Acknowledgement

Data on the number of new cases of mesothelioma in this report are collected by the National Cancer Statistics Clearing House, maintained by the Australian Institute of Health and Welfare (AIHW). Data on fatal cases of mesothelioma are collected in the National Mortality Database, made available to us by the AIHW. The authors, and not these agencies, are responsible for the use of the data in this report. The authors would like to thank the State Cancer Registries and the AIHW for allowing access to the data presented in this report.

Disclaimer

The information provided in this document can only assist you in the most general way. This document does not replace any statutory requirements under any relevant State and Territory legislation. Safe Work Australia is not liable for any loss resulting from any action taken or reliance made by you on the information or material contained on this document. Before relying on the material, users should carefully make their own assessment as to its accuracy, currency, completeness and relevance for their purposes, and should obtain any appropriate professional advice relevant to their particular circumstances.

To the extent that the material on this document includes views or recommendations of third parties, such views or recommendations do not necessarily reflect the views of Safe Work Australia or indicate its commitment to a particular course of action.

Creative Commons


With the exception of the Safe Work Australia logo, this report is licensed by Safe Work Australia under a Creative Commons 3.0 Australia Licence. To view a copy of this licence, visit http://creativecommons.org/licenses/by/3.0/au/deed.en

In essence, you are free to copy, communicate and adapt the work, as long as you attribute the work to Safe Work Australia and abide by the other licensing terms. The report should be attributed as the Mesothelioma in Australia: Incidence 1982 to 2007, Mortality 1997 to 2007.

Enquiries regarding the licence and any use of the report are welcome at:

Copyright Officer

Communications, IT and Knowledge Management

Safe Work Australia

GPO Box 641 Canberra ACT 2601

Email: copyrightrequests@safeworkaustralia.gov.au
# Contents

Report summary.......................................................................................................................... 3  
Introduction .................................................................................................................................. 5  
  Asbestos production, use and control in Australia ................................................................. 5  
  Mesothelioma projections ........................................................................................................ 6  
  The new Australian Mesothelioma Registry ....................................................................... 6  
Incidence of mesothelioma ........................................................................................................ 7  
  New cases diagnosed in 2007 ................................................................................................. 7  
  Trends over time, 1982 to 2007 .............................................................................................. 8  
    National data .......................................................................................................................... 8  
    State and Territory data ....................................................................................................... 11  
Deaths due to mesothelioma ..................................................................................................... 13  
  Deaths in 2007 ....................................................................................................................... 13  
  Trends over time, 1997 to 2007 ............................................................................................ 14  
    National data ....................................................................................................................... 14  
    State and Territory data ..................................................................................................... 15  
References .................................................................................................................................. 17  
Useful links .................................................................................................................................. 17
Report summary

Data on the number of new cases of mesothelioma are collected nationally by the Australian Institute of Health and Welfare (AIHW) in the National Cancer Statistics Clearing House, via the State Cancer Registries. Information on deaths from mesothelioma is also collected by the AIHW as part of the National Mortality Database. Data are available from 1982 to 2007 for the number of new cases, and from 1997 to 2007 for the number of deaths.

New cases diagnosed

> In 2007 there were 660 new cases of mesothelioma diagnosed in Australia.

After declining between 2003 and 2006, the annual number of new cases of mesothelioma diagnosed have increased again to a new peak of 660 cases. This overall increase between 2006 and 2007 was almost entirely due to the increase in diagnoses for men (from 486 to 554 respectively). Over the period since 1982 the large majority of new cases have involved men: typically accounting for between 80% and 90% of new cases.

> In 2007, the age-standardised incidence rate of new cases of mesothelioma was 3 per 100,000 population.

This rate has increased over time, from 1.2 cases in 1982 to a peak of 3.2 in 2003. In 2007, the highest age-specific incidence rate of new cases occurred among men aged 80–84 years: 56 cases per 100,000 population aged 80–84 years.

Deaths due to mesothelioma

> In 2007 there were 551 deaths attributed to mesothelioma.

Data on the number of deaths due to mesothelioma are available for the years 1997 to 2007. Reflecting the incidence of new cases diagnosed, the overall number of deaths resulting from mesothelioma generally increased over the period between 1997 and 2007: reaching a maximum of 551 deaths in 2007.

> In 2007, the age-standardised rate of death due to mesothelioma was 2.4 deaths per 100,000 population.

The overall age-standardised rate has remained relatively stable over the 10 years for which data are available. Over the period the standardised rate has ranged between a minimum of 2.1 deaths per 100,000 population in 1999 and a maximum of 2.7 in 2001.
Introduction

Mesothelioma is a usually fatal cancer which typically occurs 20 to 40 years after exposure to asbestos — although exposure does not necessarily result in the disease. All new cases of mesothelioma are notified to State Cancer Registries, as mesothelioma is a notifiable disease. These data are collected nationally by the Australian Institute of Health and Welfare (AIHW) in the National Cancer Statistics Clearing House. Information on deaths from mesothelioma is also collected by the AIHW as part of the National Mortality Database. The AIHW publishes cancer data in spreadsheets on their website. This report uses the mesothelioma data, and additional data supplied by the state and territory cancer registries to the AIHW, to report on the incidence of new cases and deaths from mesothelioma by both age and sex. In addition, trends over time are shown for the period 1982 to 2007 for the number of new cases, and from 1997 to 2007 for the number of deaths (the mortality section of this report is identical to that published in the previous edition because data for 2008 are not yet available).

Mesothelioma of the pleura (a cancer affecting the protective lining of the lung and chest cavity) was the most common form of mesothelioma diagnosed in Australia: involving approximately 94% of cases since 1982. Mesothelioma of the peritoneal (a cancer affecting the abdominal lining) is a much less common diagnosis, accounting for approximately 5% of cases since 1982. The figures presented in this publication include all forms of mesothelioma.

Data on cases of mesothelioma prior to 1982, and deaths caused by mesothelioma prior to 1997 can be found in the Australian Mesothelioma Register reports, available on the Safe Work Australia website (www.safeworkaustralia.gov.au).

Asbestos production, use and control in Australia

In Australia, more chrysotile (white asbestos) than amphibole (blue and brown) asbestos was mined until 1939. New South Wales, the first state to mine asbestos, produced the largest tonnages of chrysotile (until 1983) as well as smaller quantities of amphibole (until 1949). With the commencement of mining in Wittenoom in Western Australia in 1937, crocidolite (blue asbestos) dominated production until final closure of the mine in 1966. The main sources of raw asbestos imports were from Canada (chrysotile) and South Africa (crocidolite and amosite (brown asbestos)). Consumption peaked in about 1975 at 70 000 tonnes per year.

In addition to imports of asbestos fibre, Australia also imported many manufactured asbestos products, including asbestos containing cement articles, yarn, cord and fabric, joint and millboard, friction materials and gaskets. The main sources of supply were the United Kingdom (UK), United States of America (USA), Federal Republic of Germany and Japan. With the closing of the crocidolite mine at Wittenoom, Australian asbestos production and exports declined. Imports of chrysotile also started to decline.

In Australia, over 60% of all production and 90% of all consumption of asbestos fibre was used in the asbestos cement manufacturing industry. From about 1940 to the late 1960s all three types of asbestos were used in this industry. The use of crocidolite began being phased out from 1967. Amosite was used until the mid 1980s. Much of the industry output remains in service today in the form of “fibro” houses and water and sewerage piping. By 1954, Australia was number four in the Western world in gross consumption of asbestos cement products, after the USA, UK and France: and clearly first on a per capita basis. After World War II to 1954, 70 000 asbestos cement houses were built in the state of New South Wales alone (52% of all houses built). In Australia, until the 1960s, 25% of all new housing was clad in asbestos cement.

Exposures to asbestos in the past were very high in some industries and occupations: as much as 25 million particles per cubic foot (150 fibres/ml) in asbestos pulverisors...
and disintegrators in the asbestos cement industry, and up to 600 fibres/ml among baggers at Wittenoom. The use of asbestos products has been regulated since the late 1970s. A series of regulations adopted in the late 1970s and early 1980s by the various states imposed exposure limits of 0.1 fibres/ml for crocidolite and amosite, and 0.1-1.0 fibres/ml for chrysotile. In July 2003, a revised national exposure standard for chrysotile asbestos of 0.1 fibres/ml was declared by the National Occupational Health and Safety Commission (NOHSC). The prohibition of all forms of asbestos was adopted simultaneously under regulations in each Australian jurisdiction, as well as Australian Customs, on 31 December 2003.

The prohibition does not extend to asbestos containing materials in-situ at the time prohibition took effect. Draft Regulations and Model Codes of Practice on the management and control of asbestos in the workplace were available for public comment between 7 December 2010 and 4 April 2011 on the Safe Work Australia website (Safe Work Australia / Model Work Health and Safety Regulations and model Codes of Practice web page). Once approved by the Workplace Relations Ministers’ Council, the Model Codes of Practice are due to be adopted by Australian Work Health and Safety jurisdictions in January 2012.

Mesothelioma Projections

Due to the long latency between exposure to asbestos and diagnosis of mesothelioma, typically between 20 and 40 years, it is expected that the incidence of mesothelioma will not peak until after 2013. Clements et al (2007a) predict that the number of new cases in Australia will peak in 2017. In another study, Clements et al (2007b) used two different models to project the incidence of mesothelioma in men in New South Wales. Using an age/birth cohort model, they predict that the number of new cases would peak in 2021 and using a model based on potential exposure to asbestos in terms of age and calendar year, they predict the peak would occur in 2014.

The new Australian Mesothelioma Registry

In February 2010, Safe Work Australia initiated and funded the establishment of a new Mesothelioma Registry (www.mesothelioma-australia.com). The registry is administered by the Cancer Institute of New South Wales in association with the Monash Centre for Occupational & Environmental Health. Besides receiving notifications of new diagnosis of mesothelioma from all Australian cancer registries, consenting patients will be asked about their residential, occupational and environmental history. The Registry management committee includes some of the leading experts in asbestos-related disease in Australia.

The aims of the Australian Mesothelioma Registry are to:

• Better understand the exact relationship between asbestos exposure and mesothelioma
• Better understand the nature and levels of asbestos exposure that can result in mesothelioma
• Identify the groups of workers exposed to potentially dangerous levels of asbestos and to prevent that exposure
• Assist the development of policies to best deal with the asbestos still present in our environment (mainly our built environment)
• Provide information to assist researchers in undertaking investigations with the aim of preventing mesothelioma in the future, and
• Identify other potential exposures that may cause mesothelioma.
Incidence of mesothelioma
New cases diagnosed in 2007

All cases of cancer in Australia are notifiable by legislation to state and territory cancer registries. These registries report to the National Cancer Statistics Clearing House (NCSCH) which is operated by the AIHW under the supervision of the Australasian Association of Cancer Registries (AACR). National data on mesothelioma are available from 1982. National data presented in this report were provided by the AIHW. State and territory data were provided by the relevant registry through the AIHW.

In incidence in a calendar year is defined as the number of new cases of mesothelioma diagnosed in an Australian state or territory in that year. In 2007, there were 660 people diagnosed with mesothelioma in Australia. Of these new cases, about four out of every five cases (84%) were men.

Figure 1  New cases of mesothelioma: by age and sex, 2007

Figure 1 shows the distribution by age and sex of new cases of mesothelioma diagnosed in 2007. There were 554 men diagnosed with mesothelioma (see Table 1). These men were predominately of older age: 431 (78%) were aged 65 years or more. There was one man in his late thirties diagnosed, but none younger.

In 2007, there were 106 women diagnosed with mesothelioma. Similarly, these women were predominately of older age: 65 (61%) were aged 65 years or more. There was one women aged in her late thirties diagnosed and one female aged under 20 years (not included in Figure 1).
Figure 2 shows the age-specific incidence rates (new cases per 100 000 population of that age) for the year 2007. For men, the incidence rate increased consistently and considerably with age: reaching a maximum of 56 new cases per 100 000 males among men aged 80–84. For women, a similar, but less distinct, pattern was observed. The maximum rate for women occurred among those aged 75–79 years: 5.4 new cases per 100 000 females.

Trends over time, 1982 to 2007

Table 1  New cases of mesothelioma: year of diagnosis by sex, 1982 to 2007

<table>
<thead>
<tr>
<th>Year</th>
<th>Males</th>
<th>Females</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1982</td>
<td>134</td>
<td>22</td>
<td>156</td>
</tr>
<tr>
<td>1983</td>
<td>131</td>
<td>15</td>
<td>146</td>
</tr>
<tr>
<td>1984</td>
<td>149</td>
<td>17</td>
<td>166</td>
</tr>
<tr>
<td>1985</td>
<td>178</td>
<td>24</td>
<td>202</td>
</tr>
<tr>
<td>1986</td>
<td>195</td>
<td>30</td>
<td>225</td>
</tr>
<tr>
<td>1987</td>
<td>174</td>
<td>29</td>
<td>203</td>
</tr>
<tr>
<td>1988</td>
<td>246</td>
<td>31</td>
<td>277</td>
</tr>
<tr>
<td>1989</td>
<td>229</td>
<td>40</td>
<td>269</td>
</tr>
<tr>
<td>1990</td>
<td>257</td>
<td>34</td>
<td>291</td>
</tr>
<tr>
<td>1991</td>
<td>260</td>
<td>47</td>
<td>307</td>
</tr>
<tr>
<td>1992</td>
<td>287</td>
<td>39</td>
<td>326</td>
</tr>
<tr>
<td>1993</td>
<td>318</td>
<td>52</td>
<td>370</td>
</tr>
<tr>
<td>1994</td>
<td>372</td>
<td>47</td>
<td>419</td>
</tr>
<tr>
<td>1995</td>
<td>335</td>
<td>59</td>
<td>394</td>
</tr>
<tr>
<td>1996</td>
<td>362</td>
<td>53</td>
<td>415</td>
</tr>
<tr>
<td>1997</td>
<td>393</td>
<td>75</td>
<td>468</td>
</tr>
<tr>
<td>1998</td>
<td>412</td>
<td>61</td>
<td>473</td>
</tr>
<tr>
<td>1999</td>
<td>399</td>
<td>76</td>
<td>475</td>
</tr>
<tr>
<td>2000</td>
<td>403</td>
<td>77</td>
<td>480</td>
</tr>
<tr>
<td>2001</td>
<td>468</td>
<td>107</td>
<td>575</td>
</tr>
<tr>
<td>2002</td>
<td>455</td>
<td>109</td>
<td>564</td>
</tr>
<tr>
<td>2003</td>
<td>540</td>
<td>113</td>
<td>653</td>
</tr>
<tr>
<td>2004</td>
<td>510</td>
<td>93</td>
<td>603</td>
</tr>
<tr>
<td>2005</td>
<td>498</td>
<td>114</td>
<td>612</td>
</tr>
<tr>
<td>2006</td>
<td>486</td>
<td>104</td>
<td>590</td>
</tr>
<tr>
<td>2007</td>
<td>554</td>
<td>106</td>
<td>660</td>
</tr>
</tbody>
</table>
Table 1 and Figure 3 show that the total number of new cases of mesothelioma diagnosed in each year has been rising dramatically since 1982, when national data first became available: reaching 653 new cases in 2003. The number of new cases then decreased to 590 in 2006: suggesting a decreasing trend. However, the number of diagnoses reported in 2007 increased again to a new peak of 660. This overall increase between 2006 and 2007 was almost entirely due to the increase in diagnoses for men (from 486 to 554 respectively).

In every year since 1982, men have formed the large majority of new cases. However, the proportion of all new cases that were women has increased slightly over the collection period. Over the five-year period 1982 to 1986 the average proportion of new cases that were women was 12%, whereas over the period 2003 to 2007 the average proportion was 17%.

Figures 4 and 5 show age-specific incidence rates for selected age groups for men and women respectively. The graphs show that for both men and women, the incidence rates in the two oldest age groups increased markedly over the period 1982 to 2003.

Since 2003, for men (Figure 4), the incidence rate among those aged 80 years and over declined to 38 new cases per 100,000 population in 2006 before increasing again in 2007 to 48. Similarly, among men aged 65–79 the incidence rate increased again between 2006 and 2007.
Since 2002, the incidence rate among women aged 80 years and over declined overall from 8.7 to 4.5 new cases per 100,000 population in 2007 (Figure 5).

Age-standardisation is a technique used to remove the effect of gradual shifts over time in the age composition of the Australian population on rates calculated using those figures. By applying the observed age-specific death rates in each year to a standard population, the expected number of deaths can be calculated and an aggregate age-standardised rate can be calculated.

Figure 6 shows the age-standardised incidence of new cases of mesothelioma (per 100,000 population) over the period 1982 to 2007. The overall incidence rate increased from a minimum of 1.1 new cases per 100,000 population in 1983 to a maximum of 3.2 in 2003. Since that date, the rate declined slightly to 2.7 in 2006 but then increased again in 2007 to 3.

The age-standardised incidence rate of new cases of mesothelioma for men was considerably higher than that for women in all years. The male rate ranged between a minimum of 2.1 new cases per 100,000 males in 1983 to a maximum of 5.9 in 2003: in
2007 there were 5.4 new cases per 100,000 males. The age-standardised incidence rate for women over the period ranged between 0.2 new cases per 100,000 females in 1983 and 1.0 in 2001 to 2003 and again in 2005: in both 2006 and 2007 there were 0.9 new cases per 100,000 females.

Because asbestos exposure in the workplace and the general environment has now been eliminated or minimised, the incidence of new cases of mesothelioma in the population is expected to decline. However, because of the long latency between exposure to asbestos and diagnosis of mesothelioma, typically between 20 and 40 years, it is expected that the incidence of mesothelioma will not peak until 2014 to 2021, depending on the projection methodology (further details can be found in the Introduction, under Mesothelioma projections — p.6).

State and Territory data

Figure 7 shows the five-year rolling average number of new cases of mesothelioma occurring in each state and territory over the time period 1982–1986 to 2003–2007: the period for which data are available for all states and territories. Five-year rolling averages are used to preserve confidentiality. Further detailed data by sex for each state and territory can be found in Table 2.

The five-year rolling average number of new cases of mesothelioma in each state and territory generally reflects population distribution. The more populous states, New South Wales, Victoria and Queensland, reported the largest number of new cases: respectively averaging 211, 137 and 116 cases over the five-year period 2003-07. These three states have also experienced relatively consistent and similar rates of increase in the number of cases of mesothelioma diagnosed over the period 1982–86 to 2003–07. The number of new cases diagnosed in Western Australia increased at a similar rate up until the mid-90s, and then the rate of increase reduced. In South Australia and Tasmania the rate of increase in the number of new cases since the early 90s was not as great as in other jurisdictions.

Figure 7 New cases of mesothelioma: five-year rolling average number of cases by state or territory(a), 1982–1986 to 2003–2007

(a) Because the numbers of mesothelioma deaths in the ACT and the NT are relatively low, they cannot be plotted clearly at this scale. These numbers can be found in Table 2, p.12.
## Table 2  New cases of mesothelioma: five-year rolling average number by state or territory by sex, 1984–1988 to 2003–2007

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>F</td>
<td>T</td>
<td>M</td>
<td>F</td>
<td>T</td>
<td>M</td>
<td>F</td>
<td>T</td>
<td>M</td>
<td>F</td>
<td>T</td>
<td>M</td>
<td>F</td>
<td>T</td>
<td>M</td>
<td>F</td>
<td>T</td>
<td>M</td>
<td>F</td>
</tr>
<tr>
<td>NSW</td>
<td>73</td>
<td>10</td>
<td>82</td>
<td>77</td>
<td>11</td>
<td>87</td>
<td>80</td>
<td>12</td>
<td>92</td>
<td>14</td>
<td>6</td>
<td>97</td>
<td>110</td>
<td>14</td>
<td>16</td>
<td>17</td>
<td>21</td>
<td>23</td>
<td>24</td>
<td>28</td>
</tr>
<tr>
<td></td>
<td>M</td>
<td>F</td>
<td>T</td>
<td>M</td>
<td>F</td>
<td>T</td>
<td>M</td>
<td>F</td>
<td>T</td>
<td>M</td>
<td>F</td>
<td>T</td>
<td>M</td>
<td>F</td>
<td>T</td>
<td>M</td>
<td>F</td>
<td>T</td>
<td>M</td>
<td>F</td>
</tr>
<tr>
<td>Vic</td>
<td>36</td>
<td>4</td>
<td>40</td>
<td>39</td>
<td>5</td>
<td>44</td>
<td>42</td>
<td>6</td>
<td>51</td>
<td>7</td>
<td>5</td>
<td>46</td>
<td>50</td>
<td>7</td>
<td>11</td>
<td>13</td>
<td>17</td>
<td>17</td>
<td>18</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>M</td>
<td>F</td>
<td>T</td>
<td>M</td>
<td>F</td>
<td>T</td>
<td>M</td>
<td>F</td>
<td>T</td>
<td>M</td>
<td>F</td>
<td>T</td>
<td>M</td>
<td>F</td>
<td>T</td>
<td>M</td>
<td>F</td>
<td>T</td>
<td>M</td>
<td>F</td>
</tr>
<tr>
<td>Qld</td>
<td>29</td>
<td>3</td>
<td>31</td>
<td>32</td>
<td>4</td>
<td>34</td>
<td>37</td>
<td>36</td>
<td>38</td>
<td>39</td>
<td>46</td>
<td>49</td>
<td>50</td>
<td>55</td>
<td>59</td>
<td>65</td>
<td>72</td>
<td>78</td>
<td>86</td>
<td>94</td>
</tr>
<tr>
<td></td>
<td>M</td>
<td>F</td>
<td>T</td>
<td>M</td>
<td>F</td>
<td>T</td>
<td>M</td>
<td>F</td>
<td>T</td>
<td>M</td>
<td>F</td>
<td>T</td>
<td>M</td>
<td>F</td>
<td>T</td>
<td>M</td>
<td>F</td>
<td>T</td>
<td>M</td>
<td>F</td>
</tr>
<tr>
<td>WA</td>
<td>26</td>
<td>5</td>
<td>31</td>
<td>28</td>
<td>5</td>
<td>34</td>
<td>31</td>
<td>6</td>
<td>44</td>
<td>7</td>
<td>5</td>
<td>45</td>
<td>54</td>
<td>7</td>
<td>11</td>
<td>13</td>
<td>17</td>
<td>17</td>
<td>18</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>M</td>
<td>F</td>
<td>T</td>
<td>M</td>
<td>F</td>
<td>T</td>
<td>M</td>
<td>F</td>
<td>T</td>
<td>M</td>
<td>F</td>
<td>T</td>
<td>M</td>
<td>F</td>
<td>T</td>
<td>M</td>
<td>F</td>
<td>T</td>
<td>M</td>
<td>F</td>
</tr>
<tr>
<td>SA</td>
<td>22</td>
<td>4</td>
<td>26</td>
<td>29</td>
<td>5</td>
<td>32</td>
<td>34</td>
<td>34</td>
<td>34</td>
<td>33</td>
<td>34</td>
<td>32</td>
<td>28</td>
<td>31</td>
<td>34</td>
<td>37</td>
<td>37</td>
<td>37</td>
<td>37</td>
<td>37</td>
</tr>
<tr>
<td></td>
<td>M</td>
<td>F</td>
<td>T</td>
<td>M</td>
<td>F</td>
<td>T</td>
<td>M</td>
<td>F</td>
<td>T</td>
<td>M</td>
<td>F</td>
<td>T</td>
<td>M</td>
<td>F</td>
<td>T</td>
<td>M</td>
<td>F</td>
<td>T</td>
<td>M</td>
<td>F</td>
</tr>
<tr>
<td>Tas</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>3</td>
<td>0</td>
<td>4</td>
<td>0</td>
<td>1</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>5</td>
<td>4</td>
<td>5</td>
<td>7</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>M</td>
<td>F</td>
<td>T</td>
<td>M</td>
<td>F</td>
<td>T</td>
<td>M</td>
<td>F</td>
<td>T</td>
<td>M</td>
<td>F</td>
<td>T</td>
<td>M</td>
<td>F</td>
<td>T</td>
<td>M</td>
<td>F</td>
<td>T</td>
<td>M</td>
<td>F</td>
</tr>
<tr>
<td>ACT</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>M</td>
<td>F</td>
<td>T</td>
<td>M</td>
<td>F</td>
<td>T</td>
<td>M</td>
<td>F</td>
<td>T</td>
<td>M</td>
<td>F</td>
<td>T</td>
<td>M</td>
<td>F</td>
<td>T</td>
<td>M</td>
<td>F</td>
<td>T</td>
<td>M</td>
<td>F</td>
</tr>
<tr>
<td>NT</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>M</td>
<td>F</td>
<td>T</td>
<td>M</td>
<td>F</td>
<td>T</td>
<td>M</td>
<td>F</td>
<td>T</td>
<td>M</td>
<td>F</td>
<td>T</td>
<td>M</td>
<td>F</td>
<td>T</td>
<td>M</td>
<td>F</td>
<td>T</td>
<td>M</td>
<td>F</td>
</tr>
<tr>
<td>Aust. total</td>
<td>188</td>
<td>26</td>
<td>215</td>
<td>204</td>
<td>31</td>
<td>235</td>
<td>220</td>
<td>36</td>
<td>253</td>
<td>33</td>
<td>269</td>
<td>256</td>
<td>38</td>
<td>253</td>
<td>269</td>
<td>38</td>
<td>253</td>
<td>269</td>
<td>38</td>
<td>253</td>
</tr>
</tbody>
</table>

Notes: M= male, F= female and T= total. The data above are averages rounded to the nearest person, consequently the sum of the relevant male and females figures does not necessarily equal the total figure. The five-year rolling average for 1983–87 has been dropped from this table to allow for data for the latest reporting period, 2003–07, to be included. Please refer to earlier reports in this series for 1982–86 and 1983–87 data.
Deaths due to mesothelioma\textsuperscript{1}

Deaths in 2007

The cause of every Australian death is certified by a medical practitioner and recorded on a death certificate. These death certificates are required by state and territory Registrars of Births, Deaths and Marriages under jurisdiction specific legislation. On behalf of the Registrars these data are assembled, coded to the underlying cause of death, and released by the Australian Bureau of Statistics (ABS). Cases where the underlying cause of death was mesothelioma are discussed in this section. Data on deaths due to mesothelioma are available from 1997 onwards, the year in which a specific code for mesothelioma was added to the International Classification of Diseases - 10th revision (ICD10).

The information on deaths from mesothelioma in this section is based on the year of death, except for the most recent year, 2007, where year of registration is used. The year of death and registration usually coincide, although deaths at the end of a calendar year may be held over until the following year, as will deaths whose cause requires further examination by a coroner. In recent years less than 5\% of deaths (all causes) were held over from one year to the next for processing. This method of reporting the data allows the most recent year to be used.

In 2007 there were 551 deaths registered with an underlying cause of mesothelioma. Of these deaths, 464 (84\%) were of men and 87 (16\%) were of women.

Figure 8 shows the age and sex distribution of those 551 decedents. Deaths among young adults are rare: in 2007 the youngest deaths were in the 25–29 year age group. The graph shows that deaths due to mesothelioma were distinctly skewed towards the older age groups: this is particularly clear for the male decedents with 75\% aged over 65 years at the time of death. The comparable figure for female decedents was 70\%.

\textit{Figure 8}  \hspace{1em} Deaths due to mesothelioma: by age and sex, 2007\textsuperscript{(a)}

\hspace{1em}

(a) Data for 2007 is based on year of registration, not year of death.

\textsuperscript{1}Note that data on deaths reported in this publication are based on data from state and territory Registrars of Births, Deaths and Marriages which are assembled, coded and released by the ABS. This data may differ to those reported by state cancer registries, which use pathology reports and other notifications, as well as death certificates, to ascertain deaths from mesothelioma.
Figure 9 shows the age-specific mortality rate (deaths per 100 000 population) for 2007 of deaths caused by mesothelioma. Because of the relatively short survival period from onset of the disease, the age related pattern of mortality is very similar to that for diagnosis. The mortality rate for men increases considerably and steadily with age, reaching a maximum of 46 deaths per 100 000 population among men aged 80–84 years before declining to 31 in the open-ended age group of 85 years and over. For women, the rates were lower, but also reached a maximum of 6 deaths per 100 000 population among women in both the 80–84 and 85 years and over age groups.

Trends over time, 1997 to 2007

National data

The overall number of deaths resulting from mesothelioma increased over the period between 1997 and 2007. The number of deaths reached a maximum of 551 registered deaths in 2007; this followed a brief decline after an earlier peak of 545 in 2004. Most of these decedents were male, with an average of 84% of total deaths over the eleven years.

(a) Data for 2007 is based on year of registration, not year of death.
Figure 11  Deaths due to mesothelioma: age-standardised mortality rate by sex, 1997 to 2007(a)

Age-standardisation is a technique used to remove the effect of gradual shifts over time in the age composition of the Australian population on rates calculated using those figures. By applying the observed age-specific death rates in each year to a standard population, the expected number of deaths can be calculated and an aggregate age-standardised rate can be calculated.

Figure 11 shows that the overall age-standardised rate of death due to mesothelioma has remained relatively stable over the eleven years for which data are available. Over the period the standardised rate has ranged between a minimum of 2.1 deaths per 100 000 population in 1999 and a maximum of 2.7 in 2001. The standardised rate in 2007 was 2.4 deaths per 100 000 population.

State and territory data

Figure 12 shows the average number of deaths due to mesothelioma occurring in each state and territory over the time period for which data are available. Five-year rolling averages are used to preserve confidentiality.

Figure 12  Deaths due to mesothelioma: five-year rolling average number by state or territory(b), 1997-2001 to 2003-2007

(a) Because the number of mesothelioma deaths in the ACT and NT are relatively low, they cannot be plotted clearly on this scale.
The pattern of mortality across the states and territories is similar to that of the incidence of new cases since the deaths reported result from developing mesothelioma: the ranking primarily reflecting the size of the population of the state or territory. Any differences between the number of people diagnosed with mesothelioma and the number that die from the disease must be attributable to variations in survival periods; the number of deaths that occur among those with the disease from causes other than mesothelioma; and in some cases, change of residence across state and territory borders between diagnosis and death.
References


Useful links

Many of the State Cancer Registries publish state specific reports which include information on mesothelioma. In addition the AIHW releases detailed spreadsheets of national mesothelioma data. This information can be found via the links below:

• The AIHW  www.aihw.gov.au
• Cancer Institute NSW  www.cancerinstitute.org.au
• Vic Cancer Registry  www.cancervic.org.au
• WA Cancer Registry  www.health.wa.gov.au/wacr
• Tas Cancer Registry  www.menzies.utas.edu.au

Australian Mesothelioma Registry:

www.mesothelioma-australia.com

Safe Work Australia has a web page for Mesothelioma related reports:

Enquiries:
For further information about the contents of this publication contact:

The Data & Analysis Section
Safe Work Australia
(02) 6121 9152
Info@SafeWorkAustralia.gov.au