Cost of Cancer in NSW

A report by
Access Economics Pty Limited
for
The Cancer Council NSW

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PREFACE

A cancer diagnosis is a devastating and often life-changing experience. People diagnosed with cancer face physical and psychological challenges during their cancer journey. They may also incur financial and economic costs, which are often overlooked when considering the impact of cancer.

The Cancer Council NSW commissioned Access Economics to compile an independent report to determine the true cost of cancer to affected individuals, their families and society. This report is intended as a resource for policy makers and as a basis for more detailed studies. This report was not able to distinguish between costs faced by people in rural versus metropolitan areas or by those in culturally and linguistically diverse populations, such as Aboriginal and Torres Strait Islanders.

The Cancer Council NSW is especially interested in the costs borne personally by people with cancer and their loved ones. Cancer treatment accounts for a third of the total financial cost of the disease. The bulk of financial costs relate to lost productivity, most of which is borne by individuals and their households. Many people undergoing cancer treatment require extended time off work whilst facing increased medical bills and other expenses. Cancer can also affect long-term employment prospects and may also have an impact on unpaid work, such as the ability to care for family members. These are the hidden costs of cancer faced by many cancer patients.

As well as a reduction in income, households affected by cancer also often face out-of-pocket costs related to transport, medications, specialist clothing and mobility devices, childcare and housekeeping costs, amongst other things. On average, households can expect to lose $47,200 in financial costs after a member of that household is diagnosed with cancer.

However, these costs can be higher or lower depending on what life-stage that person is in or what type of cancer they have. For example a 35-year-old woman with breast cancer could be faced with $40,300 in lost productivity and out-of-pocket expenses on average. A working-age man with lung cancer could incur $203,600 in costs. A pensioner with colorectal cancer would be facing costs of approximately $10,000 on average. Financial support is available from the government to cover some of these costs; however, as this report shows, this does not go far in covering the real costs of cancer.

The costs to society of the loss of wellbeing (healthy life) from cancer are higher, with each incident case of cancer costing almost one million dollars per person over their lifetime. The most expensive cancers in NSW overall are lung and colorectal cancer.

The Cancer Council NSW believes that cancer patients have enough to deal with in managing treatment, psychosocial and physical issues associated with a diagnosis. It is unfair that cancer patients should be further burdened by financial stress. As such, The Cancer Council NSW currently offers the following to help reduce the financial impact of cancer on patients and families:

- Financial assistance for patients
- Patient transport services
- Funding support for patient accommodation lodges
- Subsidised counselling for patients and carers
- Regional grants for local community groups
While these initiatives provide an important form of support to cancer patients and their families, the findings of the *Cost of Cancer in NSW* report highlight that much more needs to be done by government, employers and industry, as well as non-government organisations to develop and implement policies to reduce the economic impact of cancer on affected individuals, their families and society.
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## GLOSSARY

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>ABS</td>
<td>Australian Bureau of Statistics</td>
</tr>
<tr>
<td>AE-Demog</td>
<td>Access Economics Demography Forecasting Model</td>
</tr>
<tr>
<td>AEM</td>
<td>Access Economics Macroeconomic Model</td>
</tr>
<tr>
<td>AF</td>
<td>Attributable Fraction</td>
</tr>
<tr>
<td>AIHW</td>
<td>Australian Institute of Health and Welfare</td>
</tr>
<tr>
<td>ALSWH</td>
<td>Australian Longitudinal Study on Women’s Health</td>
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<tr>
<td>ANAO</td>
<td>Australian National Audit Office</td>
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<td>ATO</td>
<td>Australian Taxation Office</td>
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<tr>
<td>AWE</td>
<td>Average Weekly Earnings</td>
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<tr>
<td>BoD</td>
<td>Burden of Disease</td>
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<tr>
<td>BTE</td>
<td>Bureau of Transport Economics (now Bureau of Transport and Regional Economics)</td>
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<tr>
<td>CHeRP</td>
<td>Centre for Research and Psycho-oncology</td>
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<td>CSS</td>
<td>Cancer Survival Study</td>
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<tr>
<td>CT</td>
<td>Computerised Tomography</td>
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<tr>
<td>DALY</td>
<td>Disability Adjusted Life Year</td>
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<td>DoHA</td>
<td>Commonwealth Department of Health and Ageing</td>
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<tr>
<td>DSP</td>
<td>Disability Support Pension</td>
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<tr>
<td>DWL</td>
<td>Deadweight Loss</td>
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<tr>
<td>Economic Cost</td>
<td>The total cost to society (includes all costs such as the value of the burden of disease, health system costs, productivity costs, carer costs, other financial costs, and deadweight loss).</td>
</tr>
<tr>
<td>Financial Cost</td>
<td>The total cost to society excluding the value of the burden of disease.</td>
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<tr>
<td>FACS</td>
<td>Commonwealth Department of Family and Community Services</td>
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<tr>
<td>IPTAAS</td>
<td>NSW Isolated Patients. Travel and Accommodation Assistance Scheme</td>
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<td>MBS</td>
<td>Medicare Benefits Schedule</td>
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<tr>
<td>MRI</td>
<td>Magnetic Resonance Imaging</td>
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<tr>
<td>MRS</td>
<td>Magnetic Resonance Spectroscopy</td>
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<td>NHS</td>
<td>National Health Survey</td>
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<td>NOHSC</td>
<td>National Occupational Health and Safety Commission</td>
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<td>NRCP</td>
<td>National Respite for Carers Program</td>
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<td>NSW</td>
<td>New South Wales</td>
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<tr>
<td>OECD</td>
<td>Organisation for Economic Co-operation and Development</td>
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<td>PADP</td>
<td>Program of Appliances for Disabled People</td>
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<tr>
<td>PET</td>
<td>Positron Emission Tomography</td>
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<td>QALY</td>
<td>Quality Adjusted Life Year</td>
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<td>SDAC</td>
<td>Survey of Disability, Ageing and Carers</td>
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<tr>
<td>TNM</td>
<td>Tumour, Nodes, Metastases</td>
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<tr>
<td>US</td>
<td>United States of America</td>
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<tr>
<td>VSL</td>
<td>Value of a Statistical Life</td>
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<tr>
<td>VSLY</td>
<td>Value of a Statistical Life Year</td>
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<tr>
<td>WA</td>
<td>Western Australia</td>
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<tr>
<td>YLD</td>
<td>Years of Life lost due to Disability</td>
</tr>
<tr>
<td>YLL</td>
<td>Years of Life Lost due to premature mortality</td>
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</table>
EXECUTIVE SUMMARY
Incidence, Mortality and Prevalence of Cancer in NSW

In NSW in 2005 there were around 33,700 new cases of cancer – 18,400 males and 15,200 females. Cancer caused around 13,400 deaths – 7,600 males and 5,800 females.

- The most common cancers were melanoma (10% of all cancers), colorectal cancer (13%), prostate cancer (13%), breast cancer (13%) and lung cancer (9%).
- The most common cancers causing death were lung cancer (19% of deaths), colorectal cancer (13%), stomach, liver and pancreatic cancer (10%), prostate cancer (8%) and breast cancer (7%).
- There were around 210 new cases of cancer (and 30 deaths) in children aged 0 to 14 years; cases and deaths were most commonly leukaemia, brain cancer and non-Hodgkin's lymphoma.
- There were around 13,900 new cases of cancer and 3,500 deaths in the working age population (15 to 64 years), and around 19,600 new cases of cancer and 9,800 deaths in the older population (65 years and over).

The average age of new cases of cancer was 66 years, and the average age of cancer deaths, 72 years.

In NSW in 2005 there were around 125,900 prevalent cases of cancer (diagnosed since 2000 and still alive), of which 66,000 were male and 59,900 were female.

- The most prevalent cancers were breast cancer (17%), prostate cancer (16%), melanoma (13%), and colorectal cancer (13%), reflecting the relatively high incidence and five-year survival rates of these compared to other cancers.
- Of these, there were around 42,600 actively prevalent cases of cancer (diagnosed in the last year or prevalent cases expected to die in the next five years), of which 23,500 were male and 19,000 were female. The distribution of these cancers largely reflects incidence, albeit with proportionally more people with stomach, brain, lung, liver and pancreatic cancer. This largely reflects the poorer diagnosis rates for these cancers.
  - The estimates of active prevalence of cancer and deaths due to cancer are used to calculate the costs of cancer. Of the 33,700 new cases of cancer in 2005, 13,600 are expected to die from cancer in the next five years.

Cost Classification

Six types of costs are associated with cancer.

- **Health system expenditures** include hospital treatment, residential aged care, GP and specialist medical services, pharmaceuticals, allied health services, research and “other” costs (such as health administration).

- **Productivity costs** include patient productivity losses (temporary absenteeism, long-term employment impacts and unpaid work), premature mortality and the value of informal care (**carer costs**).

- **Other financial costs** include respite, palliative care, special education, other formal community care, aids, home modifications, transport, accommodation, communication, complementary and alternative therapy, counselling and support programs, educational materials and funeral costs.
• **Transfer costs** comprise the deadweight losses associated with government transfers such as taxation revenue foregone, welfare and disability payments.

• **Non-financial costs** are also very important – the pain, suffering and premature death that result from cancer. Although more difficult to measure, these can be analysed in terms of the years of healthy life lost, both quantitatively and qualitatively, known as the **“burden of disease”**.

Different costs of diseases are borne by economic entities, classified as:

- patient;
- friends and family;
- employers;
- Federal government;
- State and local government; and
- the rest of society (non-government, i.e. not-for-profit organisations, workers’ compensation groups, and so on.

**Results – The Cost of Cancer in NSW**

The total expected lifetime\(^1\) economic\(^2\) cost of cancer for people diagnosed in 2005 in NSW is around $32.5 billion.

Around 88% of this economic cost of cancer is the **net value of the burden of disease** ($28.7 billion).

The total lifetime financial\(^3\) cost of cancer of people diagnosed in 2005 in NSW is $3.9 billion – equivalent to 1.3% of gross state product.

In Australia the total expected lifetime economic cost of cancer for people diagnosed in 2005 is around $94.6 billion and the total financial cost is around $11.2 billion\(^4\).

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\(^1\) Lifetime costs refer to the expected costs over the person’s lifetime from diagnosis to death. It is not equivalent to the cost of cancer in 2005.

\(^2\) Including the burden of disease.

\(^3\) Excluding the burden of disease.

\(^4\) Scaled up based on new cases of cancer in NSW represent 34% of all new cases of cancer in Australia in 2005.
Excluding the burden of disease cost, the main cost component of cancer is productivity and carer costs ($2,098.9 million), followed by health system costs ($1,125.8 million), deadweight loss ($466.5 million) and other financial costs ($162.3 million).
The most costly cancers to the NSW economy (in terms of both financial and burden of disease costs) were lung (16%), colorectal (13%), breast (9%), and stomach, liver and pancreatic cancer (9%), while the least costly cancers were bladder (2%), kidney (3%) and brain cancer (3%).

**Lifetime Economic Cost of Cancer, NSW, 2005, by Type of Cancer (% Total)**

![Pie chart showing the percentage of costs by type of cancer.]

Due to the burden of disease, the individual bears 93% of the total economic cost of cancer in NSW.

**Lifetime Economic Cost of Cancer, NSW, 2005, by Who Bears the Cost (% Total)**

![Pie chart showing the percentage of costs borne by different parties.]

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However, of the financial costs, individuals bear around 40.4% of the total cost of cancer, with governments (42.1%), society (16.1%), family and friends (0.8%) and employers (0.6%) sharing the remaining costs.

**Lifetime Financial Cost of Cancer, by Who Bears the Cost, NSW, 2005 ($M)**

<table>
<thead>
<tr>
<th>Cancer</th>
<th>Individuals</th>
<th>Family/Friends</th>
<th>Federal Govt</th>
<th>State Govt</th>
<th>Employers</th>
<th>Society</th>
</tr>
</thead>
<tbody>
<tr>
<td>Melanoma</td>
<td>52.6</td>
<td>1.7</td>
<td>35.5</td>
<td>4.0</td>
<td>0.3</td>
<td>14.2</td>
</tr>
<tr>
<td>Colorectal</td>
<td>161.7</td>
<td>3.8</td>
<td>156.0</td>
<td>41.8</td>
<td>2.4</td>
<td>77.3</td>
</tr>
<tr>
<td>Prostate</td>
<td>130.9</td>
<td>2.4</td>
<td>103.1</td>
<td>16.1</td>
<td>0.7</td>
<td>43.7</td>
</tr>
<tr>
<td>Breast</td>
<td>121.5</td>
<td>2.7</td>
<td>96.9</td>
<td>15.9</td>
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<td>42.2</td>
</tr>
<tr>
<td>Lung</td>
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<td>3.7</td>
<td>130.6</td>
<td>26.3</td>
<td>1.4</td>
<td>58.2</td>
</tr>
<tr>
<td>Non-Hodgkin’s Lymphoma</td>
<td>88.4</td>
<td>1.5</td>
<td>74.3</td>
<td>18.9</td>
<td>1.3</td>
<td>35.1</td>
</tr>
<tr>
<td>Leukaemia</td>
<td>97.0</td>
<td>3.1</td>
<td>83.7</td>
<td>23.4</td>
<td>0.8</td>
<td>41.3</td>
</tr>
<tr>
<td>Bladder</td>
<td>23.6</td>
<td>0.6</td>
<td>23.2</td>
<td>9.1</td>
<td>0.2</td>
<td>13.6</td>
</tr>
<tr>
<td>Kidney</td>
<td>44.8</td>
<td>0.9</td>
<td>35.0</td>
<td>7.2</td>
<td>0.7</td>
<td>15.6</td>
</tr>
<tr>
<td>Stomach, Liver and Pancreatic</td>
<td>119.5</td>
<td>2.2</td>
<td>93.2</td>
<td>19.4</td>
<td>1.1</td>
<td>41.7</td>
</tr>
<tr>
<td>Uterine, Ovarian and Cervical</td>
<td>42.3</td>
<td>1.1</td>
<td>36.5</td>
<td>9.6</td>
<td>0.7</td>
<td>18.0</td>
</tr>
<tr>
<td>Brain</td>
<td>72.5</td>
<td>1.4</td>
<td>54.1</td>
<td>9.8</td>
<td>0.5</td>
<td>22.7</td>
</tr>
<tr>
<td>Head, Neck and Thyroid</td>
<td>155.9</td>
<td>1.9</td>
<td>114.6</td>
<td>19.8</td>
<td>1.1</td>
<td>48.0</td>
</tr>
<tr>
<td>Other</td>
<td>253.4</td>
<td>4.8</td>
<td>268.1</td>
<td>97.4</td>
<td>9.8</td>
<td>149.8</td>
</tr>
<tr>
<td><strong>All Cancers</strong></td>
<td><strong>1,555.9</strong></td>
<td><strong>31.7</strong></td>
<td><strong>1,304.8</strong></td>
<td><strong>317.7</strong></td>
<td><strong>22.0</strong></td>
<td><strong>621.4</strong></td>
</tr>
</tbody>
</table>

**40.4%** **0.8%** **33.9%** **8.2%** **0.6%** **16.1%**

**Results – The Cost of Cancer in NSW Per Person**

The total expected lifetime economic cost of cancer per person is around $966,000, of which the burden of disease is $851,600 and the financial cost is $114,500.

The most costly cancers, per person, are brain cancer and lung, while the least costly cancer per person is melanoma.

**Lifetime Economic Cost of Cancer, NSW, 2005 ($Per Person)**

<table>
<thead>
<tr>
<th>Cancer</th>
<th>Value of BoD</th>
<th>Financial Cost</th>
<th>Total Economic Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Melanoma</td>
<td>356,700</td>
<td>32,100</td>
<td>391,800</td>
</tr>
<tr>
<td>Colorectal</td>
<td>855,600</td>
<td>101,600</td>
<td>957,200</td>
</tr>
<tr>
<td>Prostate</td>
<td>405,800</td>
<td>64,800</td>
<td>470,600</td>
</tr>
<tr>
<td>Breast</td>
<td>589,300</td>
<td>64,300</td>
<td>653,600</td>
</tr>
<tr>
<td>Lung</td>
<td>1,619,700</td>
<td>132,200</td>
<td>1,751,900</td>
</tr>
<tr>
<td>Non-Hodgkin’s Lymphoma</td>
<td>1,050,600</td>
<td>167,200</td>
<td>1,217,800</td>
</tr>
<tr>
<td>Leukaemia</td>
<td>1,194,800</td>
<td>258,800</td>
<td>1,453,600</td>
</tr>
<tr>
<td>Bladder</td>
<td>734,700</td>
<td>78,800</td>
<td>813,500</td>
</tr>
<tr>
<td>Kidney</td>
<td>863,000</td>
<td>114,100</td>
<td>977,100</td>
</tr>
<tr>
<td>Stomach, Liver and Pancreatic</td>
<td>1,517,600</td>
<td>158,800</td>
<td>1,676,300</td>
</tr>
<tr>
<td>Uterine, Ovarian and Cervical</td>
<td>911,100</td>
<td>90,700</td>
<td>1,001,800</td>
</tr>
<tr>
<td>Brain</td>
<td>1,566,300</td>
<td>325,600</td>
<td>1,891,900</td>
</tr>
<tr>
<td>Head, Neck and Thyroid</td>
<td>1,107,300</td>
<td>163,300</td>
<td>1,270,500</td>
</tr>
<tr>
<td>Other</td>
<td>836,500</td>
<td>185,300</td>
<td>1,021,800</td>
</tr>
<tr>
<td><strong>All Cancers</strong></td>
<td><strong>851,600</strong></td>
<td><strong>114,500</strong></td>
<td><strong>966,000</strong></td>
</tr>
</tbody>
</table>
For people aged younger than 65 years the lifetime economic cost of cancer is higher for males than females (largely due to the difference in expected lifetime earnings lost due to premature mortality – however this effect disappears from 65 onwards), and the lifetime cost of cancer is higher for children than for older people (because children have many more potential years of life to lose).
The expected lifetime financial cost of cancer faced by households (made up of individuals and their families) is $47,200 per person.

These financial costs include:

- a reduction in income (for example, productivity and carer costs); and
- an increase in out-of-pocket expenses (for example, health costs and other financial costs).

In terms of the financial costs faced by households, the most expensive cancers are brain cancer ($149,400) and leukaemia ($103,900). Costs vary significantly by age and sex, with costs after 65 falling to below $20,000 for even the most costly cancers.
On average the lifetime financial cost of cancer faced by households is equivalent to 1.7 years of annual household income, and ranges from 3.9 years for the lowest quintile to 0.9 for the highest quintile.

Note that most financial costs would not be incurred in the first year, but would be spread out over many years (for example, lost income from premature death). Furthermore, due to budget constraints, households in the lowest quintile would have lower financial costs (for example, employed individuals would have lower levels of lost earnings and would constrain their out-of-pocket expenses) than those in the highest quintile. Finally, households in the lowest quintile would be more likely to receive financial help from governments and other organisations, which would increase transfers and thus the deadweight loss incurred by society.

<table>
<thead>
<tr>
<th>Cancer</th>
<th>Lowest Quintile</th>
<th>Second Quintile</th>
<th>Third Quintile</th>
<th>Fourth Quintile</th>
<th>Highest Quintile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Melanoma</td>
<td>1.3</td>
<td>0.9</td>
<td>0.6</td>
<td>0.5</td>
<td>0.3</td>
</tr>
<tr>
<td>Colorectal</td>
<td>3.3</td>
<td>2.2</td>
<td>1.6</td>
<td>1.2</td>
<td>0.8</td>
</tr>
<tr>
<td>Prostate</td>
<td>2.4</td>
<td>1.6</td>
<td>1.1</td>
<td>0.0</td>
<td>0.5</td>
</tr>
<tr>
<td>Breast</td>
<td>2.3</td>
<td>1.5</td>
<td>1.1</td>
<td>0.0</td>
<td>0.5</td>
</tr>
<tr>
<td>Lung</td>
<td>4.8</td>
<td>3.1</td>
<td>2.3</td>
<td>1.8</td>
<td>1.1</td>
</tr>
<tr>
<td>Non-Hodgkin’s Lymphoma</td>
<td>5.6</td>
<td>3.7</td>
<td>2.7</td>
<td>2.1</td>
<td>1.3</td>
</tr>
<tr>
<td>Leukaemia</td>
<td>8.5</td>
<td>5.5</td>
<td>4.1</td>
<td>3.1</td>
<td>1.9</td>
</tr>
<tr>
<td>Bladder</td>
<td>2.2</td>
<td>1.4</td>
<td>1.1</td>
<td>0.8</td>
<td>0.5</td>
</tr>
<tr>
<td>Kidney</td>
<td>4.4</td>
<td>2.7</td>
<td>2.0</td>
<td>1.5</td>
<td>0.9</td>
</tr>
<tr>
<td>Stomach, Liver and Pancreatic</td>
<td>5.7</td>
<td>3.7</td>
<td>2.7</td>
<td>2.1</td>
<td>1.3</td>
</tr>
<tr>
<td>Uterine, Ovarian and Cervical</td>
<td>3.0</td>
<td>1.9</td>
<td>1.1</td>
<td>1.1</td>
<td>0.7</td>
</tr>
<tr>
<td>Brain</td>
<td>12.2</td>
<td>8.0</td>
<td>5.8</td>
<td>4.5</td>
<td>2.8</td>
</tr>
<tr>
<td>Head, Neck and Thyroid</td>
<td>6.0</td>
<td>4.0</td>
<td>3.0</td>
<td>2.3</td>
<td>1.4</td>
</tr>
<tr>
<td>Other</td>
<td>5.0</td>
<td>3.0</td>
<td>2.4</td>
<td>1.8</td>
<td>1.1</td>
</tr>
<tr>
<td><strong>All Cancers</strong></td>
<td><strong>3.9</strong></td>
<td><strong>2.5</strong></td>
<td><strong>1.8</strong></td>
<td><strong>1.4</strong></td>
<td><strong>0.9</strong></td>
</tr>
</tbody>
</table>

Average household income per year (indexed to 2005) is for lowest income quintile ($12,252), second ($19,772), third ($25,584), forth ($33,332) and fifth ($53,404).

Source: ABS 6523.0

If expected lifetime earnings lost due to premature mortality are excluded, on average the lifetime financial cost of cancer faced by households is equivalent to 0.6 years of annual household income, and ranges from 1.5 years for the lowest quintile to 0.3 for the highest quintile.

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