina*—a chronic condition where there is a temporary deficiency in the blood supply.

However, CHD is largely preventable as many of its risk factors are modifiable, including tobacco smoking, high blood pressure, high blood cholesterol, physical inactivity, poor nutrition and obesity (AIHW 2009) (see Glossary for definitions of CHD risk factors).

Over the last three decades substantial progress has been made in improving CHD health. CHD death rates have decreased by around 70%, attributed to improved diagnosis and treatment and improved risk factor behaviours.

There has been a marked increase in the use of statins to treat high cholesterol, and anti-hypertensive medications to treat high blood pressure (Briffa et al. 2009), as well as improvements in the rates of smoking, high blood pressure and other risk factors (Taylor et al. 2006). Reductions in CHD mortality have also been influenced by advances in medical and surgical treatments. For people with established CHD, significant reductions in coronary events and deaths have been achieved through revascularisation procedures that restore good blood supply to the heart by either reducing or bypassing coronary artery blockages. Despite these improvements, premature deaths from CHD continue to impose a heavy burden on the Australian population.

The combined effect of Australia's ageing population, the high prevalence of CHD in the community, and increases in the prevalence of key risk factors for CHD—diabetes, being overweight or obese and physical inactivity—all impact on the continuation of declines in CHD mortality observed over recent decades.

A previous report by the AIHW has shown that while CHD death rates have been declining overall, the rate of change has varied between age groups, with a slowing in CHD mortality declines for younger Australians (AIHW 2010a).

This report builds on these previous findings by including a broader age range, starting from age 25, and by examining mortality trends for specific population groups. It aims to answer the following questions:

- Has the slowing of the decline in CHD mortality rates previously observed for younger people continued in recent years?
- Does the decline in CHD mortality rates differ by Aboriginal and Torres Strait Islander status, geographic location or socioeconomic group?

Using data from the AIHW National Mortality Database, a range of statistical measures examine trends in age-specific and age-standardised CHD death rates. These include measures of change over time, such as overall percentage change and annual average

percentage change (AAPC), as well as measures to compare inequalities in mortality, such as rate differences and rate ratios.

A number of criteria are used to assess whether CHD mortality outcomes are favourable. These include:

- declines in mortality rates
- early occurrences of mortality decline
- increases in the annual average decline
- decreases in mortality gaps between population groups, including by Aboriginal and Torres Strait Islander status, geographic location, and socioeconomic status.

For further information on statistical measures and methods, refer to Appendix B.

2. Trends for all Australians

Key findings

- CHD death rates fell by over 70% for men and women aged 25 or over between 1979 and 2010.
- CHD death rates declined for all age groups, with the greatest decline for those between 55 and 69 – an 85% fall for men and 88% for women.
- Annual average declines in CHD death rates have slowed among younger age groups. For men aged 40–54 from -6.6% to -3.2%, and for women from -7.4% to -2.7%. For men aged 55–69 the decline slowed from -6.8% to -5.1%, and for women from -8.4% to -5%.
- For men and women aged 70 or over, CHD mortality declines have continued to improve, and are currently -5.1% per year.

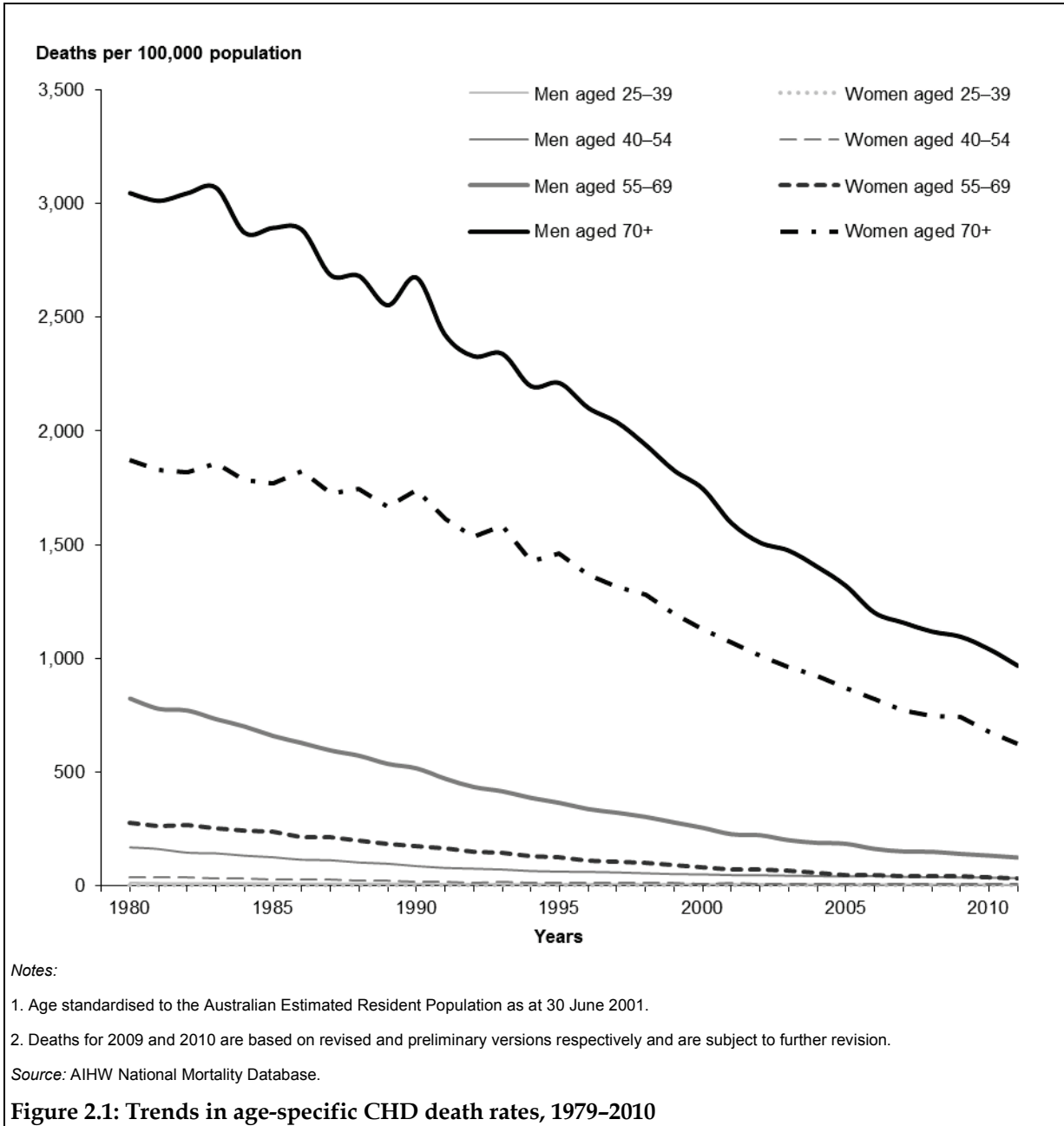
Death rates for cardiovascular diseases – including for coronary heart disease (CHD) – peaked in Australia in the late 1960s (AIHW 2011a). Since then, CHD mortality has declined for both men and women. The number of CHD deaths has fallen from 30,927 in 1979 to 21,699 in 2010. The relative contribution of CHD has also fallen, from 29% of all deaths in 1979 to 15% in 2010.

Between 1979 and 2010 CHD death rates fell by 73% for men aged 25 or over, and by 71% for women. There have been large overall declines in rates for both men and women in all age groups (Figure 2.1).

Despite falls in death rates and in the relative contribution to total deaths, the number of persons dying from CHD is still large, and it remains the single leading cause of death in Australia (ABS 2013a).

The rate of decline in CHD deaths, however, has varied between age groups. Previous research has found a slowing of the decline in CHD mortality rates among younger age groups (AIHW 2010a).

This chapter examines in greater detail changes in CHD death rates for all Australians aged 25 years or over. These changes are examined for the total population, as well as for specific age groups 25–39, 40–54, 55–69 and 70 or over, covering the period 1979 to 2010.

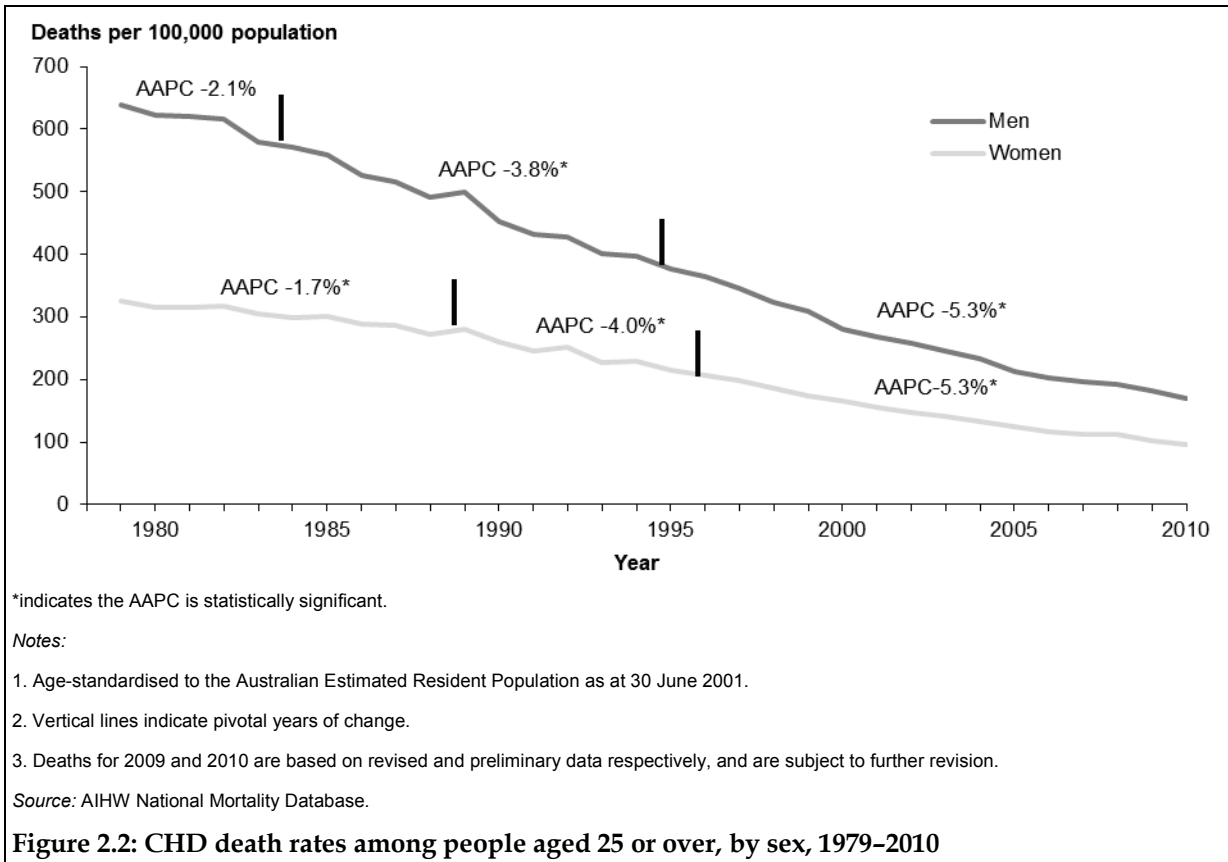


Population aged 25 or over

In 1979, the age-standardised CHD death rate for men aged 25 or over was twice as high as for women (639 compared to 325 deaths per 100,000 population). Between 1979 and 2010, death rates fell by a similar amount for men and women (73% compared to 71%). CHD mortality rates remain higher for men, so that in 2010 the rate was 170 deaths per 100,000 population for men and 95 deaths per 100,000 population for women.

Deaths for both men and women have declined at a faster rate in recent years (Figure 2.2). For the period 1979 to 1984, the annual average percentage change (AAPC) in men was -2.1%. This improved to -3.8% for 1984 to 1995, and to -5.3% for 1995 to 2010.

For women, the AAPC improved from -1.7% for 1979 to 1989, to -4% for 1989 to 1996, and to -5.3% for the period 1996 to 2010.

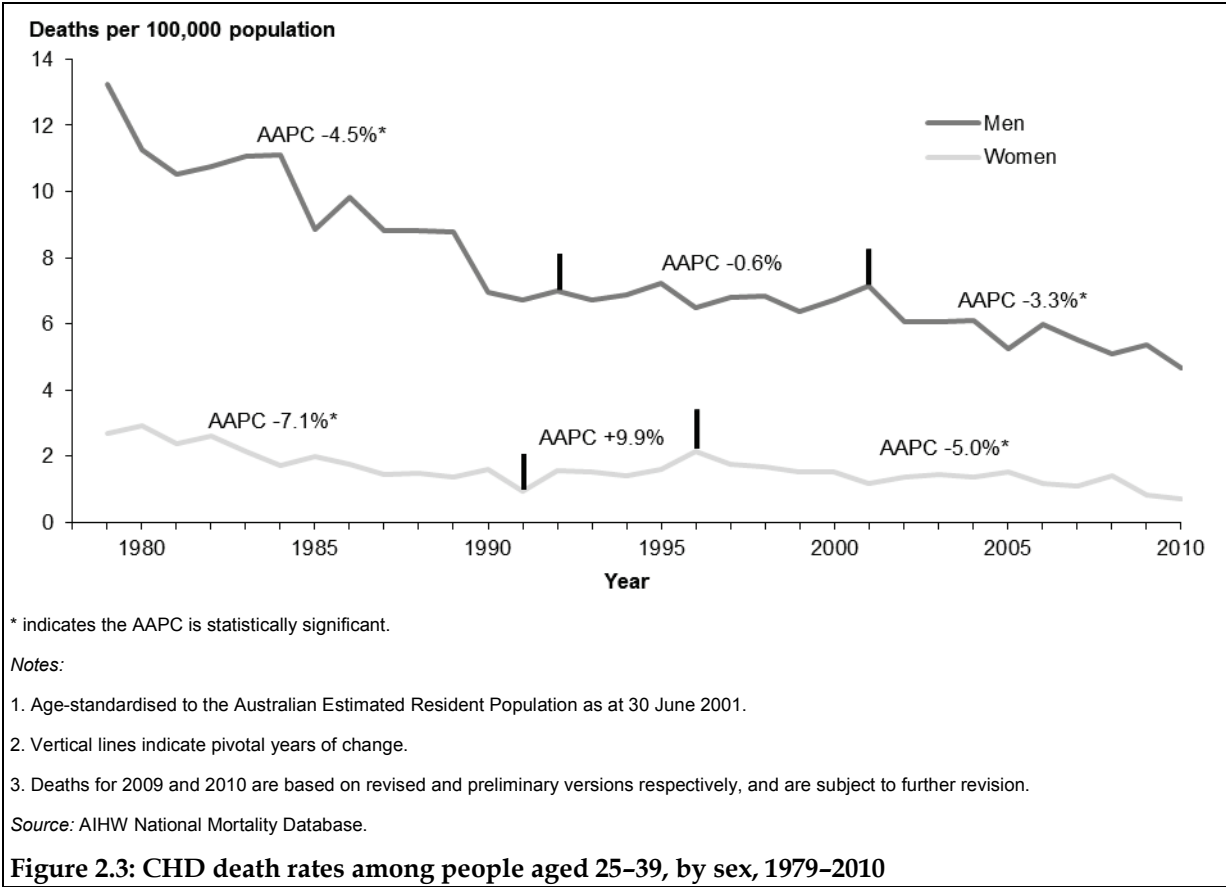


Population aged 25 to 39

There are few CHD deaths in the age group 25–39, and so caution should be taken in interpreting changes in rates. In 2010, there were around 100 CHD deaths for men and less than 20 for women.

Between 1979 and 2010, CHD death rates fell by 65% in men aged 25 to 39 (from 13 to 5 deaths per 100,000 population). Rates among women were very low, and show no consistent trend (Figure 2.3).

The annual average decline in CHD death rates was greatest in the earlier years for men. For the period 1979 to 1992 the decline was -4.5%, this levelled to -0.6% between 1992 and 2001, although this was not statistically significant, and then grew to -3.3% for 2001 to 2010.

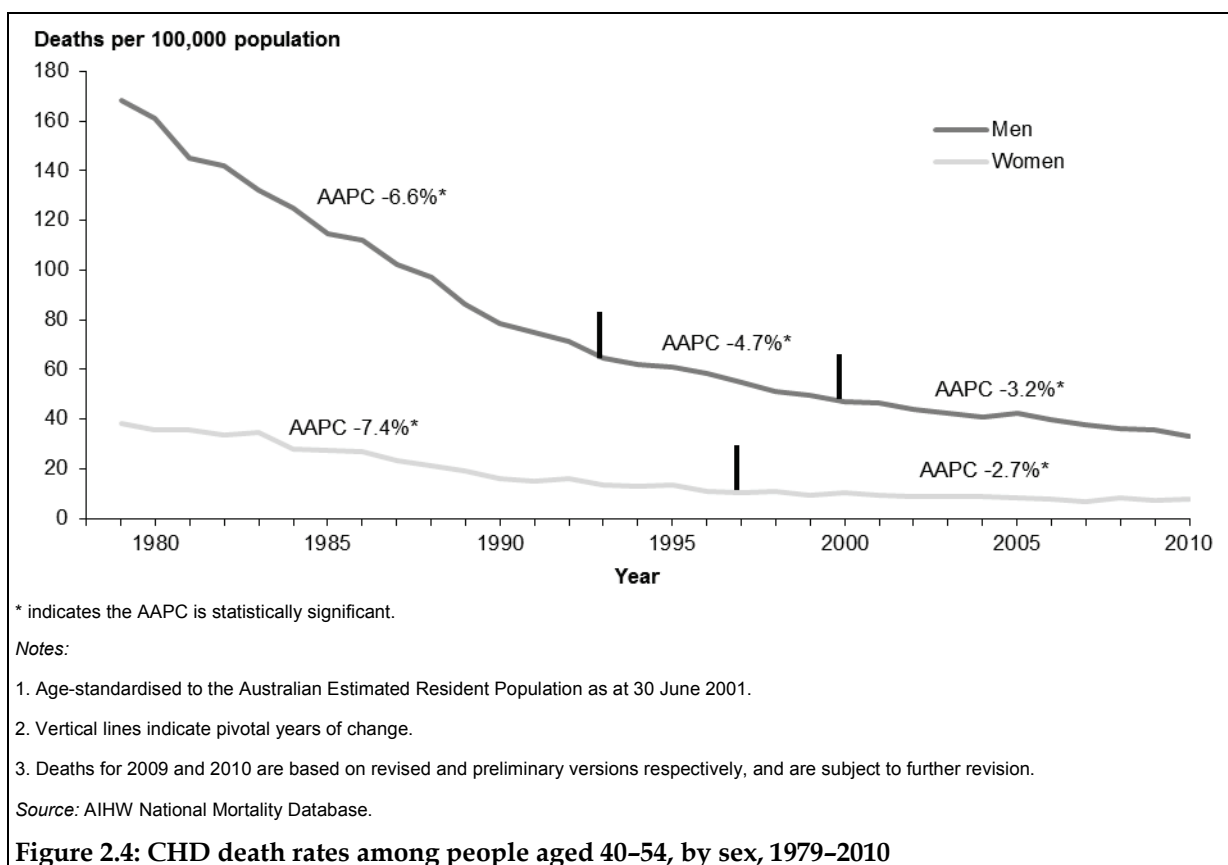


Population aged 40 to 54

Between 1979 and 2010, CHD death rates for men aged 40 to 54 declined by 80% (from 168 to 33 deaths per 100,000 population) and for women by 79% (from 38 to 8 deaths per 100,000 population) (Figure 2.4).

The annual average decline has slowed for both men and women, to the extent that this age group currently has the lowest rate of decline. For men, the decline was greatest for the period 1979 to 1993 (-6.6%), slowing to -4.7% between 1993 and 2000, and to -3.2% between 2000 and 2010.

For women the average annual decline was greatest for the period 1979 to 1997 (-7.4%) and then slowed to -2.7% between 1997 and 2010.

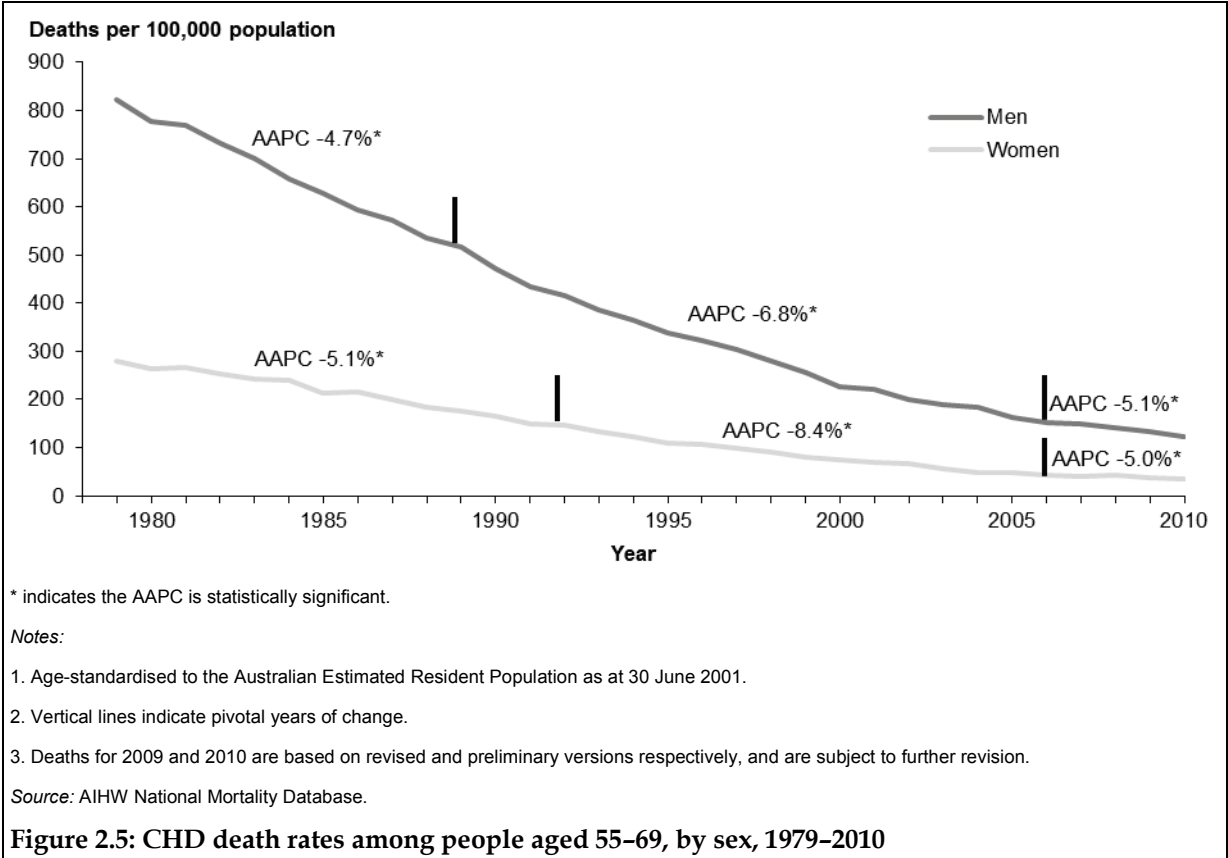


Population aged 55 to 69

Between 1979 and 2010, the CHD death rate for the age group 55–69 fell by 85% in men (from 823 to 124 deaths per 100,000 population) and 88% in women (from 279 to 34 deaths per 100,000 population) (Figure 2.5). Overall declines in CHD mortality were greatest among this age group.

The annual average decline in CHD death rates for both men and women aged 55 to 69 accelerated around 1990, before slowing again in 2006. For men the annual average decline was -4.7% for the period 1979 to 1989, then -6.8% for 1989 to 2006, before slowing to -5.1% for 2006 to 2010.

For women the annual average decline for 1979 to 1992 was -5.1%, then -8.4% for 1992 to 2006 and -5% for 2006 to 2010.

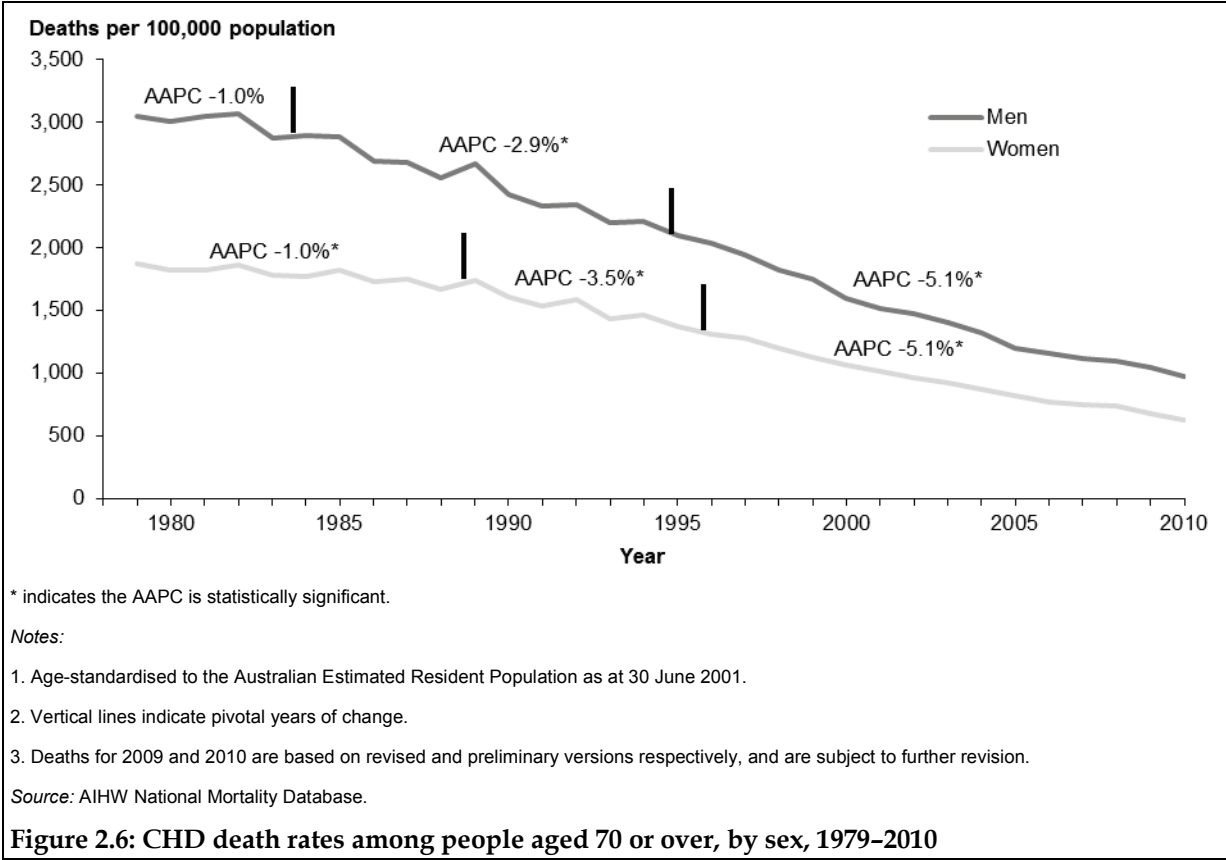


Population aged 70 or over

Between 1979 and 2010, the CHD death rate for the age group 70 or over fell by 68% in men (from 3,046 to 968 deaths per 100,000) and 67% in women (from 1,874 to 626 deaths per 100,000) (Figure 2.6).

The annual average decline has been greatest in recent years, and is now similar to that of the age group 55–69. For men, the AAPC grew from -1% for the period 1979 to 1984, to -2.9% for 1984 to 1995, and -5.1% for 1995 to 2010.

For women, for the periods 1979 to 1989, 1989 to 1996, and 1996 to 2010, the annual average decline in CHD death rates also continued to improve, from -1% to -3.5% to -5.1%.



3. Trends by Aboriginal and Torres Strait Islander status

Key findings

- Between 2001–2002 and 2009–2010, CHD death rates fell by 28% for Aboriginal and Torres Strait Islander men compared to 31% for other men. For Indigenous women, CHD death rates fell by 36%, compared to 29% for other women.
- Annual average declines in CHD death rates were similar for Indigenous and other Australian men in the 40–54 and 55–69 age groups.
- Annual average declines for Indigenous women exceeded that of other women (-4.1% compared to -3.5%). Declines among Indigenous and other men were similar (-3.6% compared to -3.7%).
- The CHD mortality gap between Indigenous and other Australians has narrowed for all age groups.

Aboriginal and Torres Strait Islander people continue to have a greater burden of ill health than other Australians – they die at much younger ages and are more likely to experience disability and reduced quality of life. The burden of CHD is high among Indigenous people, beginning at much younger ages than for other Australians. The Indigenous population, on average, has high rates of smoking, physical inactivity, diabetes and obesity – key risk factors for CHD – in part contributing to high rates of illness and death from CHD (AIHW 2011c). In turn, adverse health behaviours and risk factors are affected by social determinants – the conditions into which Indigenous people are born, grow, live, work and age. Addressing social determinants can assist in reducing modifiable risk factors and the risk of premature CHD death, with the potential for significant Indigenous health gains.

At present, there is considerable variation across the states and territories in the quality and completeness of mortality data. In this report data are presented for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory, since these jurisdictions are considered to have sufficient coverage to present reliable statistics. Comparisons are made between Aboriginal and Torres Strait Islander people and other Australians, which includes people with non-stated Indigenous status.

As the number of CHD deaths among Indigenous Australians is small (98 among persons aged 25 or over in 2010), deaths are combined over two years for the period 2001–2002 to 2009–2010, and so the annual average percentage change (AAPC) is calculated over the entire period, with no pivotal points indicated. Because of these small numbers, no trend is presented for ages 25–39, and analysis for other age groups should be interpreted with caution.

Population aged 25 or over

In 2009–2010, the CHD death rate for Indigenous men aged 25 or over was twice that of other Australian men, while the rate for Indigenous women was 1.6 times as high as other women.

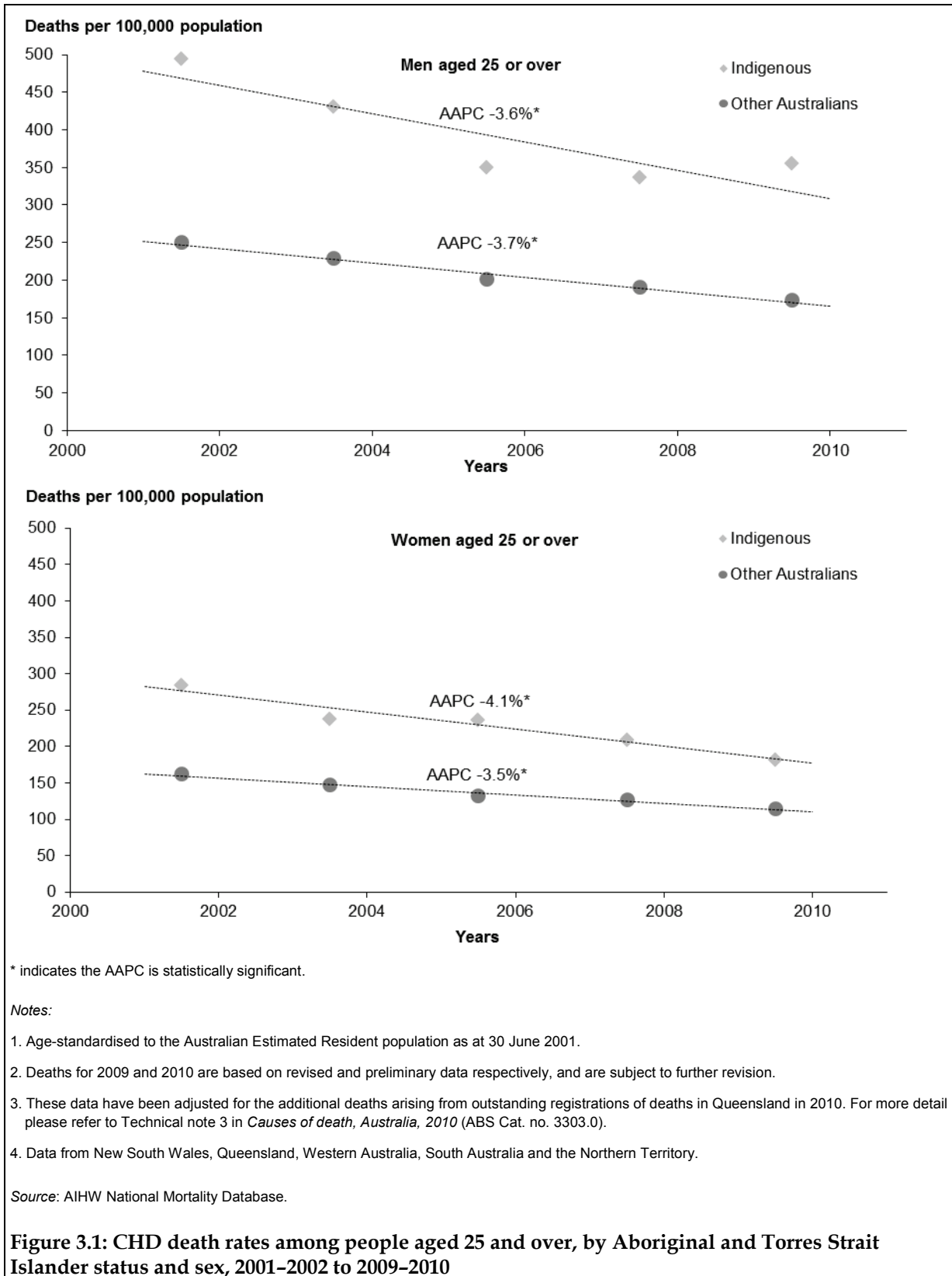
Between 2001–2002 and 2009–2010, there were large overall declines in CHD death rates for both Indigenous and other Australians aged 25 or over (Figure 3.1).

The decline for Indigenous men (28%, from 494 to 355 deaths per 100,000 population) was similar to other Australian men (31%, from 250 to 174 deaths per 100,000 population). From 2005 onwards, the CHD mortality rate among Indigenous men shows little change.

The decline for Indigenous women of 36% (284 to 181 deaths per 100,000 population) was higher than for other Australian women (29% from 162 to 115 deaths per 100,000 population).

Between 2001 and 2010, no difference was observed in the annual average decline in CHD death rates for Indigenous and other Australian men (-3.6% and -3.7% respectively). Over the same period, the annual average decline in the CHD death rate for Indigenous women was greater than other Australian women (-4.1% compared to -3.5%).

Improvements in CHD mortality rates for both Indigenous people and other Australians has meant that the mortality gap (that is, the difference between the CHD mortality rate for Indigenous people and other Australians) remains, although it has narrowed. Between 2001–2002 and 2009–2010, the gap for men declined from 243 to 181 deaths per 100,000 and for women from 123 deaths to 67 deaths per 100,000.



Population aged 40 to 54

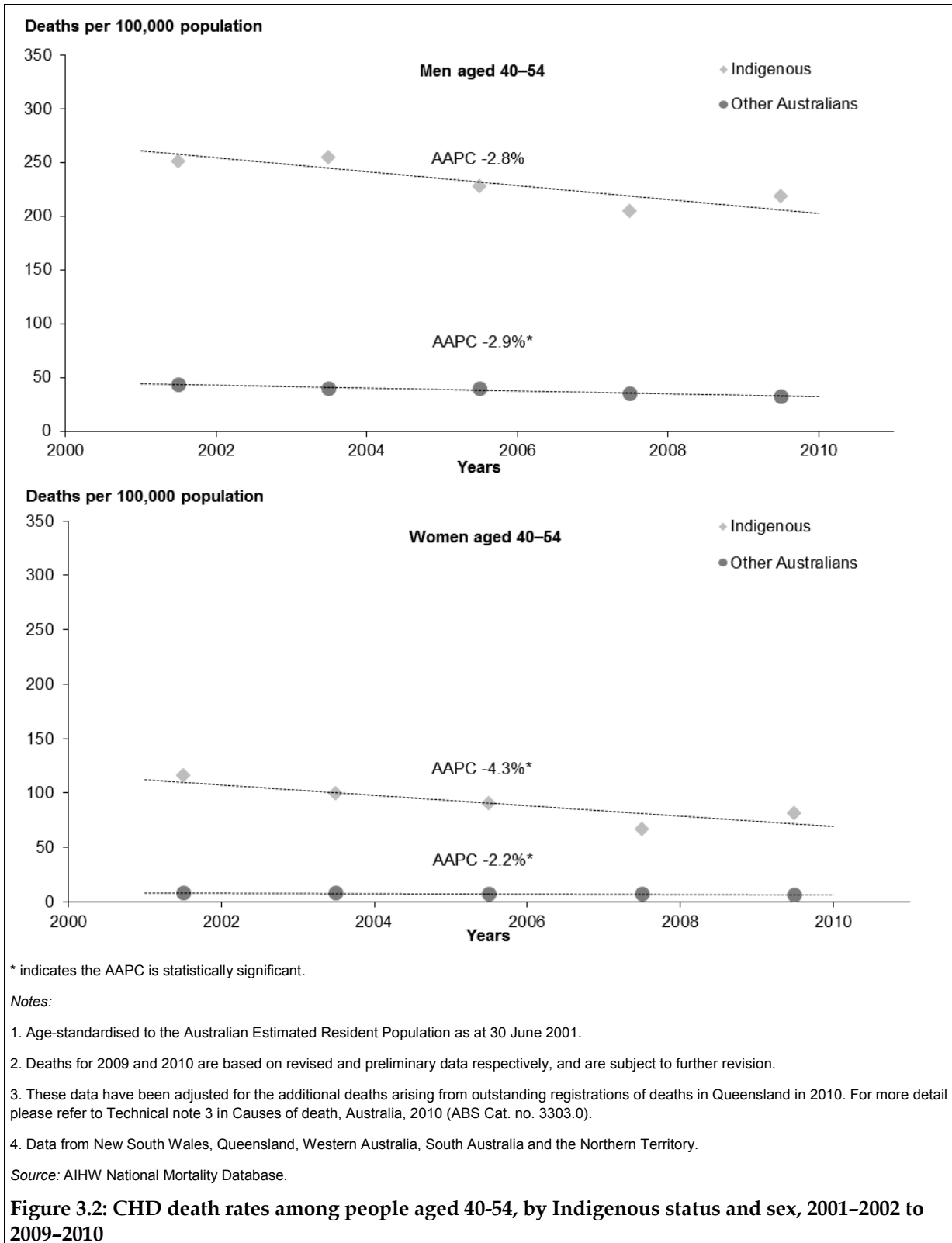
In 2009–2010, the age-specific CHD death rate for Indigenous men aged 40–54 was 7 times that for other Australian men, while the rate for Indigenous women was 13 times as high as other women (Figure 3.2).

Between 2001–2002 and 2009–2010, CHD death rates for Indigenous men aged 40–54, declined by 13% (251 to 219 deaths per 100,000), compared to 25% for other Australian men (43 to 33 deaths per 100,000).

Conversely, for Indigenous women, the CHD death rate declined by 30% (116 to 81 deaths per 100,000 population), compared to 19% for other Australian women (8 to 6.4 deaths per 100,000 population).

Between 2001 and 2010, the average annual decline in CHD death rates was similar for both Indigenous and other Australian men aged 40–54 (-2.8% compared to -2.9%, respectively), although the decline for Indigenous men was not statistically significant. The average annual decline for Indigenous women was greater than for other Australian women (-4.3% compared to -2.2%).

Over the years 2001–2002 and 2009–2010, the difference in CHD death rates between Indigenous and other Australian men aged 40–54 narrowed from 208 to 186 deaths per 100,000 population. For Indigenous and other Australian women the rate difference narrowed from 108 to 75 per 100,000 population.



Population aged 55 to 69

In 2009–2010, despite reductions in the mortality gap, the age-specific CHD death rate in Indigenous men was twice as high as for other Australian men. For Indigenous women it was 1.3 times as high as for other Australian women (Figure 3.3).

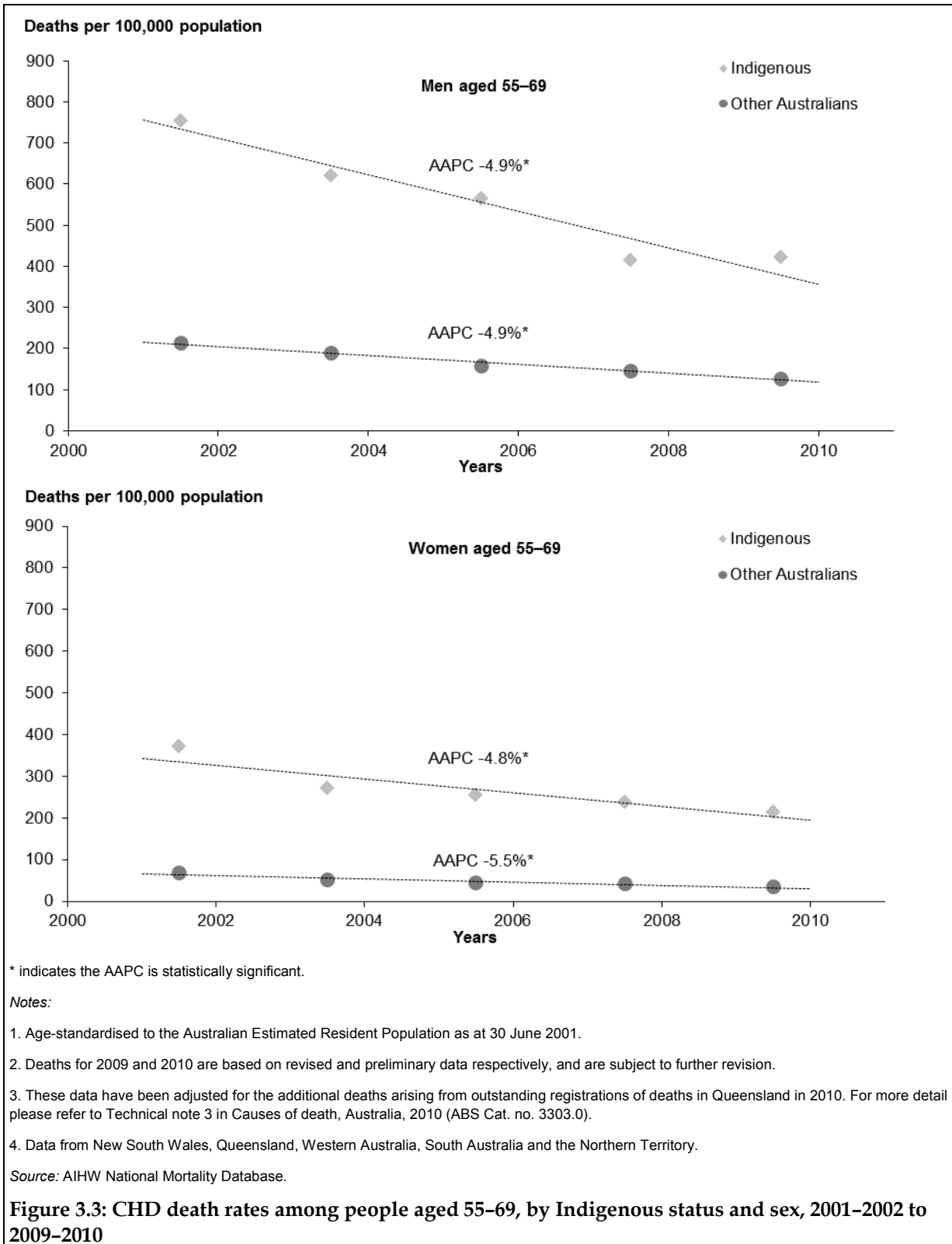
Between 2001–2002 and 2009–2010, the age-specific CHD death rate for Indigenous men aged 55–69 decreased by 44% (755 to 422 deaths per 100,000 population), similar to the 42% decline for other Australian men (68 to 35 deaths per 100,000 population).

For Indigenous women, CHD death rates decreased by 42% (371 to 215 deaths per 100,000 population) compared with 49% (68 to 35 deaths per 100,000 population) for other Australian women.

Declines in Indigenous CHD mortality for both men and women in this age group were the largest across all Indigenous age groups.

Over the period 2001 to 2010, the annual average decline in CHD death rates was -4.9% for both Indigenous and other Australian men. Over the same period the annual average decline was -4.8% for Indigenous women, a slightly slower rate than the -5.5% for other Australian women.

Over the years 2001–2002 and 2009–2010, the gap in CHD mortality between Indigenous and other Australian men decreased from 542 to 296 deaths per 100,000 population, the largest among any age group. There was also a reduction in the mortality gap for women over the same period, from 303 to 180.



Population aged 70 or over

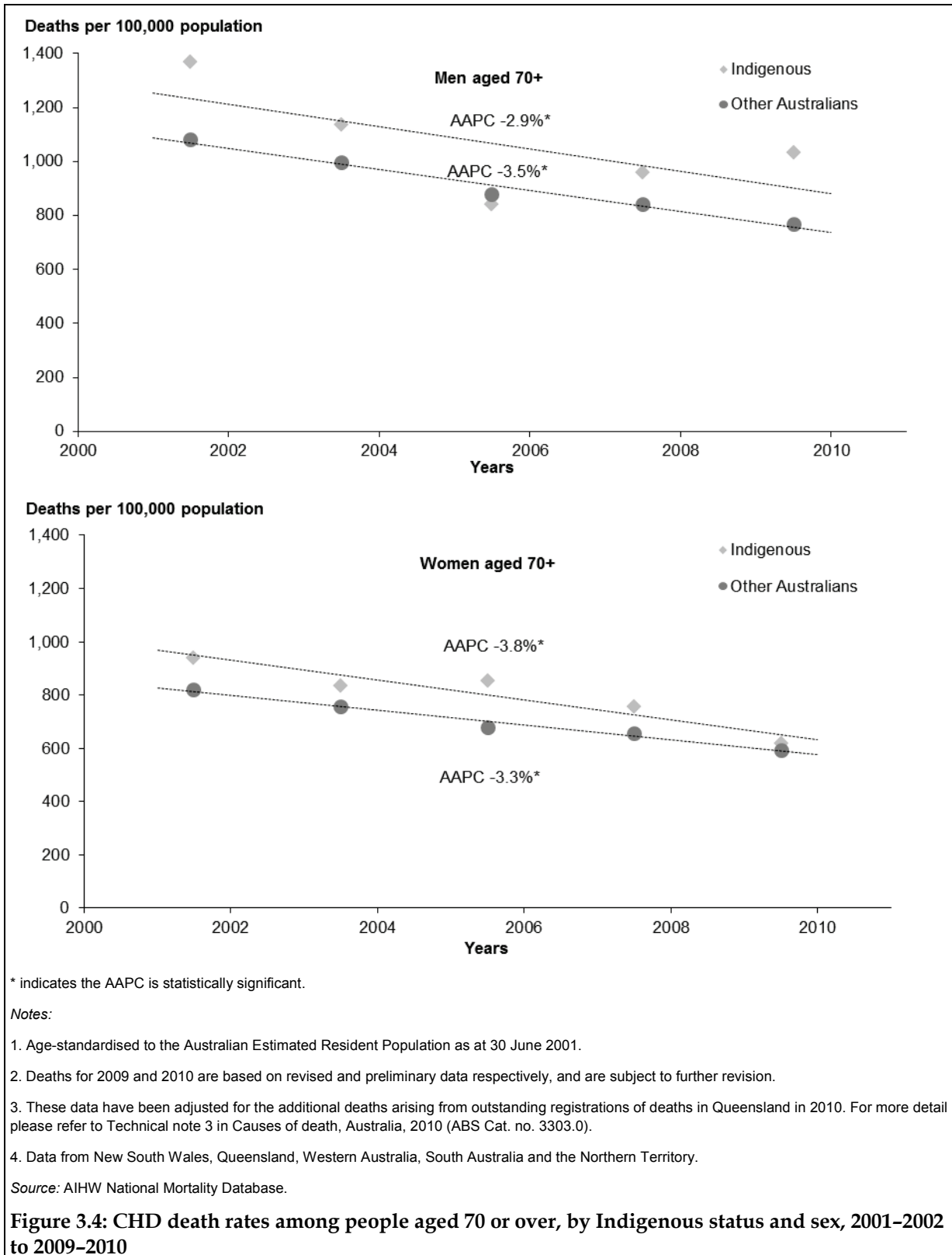
In 2009–2010, the age-specific CHD death rate for both Indigenous men and women was 1.3 times as high as for other Australians. (Figure 3.4).

Between 2001–2002 and 2009–2010, the age-specific CHD death rates for Indigenous men aged 70 or over decreased by 25% (1,369 to 1,034 deaths per 100,000 population), compared with 29% (1,082 to 768 deaths per 100,000 population) for other Australian men.

The rate fell by 34% (937 to 617 deaths per 100,000 population) for Indigenous women over the same period, compared to 28% (821 to 593 deaths per 100,000 population) for other Australian women.

The annual average decline in CHD death rates for Indigenous men aged 70 or over was slower than that for other Australian men between 2001–2002 and 2009–2010 (-2.9% and -3.5% respectively). For Indigenous women the annual average decline was -3.8%, which was greater than the -3.3% decline for other Australian women.

Over the years 2001–2002 and 2009–2010, the gap in CHD mortality between Indigenous and other Australian men aged 70 or over fell slightly from 287 to 266 deaths per 100,000 population, while for Indigenous and other Australian women the gap has narrowed considerably from 116 to 25.



4. Trends by geographic location

Key findings

- Between 2001–2002 and 2009–10, CHD death rates for persons aged 25 or over declined regardless of location. For men, the decline was greatest in *Major cities* (34%). For women, however, the decline was greatest in *Remote and very remote areas* (43%).
- Annual average declines were greatest in *Major cities*, for both men (-4.1%) and women (-4.3%).
- At age 55–69, annual average declines for men were greatest in *Inner* and *Outer regional areas* (-4.8%), and for women in *Inner regional areas* (-6%).
- At age 70 or over, annual average declines were greatest in *Major cities* for both men (-4.1%) and women (-4.3%).

Australians living in regional and remote areas of the country are at an increased risk, and have higher rates of illness and death from CHD than those living in urban areas (Sexton & Sexton 2000, Chew et al. 2013). The reasons for this are complex, but include factors such as barriers in accessing optimal health services, higher costs and difficulties sourcing fresh food, harsher environmental conditions and relative social isolation.

Furthermore, people in regional and remote areas may experience greater disadvantage—such as lower levels of education, income and employment— placing individuals at greater risk of unhealthy factors such as smoking, physical inactivity, and alcohol misuse, as well as being overweight or obese (AIHW 2010b).

The higher rates of poor health in remote areas of Australia are also influenced by the high proportion of Aboriginal and Torres Strait Islander people living in these areas who experience poorer health outcomes. In 2011, Indigenous Australians comprised 28% of the population of *Remote and very remote areas* of Australia (ABS 2013b).

In this report, areas are classified as *Major cities*, *Inner regional*, *Outer regional*, *Remote* or *Very remote*, based on the Australian Standard Geographical Classification (ASGC) Remoteness Area classification (see Appendix A: Methods for further details). *Remote* and *Very remote* areas have been grouped together to ensure there are sufficient numbers for meaningful analysis. As at June 2010, 69% of the Australian population lived in *Major cities* and 2% in *Remote* or *Very remote* areas. The remaining 29% lived in *Inner regional* and *Outer regional* areas (ABS 2011).

Because of small numbers, no trend in CHD deaths is presented for ages 25–39, and results for the *Remote and very remote* area should be interpreted with caution.

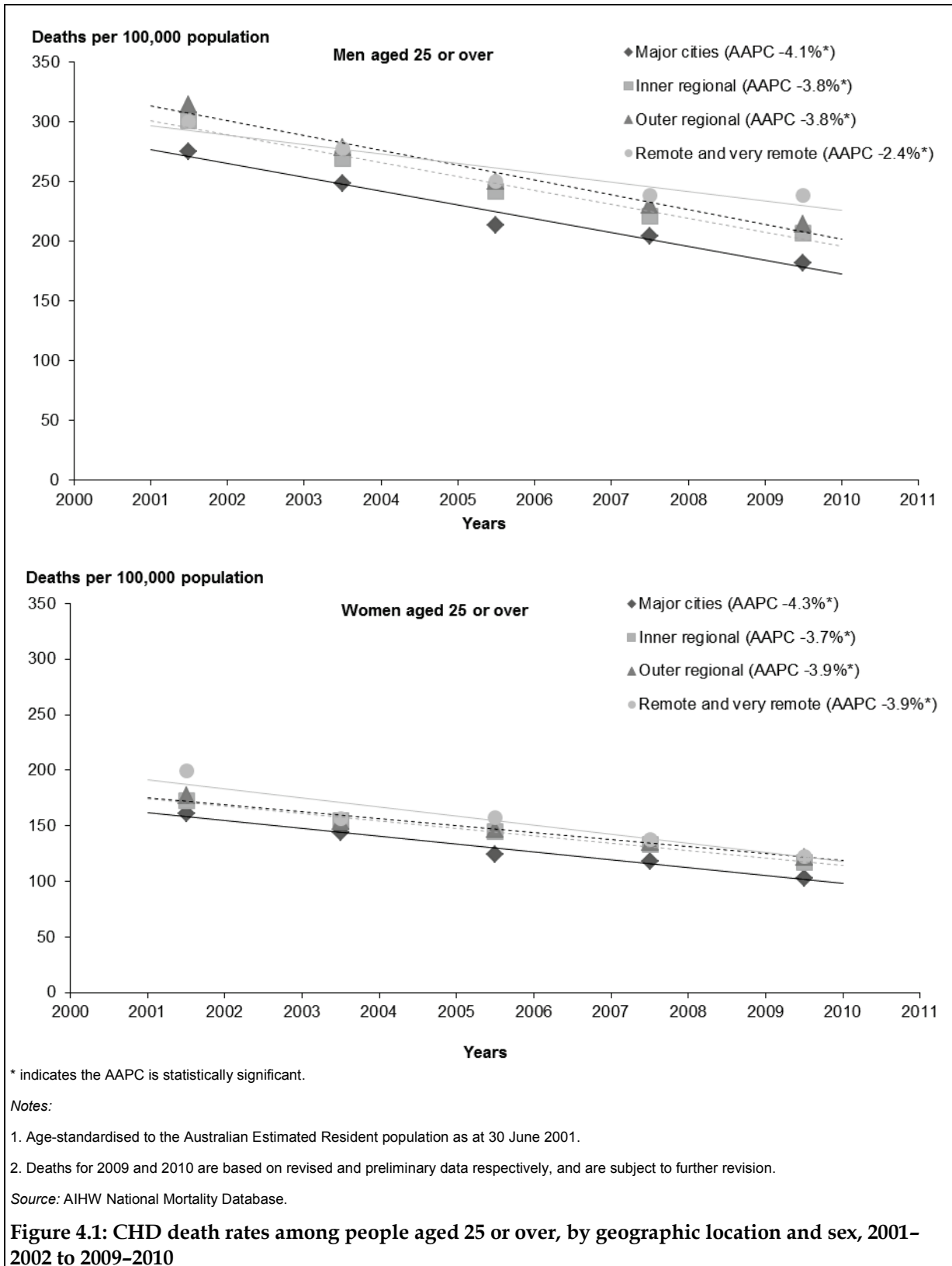
Population aged 25 or over

Inequalities in CHD death rates remain across geographic regions. In 2009–2010, the CHD death rate for men in *Remote and very remote* area was 1.3 times as high as that for *Major cities*, and for women 1.2 times as high.

Between 2001–2002 and 2009–2010, CHD death rates for persons aged 25 or over declined in all remoteness areas (Figure 4.1). For men, the decline in *Major cities* was greatest (34% from 275 to 181 deaths per 100,000 population), with declines of 31% in *Inner regional* and *Outer regional* areas, followed by 21% in *Remote and very remote* areas (21% from 300 to 238 per 100,000 population). For women, however, the decline in *Remote and very remote* areas was greatest (43% from 199 to 122 deaths per 100,000 population). Substantial declines also occurred in *Major cities* (36%), *Inner regional* (32%) and *Outer regional* areas (31%).

The annual average decline in CHD death rates between 2001 and 2010 for men was greatest in *Major cities* (-4.1%). Declines grew smaller with increasing remoteness, and was -2.4% in *Remote and very remote* areas. For women the declines were -4.3% per year in *Major cities*, -3.7% in *Inner regional*, -3.6% in *Outer regional* areas and -3.9% in *Remote and very remote* areas.

Between 2001–2002 and 2009–2010, the gap in CHD mortality rates between *Major cities* and *Remote and very remote* areas increased for men, from 25 to 57 deaths per 100,000 population while the gap narrowed for women from 38 to 19 per 100,000 population.



Population aged 40 to 54

In 2009–2010, CHD death rates for both men and women aged 40–54 rose markedly with increasing remoteness— CHD death rates were 3 and 5 times as high for men and women, respectively, in *Remote and very remote* areas compared with *Major cities*.

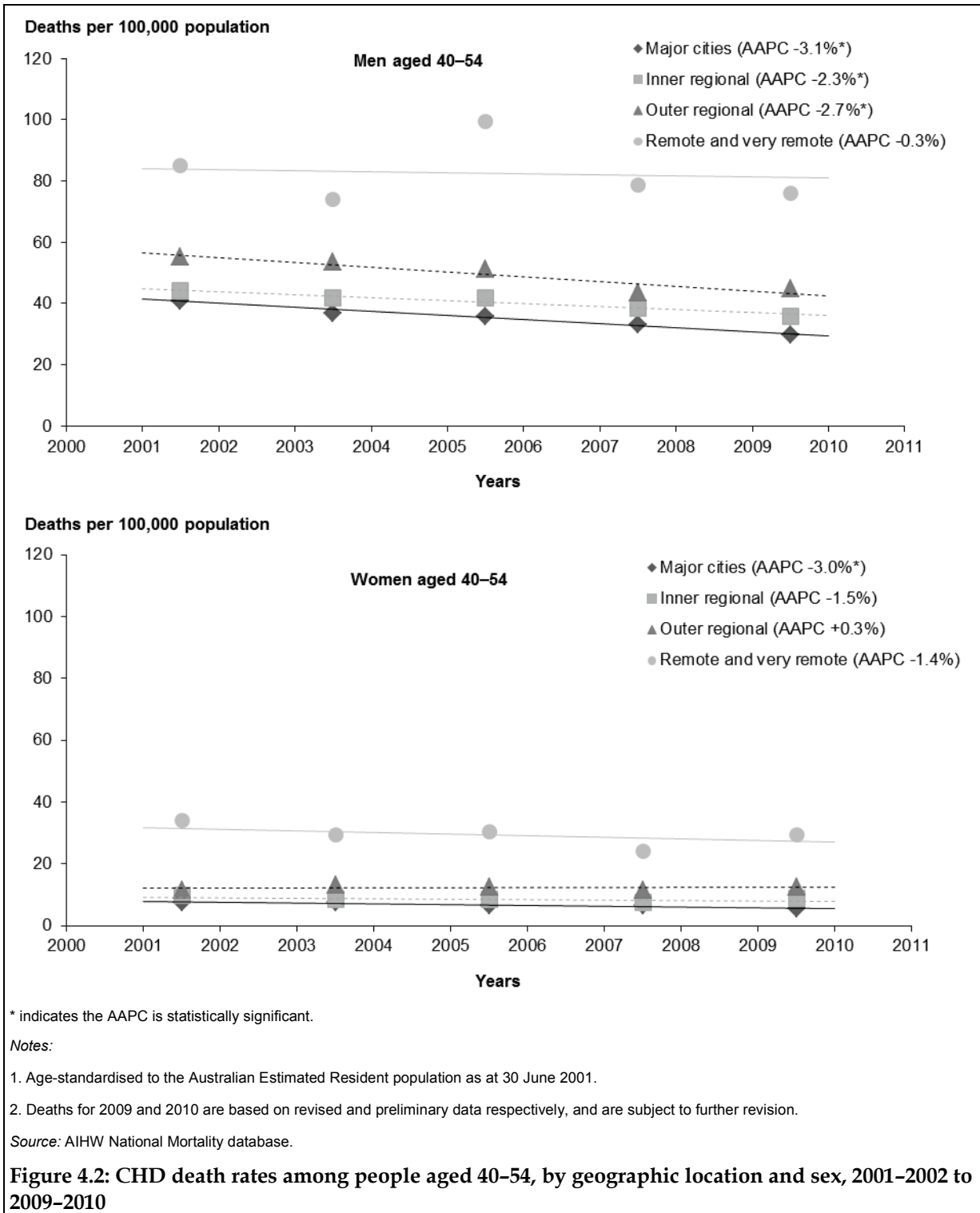
Between 2001–2002 and 2009–2010, CHD death rates for persons aged 40–54 declined in all remoteness areas (Figure 4.2).

Declines for men were greatest in *Major cities* (27%), followed by *Outer regional* areas (19%), *Inner regional* areas (18%) and *Remote and very remote* areas (11%). For women, declines were greatest in *Major cities* (25%), followed by *Remote and very remote* areas (23%), and *Inner regional* areas (9%). Women living in *Outer regional* areas experienced an increase in CHD death rates of 8%.

Between 2001 and 2010, the annual average decline in CHD death rates for men was greatest in *Major cities* (-3.1%), compared to *Inner regional* areas (-2.3%) and *Outer regional* areas (-2.7%). The change in *Remote and very remote* areas (-0.3%) was not statistically significant.

The annual average decline for women in *Major cities* was -3%. Changes in *Inner regional*, *Outer regional* and *Remote and very remote* areas were not statistically significant.

Between 2001–2002 and 2009–2010, the mortality gap between *Major cities* and *Remote and very remote* areas for men remained unchanged (44 to 46 deaths per 100,000 population), and was also unchanged for women (26 to 24).



Population aged 55 to 69

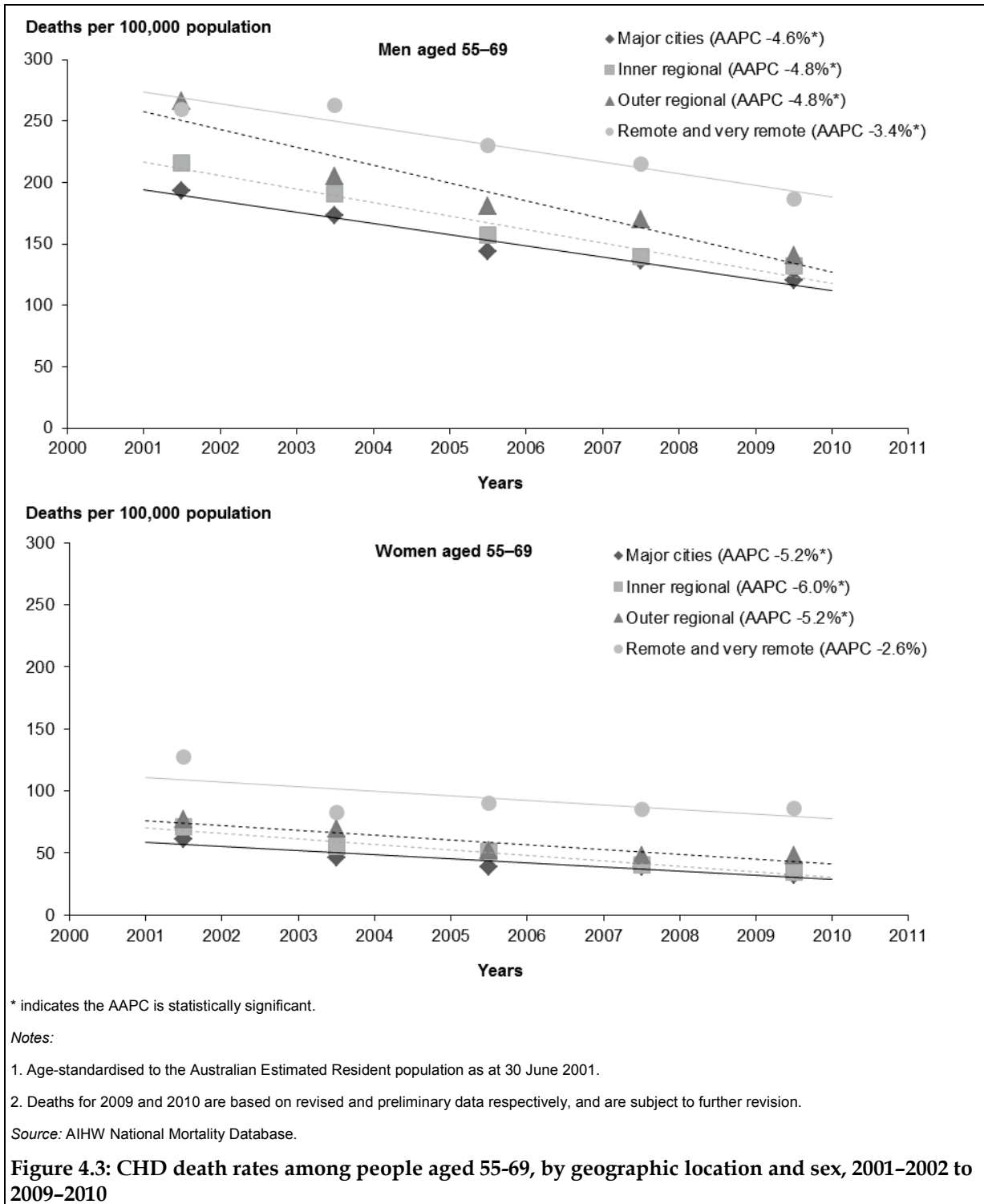
In 2009–2010, CHD death rates for both men and women aged 55–69 rose with increasing remoteness. In *Remote and very remote* areas the CHD death rate for men was 3 times that for men in *Major cities*. For women the rate in *Remote and very remote* areas was 1.5 times that for *Major cities*.

Between 2001–2002 and 2009–2010, the greatest decline in CHD death rates for men occurred in *Outer regional* areas (47%), followed by *Inner regional* (39%), then *Major cities* (38%) and *Remote and very remote* areas (28%) (Figure 4.3). For women, the greatest decline occurred in the *Inner Regional* areas (52%), followed by *Major Cities* (47%), *Outer regional* areas (38%) and *Remote and very remote* areas (33%).

The annual average decline for men between 2001–2010 was similar for those living in *Major cities*, *Inner regional* and *Outer regional* areas (-4.6%, -4.8% and -4.8% respectively), and was smallest for those living in *Remote and very remote* areas (-3.4%).

For women, the greatest annual average decline was in *Outer regional* areas (-6%), followed by *Major cities* and *Inner regional* areas (both -5.2%). The decline for women in *Remote and very remote* area (-2.6%) was not statistically significant.

The mortality gap between men living in *Remote and very remote* areas and *Major cities* remained relatively unchanged between 2001–2002 and 2009–2010 (67 to 66 deaths per 100,000 population), whereas for women the gap narrowed from 66 to 54 deaths.



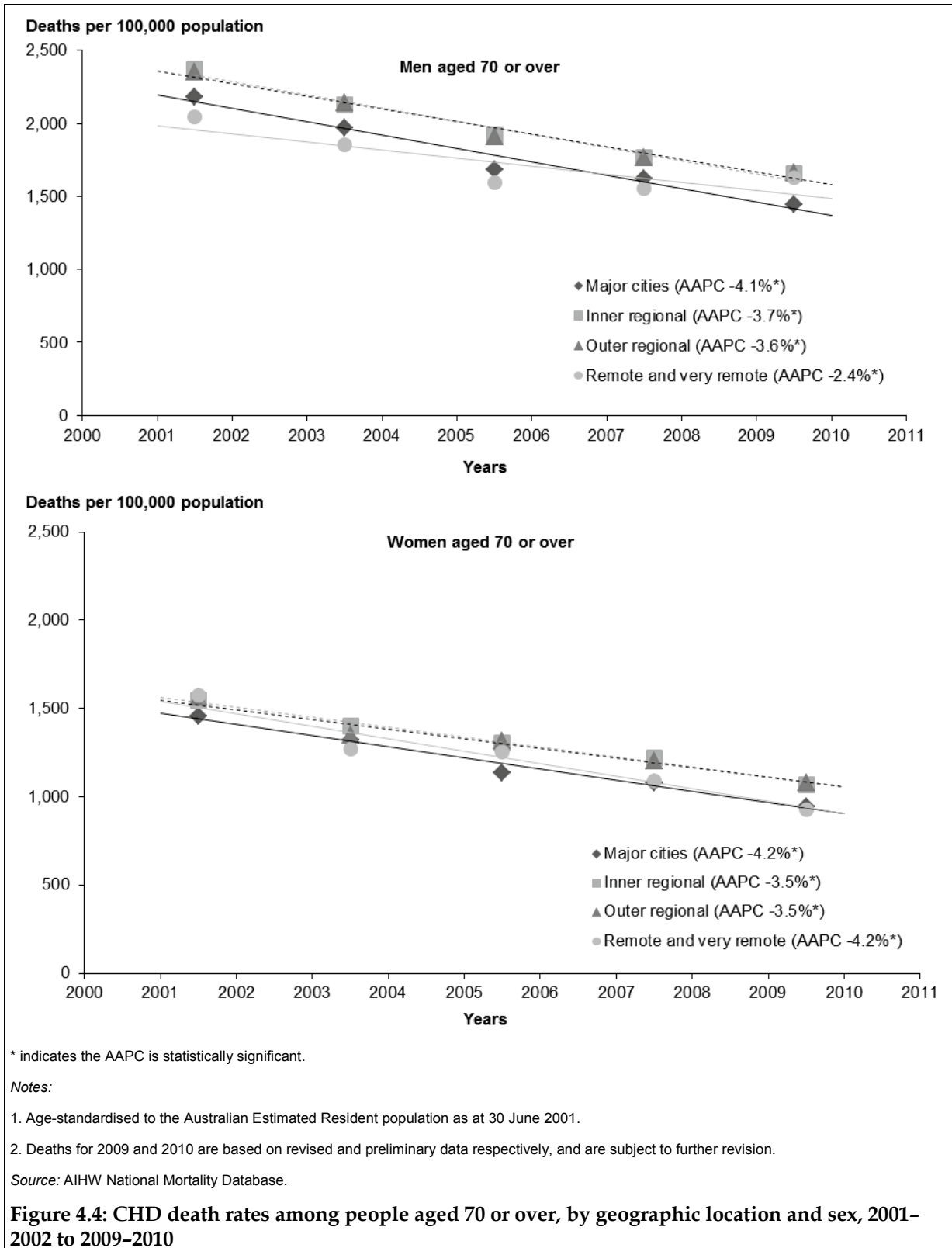
Population aged 70 or over

In 2009–2010, CHD death rates among men aged 70 or over were slightly lower in *Major cities* (1,400 deaths per 100,000 population) compared to other areas (around 1,600). For women, CHD death rates varied slightly across areas, with lower rates in *Major cities* (944 deaths per 100,000 population) and *Remote and very remote* (925) compared to *Inner* (1,070) and *Outer regional* areas (1,078).

Between 2001–2002 and 2009–2010, the greatest decline in CHD death rates among men occurred in *Major cities* (34%), followed by *Inner regional* (30%), *Outer regional* (29%) and *Remote and very remote* areas (20%) (Figure 4.4). For women the greatest decline was for *Remote and very remote* areas (45%), followed by *Major cities* (35%), and both *Inner regional* and *Outer regional* areas (31% each).

The annual average decline in CHD death rates for men between 2001–2002 and 2009–2010 was -4.1% in *Major cities*, -3.7% in *Inner regional* areas, -3.6% in *Outer regional* areas, and -2.4% in *Remote and very remote* areas. For women declines were greatest in *Major cities* and *Remote and very remote* (-4.2%) compared with *Inner regional* and *Outer regional* areas (-3.5%).

Between 2001–2002 and 2009–2010, the mortality gaps between *Major cities* and *Remote and very remote* have changed. For men, the CHD death rate in *Remote and very remote* areas was lower than in *Major cities* until recently. In 2009–2010, it was higher by 185 deaths per 100,000 population (1,443 per 100,000 in *Major cities*, compared to 1,628 in *Remote and very remote* areas). For women, the death rate in *Major cities* was lower, but in 2009–2010 the *Major cities* death rate was higher than the rate in *Remote and very remote* areas by 19 deaths per 100,000 population (944 per 100,000 in *Major cities*, compared to 925 in *Remote and very remote* areas).



5. Trends by socioeconomic status

Key findings

- Between 1997 and 2007, CHD death rates declined for men and women in both high and low socioeconomic status (SES) groups. Declines were largest for the age group 55–69.
- The largest declines occurred in the highest SES group – a 47% decline among both men and women aged 25 or over, compared to 40% for men and women in the lowest SES group.
- For both SES groups, declines were larger in 1997–2002, than in 2002–2007.
- For men and women in younger age groups, the CHD mortality gap narrowed between the lowest and highest SES groups, whereas the gap widened for those aged for 70 or over.

Health status within a population typically follows a gradient, with overall health tending to improve with each step up the socioeconomic ladder (AIHW 2012b). This gradient is also apparent for CHD, with people from lower SES groups experiencing higher rates of CHD mortality than other Australians (AIHW 2006a).

This report uses the Index of Relative Socio-economic Disadvantage (IRSD), based on social and economic information collected in the Census of Population and Housing, to represent the socioeconomic status of Australian communities and identify areas of disadvantage. The IRSD scores each area by summarising attributes of the population, such as low income, low educational attainment, high unemployment and jobs in relatively unskilled occupations. The concept of relative disadvantage is based on people's access to material and social resources and their ability to participate in society (ABS 2008a, 2008b).

The lowest SES group includes the 20% of the population living in areas with the highest levels of relative disadvantage, while the highest SES group includes the 20% with the lowest levels of relative disadvantage.

In this analysis, three years close to census years were chosen for comparison, and so annual rates of change were not calculated. Age groups 25–39 and 40–54 have been combined due to the small number of CHD deaths at younger ages.

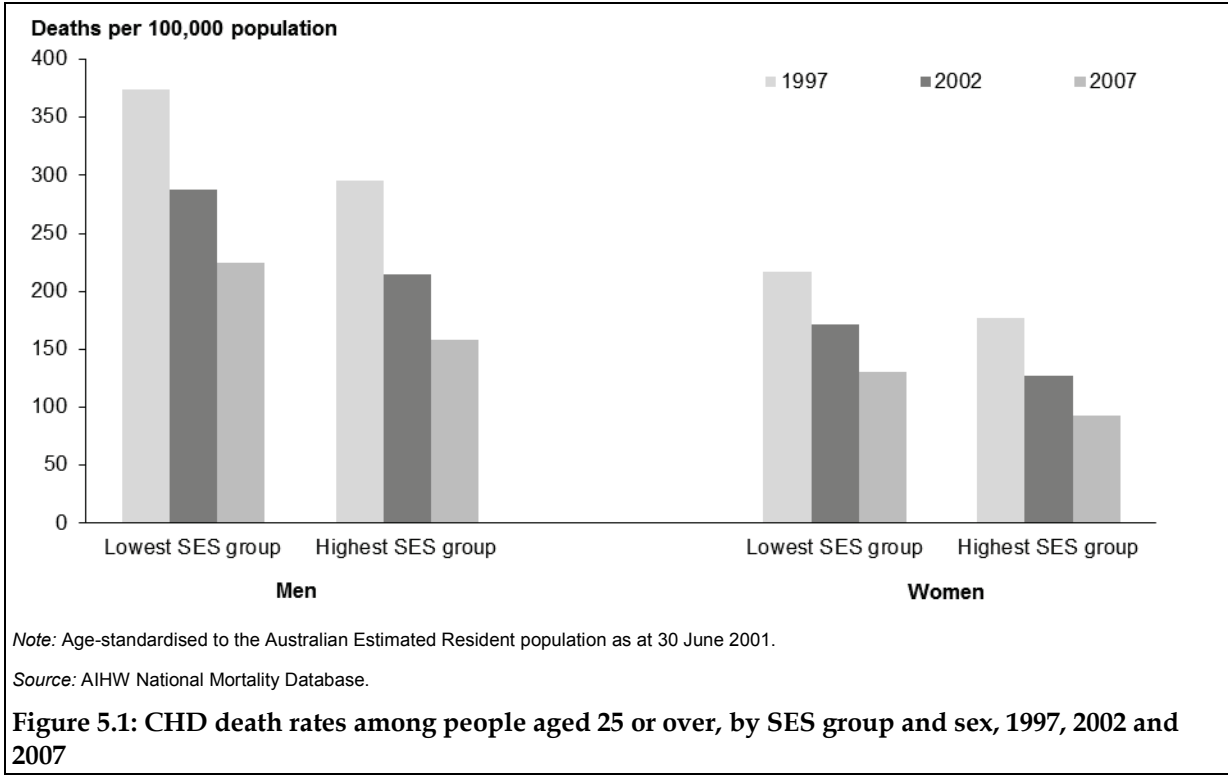
Population aged 25 or over

In 2007, the CHD mortality rate for men aged 25 or over in the lowest SES group (225 deaths per 100,000) was 1.4 times that of the highest SES group (158 deaths per 100,000). For women, the rate was also 1.4 times as high (131 vs. 93 deaths per 100,000).

Between 1997 and 2007, age-standardised death rates for CHD among people aged 25 or over fell in both the lowest and highest SES groups (Figure 5.1).

Declines were consistently larger among those in the highest SES group, for both men and women. For men, the CHD death rate declined by 40% in the lowest SES group (from 374 to 225 deaths per 100,000 population), and by 47% in the highest (from 296 to 158). Similar falls were observed for women— a 40% decline in the lowest SES group (from 217 to 131 deaths per 100,000 population), and a 47% decline in the highest (from 177 to 93).

Between 1997 and 2007, the mortality gaps between the lowest and highest SES groups show little change, declining slightly from 79 to 66 deaths per 100,000 population for men, and from 40 to 37 for women.



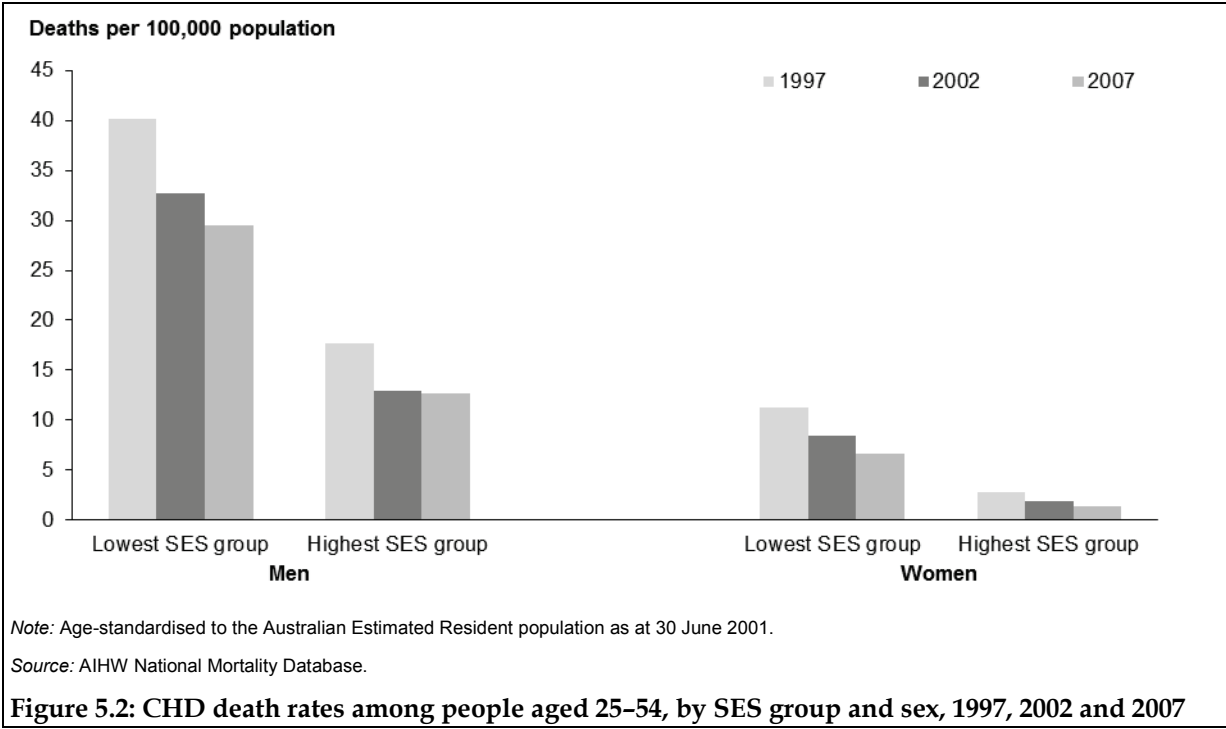
Population aged 25 to 54

CHD death rates among persons aged 25–54 declined substantially between 1997 and 2007, although the size of the decline differed across SES groups. For men in the lowest SES group, death rates fell by 26%, compared to 28% in the highest. Declines were greater for women, with death rates falling by 40% in the lowest SES group, and 50% in the highest (Figure 5.2).

For men and women in both the highest and lowest SES groups, the decline in CHD death rates was greater between 1997 and 2002 than between 2002 and 2007. The slow-down in the rate of decline in younger age groups is consistent with findings in other population groups.

Between 1997 and 2007, the CHD mortality gaps between the highest and the lowest SES groups were largely unchanged, narrowing slightly from 23 to 17 deaths per 100,000 population for men, and from 8 to 5 deaths per 100,000 population for women.

Despite these improvements, in 2007 the CHD death rate for men in the lowest SES group was 2.3 times that of the highest SES group, and for women 4.8 times as high.



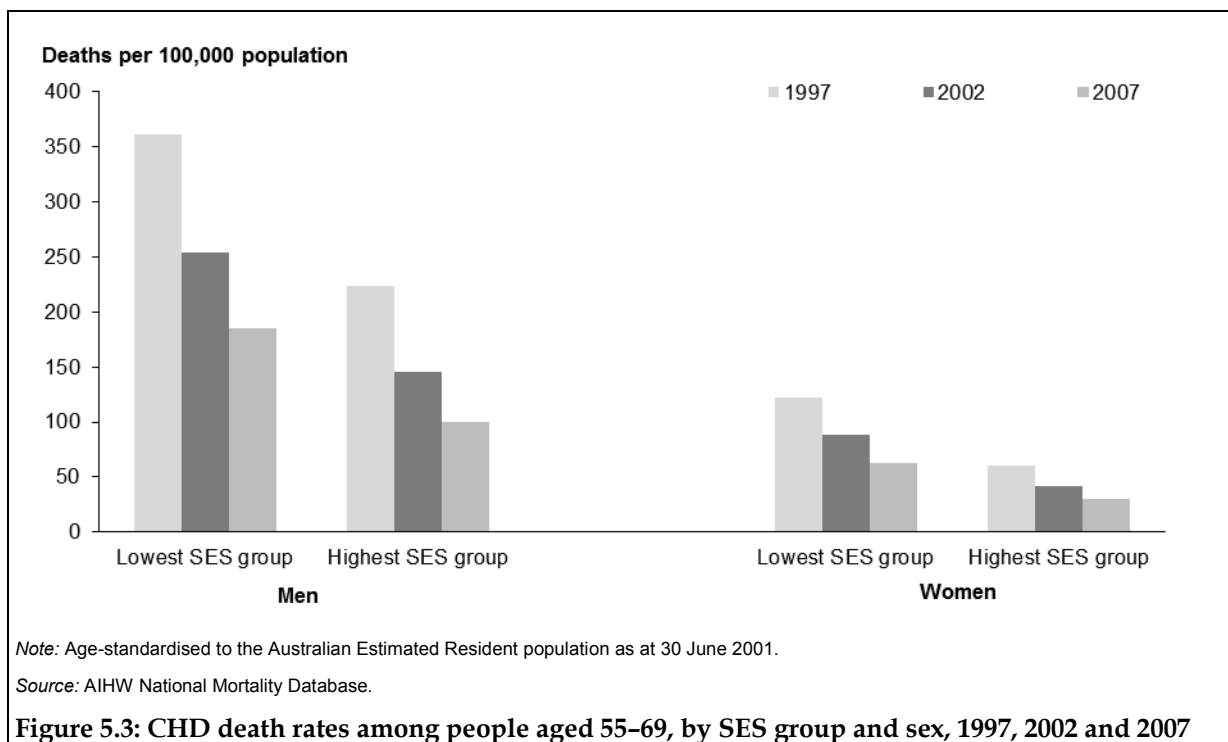
Population aged 55 to 69

The decline in CHD death rates among persons aged 55–69 between 1997 and 2007 was the largest of all the age groups. For men in the lowest SES group the rate declined by 49%, while in the highest SES group it fell by 55%. For women, death rates fell by 49% for the lowest SES group and 51% for the highest (Figure 5.3).

Declines have slowed in the most recent period, from 2002 to 2007. CHD mortality for men in the lowest SES group fell by 30% between 1997 and 2002, compared to a 27% fall between 2002 and 2007. For men in the highest SES group, a 35% fall between 1997 and 2002 was followed by a 31% fall between 2002 and 2007. For women in the lowest SES group, there was little difference in the fall from 1997 and 2002 compared to 2002 to 2007 (both around 28%). For women in the highest SES group, a 31% fall between 1997 and 2002 was followed by a 29% fall between 2002 and 2007.

Between 1997 and 2007, the CHD mortality gap between the lowest and highest SES groups narrowed, from 137 to 85 deaths per 100,000 population for men, and from 62 to 33 deaths per 100,000 population for women.

Despite these declines and the narrowing of the mortality gap, CHD death rates in the lowest SES group in 2007 were still around twice as high compared with the highest SES group for both men and women.



Population aged 70 or over

As for other age groups, CHD death rates for men and women aged 70 or over declined between 1997 and 2007, with the highest SES group experiencing the greatest decline. For men in the lowest SES group the rate fell by 39%, compared to 46% in the highest. Similar declines were observed for women, with a 39% fall in the lowest SES group and 47% in the highest (Figure 5.4).

Unlike younger age groups, the decline in CHD mortality between 1997 and 2007 did not slow for persons aged 70 or over. Men in the lowest SES group experienced a 22% decline for both periods (1997 to 2002 and 2002 to 2007). In the highest SES group, CHD death rates declined by 26% from 1997 to 2002 and 27% from 2002 to 2007.

For women in the lowest SES group, CHD death rates declined by 20% for 1997–2002 followed by a 23% decline for 2002–2007. The rate for women in the highest SES group declined by 28% between 1997 and 2002, followed by 27% between 2002 and 2007.

In contrast with other age groups, the CHD mortality gap between the lowest and highest SES groups increased over the period 1997–2007. For men, the gap increased from 268 to 281 deaths per 100,000 population, and for women, from 164 to 200.

In 2007, the CHD death rate among men and women aged 70 or over in the lowest SES group was 1.3 times that of the highest SES group.



6. Discussion

Coronary heart disease mortality has declined substantially in Australia over the past three decades. Large falls in CHD death rates have occurred in the total Australian population, and in a number of population groups including Aboriginal and Torres Strait Islander people, people living in different geographic locations and people within different socioeconomic groups.

All groups have experienced falls in CHD mortality. There are, however, important differences in the magnitude and the pace of the mortality decline within these populations, and for different age-groups. Broadly, less favourable trends have been observed in younger people (aged 25 to 54) compared to people aged 55 or over.

CHD mortality has fallen in recent decades

For the Australian population aged 25 years or over, the total number of CHD deaths and the age-standardised CHD death rate have each fallen over recent decades. Between 1979 and 2010, the rate fell by 73% for men (from 639 to 170 deaths per 100,000 population), and by 71% for women (from 325 to 95 deaths per 100,000 population).

CHD mortality trends in Australia are influenced largely by deaths from acute myocardial infarction (AMI) or heart attack, since these cause most CHD deaths. Declines in CHD mortality have largely been driven by a reduction in the incidence of AMI, and by improved chances of survival after a heart attack. In turn, these result from changes in risk factor behaviours and from improvements in prevention and treatment.

Adverse health risk factors increase the likelihood of developing CHD, and so unfavourable risk factor trends can undermine improvements in CHD mortality. Much of the decline in CHD mortality in Australia over recent decades can be attributed to reductions in population risk factors, such as tobacco smoking, high blood cholesterol and high blood pressure (Taylor, Dobson & Mirzaei 2006). In countries such as Canada, England, New Zealand and Scotland, the reduction of risk factors is thought to explain around half of the recent decrease in CHD mortality (Wiyesundera et al. 2010, Ford & Capewell 2011, Hotchkiss et al. 2014).

Declines in CHD mortality can also be partially attributed to improvements in medical and surgical treatment. Better emergency care, the use of statins and agents to lower blood pressure and anti-platelet drugs— along with less invasive revascularisation procedures — have each contributed to achieving better CHD outcomes, both in and out of hospital.

As a result, hospitalisation rates for CHD in Australia fell by 27% between 1998–1999 and 2009–2010 (AIHW 2011b). Between 2000 and 2009, the in-hospital case-fatality rate within 30 days of admission for AMI in Australia more than halved, from 6.9 to 3.2 deaths per 100 patients (OECD 2011).

Results from a major international study show that two-thirds of the decline in CHD deaths can be attributed to a reduced number of heart attacks, and the remaining one-third to heart attacks being less fatal (Kmietowicz 1999). The recent slowing in the decline of CHD mortality is not thought to be due to any deterioration in clinical care (O'Flaherty et al. 2012).

Decline slows for younger age groups

The decline in CHD mortality varied across age groups. The greatest declines were observed in people aged 55–69 years, with smaller declines observed among people aged 70 or over. In contrast, the rate of decline in CHD mortality has slowed in younger age groups – those aged 25–39 and 40–54 years – over recent decades.

This slowing of the decline in CHD mortality in Australia among younger age groups has been highlighted in recent Australian research (AIHW 2010a, Backholer et al. 2011, O’Flaherty et al. 2012), as well as in several other developed countries, including the United Kingdom and the United States (Ford & Capewell 2007, Allender et al. 2008, Scarborough et al. 2011, Smolina et al. 2012).

The slowing in the decline of CHD mortality in Australia has been linked to a slowing – or reversal – of earlier declines in major risk factors, and increases in the prevalence of diabetes (O’Flaherty et al. 2012). Although smoking rates have continued to fall, there have been unfavourable trends in other risk factors, such as increases in being overweight or obese, higher rates of physical inactivity and insufficient consumption of fruit and vegetables (AIHW 2012c).

Affects population groups differently

Declines in CHD mortality are also evident among a number of population groups, including Aboriginal and Torres Strait Islander people, people living in different geographic locations and people with different socioeconomic status.

Despite the reduction, the impact of CHD mortality is still greater among Indigenous people, people living in *Remote and very remote* areas, and people living in areas of the lowest socioeconomic status.

Aboriginal and Torres Strait Islander people

The burden of CHD is high among Indigenous Australians. The age-standardised prevalence rate of CHD is over twice as high as the rate for non-Indigenous Australians (AIHW 2008), resulting in higher CHD mortality rates in all age groups. This study has shown that CHD mortality among Indigenous men is twice as high as for other Australian men, and 1.6 times as high among Indigenous women.

Over the decade 2001–2002 to 2009–2010, Indigenous women saw greater declines in CHD mortality than other Australian women (an average annual decline of 4.1% as compared to 3.5%), largely due to improvements in ages 40–54 and 70 years and over. The mortality decline among Indigenous men was similar in magnitude to that of other Australian men. This improvement in Indigenous women’s CHD mortality rate contributed to closing the overall CHD mortality gap between Indigenous and other Australians.

Despite the recent convergence of death rates in the two populations, the higher impact of CHD mortality among Aboriginal and Torres Strait Islander people remains (Bradshaw et al. 2009, 2010). The reasons for this higher impact are varied and complex and relate to factors such as unfavourable patterns in risk factors and health service use patterns.

The health risk behaviours of Indigenous Australians, including tobacco smoking, physical inactivity and obesity, play a key role in their health and wellbeing outcomes (AIHW 2011c). Indigenous Australians aged 15 and over were more than twice as likely to smoke daily as

non-Indigenous Australians in 2011–12. Indigenous adults were 10% more likely to report physical inactivity, and obesity rates were 1.5 times as high (AIHW 2014).

Regarding treatment, deaths in hospital from CHD are also more common among Indigenous people. Utilisation rates for coronary revascularisation procedures (angioplasty, stenting or bypass surgery) also tend to be lower (AIHW 2006b, Randall et al. 2013).

Geographic location

Where people live plays an important role in CHD trends, with increasing remoteness associated with increasing hospitalisation rates and poorer health outcomes. Mortality from CHD in Australia – and in other countries with widely dispersed populations such as Canada and Finland – has also been shown to increase in more rural locations (Viik-Kajander et al. 2003, CIHI 2006).

The results in this report also show that CHD mortality rates remain consistently higher for people living in *Remote and very remote* areas, compared to those in *Major cities*. Notably, the gap in mortality between *Major cities* and *Remote and very remote* areas was much greater for men.

CHD mortality rates fell between 2001–2002 and 2009–2010 in all geographic locations – *Major cities*, *Inner regional*, *Outer regional* and *Remote and very remote* areas – although to varying extents. Men and women in *Major cities* generally experienced the greatest improvements. Declines were smaller for men in *Remote and very remote* areas, and women in *Outer regional* and *Remote and very remote* areas.

Higher death rates in more remote areas may reflect a higher prevalence of behaviours associated with poorer health, as well the impact of location associated with accessibility and availability of health services (AIHW 2007). Health risk factors including rates of smoking, physical inactivity and being overweight or obese are higher in *Outer regional and remote* areas of Australia than in *Major cities* (ABS 2012).

Because of their poorer cardiovascular health, people living in regional areas access CVD medicines at higher rates than people living in major cities (AIHW 2010b). The supply of cholesterol-lowering medicines, however, declines with increasing remoteness. People in rural and remote areas are also less likely to visit a GP for a cardiovascular consultation. These factors, along with the higher numbers of Aboriginal and Torres Strait Islander people living in the more remote areas of Australia, contribute to the higher rates of CHD mortality between remote and urban areas.

Socioeconomic status

CHD mortality differs with socioeconomic status, with mortality higher among people living in areas of lower SES. Despite improvements in CHD death rates in all SES groups between 1997 and 2007, people in the lowest group still experience the highest CHD death rates.

The highest (or most advantaged) SES group had the largest overall falls in CHD mortality rates between 1997 and 2007. Because the mortality decline for the lowest SES groups did not keep pace, the overall effect was a widening in the gap between the lowest and highest SES groups. Other studies in Australia and England have also found that mortality rates for the lowest SES group declined more slowly, causing the mortality gap to widen (Page et al. 2012, Bajekal et al. 2012).

In this study, however, the narrowing varied by age group. For men and women aged 25–69, the mortality gap in CHD death rates narrowed between the lowest and highest SES groups, whereas the gap widened for persons aged 70 or over.

Differences in risk factor behaviours between the lowest and highest SES groups have been shown to contribute to their differences in mortality (Bajekal et al. 2012; O’Flaherty et al. 2009). Results from the Australian Health Survey show that people in the lowest SES groups are more likely to smoke, be physically inactive, have inadequate fruit and vegetable intake and be overweight or obese (ABS 2012). Rates of CHD hospitalisations are also higher among the most disadvantaged groups (AIHW 2011a).

Conclusion

Although the CHD death rate has declined in Australia in recent decades, the average annual rate of change has varied between age groups and over time. Less favourable trends have been observed in people aged 25–39, 40–54, and 55–69, with a recent slowing in the annual average rate of decline. For men and women aged 70 years and over, who are most at risk of CHD death, mortality declines have continued to improve.

Overall trends in CHD mortality decline are less favourable among the lowest SES group and among people living in the most remote areas. CHD mortality rates for Indigenous Australians remain higher than for other Australians, however between 2001–2002 and 2009–2010 there was improvement in the gap, more so for Indigenous women than men.

Unfavourable trends in some key risk factors for CHD are thought to underlie the slowing of the decline in CHD deaths among younger age groups.

Appendix A: Data sources and classifications

AIHW National Mortality Database

The mortality data used in this report were provided by the Registries of Births, Deaths and Marriages and the National Coroners Information System, and coded by the Australian Bureau of Statistics. These data are maintained at the Australian Institute of Health and Welfare in the National Mortality Database.

Cause of death information in the NMD for the years included in this report is classified according to the International Statistical Classification of Diseases and Related Health Problems, Tenth Revision (ICD-10). The relevant codes for deaths during the period covered by this report are:

Table A.1: ICD codes for CHD

| Condition | ICD-10 Codes | ICD-9 Codes |
|------------------------|--------------|-------------|
| Coronary heart disease | I20–I25 | 410–414 |

In Australia, deaths registered between 1979 and 1996 were coded using a manual process to ICD-9. In 1997, an automated coding system was introduced and in 1999, a new classification for coding cause of death (ICD-10) was introduced and applied to deaths registered from 1997. Consequently there was a break in time series for mortality data between 1996 and 1997.

In this report, CHD deaths for the period 1 January 1979 to 31 December 2009 are based on year of occurrence of death. Year of occurrence, rather than year of registration is used, since late registration is thought to be more prevalent for Indigenous deaths (AIHW 2012d). For 2010, however, year of registration is used. Every year, around 5% of deaths occurring during a calendar year are registered in the following calendar year. By using this method it is acknowledged that the deaths occurring prior to 2010 and registered in 2010 will be double counted.

The data quality statements underpinning the AIHW National Mortality Database can be found in the following ABS publications:

ABS quality declaration summary for *Causes of death, Australia, 2012* (ABS Cat. no. 3303.0) <<http://www.abs.gov.au/Ausstats/abs@.nsf/0/D4A300EE1E04AA43CA2576E800156A24?OpenDocument>>

and the quality declaration summary for *Deaths, Australia, 2011* (ABS Cat. no. 3302.0) at: <<http://www.abs.gov.au/Ausstats/abs@.nsf/0/9FD0E6AAA0BB3388CA25750B000E3CF5?OpenDocument>>.

Since 2007, ABS has a mortality data revision process with 3 levels of data releases: preliminary, revised and final. This analysis is based on the final versions of 2007 and 2008, the revised version of 2009 and the preliminary version of 2010.

Aboriginal and Torres Strait Islander status

In this report, comparisons are made between Aboriginal and Torres Strait Islander persons, and Other Australians.

Aboriginal or Torres Strait Islander persons are persons of Aboriginal and/or Torres Strait Islander descent who identifies as an Aboriginal and/or Torres Strait Islander (see Glossary). The category 'Other Australians' combines people who do not identify as Indigenous, and people with not-stated Indigenous status.

Comparisons are usually made between Indigenous and Non-Indigenous persons, however the use of a longer series of mortality data in this study requires the broader 'Other Australians' category. A sampling of data showed negligible differences in CHD death rates between Other Australians and Non-Indigenous (which excludes people with non-stated Indigenous status).

There is variation across states and territories in the completeness of Indigenous mortality data (ABS 2008c, AIHW 2012d). This report includes Indigenous mortality from 2001 onwards for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory.

Geographical location

Comparisons of geographic regions in this report use the Australian Standard Geographical Classification (ASGC) (ABS 2006). The ASGC is a classification system developed by the ABS which groups Australian regions into remoteness areas, based on their distance from major population centres and services. The six remoteness areas are:

- *Major cities*
- *Inner regional*
- *Outer regional*
- *Remote*
- *Very remote*
- *Migratory*

Data from *Migratory* areas are not analysed in this report. Throughout this report *Remote* and *Very remote* areas are grouped together to allow sufficient numbers for analysis. Around 0.5% of CHD deaths between 2001 and 2010 could not be allocated to a remoteness area.

The boundaries of the different remoteness areas are re-drawn after each census to account for changes to available services and population change. The remoteness areas used in this report are based on the 2006 Census.

Socioeconomic status

The ABS has constructed a number of socioeconomic indexes to classify areas on the basis of social and economic information collected in the Census of Population and Housing.

In this report, the SEIFA index of relative socioeconomic disadvantage (IRSD) is used. This is derived from characteristics of the local area such as low income, low educational attainment, high levels of public sector housing, high unemployment and jobs in relatively unskilled occupations (ABS 2008a, b).

For analysis, the population was divided into five groups with roughly equal populations based on the level of disadvantage of the statistical local area of their usual residence. The first group includes the 20% of the population living in areas with the highest levels of relative disadvantage, while the last group includes the 20% with the lowest levels of relative disadvantage.

It is important to note that the index of relative socioeconomic disadvantage relates to the average disadvantage of all people living in a geographic location, not to the level of disadvantage of a specific individual. As the population of many areas covers a broad range of socioeconomic disadvantage, these measures will generally underestimate the true effect of disadvantage on health.

In this analysis, the IRSD for the census year closest to the year of death has been used – the 1996 IRSD for CHD deaths occurring in 1997, the 2001 IRSD for CHD deaths in 2002, and the 2006 IRSD for CHD deaths in 2007.

Age groups 25–39 and 40–54 have been combined due to the small number of CHD deaths at younger ages. Around 0.5% of CHD deaths occurring in 1997, 2002 and 2007 could not be allocated to an SES group.

Appendix B: Statistical methods

Age-specific rates

Age-specific rates are calculated by dividing the number of cases occurring in a specified age group by the corresponding population in the same age group, expressed as a rate (for example, cases/deaths per 100,000 persons).

Age-standardised rates

Age-standardisation is a method used to eliminate the effect of differences in population age structures when comparing populations with different age structures, and where age affects the variable being compared. This is the case with CHD, which occurs more often among the elderly. Age-standardisation is used in this report when comparing rates across different periods of time, different geographical areas, different socioeconomic groups, or other populations. The direct method of age-standardisation is used throughout this report.

For age-standardised rates, the standard population used is the Australian estimated resident population as at 30 June 2001.

Rate difference

Measures the 'gap' between populations without respect to how big or small the individual rates are. It is calculated by subtracting the rate of a comparison group from the rate of the population of interest. Rate difference indicates how many extra cases there are per 100,000 in that group.

Rate ratio

Rate ratio is calculated as the rate for the population of interest divided by the rate for the comparison group. It indicates proportionally how much higher the rate for one group is compared with another (for example, 2 times as high). It is a relative measure of effect.

Assessment of change over time

Overall change

The overall change in mortality is reported as a percentage change of the age-standardised rate or counts over a period of reference.

Any negative value of the overall percentage change for counts or rate indicates a decrease while an increase is a positive value and a null value indicates no change in the count or rate.

Annual average percentage change (AAPC)

Annual average percentage change (AAPC) is the percentage change over a defined period, averaged over the number of years in the period. The AAPC is derived from the slope of the trend line, based on a regression of the age-specific death rates and the year of death.

For all Australians, log-linear modelling was the best fit. AAPC was derived according to the following formula:

$$\log_e(R_t) = \text{constant} + \alpha t$$

Where;

t is the time period (years)

R_t is the observed rate in year t

α is the average annual rate of change.

To express the AAPC as an annual average percentage change the following calculation was used:

$$\text{AAPC} = \alpha * 100$$

For Aboriginal and Torres Strait Islander status, geographic location, and socioeconomic status, linear modelling was the best fit.

Defining pivotal period of change

Pivotal periods of change were defined using joinpoint analysis. A joinpoint regression model describes changing trends over successive segments of time and the amount of change within each segment.

Trend data in the form of age-standardised death rates are fitted to the simplest joinpoint model possible, with a minimum number of segments necessary to characterise a trend. The software begins with a model with zero joinpoints (that is, no changes in trend) and incrementally tests whether more joinpoints are statistically significant. The software used was Joinpoint Version 3.4.3, developed by the Statistical Research and Applications Branch of the National Cancer Institute in the United States of America (NCI 2013).

In this report, joinpoint analysis was undertaken for the total Australian population only, and not for specific subpopulations. The periods identified as statistically different are represented by vertical lines on death rate figures in this report.

Interpretation of trends

The annual change in this report is expressed as a percentage change (increase or decrease) of the death rate over a defined period of time.

Figure B.1 shows an illustrative trend line of CHD death rates. Over a 10 year period, a decrease in the death rate occurs from 71.1 to 33.4 deaths per 100,000. The decrease can be measured as a fall in the death rate of 37.7 deaths per 100,000 between 1979 and 1989. This fall could also be expressed as 53% fall.

The average annual percentage change (AAPC) examines differences found between two incremental points in the time series and represents this as the percentage change per year.

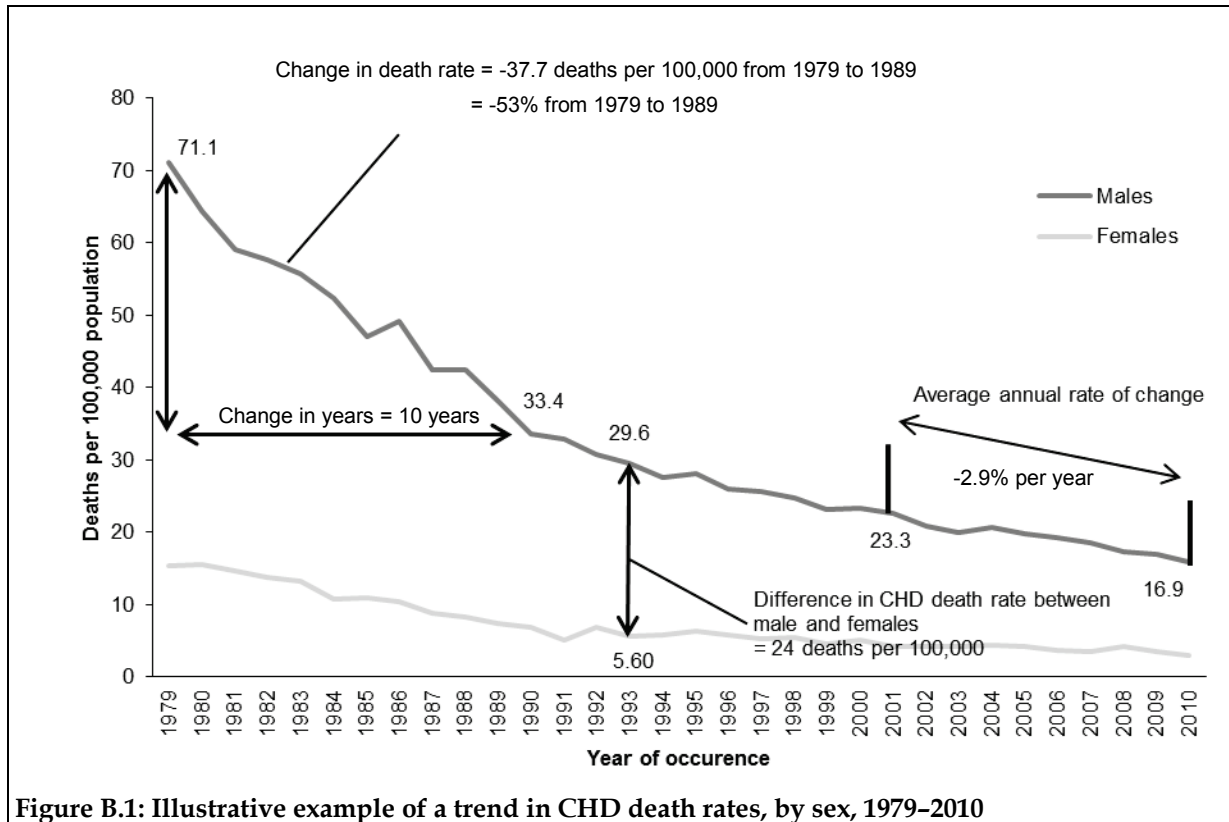


Figure B.1: Illustrative example of a trend in CHD death rates, by sex, 1979–2010

In the national population, the period from 1979 to 2010 can be broken down into smaller periods to examine the rate of change. These smaller time periods are represented by vertical lines delimiting the interval of time. Between these vertical lines, the annual rate of change is expressed in percentage change per year. Figure B.1 shows that the annual average percentage change for the period between 2001 and 2010 was -2.9% per year.

Appendix C: Statistical tables

All Australians

Table C.1: CHD deaths by age group, men, 1979–2010

| Age | Number | | | | | | | | | | |
|-------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 |
| 25–39 | 194 | 174 | 168 | 182 | 195 | 201 | 165 | 186 | 168 | 169 | 173 |
| 40–54 | 2,055 | 1,958 | 1,767 | 1,738 | 1,621 | 1,547 | 1,426 | 1,429 | 1,346 | 1,322 | 1,210 |
| 55–69 | 7,191 | 6,947 | 7,028 | 6,820 | 6,636 | 6,335 | 6,143 | 5,989 | 5,874 | 5,644 | 5,570 |
| 70+ | 9,043 | 9,261 | 9,675 | 10,081 | 9,823 | 10,307 | 10,644 | 10,362 | 10,742 | 10,497 | 11,285 |
| Total (25+) | 18,483 | 18,340 | 18,638 | 18,821 | 18,275 | 18,390 | 18,378 | 17,966 | 18,130 | 17,632 | 18,238 |
| | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
| 25–39 | 138 | 134 | 143 | 138 | 143 | 152 | 139 | 146 | 148 | 139 | 146 |
| 40–54 | 1,150 | 1,140 | 1,116 | 1,037 | 1,031 | 1,051 | 1,047 | 1,021 | 982 | 983 | 945 |
| 55–69 | 5,131 | 4,780 | 4,612 | 4,325 | 4,124 | 3,832 | 3,687 | 3,526 | 3,284 | 3,055 | 2,771 |
| 70+ | 10,577 | 10,619 | 11,043 | 10,796 | 11,191 | 11,067 | 11,171 | 11,005 | 10,815 | 10,722 | 10,205 |
| Total (25+) | 16,996 | 16,673 | 16,914 | 16,296 | 16,489 | 16,102 | 16,044 | 15,698 | 15,229 | 14,899 | 14,067 |
| | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | |
| 25–39 | 155 | 131 | 131 | 131 | 114 | 132 | 124 | 117 | 124 | 108 | |
| 40–54 | 955 | 914 | 885 | 867 | 915 | 862 | 829 | 811 | 807 | 763 | |
| 55–69 | 2,790 | 2,610 | 2,548 | 2,573 | 2,346 | 2,248 | 2,308 | 2,240 | 2,193 | 2,110 | |
| 70+ | 10,067 | 10,111 | 9,893 | 9,560 | 9,072 | 9,077 | 9,127 | 9,220 | 9,049 | 8,718 | |
| Total (25+) | 13,967 | 13,766 | 13,457 | 13,131 | 12,447 | 12,319 | 12,388 | 12,388 | 12,173 | 11,699 | |

Note: Deaths for 2009 and 2010 are based on revised and preliminary data respectively, and are subject to further revision.

Source: AIHW National Mortality Database.

Table C.2: CHD deaths by age group, women, 1979– 2010

| Age | Number | | | | | | | | | | |
|-------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 |
| 25–39 | 38 | 42 | 36 | 43 | 37 | 30 | 36 | 33 | 27 | 28 | 27 |
| 40–54 | 442 | 417 | 414 | 391 | 401 | 326 | 322 | 320 | 292 | 270 | 253 |
| 55–69 | 2,691 | 2,600 | 2,688 | 2,586 | 2,526 | 2,503 | 2,256 | 2,340 | 2,202 | 2,070 | 2,028 |
| 70+ | 9,273 | 9,365 | 9,691 | 10,258 | 10,235 | 10,541 | 11,320 | 11,171 | 11,635 | 11,433 | 12,282 |
| Total (25+) | 12,444 | 12,424 | 12,829 | 13,278 | 13,199 | 13,400 | 13,934 | 13,864 | 14,156 | 13,801 | 14,590 |
| | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
| 25–39 | 32 | 19 | 32 | 32 | 29 | 34 | 46 | 38 | 37 | 33 | 33 |
| 40–54 | 219 | 213 | 237 | 208 | 209 | 224 | 189 | 186 | 209 | 178 | 212 |
| 55–69 | 1,938 | 1,748 | 1,707 | 1,551 | 1,457 | 1,304 | 1,269 | 1,184 | 1,095 | 969 | 908 |
| 70+ | 11,677 | 11,558 | 12,362 | 11,593 | 12,321 | 11,975 | 11,970 | 12,158 | 11,738 | 11,548 | 11,392 |
| Total (25+) | 13,866 | 13,538 | 14,338 | 13,384 | 14,016 | 13,537 | 13,474 | 13,566 | 13,079 | 12,728 | 12,545 |
| | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | |
| 25–39 | 26 | 30 | 32 | 30 | 33 | 26 | 25 | 32 | 19 | 17 | |
| 40–54 | 196 | 185 | 190 | 192 | 186 | 168 | 155 | 190 | 172 | 180 | |
| 55–69 | 870 | 854 | 752 | 685 | 690 | 624 | 635 | 672 | 621 | 595 | |
| 70+ | 11,264 | 11,049 | 10,890 | 10,515 | 10,277 | 10,021 | 10,019 | 10,260 | 9,671 | 9,208 | |
| Total (25+) | 12,356 | 12,118 | 11,864 | 11,422 | 11,186 | 10,839 | 10,834 | 11,154 | 10,483 | 10,000 | |

Note: Deaths for 2009 and 2010 are based on revised and preliminary data respectively, and are subject to further revision.

Source: AIHW National Mortality Database.

Table C.3: Age-specific CHD death rates, men, 1979–2010

| Age | <i>Age-specific rate (per 100,000 population)</i> | | | | | | | | | | |
|-------------|---|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 |
| 25–39 | 13.2 | 11.3 | 10.5 | 10.8 | 11.1 | 11.1 | 8.9 | 9.8 | 8.8 | 8.8 | 8.8 |
| 40–54 | 168.5 | 161.2 | 145.2 | 142.1 | 132.2 | 125.1 | 114.5 | 112.0 | 102.3 | 96.8 | 86.1 |
| 55–69 | 823.3 | 778.0 | 770.5 | 732.8 | 700.2 | 658.6 | 627.6 | 594.9 | 571.8 | 536.0 | 516.5 |
| 70+ | 3,045.7 | 3,012.3 | 3,045.5 | 3,069.9 | 2,871.5 | 2,893.2 | 2,884.9 | 2,686.0 | 2,681.4 | 2,553.0 | 2,674.5 |
| Total (25+) | 639.2 | 622.7 | 620.3 | 615.3 | 578.6 | 571.1 | 559.6 | 525.4 | 516.8 | 490.3 | 499.7 |
| | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
| 25–39 | 7.0 | 6.7 | 7.0 | 6.7 | 6.9 | 7.2 | 6.5 | 6.8 | 6.8 | 6.4 | 6.7 |
| 40–54 | 78.4 | 75.0 | 71.2 | 64.4 | 61.9 | 60.8 | 58.5 | 54.9 | 50.9 | 49.7 | 46.7 |
| 55–69 | 471.0 | 434.4 | 415.3 | 386.4 | 364.4 | 337.2 | 321.2 | 302.7 | 278.5 | 254.8 | 226.5 |
| 70+ | 2,422.8 | 2,328.6 | 2,339.6 | 2,196.9 | 2,210.8 | 2,101.7 | 2,038.9 | 1,939.8 | 1,826.4 | 1,746.0 | 1,595.2 |
| Total (25+) | 453.0 | 431.7 | 428.4 | 400.8 | 397.6 | 377.0 | 364.2 | 345.9 | 324.4 | 308.1 | 281.0 |
| | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | |
| 25–39 | 7.1 | 6.1 | 6.1 | 6.1 | 5.2 | 6.0 | 5.5 | 5.1 | 5.4 | 4.7 | |
| 40–54 | 46.2 | 44.0 | 42.1 | 40.7 | 42.5 | 39.6 | 37.6 | 36.3 | 35.7 | 33.3 | |
| 55–69 | 222.2 | 200.2 | 188.9 | 184.5 | 162.2 | 150.8 | 149.2 | 140.0 | 132.6 | 123.9 | |
| 70+ | 1,509.4 | 1,473.8 | 1,402.6 | 1,319.0 | 1,200.9 | 1,157.1 | 1,117.8 | 1,095.3 | 1,040.8 | 967.6 | |
| Total (25+) | 268.4 | 258.0 | 245.4 | 232.6 | 212.3 | 203.4 | 196.9 | 191.4 | 182.4 | 169.6 | |

Notes:

1. Age-standardised to the Australian Estimated Resident Population as at 30 June 2001.

2. Deaths for 2009 and 2010 are based on revised and preliminary data respectively, and are subject to further revision.

Source: AIHW National Mortality Database.

Table C.4: Age-specific CHD death rates, women, 1979–2010

| Age | Age-specific rate (per 100,000 population) | | | | | | | | | | |
|-------------|--|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 |
| 25–39 | 2.7 | 2.9 | 2.4 | 2.6 | 2.1 | 1.7 | 2.0 | 1.8 | 1.4 | 1.5 | 1.4 |
| 40–54 | 38.1 | 35.8 | 35.8 | 33.6 | 34.4 | 27.7 | 27.2 | 26.6 | 23.4 | 21.2 | 19.0 |
| 55–69 | 278.7 | 263.3 | 267.1 | 252.2 | 243.4 | 238.6 | 212.7 | 215.5 | 199.2 | 182.8 | 175.0 |
| 70+ | 1,873.8 | 1,826.5 | 1,818.6 | 1,857.3 | 1,785.5 | 1,769.5 | 1,822.4 | 1,726.3 | 1,744.9 | 1,668.1 | 1,741.0 |
| Total (25+) | 325.3 | 315.1 | 314.6 | 316.4 | 304.9 | 299.4 | 301.5 | 288.6 | 286.8 | 272.3 | 280.1 |
| | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
| 25–39 | 1.6 | 0.9 | 1.6 | 1.5 | 1.4 | 1.6 | 2.1 | 1.8 | 1.7 | 1.5 | 1.5 |
| 40–54 | 15.8 | 14.8 | 15.9 | 13.4 | 13.0 | 13.5 | 10.9 | 10.2 | 11.0 | 9.1 | 10.5 |
| 55–69 | 165.0 | 148.8 | 146.5 | 132.2 | 123.4 | 110.0 | 107.2 | 99.1 | 90.8 | 79.7 | 73.5 |
| 70+ | 1,610.4 | 1,536.8 | 1,582.4 | 1,428.5 | 1,463.0 | 1,368.8 | 1,314.7 | 1,281.9 | 1,195.0 | 1,130.2 | 1,069.0 |
| Total (25+) | 259.2 | 245.3 | 251.7 | 227.0 | 229.8 | 214.5 | 205.8 | 199.4 | 186.0 | 174.3 | 165.1 |
| | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | |
| 25–39 | 1.2 | 1.4 | 1.5 | 1.4 | 1.5 | 1.2 | 1.1 | 1.4 | 0.8 | 0.7 | |
| 40–54 | 9.5 | 8.8 | 8.9 | 8.9 | 8.5 | 7.6 | 6.9 | 8.4 | 7.5 | 7.7 | |
| 55–69 | 69.0 | 65.5 | 55.8 | 49.0 | 47.7 | 41.8 | 40.9 | 41.8 | 37.3 | 34.4 | |
| 70+ | 1,012.9 | 962.0 | 924.0 | 869.4 | 818.2 | 772.0 | 744.2 | 740.4 | 677.6 | 625.6 | |
| Total (25+) | 156.1 | 148.3 | 141.2 | 132.4 | 125.0 | 117.0 | 112.8 | 113.1 | 103.0 | 95.4 | |

Notes:

1. Age-standardised to the Australian Estimated Resident Population as at 30 June 2001.
2. Deaths for 2009 and 2010 are based on revised and preliminary data respectively, and are subject to further revision.

Source: AIHW National Mortality Database.

Table C.5: Annual average percentage change (AAPC) in CHD death rates, by age group and sex, 1979–2010

| Sex | Age group | AAPC | | Period of change |
|-------|-----------|------|------------------------------|------------------------|
| | | % | 95% confidence interval (CI) | Years |
| Men | 25–39 | -4.5 | (-5.4, -3.6) | 1979–1991 |
| | | -0.6 | (-2.5, 1.5) | 1991–2001 [#] |
| | | -3.3 | (-4.9, -1.6) | 2001–2010 [#] |
| | 40–54 | -6.6 | (-6.9, -6.3) | 1979–1993 |
| | | -4.7 | (-5.8, -3.5) | 1993–2000 [#] |
| | | -3.2 | (-3.7, -2.6) | 2000–2010 [#] |
| | 55–69 | -4.7 | (-5.1, -4.3) | 1979–1989 |
| | | -6.8 | (-7.1, -6.6) | 1989–2006 [#] |
| | | -5.1 | (-6.8, -3.3) | 2006–2010 [#] |
| | 70+ | -1.0 | (-2.5, 0.5) | 1979–1984 |
| | | -2.9 | (-3.4, -2.3) | 1984–1995 [#] |
| | | -5.1 | (-5.4, -4.9) | 1995–2010 [#] |
| | 25+ | -2.1 | (-3.4, 0.8) | 1979–1984 |
| | | -3.8 | (-4.2, -0.8) | 1984–1995 [#] |
| | | -5.3 | (-5.5, -5.0) | 1995–2010 [#] |
| Women | 25–39 | -7.1 | (-9.3, -4.8) | 1979–1991 |
| | | +9.9 | (-3.4, 25.1) | 1991–1996 [#] |
| | | -5.0 | (-6.8, -3.2) | 1996–2010 [#] |
| | 40–54 | -7.4 | (-8.0, -6.7) | 1979–1997 |
| | | -2.7 | (-3.8, -1.6) | 1997–2010 [#] |
| | | -5.1 | (-5.6, -4.5) | 1979–1992 |
| | 55–69 | -8.4 | (-8.9, -7.9) | 1992–2006 [#] |
| | | -5.0 | (-8.2, -1.7) | 2006–2010 [#] |
| | | -1.0 | (-1.4, -0.5) | 1979–1989 |
| | 70+ | -3.5 | (-4.4, -2.5) | 1989–1996 [#] |
| | | -5.1 | (-5.4, -4.8) | 1996–2010 [#] |
| | | -1.7 | (-2.2, -1.3) | 1979–1989 |
| | 25+ | -4.0 | (-4.9, -3.0) | 1989–1996 [#] |
| | | -5.3 | (-5.5, -5.0) | 1996–2010 [#] |

[#] indicates a significant difference from the preceding period at alpha = 0.05.

Notes:

1. Age-standardised to the Australian Estimated Resident Population as at 30 June 2001.
2. Deaths for 2009 and 2010 are based on revised and preliminary data respectively, and are subject to further revision.

Source: AIHW National Mortality Database.

Aboriginal and Torres Strait Islander status

Table C.6: CHD deaths by Aboriginal and Torres Strait Islander status, men, 2001–2010

| Age | Number | | | | | | | | | |
|--|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
| Aboriginal and Torres Strait Islander | | | | | | | | | | |
| 25–39 | 22 | 28 | 24 | 37 | 19 | 18 | 29 | 20 | 23 | 24 |
| 40–54 | 63 | 69 | 85 | 60 | 79 | 59 | 70 | 65 | 79 | 73 |
| 55–69 | 84 | 59 | 66 | 63 | 62 | 66 | 56 | 53 | 58 | 68 |
| 70+ | 50 | 47 | 40 | 48 | 29 | 37 | 44 | 39 | 45 | 46 |
| Total (25+) | 219 | 203 | 215 | 208 | 189 | 180 | 199 | 177 | 205 | 211 |
| Other Australians | | | | | | | | | | |
| 25–39 | 96 | 70 | 76 | 70 | 63 | 78 | 69 | 81 | 77 | 66 |
| 40–54 | 662 | 601 | 591 | 594 | 623 | 573 | 558 | 540 | 539 | 502 |
| 55–69 | 1,974 | 1,868 | 1,793 | 1,861 | 1,671 | 1,625 | 1,636 | 1,595 | 1,547 | 1,450 |
| 70+ | 7,133 | 7,157 | 7,090 | 6,832 | 6,476 | 6,511 | 6,496 | 6,589 | 6,318 | 6,177 |
| Total (25+) | 9,865 | 9,696 | 9,550 | 9,357 | 8,833 | 8,787 | 8,759 | 8,805 | 8,481 | 8,195 |

Notes:

1. Deaths for 2009 and 2010 are based on revised and preliminary data respectively, and are subject to further revision.
2. These data have been adjusted for the additional deaths arising from outstanding registrations of deaths in Queensland in 2010. For more detail please refer to Technical note 3 in Causes of death, Australia, 2010 (ABS Cat. no. 3303.0).
3. Data for NSW, Qld, WA, SA and NT.

Source: AIHW National Mortality Database.

Table C.7: CHD deaths by Aboriginal and Torres Strait Islander status, women, 2001–2010

| Age | Number | | | | | | | | | |
|--|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
| Aboriginal and Torres Strait Islander | | | | | | | | | | |
| 25–39 | 6 | 11 | 4 | 6 | 5 | 9 | 9 | 9 | 5 | 3 |
| 40–54 | 28 | 34 | 29 | 31 | 31 | 29 | 16 | 32 | 34 | 29 |
| 55–69 | 34 | 46 | 26 | 39 | 29 | 40 | 40 | 30 | 40 | 33 |
| 70+ | 51 | 44 | 44 | 49 | 50 | 50 | 54 | 41 | 47 | 33 |
| Total (25+) | 119 | 135 | 103 | 125 | 115 | 128 | 119 | 112 | 126 | 98 |
| Other Australians | | | | | | | | | | |
| 25–39 | 19 | 16 | 19 | 14 | 16 | 12 | 13 | 17 | 10 | 8 |
| 40–54 | 121 | 111 | 118 | 126 | 109 | 107 | 110 | 124 | 99 | 110 |
| 55–69 | 627 | 593 | 535 | 479 | 483 | 441 | 446 | 478 | 427 | 399 |
| 70+ | 8,016 | 7,814 | 7,670 | 7,580 | 7,249 | 7,007 | 6,959 | 7,244 | 6,741 | 6,529 |
| Total (25+) | 8,783 | 8,534 | 8,342 | 8,199 | 7,857 | 7,567 | 7,528 | 7,863 | 7,277 | 7,046 |

Notes:

1. Deaths for 2009 and 2010 are based on revised and preliminary data respectively, and are subject to further revision.
2. These data have been adjusted for the additional deaths arising from outstanding registrations of deaths in Queensland in 2010. For more detail please refer to Technical note 3 in Causes of death, Australia, 2010 (ABS Cat. no. 3303.0).
3. Data for NSW, Qld, WA, SA and NT.

Source: AIHW National Mortality Database.

Table C.8: Age-specific CHD death rates by Aboriginal and Torres Strait Islander status, age group and sex, 2001–2002 to 2009–2010

| | <i>Age-specific rates (per 100,000 population)</i> | | | | | <i>% change</i> |
|--|--|-----------|-----------|-----------|-----------|---------------------------|
| | 2001–2002 | 2003–2004 | 2005–2006 | 2007–2008 | 2009–2010 | 2001–2002 to 2009–2010 |
| Aboriginal and Torres Strait Islander men | | | | | | |
| 25–39 | 58.6 | 69.4 | 41.2 | 52.9 | 49.0 | –16 |
| 40–54 | 250.9 | 255.0 | 228.1 | 205.1 | 218.8 | –13 |
| 55–69 | 754.5 | 620.2 | 565.9 | 414.5 | 421.9 | –44 |
| 70+ | 1,369.4 | 1,137.7 | 840.9 | 958.9 | 1,033.5 | –25 |
| Total (25+) | 493.5 | 430.9 | 349.0 | 336.7 | 354.6 | –28 |
| Other Australian men | | | | | | |
| 25–39 | 5.5 | 4.9 | 4.7 | 4.8 | 4.5 | –19 |
| 40–54 | 43.3 | 39.9 | 39.4 | 35.3 | 32.6 | –25 |
| 55–69 | 212.8 | 188.3 | 158.4 | 145.0 | 126.0 | –41 |
| 70+ | 1,082.1 | 993.9 | 876.2 | 839.4 | 767.7 | –29 |
| Total (25+) | 250.3 | 228.5 | 201.4 | 191.0 | 173.5 | –31 |
| Aboriginal and Torres Strait Islander women | | | | | | |
| 25–39 | 19.0 | 10.4 | 14.4 | 18.3 | 8.0 | –58 |
| 40–54 | 116.0 | 99.5 | 90.1 | 67.1 | 81.2 | –30 |
| 55–69 | 371.3 | 272.1 | 255.2 | 237.3 | 214.8 | –42 |
| 70+ | 937.1 | 835.3 | 854.4 | 755.9 | 617.1 | –34 |
| Total (25+) | 283.9 | 238.0 | 236.4 | 209.2 | 181.1 | –36 |
| Other Australian women | | | | | | |
| 25–39 | 1.2 | 1.1 | 0.9 | 1.0 | 0.6 | –52 |
| 40–54 | 8.0 | 8.2 | 7.0 | 7.4 | 6.4 | –19 |
| 55–69 | 68.1 | 52.8 | 44.8 | 41.7 | 34.7 | –49 |
| 70+ | 820.7 | 755.8 | 678.0 | 653.2 | 592.6 | –28 |
| Total (25+) | 162.4 | 147.9 | 132.1 | 127.1 | 114.5 | –29 |

Notes:

1. Age-standardised to the Australian Estimated Resident Population as at 30 June 2001.
2. Deaths for 2009 and 2010 are based on revised and preliminary data respectively, and are subject to further revision.
3. These data have been adjusted for the additional deaths arising from outstanding registrations of deaths in Queensland in 2010. For more detail please refer to Technical note 3 in Causes of death, Australia, 2010 (ABS Cat. no. 3303.0).
4. Data for NSW, Qld, WA, SA and NT.

Source: AIHW National Mortality Database.

Table C.9: Annual average percentage change (AAPC) in CHD death rates, by Aboriginal and Torres Strait Islander status, age group and sex, 2001–2010

| | Aboriginal and Torres Strait Islanders | | Other Australians | |
|--------------|--|----------------|-------------------|--------------|
| | % | 95% CI | % | 95% CI |
| Men | | | | |
| 25–39 | -3.1 | (-8.7, 2.6) | -1.8 | (-3.7, 0.1) |
| 40–54 | -2.8 | (-5.7, 0.1) | -2.9 | (-3.6, -2.3) |
| 55–69 | -4.9 | (-6.8, -2.9) | -4.9 | (-5.4, -4.3) |
| 70+ | -2.9 | (-5.6, -0.2) | -3.5 | (-4.0, -3.1) |
| Total (25+) | -3.6 | (-5.1, -2.0) | -3.7 | (-4.1, -3.3) |
| Women | | | | |
| 25–39 | -4.1 | (-13.3, 5.1,) | -5.6 | (-8.2, -2.9) |
| 40–54 | -4.3 | (-7.5, -1.2) | -2.2 | (-3.5, -0.9) |
| 55–69 | -4.8 | (-8.5, -1.2) | -5.5 | (-6.7, -4.3) |
| 70+ | -3.8 | (-5.5, -2.0) | -3.3 | (-3.8, -2.9) |
| Total (25+) | -4.1 | (-5.7, -2.5) | -3.5 | (-4.0, -3.0) |

Notes:

1. Age-standardised to the Australian Estimated Resident Population as at 30 June 2001.
2. Deaths for 2009 and 2010 are based on revised and preliminary data respectively, and are subject to further revision.
3. These data have been adjusted for the additional deaths arising from outstanding registrations of deaths in Queensland in 2010. For more detail please refer to Technical note 3 in Causes of death, Australia, 2010 (ABS Cat. no. 3303.0).
4. Data for NSW, Qld, WA, SA and NT.

Source: AIHW National Mortality Database.

Geographic location

Table C.10: CHD deaths by geographic location, men, 2001– 2010

| Age | Number | | | | | | | | | |
|-------------------------------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
| Major cities | | | | | | | | | | |
| 25–39 | 82 | 63 | 79 | 67 | 57 | 82 | 66 | 78 | 74 | 61 |
| 40–54 | 583 | 523 | 517 | 498 | 525 | 497 | 507 | 470 | 469 | 443 |
| 55–69 | 1,573 | 1,537 | 1,476 | 1,511 | 1,377 | 1,313 | 1,381 | 1,347 | 1,343 | 1,240 |
| 70+ | 6,288 | 6,290 | 6,174 | 5,916 | 5,755 | 5,533 | 5,882 | 5,908 | 5,683 | 5,525 |
| Total (25+) | 8,527 | 8,413 | 8,246 | 7,992 | 7,714 | 7,425 | 7,836 | 7,803 | 7,570 | 7,269 |
| Inner regional | | | | | | | | | | |
| 25–39 | 25 | 30 | 21 | 21 | 19 | 27 | 22 | 14 | 18 | 16 |
| 40–54 | 188 | 198 | 192 | 185 | 196 | 186 | 170 | 176 | 178 | 150 |
| 55–69 | 667 | 612 | 627 | 608 | 537 | 539 | 517 | 491 | 493 | 520 |
| 70+ | 2,474 | 2,506 | 2,450 | 2,369 | 2,197 | 2,351 | 2,139 | 2,250 | 2,273 | 2,110 |
| Total (25+) | 3,354 | 3,345 | 3,291 | 3,184 | 2,949 | 3,103 | 2,848 | 2,930 | 2,961 | 2,797 |
| Outer regional | | | | | | | | | | |
| 25–39 | 21 | 20 | 16 | 18 | 23 | 8 | 13 | 10 | 15 | 13 |
| 40–54 | 132 | 118 | 123 | 122 | 122 | 111 | 98 | 98 | 104 | 101 |
| 55–69 | 447 | 352 | 326 | 336 | 318 | 288 | 298 | 297 | 272 | 248 |
| 70+ | 1,110 | 1,131 | 1,098 | 1,093 | 974 | 1,029 | 959 | 920 | 953 | 911 |
| Total (25+) | 1,711 | 1,622 | 1,563 | 1,569 | 1,436 | 1,437 | 1,368 | 1,325 | 1,344 | 1,273 |
| Remote and very remote | | | | | | | | | | |
| 25–39 | 22 | 17 | 11 | 22 | 12 | 9 | 20 | 12 | 16 | 15 |
| 40–54 | 38 | 57 | 41 | 44 | 57 | 56 | 37 | 53 | 41 | 50 |
| 55–69 | 79 | 74 | 83 | 85 | 80 | 74 | 75 | 76 | 57 | 81 |
| 70+ | 161 | 141 | 144 | 159 | 124 | 140 | 118 | 118 | 124 | 129 |
| Total (25+) | 300 | 290 | 279 | 310 | 273 | 279 | 250 | 259 | 237 | 276 |

Note: Deaths for 2009 and 2010 are based on revised and preliminary data respectively, and are subject to further revision.

Source: AIHW National Mortality Database.

Table C.11: CHD deaths by geographic location, women, 2001–2010

| Age | Number | | | | | | | | | |
|-------------------------------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
| Major cities | | | | | | | | | | |
| 25–39 | 14 | 14 | 14 | 12 | 14 | 17 | 12 | 20 | 12 | 11 |
| 40–54 | 112 | 99 | 99 | 112 | 96 | 93 | 93 | 105 | 98 | 83 |
| 55–69 | 521 | 494 | 435 | 382 | 400 | 343 | 405 | 392 | 367 | 356 |
| 70+ | 7,443 | 7,245 | 7,229 | 6,892 | 6,646 | 6,464 | 6,640 | 6,814 | 6,423 | 6,080 |
| Total (25+) | 8,090 | 7,853 | 7,777 | 7,397 | 7,156 | 6,916 | 7,150 | 7,331 | 6,900 | 6,530 |
| Inner regional | | | | | | | | | | |
| 25–39 | 4 | 5 | 11 | 8 | 12 | 3 | 4 | 4 | 3 | 4 |
| 40–54 | 46 | 40 | 39 | 39 | 47 | 31 | 31 | 38 | 42 | 42 |
| 55–69 | 212 | 211 | 191 | 166 | 190 | 159 | 134 | 159 | 136 | 129 |
| 70+ | 2,591 | 2,522 | 2,507 | 2,472 | 2,485 | 2,390 | 2,375 | 2,407 | 2,273 | 2,170 |
| Total (25+) | 2,852 | 2,778 | 2,748 | 2,685 | 2,734 | 2,584 | 2,544 | 2,608 | 2,453 | 2,345 |
| Outer regional | | | | | | | | | | |
| 25–39 | 7 | 3 | 4 | 4 | 3 | 5 | 5 | 5 | 3 | 0 |
| 40–54 | 25 | 24 | 34 | 23 | 27 | 27 | 22 | 28 | 20 | 34 |
| 55–69 | 99 | 114 | 107 | 99 | 77 | 85 | 63 | 90 | 92 | 69 |
| 70+ | 1,068 | 1,127 | 1,025 | 1,014 | 1,005 | 1,026 | 906 | 916 | 875 | 839 |
| Total (25+) | 1,199 | 1,269 | 1,170 | 1,140 | 1,112 | 1,143 | 997 | 1,039 | 990 | 942 |
| Remote and very remote | | | | | | | | | | |
| 25–39 | 3 | 9 | 3 | 5 | 5 | 3 | 4 | 3 | 3 | 3 |
| 40–54 | 13 | 18 | 15 | 14 | 15 | 15 | 6 | 17 | 11 | 18 |
| 55–69 | 31 | 28 | 15 | 27 | 20 | 28 | 27 | 19 | 20 | 30 |
| 70+ | 142 | 136 | 114 | 130 | 126 | 119 | 88 | 111 | 88 | 88 |
| Total (25+) | 190 | 191 | 146 | 176 | 165 | 165 | 125 | 150 | 121 | 139 |

Notes:

1. Deaths for 2009 and 2010 are based on revised and preliminary data respectively, and are subject to further revision.
2. The value of cells with small numbers, along with the corresponding totals, have been adjusted to maintain confidentiality.

Source: AIHW National Mortality Database.

Table C.12: Age-specific CHD death rates by geographic location, men, 2001–2002 to 2009–2010

| Age | Age-specific rates (per 100,000 population) | | | | | % change |
|-------------------------------|---|-----------|-----------|-----------|-----------|---------------------------|
| | 2001–2002 | 2003–2004 | 2005–2006 | 2007–2008 | 2009–2010 | 2001–2002 to 2009–2010 |
| Major cities | | | | | | |
| 25–39 | 4.9 | 4.9 | 4.5 | 4.4 | 4.0 | -18.0 |
| 40–54 | 40.9 | 36.9 | 35.8 | 32.9 | 29.8 | -27.1 |
| 55–69 | 193.2 | 173.0 | 144.1 | 135.9 | 120.5 | -37.6 |
| 70+ | 2,183.0 | 1,970.1 | 1,686.8 | 1,624.3 | 1,443.5 | -33.9 |
| Total (25+) | 274.8 | 247.9 | 213.0 | 204.0 | 181.4 | -34.0 |
| Inner regional | | | | | | |
| 25–39 | 6.8 | 5.2 | 5.9 | 4.6 | 4.4 | -35.2 |
| 40–54 | 44.0 | 41.6 | 41.8 | 38.4 | 35.8 | -18.5 |
| 55–69 | 216.2 | 191.1 | 157.4 | 139.9 | 131.8 | -39.0 |
| 70+ | 2,375.1 | 2,126.8 | 1,921.6 | 1,766.5 | 1,653.5 | -30.4 |
| Total (25+) | 300.7 | 269.2 | 241.9 | 221.0 | 207.0 | -31.1 |
| Outer regional | | | | | | |
| 25–39 | 9.6 | 8.1 | 7.5 | 5.9 | 7.3 | -23.9 |
| 40–54 | 55.3 | 53.4 | 51.0 | 43.5 | 44.8 | -19.0 |
| 55–69 | 266.0 | 205.1 | 180.7 | 170.0 | 140.5 | -47.2 |
| 70+ | 2,355.1 | 2,138.4 | 1,909.5 | 1,767.0 | 1,663.7 | -29.4 |
| Total (25+) | 314.5 | 278.6 | 249.6 | 229.8 | 214.2 | -31.9 |
| Remote and very remote | | | | | | |
| 25–39 | 29.7 | 26.8 | 17.4 | 26.7 | 24.7 | -16.7 |
| 40–54 | 85.1 | 74.1 | 99.4 | 78.6 | 76.1 | -10.6 |
| 55–69 | 259.9 | 262.9 | 230.2 | 215.4 | 186.5 | -28.2 |
| 70+ | 2,042.6 | 1,854.5 | 1,594.9 | 1,553.9 | 1,628.3 | -20.3 |
| Total (25+) | 300.2 | 277.2 | 249.9 | 238.7 | 238.2 | -20.7 |

Notes:

1. Age-standardised to the Australian Estimated Resident Population as at 30 June 2001.

2. Deaths for 2009 and 2010 are based on revised and preliminary data respectively, and are subject to further revision.

Source: AIHW National Mortality Database.

Table C.13: Age-specific CHD death rates by geographic location, women, 2001–2002 to 2009–2010

| Age | Age-specific rates (per 100,000 population) | | | | | % change |
|-------------------------------|---|-----------|-----------|-----------|-----------|---------------------------|
| | 2001–2002 | 2003–2004 | 2005–2006 | 2007–2008 | 2009–2010 | 2001–2002 to 2009–2010 |
| Major cities | | | | | | |
| 25–39 | 0.9 | 0.8 | 1.0 | 1.0 | 0.7 | -28.1 |
| 40–54 | 7.6 | 7.5 | 6.4 | 6.4 | 5.7 | -25.1 |
| 55–69 | 61.6 | 46.3 | 39.0 | 38.5 | 32.4 | -47.3 |
| 70+ | 1,457.0 | 1,320.7 | 1,137.0 | 1,081.2 | 944.2 | -35.2 |
| Total (25+) | 161.0 | 144.1 | 124.0 | 118.3 | 103.0 | -36.0 |
| Inner regional | | | | | | |
| 25–39 | 1.1 | 2.3 | 1.8 | 1.0 | 0.9 | -13.3 |
| 40–54 | 9.8 | 8.5 | 8.5 | 7.5 | 8.9 | -8.9 |
| 55–69 | 71.1 | 55.1 | 51.3 | 40.9 | 34.4 | -51.6 |
| 70+ | 1,545.1 | 1,401.2 | 1,307.0 | 1,222.9 | 1,069.9 | -30.8 |
| Total (25+) | 172.7 | 154.9 | 144.6 | 133.3 | 117.2 | -32.1 |
| Outer regional | | | | | | |
| 25–39 | 2.0 | 2.0 | 1.9 | 2.6 | 0.5 | -74.2 |
| 40–54 | 11.6 | 13.1 | 12.5 | 11.5 | 12.5 | 7.8 |
| 55–69 | 77.1 | 69.4 | 52.4 | 48.3 | 47.5 | -38.3 |
| 70+ | 1,565.7 | 1,348.4 | 1,313.4 | 1,202.2 | 1,077.8 | -31.2 |
| Total (25+) | 177.0 | 154.3 | 146.9 | 134.9 | 121.9 | -31.1 |
| Remote and very remote | | | | | | |
| 25–39 | 8.7 | 7.1 | 6.4 | 6.5 | 3.7 | -4.3 |
| 40–54 | 34.0 | 29.4 | 30.4 | 24.2 | 29.5 | -22.8 |
| 55–69 | 127.8 | 82.7 | 90.5 | 84.8 | 86.0 | -40.7 |
| 70+ | 1,574.5 | 1,269.1 | 1,253.0 | 1,089.3 | 924.9 | -45.1 |
| Total (25+) | 199.3 | 157.0 | 157.1 | 137.5 | 122.3 | -42.8 |

Notes:

1. Age-standardised to the Australian Estimated Resident population as at 30 June 2001.

2. Deaths for 2009 and 2010 are based on revised and preliminary data respectively, and are subject to further revision.

Source: AIHW National Mortality Database.

Table C.14: Annual average percentage change (AAPC) in CHD death rates by geographic location, age group and sex, 2001–2010

| Age | Major cities | | Inner regional | | Outer regional | | Remote and very remote | |
|--------------|--------------|--------------|----------------|--------------|----------------|--------------|------------------------|---------------|
| | % | 95% CI | % | 95% CI | % | 95% CI | % | 95% CI |
| Men | | | | | | | | |
| 25–39 | -2.1 | (-4.4, 0.2) | -4.1 | (-8.0, -0.3) | -3.9 | (-7.9, 0.2) | -1.5 | (-6.3, 3.2) |
| 40–54 | -3.1 | (-3.8, -2.5) | -2.3 | (-3.2, -1.3) | -2.7 | (-3.5, -1.9) | -0.3 | (-5.0, 4.5) |
| 55–69 | -4.6 | (-5.2, -3.9) | -4.8 | (-5.7, -3.8) | -4.8 | (-6.3, -3.4) | -3.4 | (-5.0, -1.9) |
| 70+ | -4.1 | (-4.7, -3.6) | -3.7 | (-4.5, -2.8) | -3.6 | (-4.5, -2.7) | -2.4 | (-4.2, -0.6) |
| Total (25+) | -4.1 | (-4.7, -3.6) | -3.8 | (-4.6, -3.0) | -3.8 | (-4.5, -3.1) | -2.4 | (-3.7, -1.1) |
| Women | | | | | | | | |
| 25–39 | -1.8 | (-6.0, 2.4) | -9.9 | (-28.4, 8.7) | -3.8 | (-10.7, 3.1) | -25.6 | (-75.4, 24.1) |
| 40–54 | -3.0 | (-4.4, -1.6) | -1.5 | (-3.8, 0.8) | 0.3 | (-3.9, 4.5) | -1.4 | (-7.0, 4.1) |
| 55–69 | -5.2 | (-6.7, -3.8) | -6.0 | (-7.2, -4.8) | -5.2 | (-7.7, -2.8) | -2.6 | (-6.4, 1.1) |
| 70+ | -4.2 | (-4.7, -3.7) | -3.5 | (-3.9, -3.2) | -3.5 | (-4.4, -2.6) | -4.2 | (-5.9, -2.6) |
| Total (25+) | -4.3 | (-4.8, -3.7) | -3.7 | (-4.1, -3.4) | -3.6 | (-4.5, -2.7) | -3.9 | (-5.7, -2.1) |

Notes:

1. Age-standardised to the Australian Estimated Resident population as at 30 June 2001.
2. Deaths for 2009 and 2010 are based on revised and preliminary data respectively, and are subject to further revision.

Source: AIHW National Mortality Database.

Socioeconomic status

Table C.15: CHD deaths by socioeconomic status, age group and sex, 1997, 2002 and 2007

| Age | Lowest socioeconomic group | | | Highest socioeconomic group | | |
|----------------|----------------------------|-------|-------|-----------------------------|-------|-------|
| | <i>Number</i> | | | <i>Number</i> | | |
| | 1997 | 2002 | 2007 | 1997 | 2002 | 2007 |
| Men | | | | | | |
| 25–54 | 287 | 262 | 256 | 149 | 115 | 117 |
| 55–69 | 902 | 641 | 598 | 502 | 372 | 302 |
| 70+ | 2,423 | 1,949 | 2,145 | 2,005 | 1,806 | 1,515 |
| Total (25+) | 3,612 | 2,852 | 2,999 | 2,656 | 2,293 | 1,934 |
| Women | | | | | | |
| 25–54 | 79 | 67 | 58 | 24 | 18 | 14 |
| 55–69 | 313 | 221 | 201 | 143 | 106 | 89 |
| 70+ | 2,439 | 2,101 | 2,236 | 2,660 | 2,321 | 1,852 |
| Total (25+) | 2,831 | 2,389 | 2,495 | 2,827 | 2,445 | 1,955 |
| Persons | | | | | | |
| 25–54 | 366 | 329 | 314 | 173 | 133 | 131 |
| 55–69 | 1,215 | 862 | 799 | 645 | 478 | 391 |
| 70+ | 4,862 | 4,050 | 4,381 | 4,665 | 4,127 | 3,367 |
| Total (25+) | 6,443 | 5,241 | 5,494 | 5,483 | 4,738 | 3,889 |

Source: AIHW National Mortality Database.

Table C.16: Age-specific CHD death rates by socioeconomic status, age and sex, 1997, 2002 and 2007

| Age | Lowest socioeconomic group | | | | Highest socioeconomic group | | | |
|--------------|------------------------------|---------|---------|-----------|-------------------------------|---------|-------|-----------|
| | Death per 100,000 population | | | % change | Deaths per 100,000 population | | | % change |
| | 1997 | 2002 | 2007 | 1997–2007 | 1997 | 2002 | 2007 | 1997–2007 |
| Men | | | | | | | | |
| 25–54 | 40.2 | 32.8 | 29.6 | –26.4 | 17.7 | 12.9 | 12.7 | –28.2 |
| 55–69 | 360.8 | 254.2 | 184.8 | –48.8 | 223.8 | 145.3 | 100.3 | –55.2 |
| 70+ | 2,015.7 | 1,574.3 | 1,227.2 | –39.1 | 1,748.2 | 1,291.5 | 946.3 | –45.9 |
| Total (25+) | 374.4 | 287.9 | 224.5 | –40.0 | 295.8 | 214.4 | 158.1 | –46.5 |
| Women | | | | | | | | |
| 25–54 | 11.2 | 8.5 | 6.7 | –40.2 | 2.8 | 1.9 | 1.4 | –50.0 |
| 55–69 | 122.6 | 87.9 | 62.1 | –49.3 | 60.6 | 41.6 | 29.6 | –51.2 |
| 70+ | 1,350.8 | 1,081.5 | 829.6 | –38.6 | 1,186.9 | 858.8 | 629.4 | –47.0 |
| Total (25+) | 217.0 | 171.4 | 130.5 | –39.8 | 176.7 | 127.3 | 93.2 | –47.3 |

Note: Age-standardised to the Australian Estimated Resident population as at 30 June 2001.

Source: AIHW National Mortality Database.

Glossary

Aboriginal or Torres Strait Islander A person of Aboriginal and/or Torres Strait Islander descent who identifies as an Aboriginal and/or Torres Strait Islander. See also **Indigenous**.

acute myocardial infarction (AMI) Term still commonly used to mean a **heart attack**, but more correctly refers only to those heart attacks that have caused some death of heart muscle.

age-specific rate A rate for a specific age group.

age standardisation A method of removing the influence of age when comparing populations with different age structures. This is usually necessary because the rates of many diseases vary strongly (usually increasing) with age.

angina Temporary chest pain or discomfort when the heart's own blood supply is inadequate to meet extra needs, as in exercise. See also cardiovascular disease.

blood cholesterol Fatty substance produced by the liver and carried by the blood to supply the rest of the body. Its natural function is to supply material for cell walls and for steroid hormones, but if levels become too high this can lead to atherosclerosis and heart disease.

cardiovascular disease Any disease of the **circulatory system**, namely the heart (cardio) or blood vessels (vascular). Includes **heart attack**, **angina**, stroke and peripheral vascular disease. Also known as circulatory disease.

cause of death From information reported on the medical certificate of cause of death, each death is classified by the underlying cause of death according to rules of the 10th revision of the International Classification of Diseases. The underlying cause is defined as the disease initiating the train of events leading directly to death. See also **underlying cause of death**.

chronic diseases Term applied to a diverse group of diseases, such as heart disease, cancer and arthritis, which tend to be long-lasting and persistent in their symptoms or development. Although these features also apply to some communicable diseases (infections), the term is usually confined to non-communicable diseases.

circulatory system Comprises the heart and the blood vessels, which circulate blood around the body to supply oxygen and nutrients to all body tissues and carry away waste products. Also known as the cardiovascular system.

confidence interval (CI) A statistical term describing a range (interval) of values within which we can be 'confident' that the true value lies, usually because it has a 95% or higher chance of doing so.

coronary heart disease Is disease due to blockages in the heart's own (coronary) arteries, expressed as **angina** or a **heart attack**. Also known as ischaemic heart disease.

diabetes (diabetes mellitus) A chronic condition in which the body cannot properly use its main energy source, the sugar glucose. This is due to a relative or absolute deficiency in insulin, a hormone that is produced by the pancreas and helps glucose enter the body's cells from the bloodstream and then be processed by them. Diabetes is marked by an abnormal build-up of glucose in the blood, and it can have serious short and long-term effects.

heart attack Life-threatening emergency that occurs when a vessel supplying blood to the heart muscle is suddenly blocked completely by a blood clot. The medical term commonly used for a heart attack is **myocardial infarction**. See also **cardiovascular disease**.

high blood pressure/hypertension The definition of high blood pressure (also known as hypertension) can vary but a well-accepted one is from the World Health Organization: a systolic blood pressure of 140 mmHg or more or a diastolic blood pressure of 90 mmHg or more, or [the person is] receiving medication for high blood pressure.

impaired glucose tolerance Condition in which blood glucose levels are higher than normal but less than required for a diagnosis of diabetes, and which signals an increased risk of developing type 2 diabetes.

Index of Relative Socio-economic Disadvantage One of the set of Socio-Economic Indexes for Areas for ranking the average socioeconomic conditions of the population in an area.

Indigenous A person of Aboriginal and/or Torres Strait Islander descent who identifies as an Aboriginal and/or Torres Strait Islander. See also **Aboriginal or Torres Strait Islander**.

International Classification of Diseases The World Health Organization's internationally accepted classification of death and disease. The 10th revision (ICD-10) is currently in use.

mortality Death.

obesity Marked degree of overweight, defined for population studies as a body mass index of 30 or over. See also **overweight**.

other Australians People who have declared they are not of Aboriginal or Torres Strait Islander descent, and those for whom their Indigenous status is unknown.

overweight Defined for the purpose of population studies as a body mass index of 25 or over. See also **obesity**.

P value The probability that an observed difference has arisen by chance alone. By convention, a P value of 0.05 or less is usually considered **statistically significant**.

risk factor Any factor which represents a greater risk of a health disorder or other unwanted condition or event. Some risk factors are regarded as causes of disease, others are not necessarily so. Along with their opposites, protective factors, risk factors are known as determinants.

socioeconomic status An indication of how 'well off' a person or group is. In this report, socioeconomic status is mostly reported using the Socio-Economic Indexes for Areas, typically for five groups, from the most disadvantaged (worst off) to the least disadvantaged (best off).

statistical significance An indication from a statistical test that an observed difference or association may be significant or 'real' because it is unlikely to be due just to chance. A statistical result is usually said to be 'significant' if it would occur by chance less than once in 20 times.

underlying cause of death The condition, disease or injury initiating the sequence of events leading directly to death; that is, the primary or main cause.

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Coronary heart disease is Australia's leading cause of death, and although death rates have fallen substantially over recent decades, declines among some age groups appear to have slowed.

Trends in coronary heart disease mortality: age groups and populations examines how the decline has varied between young adults, middle-aged and older persons, and among different population groups, including by Aboriginal and Torres Strait Islander status, geographic location and socioeconomic status.