



*Building a
Cancer Smart
Community*

Cost of Cancer in NSW

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

**Prepared with information available to June 2006
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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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While every effort has been made to ensure the accuracy of this document, the uncertain nature of economic data, forecasting and analysis means that Access Economics Pty Limited is unable to make any warranties in relation to the information contained herein. Access Economics Pty Limited, its employees and agents disclaim liability for any loss or damage which may arise as a consequence of any person relying on the information contained in this document.

GLOSSARY

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

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).
- } The Household

Results – The Cost of Cancer in NSW

The total expected lifetime¹ economic² 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 financial³ 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 billion⁴.

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.

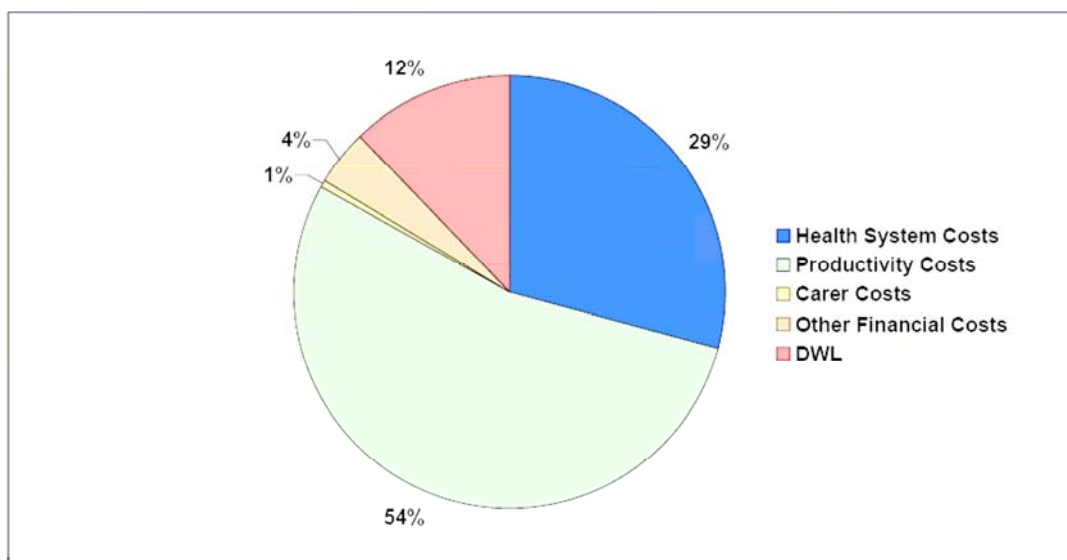
LIFETIME COST OF CANCER, NSW, 2005, BY TYPE OF CANCER AND TYPE OF COST (\$M)

Cancer	Health	Productivity	Carer	Other Financial	DWL	Total Financial	Value of BoD*	Total Cost
Melanoma	15.9	66.5	2.2	12.4	11.3	108.3	1,213.7	1,322.0
Colorectal	137.6	241.7	3.5	23.4	56.9	463.0	3,899.0	4,362.0
Prostate	108.2	133.2	3.2	18.0	34.3	296.9	1,860.3	2,157.1
Breast	76.6	147.8	3.1	20.3	32.4	280.0	2,565.9	2,845.9
Lung	90.4	235.2	2.2	17.9	45.1	390.8	4,787.2	5,178.0
Non-Hodgkin's Lymphoma	58.6	126.4	1.1	6.9	26.5	219.6	1,379.5	1,599.1
Leukaemia	73.1	138.0	1.6	5.7	30.8	249.2	1,150.5	1,399.7
Bladder	29.6	26.7	0.6	4.1	9.3	70.2	654.5	724.7
Kidney	23.2	63.7	0.8	4.5	12.1	104.3	788.8	893.1
Stomach, Liver and Pancreatic	62.5	170.7	1.2	10.1	32.4	277.0	2,647.6	2,924.6
Uterine, Ovarian and Cervical	32.7	55.2	0.9	6.2	13.3	108.3	1,087.1	1,195.3
Brain	30.1	108.5	0.7	3.4	18.4	161.0	774.8	935.8
Head, Neck and Thyroid	62.9	229.4	1.2	9.2	38.6	341.3	2,314.3	2,655.5
Other	324.3	330.3	3.6	20.3	105.1	783.5	3,536.1	4,319.6
All Cancers	1,125.8	2,073.1	25.8	162.3	466.5	3,853.4	28,659.2	32,512.6

* Net of costs borne by the individual.

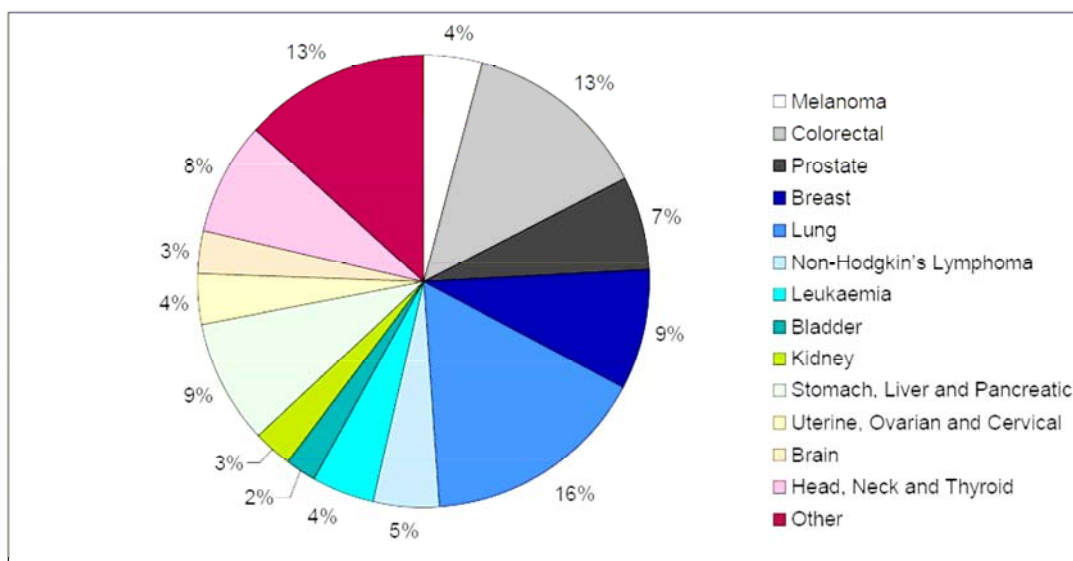
Excluding the burden of disease cost, the main cost component of cancer is productivity and carer costs (\$2,098.9 million), followed by health system costs (\$1,125.8 million), deadweight loss (\$466.5 million) and other financial costs (\$162.3 million).

LIFETIME FINANCIAL COST OF CANCER, NSW, 2005, BY TYPE OF COST (% TOTAL)



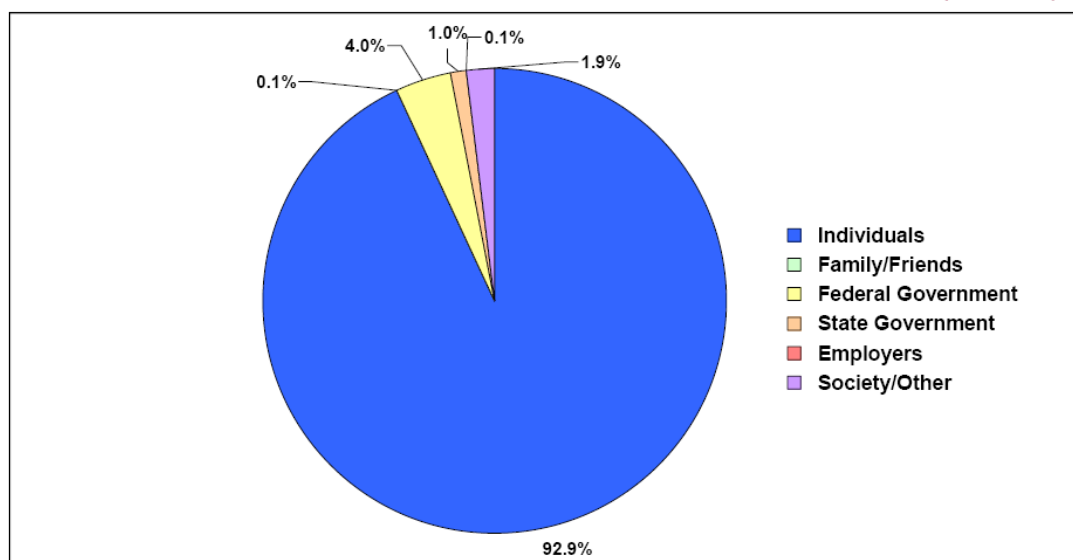
The most costly cancers to the NSW economy (in terms of both financial and burden of disease costs) were lung (16%), colorectal (13%), breast (9%), and stomach, liver and pancreatic cancer (9%), while the least costly cancers were bladder (2%), kidney (3%) and brain cancer (3%).

LIFETIME ECONOMIC COST OF CANCER, NSW, 2005, BY TYPE OF CANCER (% TOTAL)



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)



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)

Cancer	Individuals	Family/ Friends	Federal Govt	State Govt	Employers	Society
Melanoma	52.6	1.7	35.5	4.0	0.3	14.2
Colorectal	181.7	3.8	156.0	41.8	2.4	77.3
Prostate	130.9	2.4	103.1	16.1	0.7	43.7
Breast	121.5	2.7	96.9	15.9	0.9	42.2
Lung	170.7	3.7	130.6	26.3	1.4	58.2
Non-Hodgkin's Lymphoma	89.4	1.5	74.3	18.0	1.3	35.1
Leukaemia	97.0	3.1	83.7	23.4	0.8	41.3
Bladder	23.6	0.6	23.2	9.1	0.2	13.6
Kidney	44.8	0.9	35.0	7.2	0.7	15.6
Stomach, Liver and Pancreatic	119.5	2.2	93.2	19.4	1.1	41.7
Uterine, Ovarian and Cervical	42.3	1.1	36.5	9.6	0.7	18.0
Brain	72.5	1.4	54.1	9.8	0.5	22.7
Head, Neck and Thyroid	155.9	1.9	114.6	19.8	1.1	48.0
Other	253.6	4.8	268.1	97.4	9.8	149.8
All Cancers	1,555.9	31.7	1,304.8	317.7	22.0	621.4
	40.4%	0.8%	33.9%	8.2%	0.6%	16.1%

Results – The Cost of Cancer in NSW Per Person

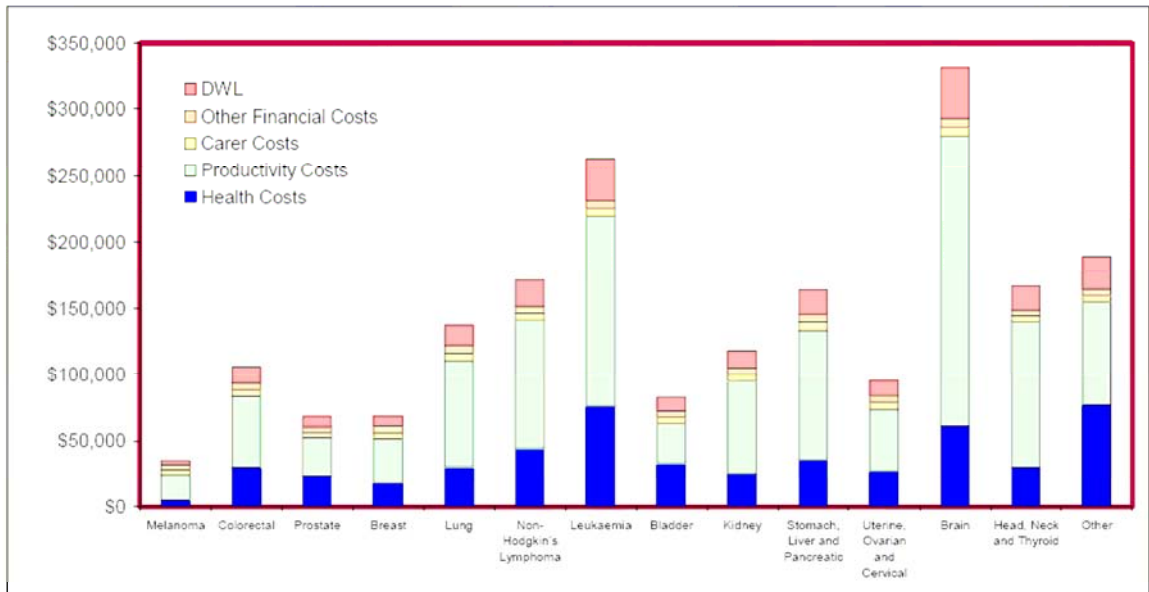
The total expected lifetime economic cost of cancer per person is around \$966,000 – of which the burden of disease is \$851,600 and the financial cost is \$114,500.

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)

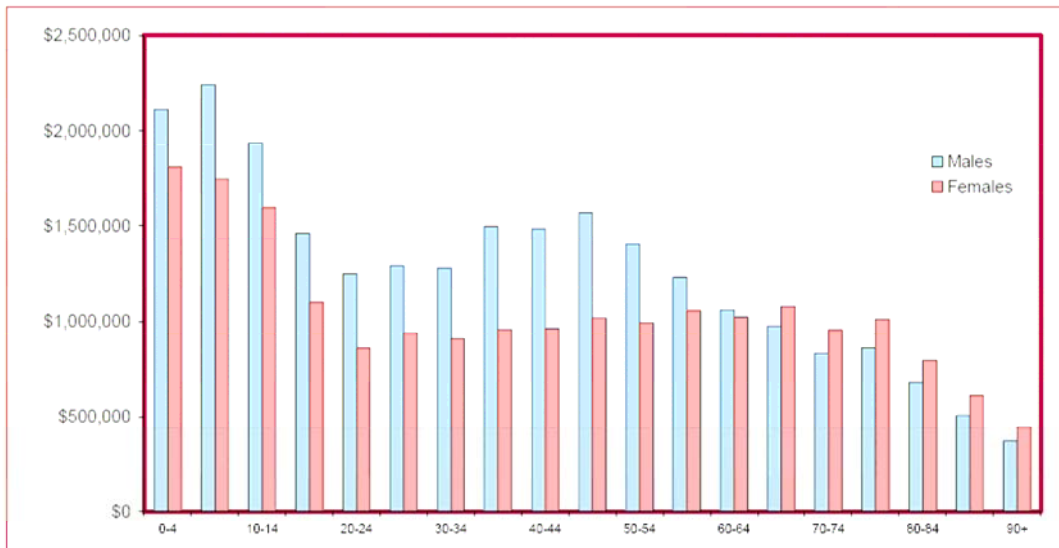
Cancer	Value of BoD	Financial Cost	Total Economic Cost
Melanoma	359,700	32,100	391,800
Colorectal	855,600	101,600	957,200
Prostate	405,800	64,800	470,600
Breast	589,300	64,300	653,600
Lung	1,619,700	132,200	1,751,900
Non-Hodgkin's Lymphoma	1,050,600	167,200	1,217,800
Leukaemia	1,194,800	258,800	1,453,600
Bladder	734,700	78,800	813,500
Kidney	863,000	114,100	977,100
Stomach, Liver and Pancreatic	1,517,600	158,800	1,676,300
Uterine, Ovarian and Cervical	911,100	90,700	1,001,800
Brain	1,566,300	325,600	1,891,900
Head, Neck and Thyroid	1,107,300	163,300	1,270,500
Other	836,500	185,300	1,021,800
All Cancers	851,600	114,500	966,000

LIFETIME FINANCIAL COST OF CANCER, NSW, 2005 (\$ PER PERSON)

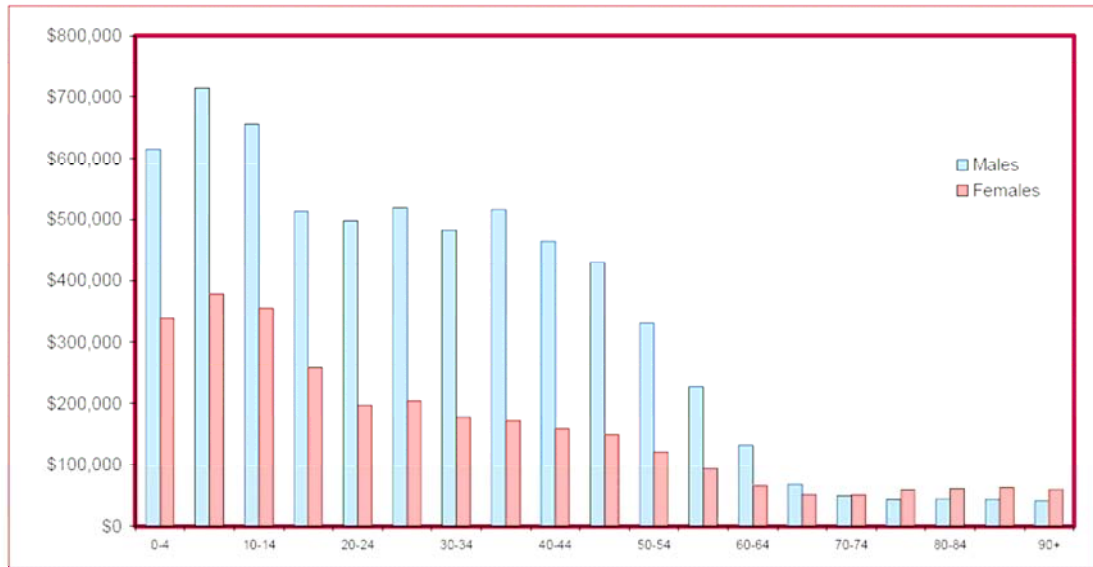


For people aged younger than 65 years the lifetime economic cost of cancer is higher for males than females (largely due to the difference in expected lifetime earnings lost due to premature mortality – however this effect disappears from 65 onwards), and the lifetime cost of cancer is higher for children than for older people (because children have many more potential years of life to lose).

LIFETIME ECONOMIC COST OF CANCER, BY AGE/SEX, NSW, 2005 (\$ PER PERSON)



LIFETIME FINANCIAL COST OF CANCER, BY AGE/SEX, NSW, 2005 (\$ PER PERSON)



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.

LIFETIME FINANCIAL COST FACED BY HOUSEHOLDS, BY AGE/SEX (\$ PER PERSON)

	Average*	Males			Females		
		0-14	15-64	65+	0-14	15-64	65+
Melanoma	16,100	39,400	34,300	5,300	25,700	13,200	5,200
Colorectal	40,700	214,300	132,700	11,600	102,800	56,200	9,600
Prostate	29,100	-	62,000	15,300	-	-	-
Breast	28,500	-	89,800	10,200	-	40,300	9,100
Lung	59,000	283,000	203,600	14,600	114,500	98,400	12,000
Non-Hodgkin's Lymphoma	69,200	246,200	190,000	12,900	143,700	67,900	11,700
Leukaemia	103,900	325,700	272,100	14,200	172,200	124,300	11,400
Bladder	27,200	273,200	99,400	10,800	-	43,400	11,500
Kidney	50,000	188,300	133,700	11,100	99,600	50,600	8,900
Stomach, Liver and Pancreatic	69,700	579,700	245,000	13,500	219,000	111,700	10,300
Uterine, Ovarian and Cervical	36,400	-	-	-	124,700	56,700	9,800
Brain	149,400	449,100	292,500	17,500	268,900	136,700	13,800
Head, Neck and Thyroid	75,500	307,900	192,100	14,000	109,700	51,000	9,200
Other	61,100	235,500	181,100	16,300	124,900	63,400	15,700
All Cancers	47,200	308,500	137,400	13,400	154,000	51,500	10,600

*all ages and both sexes

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.

LIFETIME FINANCIAL COST FACED BY HOUSEHOLDS (YEARS OF INCOME)

Cancer	Lowest Quintile	Second Quintile	Third Quintile	Fourth Quintile	Highest Quintile
Melanoma	1.3	0.9	0.6	0.5	0.3
Colorectal	3.3	2.2	1.6	1.2	0.8
Prostate	2.4	1.6	1.1	0.9	0.5
Breast	2.3	1.5	1.1	0.9	0.5
Lung	4.8	3.1	2.3	1.8	1.1
Non-Hodgkin's Lymphoma	5.6	3.7	2.7	2.1	1.3
Leukaemia	8.5	5.5	4.1	3.1	1.9
Bladder	2.2	1.4	1.1	0.8	0.5
Kidney	4.1	2.7	2.0	1.5	0.9
Stomach, Liver and Pancreatic	5.7	3.7	2.7	2.1	1.3
Uterine, Ovarian and Cervical	3.0	1.9	1.4	1.1	0.7
Brain	12.2	8.0	5.8	4.5	2.8
Head, Neck and Thyroid	6.2	4.0	3.0	2.3	1.4
Other	5.0	3.3	2.4	1.8	1.1
All Cancers	3.9	2.5	1.8	1.4	0.9

Average household income per year (indexed to \$2005) is for lowest income quintile (\$12,252), second (\$18,772), third (\$25,584), fourth (\$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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