

National Health Priority Cancers in Queensland 1982 to 1997

Peter Baade
Michael Coory
Ian Ring

Health Information Centre
Queensland Cancer Registry
Queensland Health
147-163 Charlotte Street
BRISBANE Q 4000

Postal Address
GPO Box 48
BRISBANE Q 4001

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Related publications

Baade P, Coory M, Ring I. Cancer in Queensland: Trends in incidence and mortality for selected cancer sites, 1982 to 1996. Brisbane, Health Information Centre, Queensland Health. 2000.

Baade P, Coory M, Ring I. Cancer survival in Queensland 1982-1995. Brisbane, Health Information Centre, Queensland Health. 2000.

HIC & QCR. Cancer in Queensland: Incidence and Mortality 1982-1997. Brisbane, Health Information Centre and Queensland Cancer Registry, Queensland Health. 2000.

Members of the Queensland Cancer Registry

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Dr. I. Ring
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SUMMARY

Purpose

As part of the process associated with the National Health Priority Areas (NHPA), six cancers were identified as *priority* cancers: prostate, colorectal, breast, cervix, lung, and melanoma. In 1998 the Commonwealth Department of Health & Family Services and the Australian Institute of Health & Welfare published a National Report on the six priority cancers. This present report builds on the National Report by providing information specific for Queensland. In particular, it compares the Queensland rates with those for the other states and territories, describes time trends for Queensland, and examines variation in rates within Queensland by Health Zone and socio-economic status.

Leading cancers

Based on data from the Queensland Cancer Registry (QCR), there were 14,922 new cancers diagnosed in Queensland in 1997. Of these, 8,263 occurred in males and 6,659 in females. Men have a 1 in 3 risk of developing cancer before the age of 75 years and women 1 in 4 risk.

The leading cancers diagnosed in men (in order) were prostate cancer, melanoma, colorectal cancer, and lung cancer, while for women they were breast cancer, colorectal cancer, melanoma and lung cancer. These were all NHPA cancers and accounted for 60% of all new cancers diagnosed in both males and females.

In 1997, 5,980 Queenslanders died from cancer; 3,463 males and 2,517 females. The leading causes of cancer death in men (in order) were lung cancer, colorectal cancer and prostate cancer. In women they were breast cancer, colorectal cancer, and lung cancer. These cancers accounted for more than 50% of cancer deaths among males and almost 50% of cancer deaths among females. Melanoma was not in the top ten causes of cancer death, despite being among the top three causes of new cancer. This reflects the good chance of cure if melanoma is detected early.

The other NHPA cancer is cervical cancer. It was the 10th most common cancer diagnosed in women and the 17th most common cause of cancer death in women. It is an important cancer because it is largely preventable if women have regular Pap smears. Its low ranking among the leading cancers reflects the progress that has been made in combating this disease. Further reductions in incidence and mortality are expected.

Comparisons by state and territory

The incidence rate for melanoma in Queensland is the highest in the world and was 39% higher than the Australian average. Mortality was 17% higher than the national average.

Other cancers for which the incidence rates were higher than the Australian average were lung (and other smoking related cancers), cervical cancer and colorectal cancer. Mortality for these cancers was not statistically significantly different from the Australian average.

Cancers for which the incidence rates were lower than the Australian average were prostate cancer and breast cancer. For these cancers, mortality rates were not statistically significantly different from the Australian average.

Comparisons by Queensland Health Zone

Generally, the Central and Southern Zones had similar incidence and mortality rates.

For prostate cancer and colorectal cancer there were no differences in either the incidence or mortality rates between the Northern Zone and the other two Zones.

There were no differences in the incidence of lung cancer among the three Zones, but the mortality rate was statistically significantly higher in the Northern Zone than the other two Zones.

The incidence of breast cancer was lower in the Northern Zone than the other two Zones, but the mortality rate was not statistically significantly different from the other two zones. The pattern for melanoma was similar. That is, the incidence was lower in the Northern Zone, but the mortality rate was not statistically significantly different.

The incidence rate for cervical cancer was higher in the Northern Zone, but mortality rates were not statistically significantly different across the three Zones.

Comparisons by socio-economic status

Cancers for which there was no statistically significant difference in rates according to socio-economic status were breast cancer, prostate cancer, and colorectal cancer

The only cancer for which the rates were higher for affluent, compared with economically disadvantaged areas, was melanoma.

Cancers for which the incidence and mortality rates were lower in affluent, compared with economically disadvantaged areas, were lung cancer and cervical cancer.

Trends

Between 1982 and 1997, there have been large decreases in the incidence and mortality from cervical cancer (about 3% per year). Most experts believe that the continuing decrease is due to the coordinated Pap smear screening program.

Rates of lung cancer in men have decreased by about 2% per year. Lower smoking rates among men are the major factor in this downward trend. However, there is still much to be done to reduce smoking rates in men and lung cancer is still the most common cause of cancer death in men, accounting for 24% of all cancer deaths.

A worrying statistic is the increase in the rates of lung cancer among women. Rates are increasing by 3.0% to 3.5% per year. This is related to increased smoking among women. Lung cancer now accounts for 14% of all cancer deaths in women.

Incidence rates for breast cancer have increased, especially during the 1990s. For mortality, there was no change in the rates for the whole period 1982 to 1997. However, for the most recent five-year period, 1993 and 1997, mortality appears to have decreased. This pattern of increasing incidence and (probably) decreasing mortality is likely to be a result of increased screening activity and earlier detection of breast cancer. This is an encouraging result for the BreastScreen Queensland program. A similar pattern has been observed in the other states.

The incidence of melanoma has increased by 3% per year for males and 1% per year for females. There was only a marginal increase in mortality for males, and no evidence of a change for females.

For colorectal cancer there has been a divergence between incidence (generally rising, especially in males) and mortality (stable or falling). This might be due to improvements in treatment.

For prostate cancer there have been large increases in incidence due mainly to increased use of the prostate specific antigen (PSA) test for screening. Mortality appears to have increased slightly, although this may be due to under-enumeration during the 1980s.

INTRODUCTION

Background

Cancer control is one of six National Health Priority Areas (NHPA); the others are injury prevention and control, cardiovascular health, mental health, diabetes and asthma. Within the category of cancer control, the NHPA process identified six cancers as priorities: skin cancer, lung cancer, colorectal cancer, cervical cancer, female breast cancer and prostate cancer. Since cancer registries do not routinely collect information on non-melanocytic skin cancer, only data on melanocytic skin cancer are provided in this report.

In 1998, a national report on cancer control was published as part of the NHPA process [CDHFS & AIHW, 1998]. This present report provides Queensland-specific information about the six NHPA cancers. Because smoking is the most important, preventable cause of cancer, there is also a section on all smoking-related cancers.

Source of data

The data used in this report are from the Queensland Cancer Registry, which was established as a population-based registry in 1982. Notifications are received for all persons with cancer admitted to public and private hospitals and nursing homes. Queensland pathology laboratories provide copies of pathology reports for cancer specimens. As is the case for all cancer registries in Australia, non-melanocytic skin cancers (ie., basal cell carcinomas and squamous cell carcinomas of the skin) are not registered. More details on the Queensland Cancer Registry are given in other registry publications [eg., see one of the publications in the series Cancer in Queensland, Incidence and Mortality].

Structure of report

This report is divided into three major sections.

- An overview of new cancers diagnosed in Queensland during 1997.
- An overview of cancer deaths in Queensland during 1997.
- Detailed information on each of the six NHPA cancers and on smoking-related cancers.

The two overview sections provide broad details of all cancers and provide an overall perspective on the six NHPA cancers. The information provided includes number of cases, directly age-standardised rates, lifetime risk, potential years of life lost, median age at diagnosis or death and a summary of time trends. The more detailed information in the section specifically on the NHPA cancers includes age specific rates, graphs of time trends and comparisons by state and territory, Health Zone and socio-economic status.

DEFINITIONS AND METHODS

Statistical measures

Incidence rate The cancer incidence rate is the number of new cancers occurring in a specified population during a year, expressed as the number of cancers per 100,000 people. The risk of cancer increases with increasing age, so it is common practice to age-standardise rates to allow for more valid comparisons between populations (see later). The incidence rates in this report have been directly age standardised to either the Australian Standard Population (1991) or the World Standard Population.

Mortality rate The cancer mortality rate is the number of deaths with cancer given as the underlying cause in a specified population during a year, expressed as the number of cancer deaths per 100,000 population. The mortality rates in this report have been directly age standardised to either the Australian Standard Population (1991) or the World Standard Population.

Age standardised rates These rates are an attempt to remove any effect caused by different age structures, thereby allowing more valid comparisons between populations. There are two types, indirect and direct. In this report directly standardised rates are reported. This means that the age-specific rates of the population of interest (ie., Queensland) were applied to a standard population, either the Australian Standard Population (1991) or the World Standard Population. If no standard population is specified in a table or graph, then the Australian Standard Population (1991) was used.

Annual percentage change This is the average yearly increase or decrease in the age-adjusted incidence or mortality rates for the 16-year period 1982 to 1997. The annual percentage change cannot be simply multiplied by 16 to give the total change for the 16 years because it is compounded in each successive year. Point estimates of the annual percentage change were obtained by fitting a Poisson regression model with indicator variables for each five-year age group and a linear term for calendar year. For some cancers (eg., prostate, breast), the rates did not change in a linear way over time. However, annual percentage change is still reported because it indicates the extent of the change in comparison with other cancers. Also provided are plots of the time-trend, so that the reader can identify non-linear trends (eg., for prostate and breast cancer).

Lifetime risk This is the risk that a person will develop cancer (or die from cancer) before 75 years of age. Seventy-five years is used as an approximation to the average lifetime.

Potential-years life lost (PYLL) This is an estimate of the number of years of life (0-74 years) that are lost during their expected lifetime when a person dies from a specified condition. For conditions with equal incidence, a higher PYLL value indicates that people tend to die at an earlier age for that condition than for one with a lower PYLL. The average potential years life lost is the PYLL divided by the number of deaths.

Geographic areas

Health Zones There are three Health Zones in Queensland: Southern, Central and Northern. They are administrative entities that are responsible for planning and purchasing health services and monitoring their performance.

The Southern Zone extends from the southern bank of the Brisbane River down the east coast to the southern border of Queensland and out to the western border of the state. The population in 1998 was 1,564,140.

The Central Zone extends south from Mackay down the east coast to the northern bank of the Brisbane River and west to the Queensland border. The population in 1998 was 1,316,360.

The Northern Zone extends from south of Mackay to Cape York and west to the Queensland border. In 1998 the population was 575,850.

A map of Queensland showing the Health Zones is given in Appendix A.

Socio-economic status Occupation is collected by the Queensland Cancer Registry, but is not reported well enough to provide an index of socio-economic status. Other standard approximations of socio-economic status (eg., income, education) are not collected. Consequently, this report defined socio-economic status according to where the person lived at the time of diagnosis of the cancer.

Statistical local areas (SLAs) were the building blocks used to create the socio-economic groupings in this study. SLAs are part of the Australian Standard Geographic Classification used by the Australian Bureau of Statistics [ABS, 1994]. They correspond either to Local Government Areas (LGAs) or suburbs in larger LGAs. SLAs cover the state without gaps or overlaps. There are 446 SLAs in Queensland with a median population of 5359 (range: 236 to 65457).

Using the ABS index of economic disadvantage, the SLAs were ranked from the most to the least disadvantaged [ABS, 1998]. The ABS index is based on the percentage of people in the SLA with low income, low educational attainment or who are unemployed or employed in relatively unskilled occupations. The top 10% was assigned to the *disadvantaged* group, the bottom 10% to the *affluent* group and the middle 80% to the *intermediate* group. The middle 80% was not further subdivided because, in Queensland, many of these SLAs were not homogenous and included neighbourhoods with markedly different socio-economic characteristics. A list of the SLAs in the affluent and disadvantaged groups is given in Appendix B.

CANCER INCIDENCE

INCIDENCE

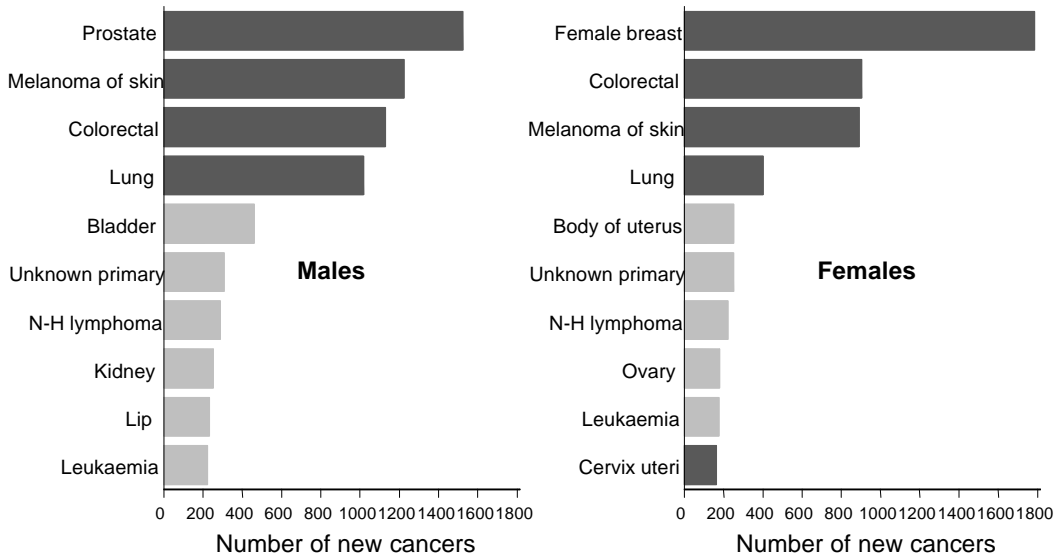
Most common cancers

There were a total of 14,922 new cancers diagnosed in Queensland during 1997.

For men, the leading cancers were prostate cancer, melanoma, colorectal cancer and lung cancer; for women, the leading cancers were breast cancer, colorectal cancer, melanoma and lung cancer. These cancers are all NHPA cancers. They accounted for almost 60% of all new cancers diagnosed in males and females in Queensland during 1997.

Cancer of the cervix was the tenth most common cancer diagnosed among females in 1997. It is an important cancer because it is largely preventable if women have regular Pap smears.

Figure 1 New cases of cancer, most common cancers, Queensland, 1997



Black bars denote NHPA cancer site
 Data source: Queensland Cancer Registry, Queensland Health

Table 1 New cases of cancer, most common cancers, Queensland, 1997

Site	New cancers		Age standardised rate (/100,000 population)		Lifetime Risk (1 in)
	Number	% of total	Point estimate	95% CI	
Males					
All cancers	8263		515.2	(504.2, 526.4)	2.8
Prostate	1522	18.4%	98.6	(93.7, 103.7)	12.4
Melanoma of skin	1223	14.8%	73.3	(69.2, 77.5)	16.4
Colorectal	1128	13.7%	70.2	(66.1, 74.4)	16.6
Lung	1017	12.3%	63.9	(60.0, 68.0)	17.8
Bladder	459	5.6%	29.2	(26.6, 32.0)	40.7
Unknown primary	307	3.7%	19.6	(17.5, 21.9)	65.6
Non-Hodgkin's lymphoma	287	3.5%	17.7	(15.7, 19.9)	68.3
Kidney	252	3.0%	15.4	(13.6, 17.5)	73.2
Lip	232	2.8%	13.9	(12.1, 15.8)	80.6
Leukaemia	221	2.7%	13.8	(12.0, 15.7)	87.0
Stomach	192	2.3%	12.4	(10.7, 14.2)	106.0
Pancreas	151	1.8%	9.5	(8.1, 11.2)	121.5
Brain	150	1.8%	9.0	(7.6, 10.5)	123.8
Oesophagus	122	1.5%	7.7	(6.4, 9.2)	177.7
Larynx	98	1.2%	6.0	(4.9, 7.3)	168.3
Testis	94	1.1%	5.5	(4.5, 6.8)	247.0
Multiple myeloma	86	1.0%	5.4	(4.3, 6.7)	217.2
Pleura	76	0.9%	4.7	(3.7, 5.8)	214.9
Connective & soft tissue	67	0.8%	4.2	(3.2, 5.3)	291.0
Liver	57	0.7%	3.5	(2.7, 4.5)	304.7
Other sites	554	6.7%			
Females					
All cancers	6659		366.4	(357.7, 375.3)	3.7
Female breast	1785	26.8%	99.2	(94.7, 103.9)	11.2
Colorectal	902	13.5%	48.5	(45.4, 51.8)	25.3
Melanoma of skin	889	13.4%	50.3	(47.0, 53.7)	24.2
Lung	401	6.0%	22.2	(20.0, 24.4)	49.9
Body of uterus	250	3.8%	14.0	(12.3, 15.9)	75.7
Unknown primary	249	3.7%	12.9	(11.4, 14.6)	109.9
Non-Hodgkin's lymphoma	221	3.3%	11.9	(10.4, 13.6)	100.5
Ovary	180	2.7%	10.0	(8.6, 11.5)	107.5
Leukaemia	177	2.7%	9.7	(8.3, 11.2)	128.4
Cervix uteri	164	2.5%	9.4	(8.0, 10.9)	137.5
Bladder	157	2.4%	8.4	(7.1, 9.8)	163.7
Kidney	152	2.3%	8.3	(7.0, 9.7)	142.8
Thyroid gland	135	2.0%	7.5	(6.3, 8.9)	166.4
Pancreas	128	1.9%	6.6	(5.5, 7.9)	193.4
Stomach	109	1.6%	5.7	(4.7, 6.9)	228.2
Brain	100	1.5%	5.6	(4.6, 6.9)	205.0
Lip	84	1.3%	4.4	(3.5, 5.5)	298.6
Oesophagus	69	1.0%	3.6	(2.8, 4.6)	346.0
Gall bladder	68	1.0%	3.7	(2.9, 4.7)	337.9
Multiple myeloma	64	1.0%	3.5	(2.7, 4.5)	290.0
Other sites	397	6.0%			

Summary of trends in cancer incidence between 1982 and 1997.

Between 1982 and 1997, significant increases in cancer incidence rates among males were observed for prostate cancer (4.1% per year), melanoma of the skin (2.9% per year), renal cancer (2.3% per year), non-Hodgkin's lymphoma (2.0% per year) and colorectal cancer (1.3% per year).

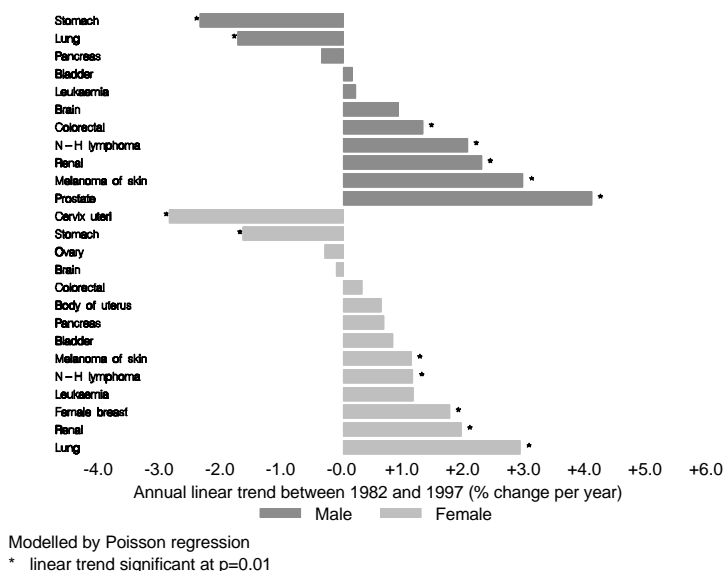
Significant decreases in cancer incidence rates among males between 1982 and 1997 were observed for stomach cancer (-2.4% per year) and lung cancer (-1.7% per year).

Between 1982 and 1997, significant increases in cancer incidence rates among females were observed for lung cancer (2.9% per year), renal cancer (1.9% per year), breast cancer (1.7% per year), melanoma (1.1% per year) and non-Hodgkin's lymphoma (1.1% per year).

A significant decrease in cervical cancer incidence rates (-2.9% per year) was observed among women between 1982 and 1997, and a decrease in stomach cancer incidence rates (-1.7% per year).

Figure 2

Trends in cancer incidence in Queensland between 1982 and 1997



Most common cancers by age and sex

Lung cancer was among the four most common cancers for men and women aged 45 years or older (Table 2).

Prostate cancer was the most common cancer for men aged 55 years or older, and the fourth most common for men aged 45-54 years.

Breast cancer was the most common cancer among women aged between 35 and 74 years, and the second most common cancer for women aged 25-34 years (after melanoma) or 74 years or older (after colorectal).

Colorectal cancer was among the four most common cancers for men aged 35 years or older and for women aged 45 years or older.

Melanoma was the most common cancer among men aged between 15 and 54 years, and for women aged between 15 and 34 years.

Cervical cancer was among the four most common cancers for women aged between 25 and 44 years.

Table 2**Most common incident cancers by age and sex, Queensland, 1997**

Age	Sex	Rank Order of Primary Sites			
		First	Second	Third	Fourth
15-24 years	Male	Melanoma of skin	Testis	N-H lymphoma	Bone
	Female	Melanoma of skin	N-H lymphoma	Leukaemia	Cervix uteri
	Persons	Melanoma of skin	N-H lymphoma	Testis	Leukaemia
25-34 years	Male	Melanoma of skin	Testis	Lip	N-H lymphoma
	Female	Melanoma of skin	Female breast	Cervix uteri	Thyroid gland
	Persons	Melanoma of skin	Female breast	Thyroid gland	Cervix uteri
35-44 year	Male	Melanoma of skin	N-H lymphoma	Colorectal	Lip
	Female	Female breast	Melanoma of skin	Cervix uteri	Thyroid gland
	Persons	Melanoma of skin	Female breast	Colorectal	N-H lymphoma
45-54 years	Male	Melanoma of skin	Colorectal	Lung	Prostate
	Female	Female breast	Melanoma of skin	Colorectal	Lung
	Persons	Melanoma of skin	Female breast	Colorectal	Lung
55-64 years	Male	Prostate	Colorectal	Lung	Melanoma of skin
	Female	Female breast	Colorectal	Melanoma of skin	Lung
	Persons	Colorectal	Female breast	Melanoma of skin	Lung
65-74 years	Male	Prostate	Lung	Colorectal	Melanoma of skin
	Female	Female breast	Colorectal	Lung	Melanoma of skin
	Persons	Prostate	Colorectal	Lung	Melanoma of skin
75 years and over	Male	Prostate	Colorectal	Lung	Melanoma of skin
	Female	Colorectal	Female breast	Lung	Unknown primary
	Persons	Colorectal	Prostate	Lung	Melanoma of skin

Median age at diagnosis or death

Table 3 shows the median age at diagnosis or death for the most common cancers in Queensland. This analysis did not include people younger than 15 years.

For all cancers, the median age at diagnosis was 68 years for men and 64 years for women. The median age at death was 71 years for both men and for women. Testis cancer (33 years) and Hodgkin's disease (36 years) had the youngest median age at diagnosis for males while Hodgkin's disease (33 years) and thyroid cancer (45 years) had the youngest median age for females. The cancers with the oldest median age at diagnosis were prostate cancer for males (72 years) and stomach cancer for females (75 years).

Cancers with median age at death within one year of that at diagnosis included cancers of the lung and pancreas for both males and females, stomach for males, and larynx and liver for females. The difference between median age at diagnosis and median age at death for males was greatest for thyroid cancer (15 years), Hodgkin's disease (14 years) and testis cancer (13 years), while for females it was greatest for Hodgkin's disease (36 years), thyroid cancer (30 years) and cervical cancer (15 years).

Table 3 Median age at diagnosis or death, Queensland, 1997

Primary site	New Cases		Deaths	
	Male	Female	Male	Female
Bladder	70	71	76	79
Brain	57	59	61	63
Body of Uterus	N/A	65	N/A	74
Cervix uteri	N/A	47	N/A	62
Colorectal	68	70	70	73
Female breast	N/A	59	N/A	65
Hodgkin's disease	36	33	50	69
Kidney	66	69	69	74
Larynx	65	64	69	62
Leukaemia	68	70	71	74
Liver	68	71	70	71
Lung	69	68	70	69
Melanoma of skin	58	51	65	64
Mouth	62	66	67	72
Multiple myeloma	71	71	74	75
Non-Hodgkin's lymphoma	64	68	69	74
Oesophagus	67	73	69	76
Ovary	N/A	62	N/A	68
Pancreas	69	74	70	75
Prostate	72	N/A	77	N/A
Stomach	71	75	72	77
Testis	33	N/A	46	N/A
Thyroid gland	52	45	67	75
All cancers	68	64	71	71

CANCER MORTALITY

MORTALITY

Most common cancers causing death

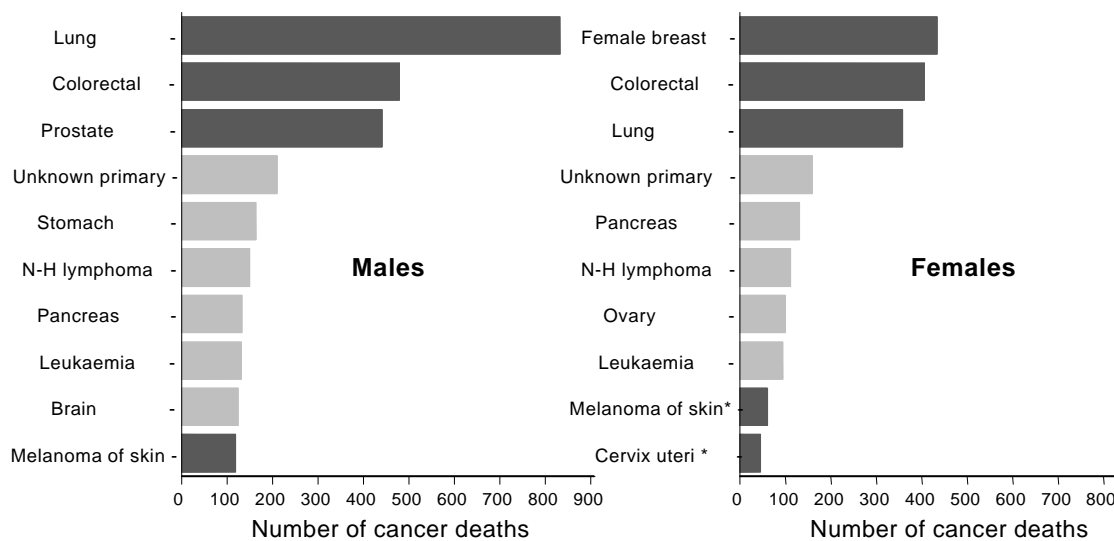
There were 5,980 deaths due to cancer in Queensland during 1997.

For males, the leading causes of cancer death (in order) were lung, colorectal and prostate, while for females they were breast, colorectal, and lung. These three cancers accounted for more than 50% of cancer deaths among males and almost 50% of cancer deaths among females.

Mortality rates for melanoma were much lower than incidence rates, reflecting the good chance of cure if melanoma is detected early. Although melanoma was among the top three most common new cancers diagnosed in males and females, it was only the 10th most common cause of cancer death among males and the 12th among females.

Cancer of the cervix was the 17th most common cancer causing death among females in 1997, reflecting the progress that has been made in combating this disease over the last 30 years. Further decreases in mortality from cervical cancer will occur if more women have regular Pap smears.

Figure 4 Cancer deaths, most common cancers, Queensland, 1997



Note for females melanoma was ranked 12th and cervical cancer ranked 17th

Black bars denote NHPA cancer site

Data source: Queensland Cancer Registry, Queensland Health

Table 4

Cancer deaths, most common cancers, Queensland, 1997

Site	Deaths		Age standardised rate (/100,000 population)		Lifetime Risk (1 in)	PYLL	Average PYLL per death
	Number	% of deaths	Estimate	95% CI			
Males							
All cancers	3463		222.8	(215.5, 230.4)	6.4	27805	8.0
Lung	832	24.0%	52.8	(49.3, 56.5)	22.4	6150	7.4
Colorectal	479	13.8%	30.8	(28.1, 33.7)	41.5	3895	8.1
Prostate	441	12.7%	30.0	(27.3, 33.0)	69.2	1225	2.8
Unknown primary	210	6.1%	13.6	(11.8, 15.6)	100.6	1428	6.8
Stomach	162	4.7%	10.5	(8.9, 12.2)	131.0	1135	7.0
Non-Hodgkin's lymphoma	149	4.3%	9.4	(7.9, 11.0)	142.1	1705	11.4
Pancreas	132	3.8%	8.6	(7.2, 10.2)	142.2	843	6.4
Leukaemia	131	3.8%	8.5	(7.1, 10.1)	168.5	1505	11.5
Brain	124	3.6%	7.4	(6.2, 8.9)	150.3	2150	17.3
Melanoma of skin	118	3.4%	7.3	(6.0, 8.7)	171.8	1693	14.3
Bladder	104	3.0%	6.9	(5.7, 8.4)	208.2	538	5.2
Kidney	91	2.6%	5.9	(4.7, 7.2)	200.4	653	7.2
Oesophagus	74	2.1%	4.7	(3.7, 5.9)	230.3	590	8.0
Pleura	56	1.6%	3.5	(2.6, 4.5)	280.0	423	7.5
Multiple myeloma	54	1.6%	3.5	(2.6, 4.6)	450.3	363	6.7
Liver	44	1.3%	2.8	(2.0, 3.7)	389.1	413	9.4
Gall bladder	34	1.0%	2.2	(1.5, 3.1)	583.7	265	7.8
Tongue	28	0.8%	1.8	(1.2, 2.6)	655.2	245	8.8
Larynx	28	0.8%	1.8	(1.2, 2.6)	631.0	183	6.5
Hypopharynx	26	0.8%	1.6	(1.0, 2.3)	781.7	303	11.6
Other sites	165	4.8%					
Females							
All cancers	2517		132.6	(127.5, 137.9)	10.0	22038	8.8
Female breast	433	17.2%	23.0	(20.9, 25.3)	51.2	5660	13.1
Colorectal	405	16.1%	21.4	(19.3, 23.6)	59.9	2755	6.8
Lung	357	14.2%	19.7	(17.7, 21.8)	54.8	2888	8.1
Unknown primary	158	6.3%	7.9	(6.8, 9.3)	206.1	920	5.8
Pancreas	130	5.2%	6.6	(5.5, 7.9)	220.4	663	5.1
Non-Hodgkin's lymphoma	110	4.4%	5.8	(4.7, 7.0)	220.4	845	7.7
Ovary	99	3.9%	5.3	(4.3, 6.5)	252.3	835	8.4
Leukaemia	93	3.7%	4.8	(3.8, 5.8)	300.0	930	10.0
Brain	83	3.3%	4.7	(3.7, 5.8)	244.3	1410	17.0
Stomach	80	3.2%	4.0	(3.2, 5.0)	387.6	473	5.9
Kidney	62	2.5%	3.1	(2.4, 4.0)	506.7	238	3.8
Melanoma of skin	59	2.3%	3.2	(2.4, 4.1)	374.3	1013	17.2
Body of uterus	56	2.2%	2.9	(2.2, 3.7)	457.4	358	6.4
Bladder	56	2.2%	2.7	(2.0, 3.5)	781.4	223	4.0
Gall bladder	53	2.1%	2.8	(2.1, 3.6)	482.6	318	6.0
Oesophagus	46	1.8%	2.2	(1.6, 3.0)	779.0	145	3.2
Cervix uteri	44	1.7%	2.3	(1.7, 3.1)	483.5	580	13.2
Multiple myeloma	41	1.6%	2.2	(1.5, 2.9)	614.8	295	7.2
Liver	19	0.8%	1.0	(0.6, 1.6)	1199.4	138	7.2
Other female genital organs	19	0.8%	0.9	(0.6, 1.4)	1828.9	78	4.1
Other sites	116	4.6%					

Summary of trends in cancer mortality between 1982 and 1997.

Between 1982 and 1997, mortality rates among females for lung cancer increased significantly by 3.4% per year, and by 1.8% per year for non-Hodgkin's lymphoma.

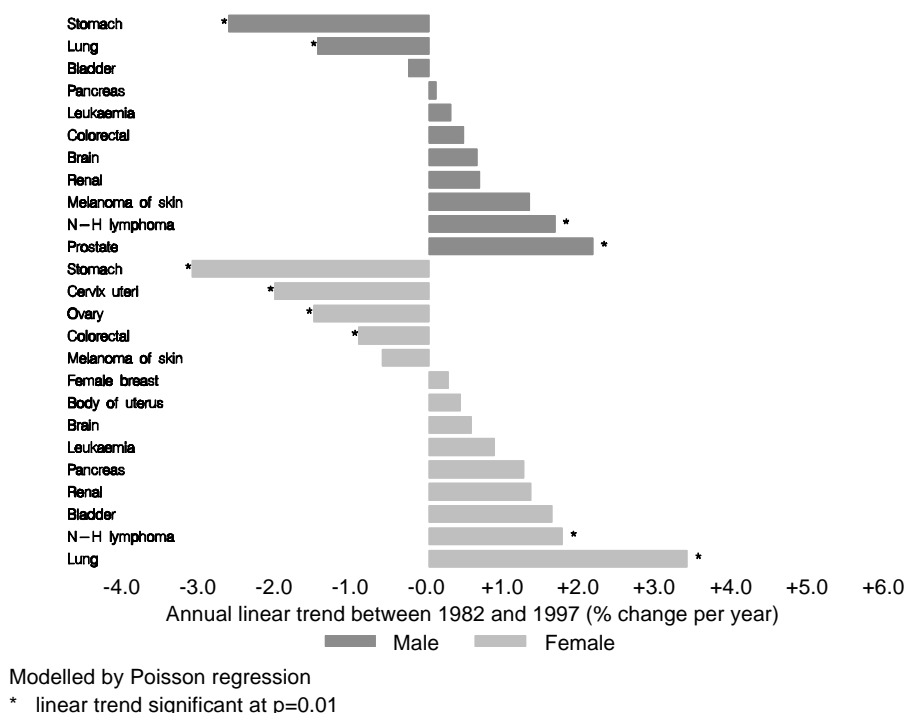
There were significant decreases in mortality rates between 1982 and 1997 for stomach cancer (-3.1% per year), cervical cancer (-2.0% per year), ovarian cancer (-1.5% per year) and colorectal cancer (-0.9% per year).

Although breast cancer incidence rates among women increased significantly, mortality rates remained stable and may have started to decrease in recent years.

Between 1982 and 1997, significant increases in cancer mortality among males were observed for prostate cancer (2.2% per year) and non-Hodgkin's lymphoma (1.7% per year). The increase in mortality for prostate cancer might be due to underestimation of deaths in the early 1980s (see the discussion on trends in the section on prostate cancer).

There were significant decreases in cancer mortality rates observed among males between 1982 and 1997 for stomach cancer (-2.6% per year) and lung cancer (-1.5% per year).

Figure 4 Trends in cancer mortality in Queensland between 1982 and 1997



Most common cancers causing death by age and sex

Lung cancer caused the largest number of cancer deaths among men aged between 45 and 74 years, and caused the second largest number of cancer deaths (behind prostate) among men aged 75 years or older. Lung cancer was among the top four causes of cancer deaths among women aged 35 years or older.

Prostate cancer caused the largest number of cancer deaths among men aged 75 years or older, and caused the third largest number of cancer deaths among men aged between 55 and 74 years. Prostate cancer was rare among men younger than 50 years.

Breast cancer caused the largest number of cancer deaths among women aged between 25 and 54 years, and was among the top three causes of cancer death for women aged 55 years or older.

Colorectal cancer was among the four most common causes of cancer death for men older than 25 years and women older than 35 years.

Melanoma was among the top four causes of cancer deaths for males between 25 and 54 years of age, and among the top three for females between 25 and 44 years of age.

Cervical cancer was not among the top four causes of cancer death for women in any age group, reflecting the progress that has been made in combating this disease over the last 30 years. Further reductions in mortality will occur if more women participate in the Pap smear program.

Table 5 Cancer deaths, most common cancers by age and sex, Queensland, 1997

Age	Sex	Rank Order of Primary Sites			
		First	Second	Third	Fourth
15-24 years	Male	Leukaemia	N-H lymphoma	Brain	Bone
	Female	Brain	Leukaemia	Stomach	Bone
	Persons	Leukaemia	N-H lymphoma	Brain	Bone
25-34 years	Male	Brain	Melanoma of skin	N-H lymphoma	Colorectal
	Female	Female breast	Brain	Melanoma of skin	Unknown primary
	Persons	Brain	Melanoma of skin	Female breast	N-H lymphoma
35-44 year	Male	Colorectal	Melanoma of skin	N-H lymphoma	Brain
	Female	Female breast	Melanoma of skin	Lung	Brain
	Persons	Female breast	Colorectal	Melanoma of skin	Brain
45-54 years	Male	Lung	Colorectal	Brain	Melanoma of skin
	Female	Female breast	Lung	Colorectal	Brain
	Persons	Lung	Female breast	Colorectal	Brain
55-64 years	Male	Lung	Colorectal	Prostate	Melanoma of skin
	Female	Colorectal	Female breast	Lung	Ovary
	Persons	Lung	Colorectal	Female breast	Pancreas
65-74 years	Male	Lung	Colorectal	Prostate	Unknown primary
	Female	Lung	Colorectal	Female breast	Unknown primary
	Persons	Lung	Colorectal	Prostate	Unknown primary
75 years and over	Male	Prostate	Lung	Colorectal	Unknown primary
	Female	Colorectal	Female breast	Lung	Unknown primary
	Persons	Lung	Colorectal	Prostate	Unknown primary

PROSTATE CANCER

Incidence

Prostate cancer was the most common cancer diagnosed among males in Queensland during 1997 (18% of all new cancers in males).

There were 1,522 new cases of prostate cancer in Queensland during 1997.

The age-standardised incidence rate in 1997 was 98.6 cases per 100,000 population.

Based on the age-specific rates for 1997, about 8% of men (1 in 12) in Queensland will be diagnosed with prostate cancer by the age of 75 years.

The median age at diagnosis was 72 years (based on data for 1993 to 1997).

Mortality

Prostate cancer was the third most common cause of cancer death (behind lung and colorectal cancer) among males in Queensland during 1997 (13% of all cancer deaths in males).

There were 441 deaths due to prostate cancer in Queensland during 1997.

The age-standardised mortality rate was 30.0 deaths per 100,000 population.

Based on the age-specific mortality rates for 1997, the lifetime risk of men dying from prostate cancer in Queensland was approximately 1 in 70.

There were 1225 potential years life lost (to age 74) due to prostate cancer among men in Queensland in 1997, with an average of 2.8 potential years life lost per death. This average is the lowest for any for the twenty most common cancers in men.

The median age at death was 77 years (based on data for 1993 to 1997).

Prostate cancer in Queensland (1997)	Males
Incidence	
Number diagnosed (1997)	1522
Incidence rate per 100,000 (Australia 1991)	98.6 (93.7, 103.7)
Incidence rate per 100,000 (World 1960)	65.7 (62.4, 69.1)
Annual percentage change (1982-1997)	4.1 % per year
Lifetime risk (0-74 years)	1 in 12
Mortality	
Number of deaths (1997)	441
Mortality rate per 100,000 (Australia 1991)	30.0 (27.3, 33.0)
Mortality rate per 100,000 (World 1960)	17.2 (15.6, 18.8)
Annual percentage change (1982-1997)	2.2 % per year
Lifetime risk (0-74 years)	1 in 69
Potential years of life lost (0-74 years)	1225 years

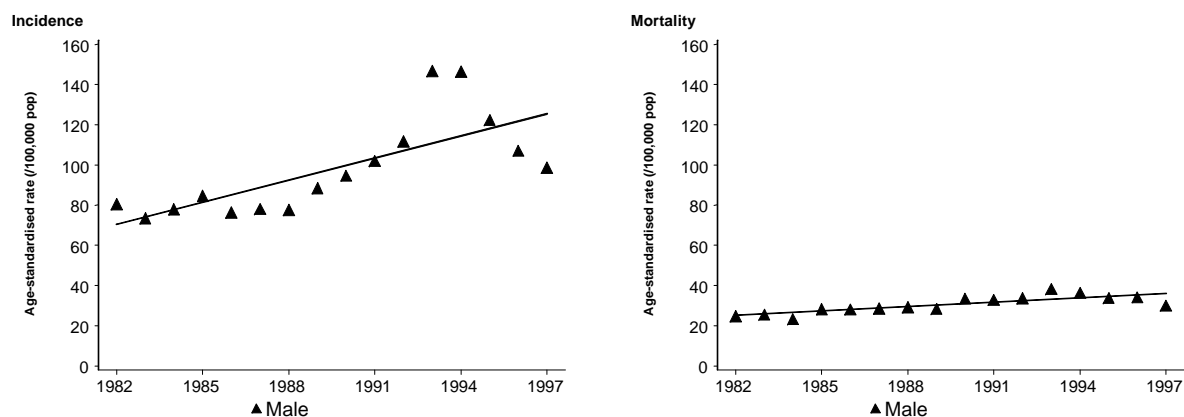
Trends

Incidence rates for prostate cancer have increased in Queensland by an average of 4% per year between 1982 and 1997 (Figure 3).

Much of the apparent increase in incidence was due to increased detection with the use of the prostate-specific antigen (PSA) test. This first became available in 1987 and appeared in the Medicare Benefits Schedule in 1989. Sharp increases in PSA testing and newly diagnosed cases of prostate cancer occurred in 1993. Incidence rates decreased somewhat after 1994, but are still higher than pre-PSA testing levels. The post-1994 decrease is not surprising and is probably because an increased proportion of men are now receiving repeat as opposed to initial tests.

Mortality rates from prostate cancer increased steadily by 2% per year between 1982 and 1997 (Figure 5). This increase in mortality is higher than the trends reported for the other states, although the rate in Queensland appears to have decreased slightly since 1993. The incidence of prostate cancer is particularly high among older men and it is possible that an important proportion of older men who die have both prostate cancer and other conditions that could cause their death. This is supported by the relatively few years of life lost for each death attributed to prostate cancer. Consequently, both the certification of the cause-of-death by medical practitioners and the subsequent coding of the cause-of-death by clerical staff are open to interpretation. The increasing trend in mortality using data from the Queensland Cancer Registry was also observed for the Australian Bureau of Statistics data for Queensland. Consequently, the increase is unlikely to be due to coding practices at the Queensland Cancer Registry. The current mortality rates for prostate cancer in Queensland are similar to those for all of Australia. It is possible that certification and coding of deaths from prostate cancer in Queensland is now in line with that for the other states. The increasing trend might be owed to *under-certification or under-coding* of prostate-cancer deaths in the early 1980s.

Figure 5 Prostate cancer, trends in incidence and mortality, 1982 to 1997

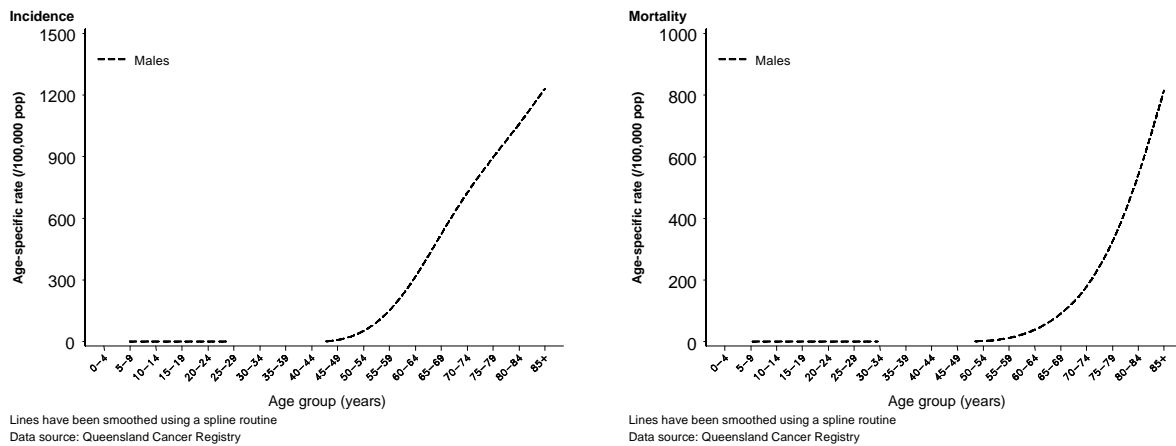


Variation with age

Incidence and mortality rates increased with age; more than 37% of new cases and 62% of deaths occurred in men aged 75 years or older. Of men diagnosed with prostate cancer between 1995 and in 1997, less than 1% were younger than 50 years.

Figure 6

Age-specific incidence and mortality rates, prostate cancer, Queensland, 1995 to 1997

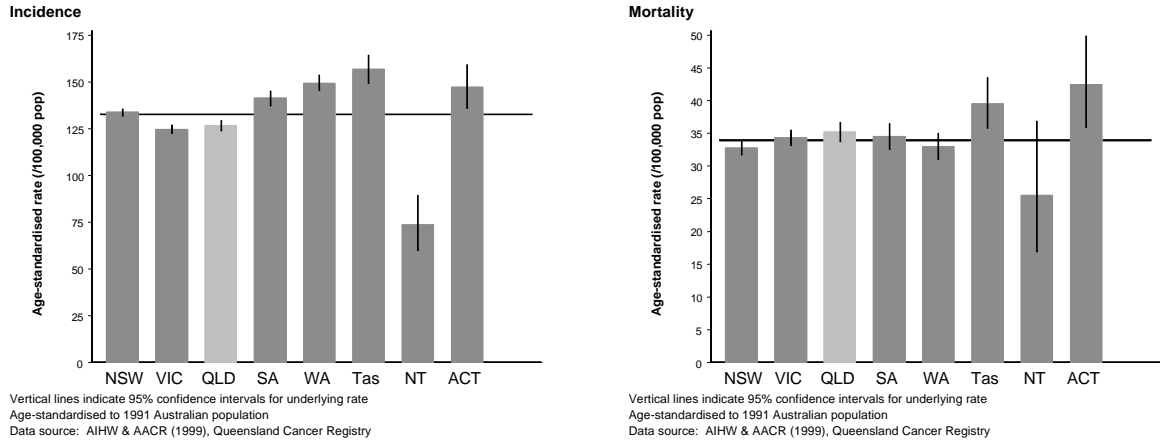


Interstate comparisons

The incidence rate for prostate cancer in Queensland was slightly lower than the Australian average; mortality was similar to the Australian average.

Figure 7

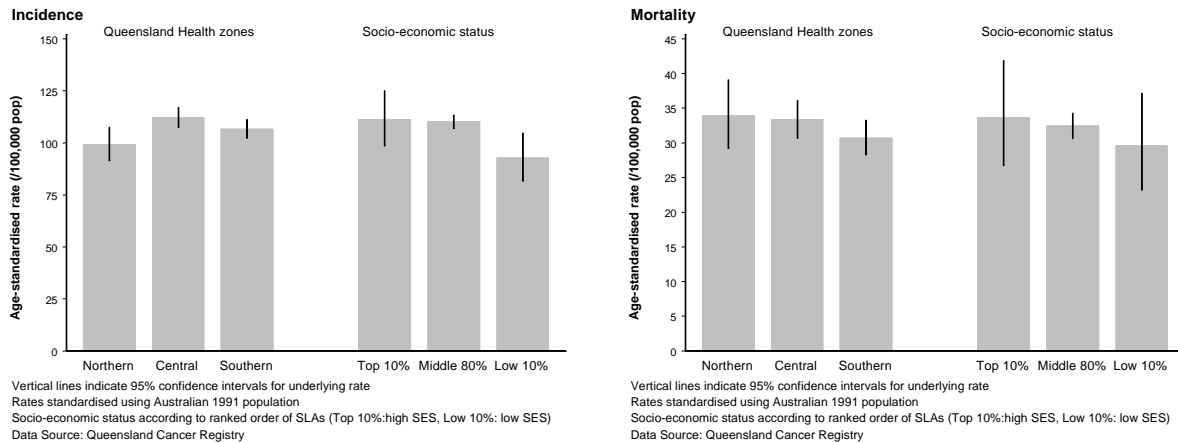
Interstate comparisons, prostate cancer, 1992 to 1996



Zonal and socio-economic variation

Prostate cancer incidence and mortality rates were similar across the three Queensland Health zones, with a marginally lower incidence in Northern Zone.

Incidence and mortality were low among men living in the least affluent SLAs in Queensland, but the difference was not statistically significant.

Figure 8**Prostate cancer, incidence and mortality by Queensland Health Zones and socio-economic status, Queensland, 1995-1997****Prevention & control**

Knowledge about the causes of prostate cancer is poor. The strongest known association is with age. Epidemiological studies have suggested that risk factors for prostate cancer might include high dietary fat intake, obesity and low levels of physical activity, but the evidence is inconsistent.

Consequently, interest has concentrated on early detection through screening. There is continuing debate about the value of screening for prostate cancer using either digital rectal examination or PSA. Evidence of any mortality reduction following early detection is equivocal and a report from the Australian Health Technology Advisory Committee concluded that there was currently insufficient evidence to recommend prostate cancer screening for men without symptoms [AHTAC, 1996].

COLORECTAL CANCER

Incidence

For males, colorectal cancer was the third most common cancer diagnosed in Queensland during 1997 (after prostate cancer and melanoma).

There were 1128 new cases of colorectal cancer diagnosed in males in Queensland during 1997. These represented 14% of all new cancers in males.

For females, colorectal cancer was the second most common cancer diagnosed in Queensland during 1997 (after breast cancer).

There were 902 new cases of colorectal cancer diagnosed in females in Queensland during 1997. These represented 14% of all new cancers in females.

For males, the age-standardised incidence rate in 1997 was 70.2 cases per 100,000 population; for females the age-standardised rate was 48.5.

Based on the age-specific rates for 1997, about 6% of males (1 in 17) and about 4% (1 in 25) of females will be diagnosed with colorectal cancer by the age of 75.

The median age at diagnosis for males was 68 years; for females the median age at diagnosis was 70 years (based on data for 1993 to 1997).

Mortality

Colorectal cancer was the second most common cause of cancer death among both males (after lung cancer) and females (after breast cancer) in Queensland during 1997.

There were 479 deaths due to colorectal cancer in males in Queensland during 1997. These represented 14% of all cancer deaths among males.

There were 405 deaths due to colorectal cancer in females in Queensland during 1997. These represented 14% of all cancer deaths among females.

For males, the age-standardised mortality rate in 1997 was 30.8 cases per 100,000 population; for females the age-standardised rate was 21.4.

Based on the age-specific rates for 1997, the lifetime risk of males dying prematurely (before age 75) from colorectal cancer in Queensland was approximately 1 in 42. For females the risk was 1 in 60.

There were 3895 potential years life lost (to age 74) due to colorectal cancer among males in Queensland in 1997, with an average of 8.1 potential years life lost per death. Corresponding figures for females were 2755 and 6.8.

The median age at death for males was 70 years; for females the median age at death was 73 years (based on data for 1993 to 1997).

Colorectal Cancer in Queensland (1997)	Male	Female
Incidence		
Number diagnosed (1997)	1128	902
Incidence rate per 100,000 (Australia 1991)	70.2 (66.1, 74.4)	48.5 (45.4, 51.8)
Incidence rate per 100,000 (World 1960)	50.8 (47.9, 53.9)	34.4 (32.2, 36.7)
Annual percentage change (1982-1997)	1.3 % per year	0.3 % per year
Lifetime risk (0-74 years)	1 in 17	1 in 25

Mortality

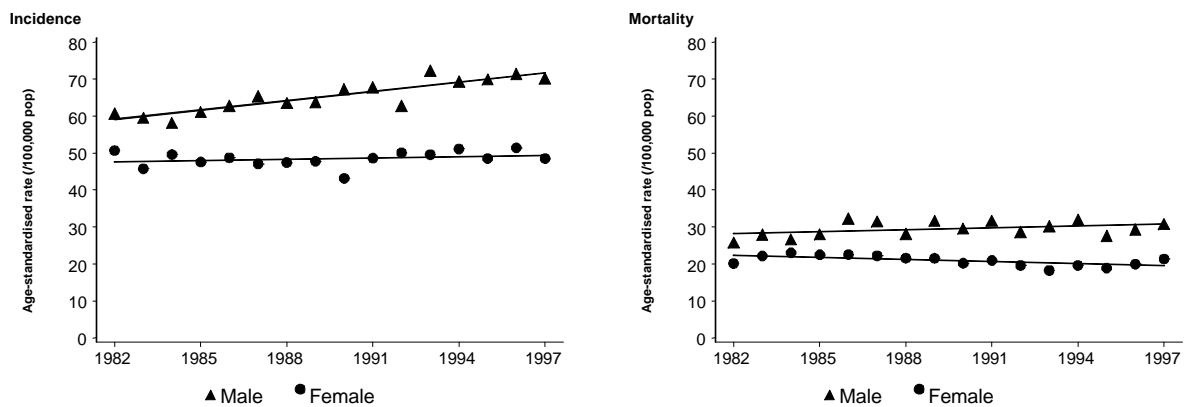
Number of deaths (1997)	479	405
Mortality rate per 100,000 (Australia 1991)	30.8 (28.1, 33.7)	21.4 (19.3, 23.6)
Mortality rate per 100,000 (World 1960)	21.4 (19.5, 23.4)	15.0 (13.6, 16.6)
Annual percentage change (1982-1997)	0.4 % per year	-0.9 % per year
Lifetime risk (0-74 years)	1 in 42	1 in 60
Potential years of life lost (0-74 years)	3895 years	2755 years

Trends between 1982 and 1997

In Queensland, there has been a divergence between the incidence of colorectal cancer (generally rising, especially in males) and mortality (stable or falling). This pattern has been observed elsewhere in Australia [Bell et al, 1997]. One plausible explanation is that survival has improved owing to better treatment. In particular, advances in peri-operative assessment, better surgical techniques and the use of adjuvant therapy are likely to have lengthened survival times.

Figure 9

Trends in colorectal cancer incidence and mortality, Queensland, 1982 to 1997



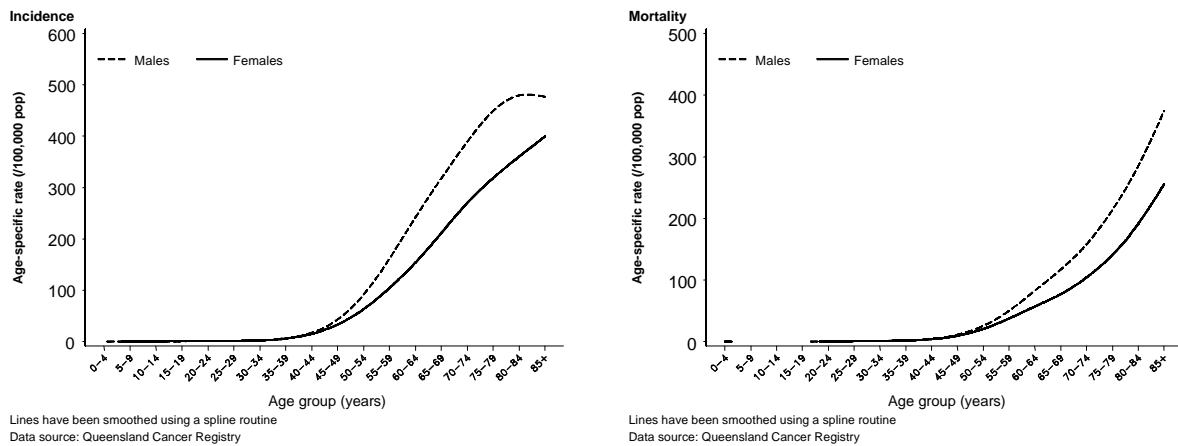
Variation with age

Incidence and mortality rates increased with age. Among men 26% of new cases and 37% of deaths occurred in those aged 75 years or older, while among women 37% of new cases and 46% of deaths occurred in those aged 75 years or older.

Of the males diagnosed with colorectal cancer in 1997 less than 8% were younger than 50 years. A similar proportion of females were younger than 50 years.

Figure 10

Age-specific incidence and mortality rates, colorectal cancer, Queensland, 1995-1997

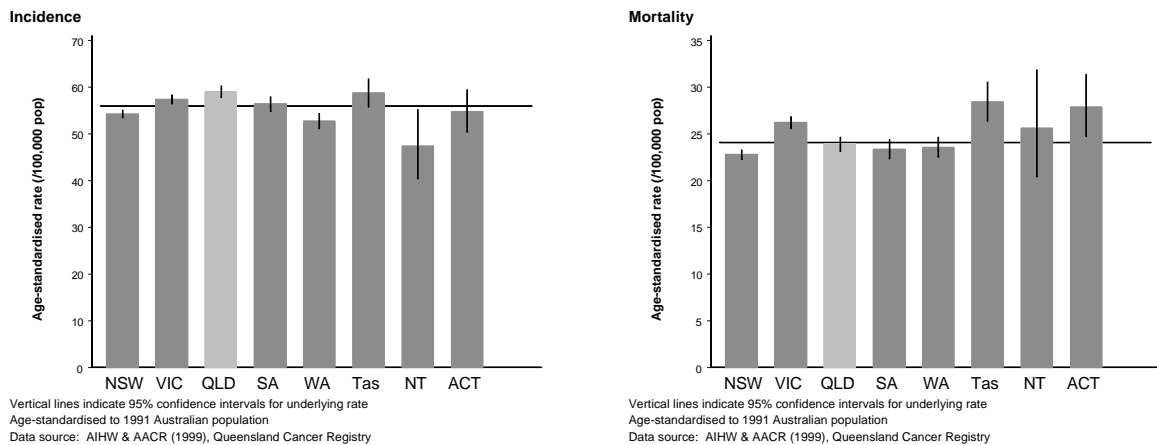


Interstate comparisons

The incidence rate for colorectal cancer in Queensland was higher than the Australian average. The mortality rate for colorectal cancer in Queensland was similar to the Australian average.

Figure 11

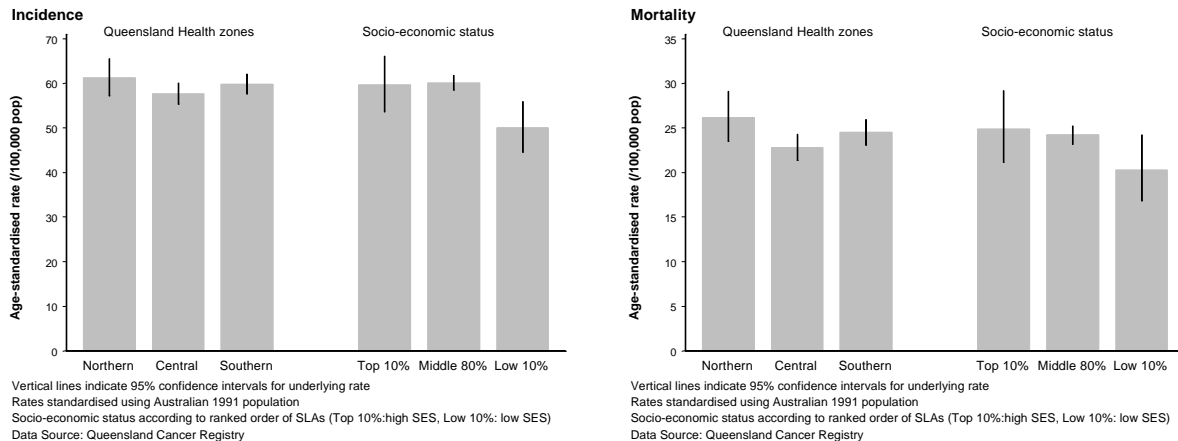
Interstate comparisons, colorectal cancer, 1992-1996



Zonal and socio-economic variation

There were no important differences in mortality or incidence rates due to colorectal cancer among the three zones.

Mortality and incidence were lowest in the least affluent SLAs, but the difference was not statistically significant.

Figure 12**Colorectal cancer, incidence and mortality rates by Queensland Health Zone and socio-economic status, Queensland, 1995-1997****Prevention & control**

Internationally, there are large differences in the rates of colorectal cancer, with high rates in affluent industrialised countries. Some epidemiologists have argued that dietary fibre, fruit and vegetables and physical activity have a protective effect against colorectal cancer. Some have also advocated pharmacopreventive measures such as taking aspirin or fish oil. Unfortunately, experts still argue about the strength and consistency of the research findings. Consequently, it is difficult to make population-level recommendations based on the current evidence about the effectiveness and practicality of primary prevention strategies. This has led to continued concentration on secondary prevention (screening), which aims to detect cancer at an early, treatable stage rather than reducing the incidence of new cancers in the population [AHTAC, 1997].

The Australian Health Technology Advisory Committee (AHTAC) undertook a comprehensive review of colorectal cancer screening and released its report in 1997. The main recommendations were:

- On the basis of published evidence, and subject to favourable preliminary testing, it is recommended that Australia develop a program for the introduction of population screening for colorectal cancer by faecal occult blood testing for the average risk population aged older than 50 years.
- Given the uncertainties relating to the most effective means of implementing such a program and to the feasibility, acceptability and cost-effectiveness of such a program in the Australian setting, the program should commence with preliminary testing involving a number of pilot and feasibility studies.

In persons at high risk, such as those with a family history of colorectal cancer, colonoscopy is used to examine the colon and rectum and to remove adenomatous polyps, the non-malignant precursors of a high proportion of colorectal cancer.

LUNG CANCER

Incidence

Lung cancer is the fourth most common malignant cancer among males (12% of all male cancers), with 1017 new cancers diagnosed in Queensland during 1997.

Lung cancer is the fourth most common cancer among females (6% of all female cancers), with 401 new cancer diagnosed in Queensland during 1997.

In 1997, the age-standardised incidence rate for males was 63.9 cases per 100,000 population; for females the age-standardised incidence rate was 22.2 per 100,000 population.

Based on 1997 age-specific rates, about 6% of males (1 in 18) and about 2% of females (1 in 50) will be diagnosed with lung cancer by the age of 75.

The median age at diagnosis for males was 69 years; for females the median age at diagnosis was 68 years (based on data for 1993 to 1997).

Mortality

Lung cancer is the most common cause of cancer death among males. In 1997 there were 832 deaths due to lung cancer. These represent 24% of all cancer deaths in males.

Lung cancer is the third most common cause of cancer death among females. In 1997 there were 357 deaths due to lung cancer. These represent 14% of all cancer deaths in females.

In 1997, the age-standardised mortality rate for males was 52.8 deaths per 100,000 population; for females the rate was 19.7 per 100,000 population.

Based on the age-specific mortality rates for 1997, the lifetime risk of males dying prematurely (before age 75) from lung cancer in Queensland was approximately 1 in 22. For females the risk was 1 in 55.

There were 6150 potential years life lost (to age 74) due to lung cancer among males in Queensland in 1997, with an average of 7.4 potential years life lost per death. Corresponding figures for females were 2888 and 8.1.

The median age at death for males was 70 years; for females the median age at death was 69 years (based on data for 1993 to 1997).

Lung cancer in Queensland (1997)	Male	Female
Incidence		
Number diagnosed (1997)	1017	401
Incidence rate per 100,000 (Australia 1991)	63.9 (60.0, 68.0)	22.2 (20.0, 24.4)
Incidence rate per 100,000 (World 1960)	45.0 (42.3, 47.9)	16.4 (14.8, 18.1)
Incidence trends (1982-1997)	-1.7 %/year	2.9 %/year
Lifetime risk (0-74 years)	1 in 18	1 in 50
Mortality		
Number of deaths (1997)	832	357
Mortality rate per 100,000 (Australia 1991)	52.8 (49.3, 56.5)	19.7 (17.7, 21.8)
Mortality rate per 100,000 (World 1960)	36.7 (34.3, 39.3)	14.3 (12.9, 15.9)
Mortality trends (1982-1997)	-1.5 %/year	3.4 %/year
Lifetime risk (0-74 years)	1 in 22	1 in 55
Potential years of life lost (0-74 years)	6150 years	2888 years

Trends between 1982 and 1997

Between 1982 and 1997, lung cancer incidence and mortality rates decreased for males by approximately 1.5% per year.

In contrast, the incidence and mortality rates for females increased by about 3% per year.

Figure 13 Trends in lung cancer incidence and mortality between 1982 and 1997.



Variation with age

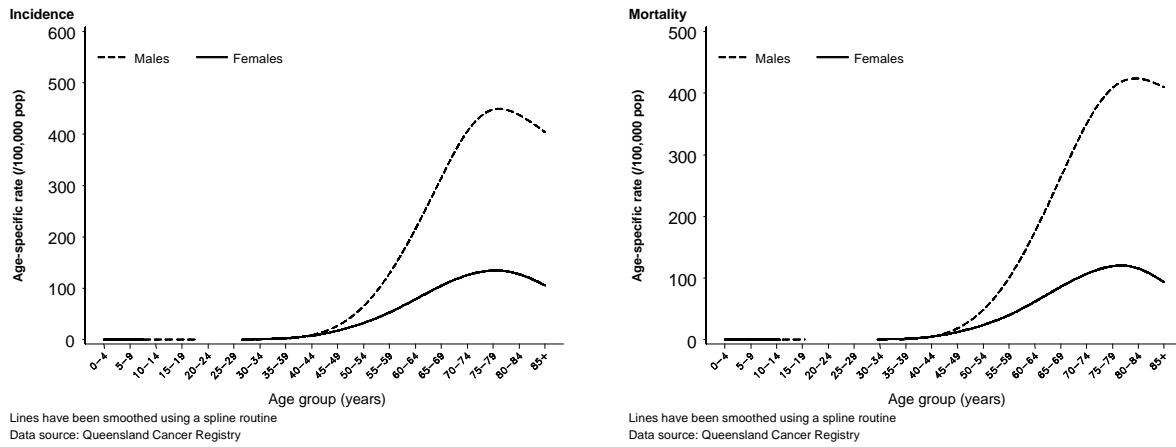
Incidence and mortality rates generally increased with age.

For males, 28% of new lung cancer cases and 31% of deaths among males occurred in those aged 75 years or older, while for females 30% of new cases and 33% of deaths occurred in those aged 75 years or older (based on data for 1995 to 1997).

Of those diagnosed with lung cancer between 1995 and 1997, 5% of males and 9% of females were younger than 50 years.

Figure 14

Average age-specific incidence rate for lung cancer in Queensland between 1995 and 1997

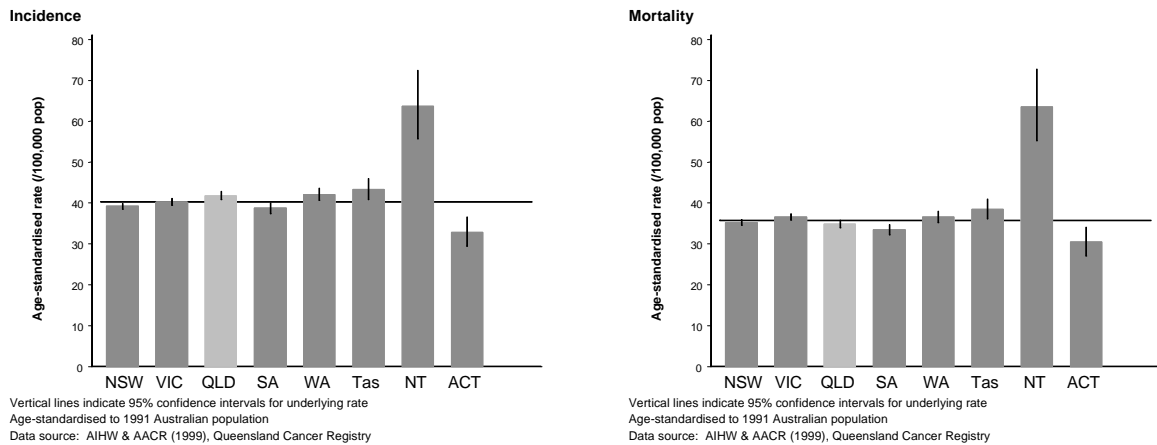


Interstate comparisons

Incidence rates were slightly higher than the Australian average. Mortality rates were similar to the Australian average.

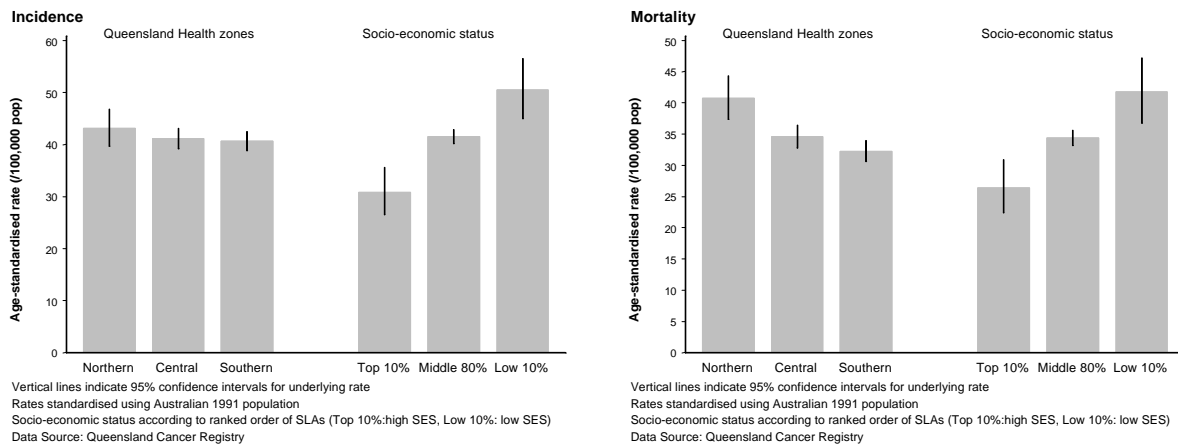
Figure 15

Interstate comparisons for lung cancer incidence and mortality (1992-1996)



Geographical and socio-economic differentials

Incidence rates for lung cancer were similar across the three health zones in Queensland. In contrast, mortality was statistically significantly higher in the Northern than in the Central or Southern Zones. Incidence and mortality rates were higher in economically disadvantaged areas, reflecting a higher prevalence of smoking.

Figure 16**Geographical and socio-economic differentials for lung cancer among persons in Queensland between 1995 and 1997 (inclusive)****Prevention and control**

Nearly all cases of lung cancer are caused by cigarette smoking. Trends in lung cancer largely reflect changes in the prevalence of smoking that occurred 15 to 20 years ago.

Major tobacco control strategies have included the provision of quit smoking advertising and support (via State-based 'Quit' campaigns), mandatory display of health warning labels on tobacco products, restriction of tobacco product advertising, and smoking bans in some workplaces.

Queensland men are more likely to be smokers than men in other states. In Queensland, the proportion of males, 18 years or older, who smoke was 29.0% compared with the Australian average of 27.3% [ABS, 1999].

The prevalence of smoking among Queensland women (21.7%) is slightly higher than the national average (20.3%) [ABS, 1999].

FEMALE BREAST CANCER

Incidence

Breast cancer is the most common cancer diagnosed among women.

There were 1,758 new cases of breast cancer diagnosed in Queensland in 1997. This represents 27% of all new cancers in females.

In 1997, the age-standardised incidence rate for all women was 99.2 cases per 100,000 population. However among the target screening group of females aged 50-69 years the incidence rate was 276.6 cases per 100,000 population.

Based on the age-specific rates for 1997, about 9% of females (1 in 11) in Queensland will be diagnosed with breast cancer before the age of 75.

The median age at diagnosis was 58 years (based on data for 1993 to 1997).

Mortality

Breast cancer was the most common cause of cancer death (17% of all cancer deaths in women), with 433 deaths during 1997.

In 1997, the age-standardised mortality rate for all females was 23.0 deaths per 100,000 population. However, among the target screening group of females aged 50-69 years the mortality rate was 60.7 deaths per 100,000 population.

Based on the age-specific mortality rates for 1997, the lifetime risk of a woman dying from breast cancer in Queensland was approximately 1 in 51.

There were 5660 potential years life lost (to age 74) due to breast cancer among women in Queensland in 1997, with an average of 13.1 potential years life lost per death.

The median age at death was 65 years (based on data for 1993 to 1997).

Female breast cancer in Queensland (1997)	All females	Females aged 50-69
Incidence		
Number diagnosed (1997)	1785	806
Incidence rate per 100,000 (Australia 1991)	99.2 (94.7, 103.9)	276.6 (257.9, 296.4)
Incidence rate per 100,000 (World 1960)	81.1 (77.4, 84.9)	274.1 (255.5, 293.7)
Annual percentage change (1982-1997)	1.7 % per year	2.9 % per year
Lifetime risk (0-74 years)	1 in 11	N/A
Mortality		
Number of deaths (1997)	433	180
Mortality rate per 100,000 (Australia 1991)	23.0 (20.9, 25.3)	60.7 (52.2, 70.3)
Mortality rate per 100,000 (World 1960)	17.9 (16.3, 19.7)	60.6 (52.1, 70.2)
Mortality trends (1982-1997)	0.2 % per year	0.1 % per year
Lifetime risk (0-74 years)	1 in 51	N/A
Potential years of life lost (0-74 years)	5660 years	2900 years

Trends

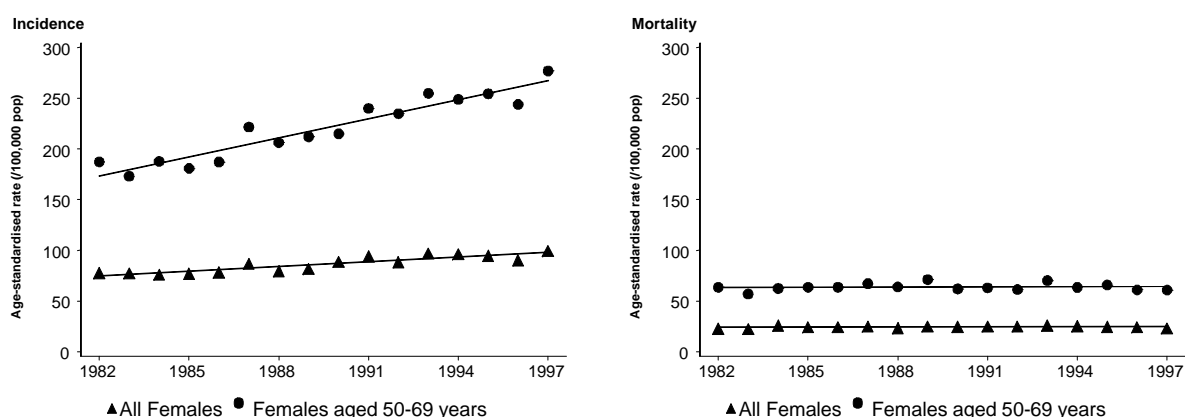
Between 1982 and 1997 the age-standardised incidence of breast cancer among females of all ages in Queensland rose by approximately 2% per year. There was a slightly greater increase in breast cancer incidence among women aged 50-69 years.

For the whole period 1982 to 1997, there was no evidence of a change in mortality. However mortality appears to have decreased over the last five years between 1993 and 1997.

The pattern of increasing incidence and (probably) decreasing mortality is likely to be a result of increased screening activity and earlier detection of breast cancer. A similar pattern has been observed in the other states [AIHW & AACR, 1999].

Figure 17

Trends in female breast cancer incidence and mortality, Queensland, 1982 to 1997.

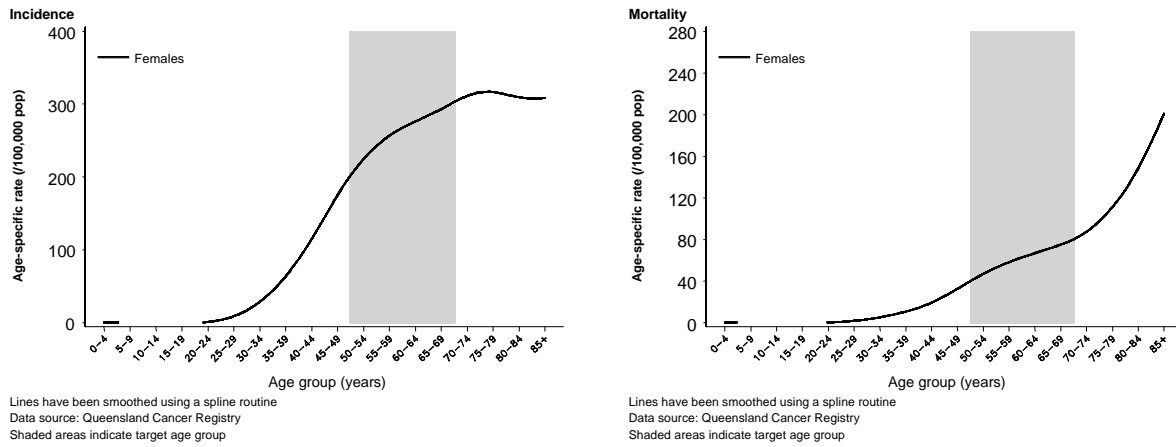


Variation with age

Incidence and mortality rates increased with increasing age. Almost 30% of new cases occurred in women younger than 50 years, 44% occurred in women aged 50 to 69 years and 28% in women 70 years or older. Corresponding values for mortality in the respective age groups were 18%, 41% and 41%.

Figure 18

Age-specific incidence and mortality rates, breast cancer, Queensland, 1995-1997

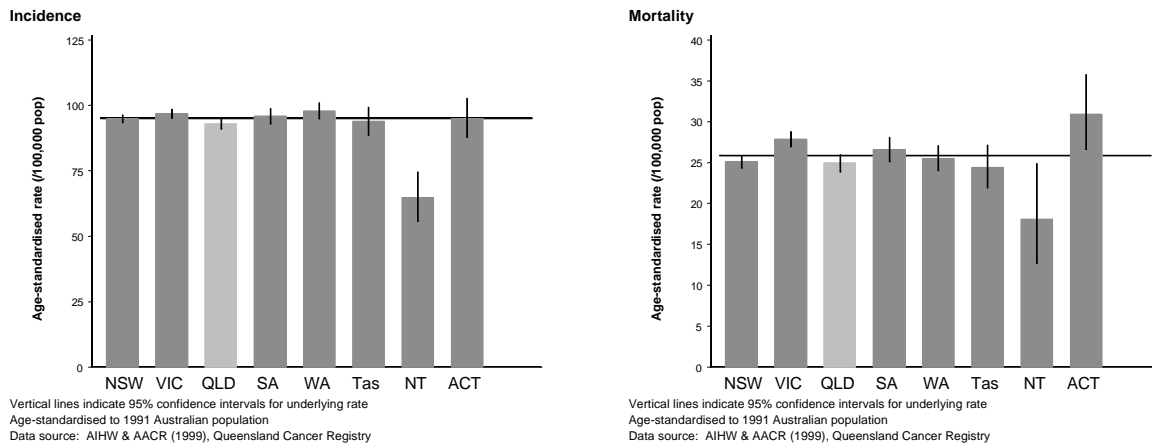


Interstate comparisons

Queensland incidence and mortality rates for breast cancer were slightly below the Australian average.

Figure 19

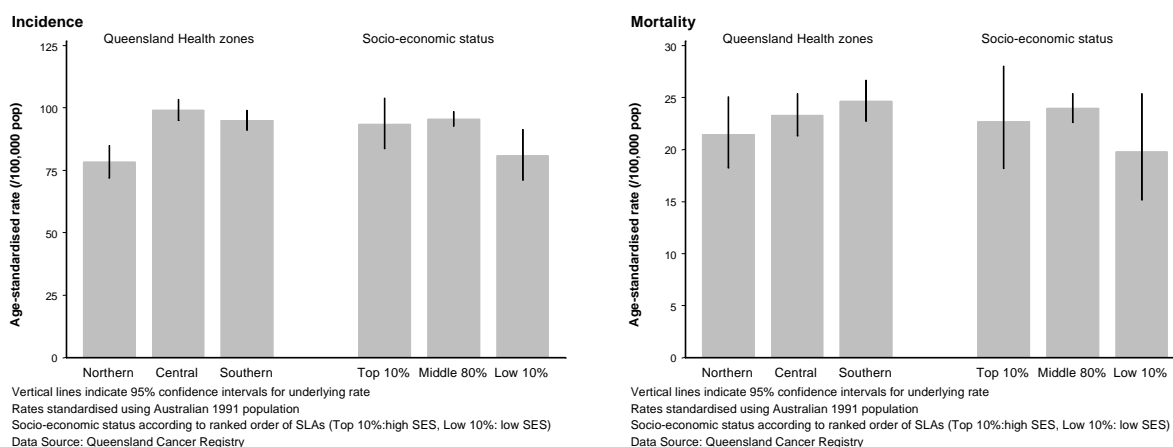
Interstate comparisons, breast cancer, 1992-1996



Zonal and socio-economic variation

The incidence of breast cancer was lower in the Northern Zone than the other two Zones, but the mortality rate was not statistically significantly different from the other two Zones.

There were no statistically significant differences in the rates according to socio-economic status.

Figure 20**Breast cancer, incidence and mortality by Queensland Health Zones and socio-economic status, Queensland, 1995-1997****Prevention & control**

A small proportion (less than 10 per cent) of women who develop breast cancer have a much higher than average risk of breast cancer. Included in this higher risk group are women who have a first degree relative who developed breast cancer pre-menopausally, women with specific genetic mutations such as BRCA1 and BRCA2, women who started menstruation early or menopause late, and women who have never had children or who had their first baby after the age of 30 years. These risk factors are not easily modifiable, so they have limited implications for population-based prevention.

Potentially modifiable factors that have been linked to breast cancer include high fat intake, hazardous alcohol consumption, obesity, physical inactivity and inadequate consumption of fruit and vegetables [Mezzetti et al., 1998]. However, at present, the increased risk from these potentially modifiable factors is thought to be small [Kelsey et al., 1993]. Consequently the best chance of reducing mortality from breast cancer is through early detection by mammographic screening. Evidence from randomised controlled trials (RCTs) has shown that early detection of breast cancer by mammography can reduce mortality by 30 percent [Fletcher et al, 1993].

BreastScreen Queensland is this state's coordinated breast cancer screening program. To achieve the mortality reductions reported from the RCTs, BreastScreen Queensland must achieve a participation rate of 70 percent for women aged 50 to 69 years. Women aged 40 years and over are eligible to use the BreastScreen Queensland Program, however the primary target group remains women aged 50-69 years of age.

Queensland is the most decentralised of all the states, making the establishment of a coordinated statewide breast cancer screening network a major public health achievement. The establishment of the statewide Program was implemented in stages between 1991 and 1997. This staged introduction means that Queensland has yet to achieve the participation rates of the southern states. In 1996 – 1997 the BreastScreen Australia participation rate for women aged 50-69 years was 52 percent compared to 43 percent for Queensland. However, BreastScreen Queensland achieved a participation rate during 1997/1998 of 53 percent, for women in the target age group. Those BreastScreen Queensland Services that have been established for more than five years, in 1997-1998, had achieved participation rates ranging from 47 percent to 67 percent. Of course, some screening also occurs in the private sector. The 1996 National Breast Health Survey [Barratt et al, 1997] found that 8.1% of women were screened through private services, that is, outside the BreastScreen Program. The corresponding percentage in the target age group, 50-69 years, was 10.0%. In Queensland, the Wesley Breast Clinic offers a private sector screening service which would account for a significant proportion of screening outside the BreastScreen program.

CERVICAL CANCER

Incidence

Cervical cancer was the 10th most common cancer diagnosed among females in Queensland during 1997 (3% of all female cancers).

There were 164 new cases of cervical cancer in Queensland during 1997.

The age-standardised incidence rate in 1997 was 9.4 cases per 100,000 population.

Based on the age-specific rates for 1997, about 1% of women (1 in 137) in Queensland will be diagnosed with cervical cancer by the age of 75.

The median age at diagnosis for females was 47 years (based on data for 1993 to 1997).

Mortality

Cervical cancer was the 17th most common cause of cancer death among females in Queensland during 1997 (2% of all female cancer deaths).

There were 44 deaths among females due to cervical cancer in Queensland during 1997.

The age-standardised mortality rate was 2.3 deaths per 100,000 population.

Based on age-specific mortality rates for 1997, the lifetime risk of women dying from cervical cancer in Queensland was approximately 1 in 480.

There were 580 potential years life lost (to age 74) due to cervical cancer among females in Queensland in 1997, with an average of 13.2 potential years life lost per death.

The median age at death was 62 years (based on data for 1993 to 1997).

Cervical cancer in Queensland (1997)	All females	Females aged 20-69
Incidence		
Number diagnosed (1997)	164	135
Incidence rate per 100,000 (Australia 1991)	9.4 (8.0, 10.9)	12.8 (10.7, 15.1)
Incidence rate per 100,000 (World 1960)	7.6 (6.5, 8.9)	12.3 (10.3, 14.6)
Annual percentage change (1982-1997)	-2.9 % per year	-3.0 % per year
Lifetime risk (0-74 years)	1 in 137	N/A
Mortality		
Number of deaths (1997)	44	25
Mortality rate per 100,000 (Australia 1991)	2.3 (1.7, 3.1)	2.2 (1.4, 3.3)
Mortality rate per 100,000 (World 1960)	1.8 (1.3, 2.4)	2.3 (1.5, 3.4)
Annual percentage change (1982-1997)	-2.0 % per year	-2.6 % per year
Lifetime risk (0-74 years)	1 in 483	N/A
Potential years of life lost (0-74 years)	580 years	563 years

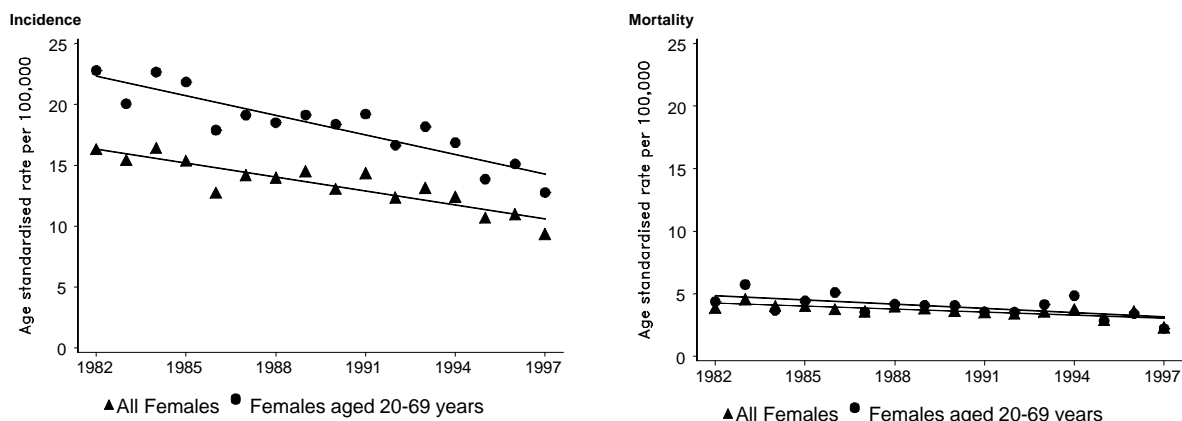
Trends

The incidence of cervical cancer in Queensland decreased by approximately 2.9% per year. This was the largest decrease in incidence of any cancer in Queensland. The decrease was similar for women aged 20 to 69 years (3.0% reduction per year).

Mortality from cervical cancer among females of all ages in Queensland decreased by 2.0% per year. There was a slightly greater decrease among women aged 20 to 69 years (2.6% per year).

Figure 21

Trends in cervical cancer incidence and mortality, Queensland, 1982 to 1997

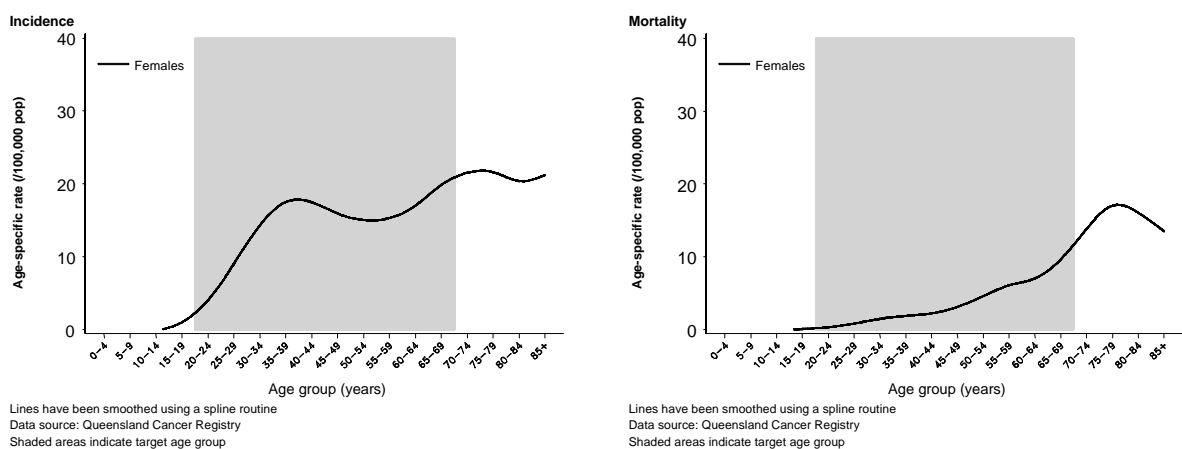


Variation with age

Invasive cervical cancer is virtually unknown in women younger than 20 years and is very rare before the age of 25 years. Unlike most cancers (where the rates increase with increasing age) incidence rates for cervical cancer increase rapidly between the ages of 25 and 40 years and then remain relatively stable. For mortality, the rates increase more consistently with age.

Figure 22

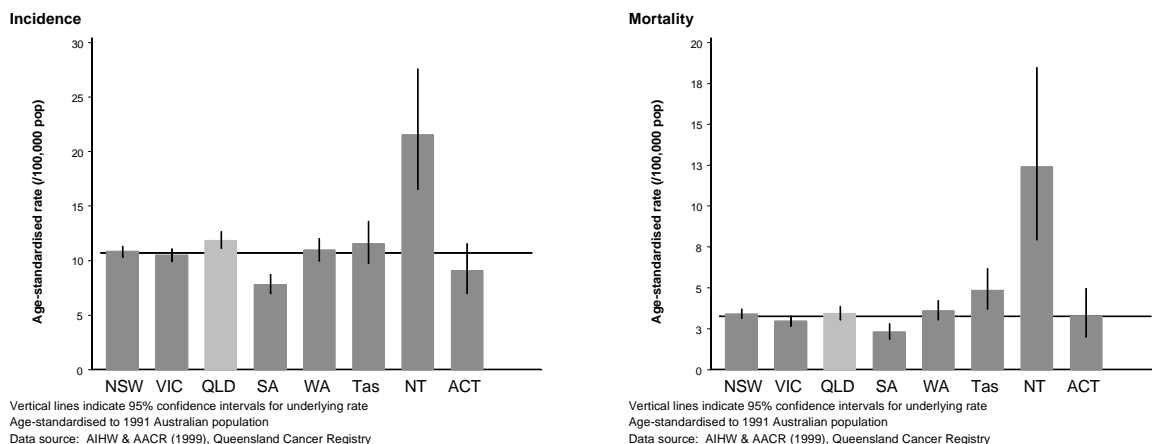
Average age-specific incidence rate for cervical cancer among females in Queensland between 1995 and 1997 (inclusive)



Interstate comparisons

For incidence, the Queensland rate was higher than the Australian average; mortality was similar to the Australian average.

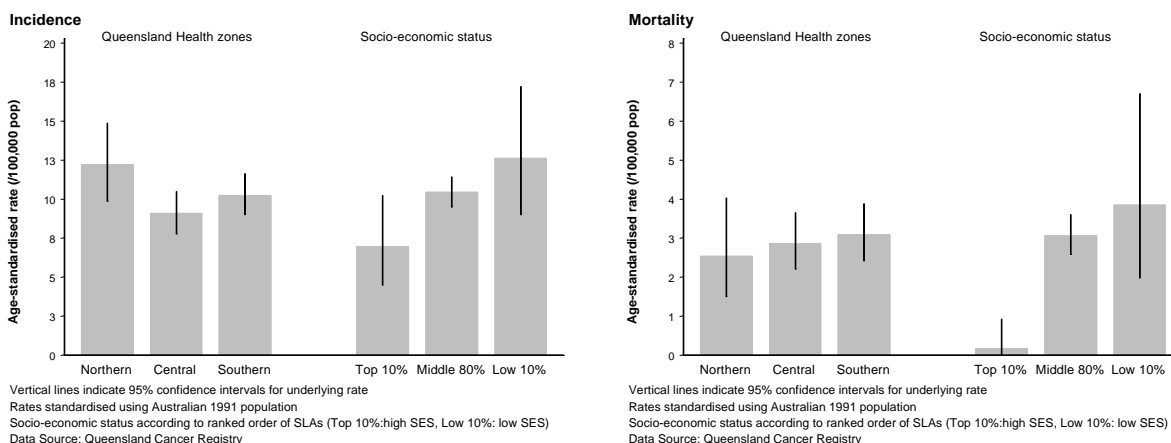
Figure 23 Interstate comparisons, cervical cancer, 1992-1996



Zonal and socio-economic variation

There is a strong socio-economic differential associated with cervical cancer in Queensland, with incidence and mortality rates higher among people living in areas with low socio-economic status. The Northern Zone had relatively high incidence rates for cervical cancer, while mortality rates were similar across the three Zones.

Figure 24 Cervical cancer, incidence and mortality by Queensland Health Zones and socio-economic status, Queensland, 1995 and 1997



Prevention & control

Experts agree that population-based screening with Pap smears is an effective way of reducing the incidence of and mortality from cervical cancer [Hakama, 1996]. It can detect early changes in the cells of the cervix before they have a chance to develop into cancer. Treatment of these precancerous lesions is simple and effective. Early diagnosis of cervical cancer is important because it improves the chances of survival. For women with localised disease, the five-year relative survival is 85%, whereas for distant disease (metastases) the five-year relative survival is only 7% [Supramaniam et al, 1999].

Although randomised controlled trials have not been feasible, a convincing body of evidence points to the effectiveness of organised screening programs. Reductions in incidence and mortality are proportional to the intensity of screening efforts. For example, Scandinavian countries, with higher rates of screening, reported greater reductions in mortality than countries with lower rates of screening [Laara et al, 1987]. Further, mortality in the Canadian provinces was reduced most remarkably in British Columbia, which had screening rates that were twice those in the other provinces [Benedet et al, 1992].

Case-control studies have found that the risk of developing cervical cancer is 3-10 times greater in women who have not been screened [National Cancer Institute, 1999]. Case-control studies have also found that the risk of developing cervical cancer increases when screening is undertaken infrequently or not at all [National Cancer Institute, 1999]. The evidence suggests that biennial screening (every 2 years) is just as effective as annual screening [Commonwealth Dept of Health and Family Services, 1998].

Australia adopted an organised, population-based screening program for cervical cancer in 1991 [Commonwealth Department of Human Services and Health, 1995]. A biennial screening policy was adopted, recommending that *'Routine screening with Pap smears should be carried out every two years for women who have no symptoms or history suggestive of cervical pathology. All women who have ever been sexually active should commence having Pap smears between the ages of 18 to 20 years, or one to two years after first sexual intercourse, whichever is later. Pap smears may cease at the age of 70 years for women who have had two normal Pap smears within the last five years. Women over 70 years who have never had a Pap smear, or who request a Pap smear, should be screened'* [Commonwealth Department of Health and Family Services, 1998].

Human papilloma virus (HPV) has been shown to be present in nearly all cases of cervical cancer [Holly, 1996], and many epidemiologic studies have found that HPV is a strong risk factor for cervical cancer [Koutsky, 1997]. However, the vast majority of women with HPV do not develop cervical cancer or its precursor lesions. Epidemiologic studies are now concentrating on cofactors such as smoking that need to be present in addition to HPV to cause cervical cancer [Commonwealth Department of Health and Family Services, 1998].

MELANOMA

Incidence

For males, melanoma was the second most common cancer diagnosed in Queensland during 1997 (after prostate).

There were 1223 new cases of melanoma diagnosed in males in Queensland during 1997. This represented 15% of all new cancers in males.

For females, melanoma was the third most common cancer in Queensland during 1997 (after breast cancer and colorectal cancer).

There were 889 new cases of melanoma diagnosed in females in Queensland during 1997. This represented 13% of all new cancers in females.

For males, the age-standardised incidence rate in 1997 was 73.3 cases per 100,000 population; for females the age-standardised rate was 50.3.

Based on the age-specific rates for 1997, about 6% of males (1 in 16) and about 4% of females (1 in 24) will be diagnosed with melanoma by the age of 75.

The median age at diagnosis for males was 58 years; for females the median age at diagnosis was 51 years (based on data for 1993 to 1997).

Mortality

For males, melanoma was the tenth most common cause of cancer death in Queensland during 1997.

There were 118 deaths due to melanoma in Queensland during 1997. This represented 3% of all cancer deaths among males.

For females, melanoma was the twelfth most common cause of cancer death in Queensland during 1997.

There were 59 deaths due to melanoma in Queensland during 1997. This represented 2% of all female cancer deaths.

For males, the age-standardised mortality rate in 1997 was 7.3 deaths per 100,000 population; for females the age standardised rate was 3.2.

Based on 1997 age-specific mortality rates, the lifetime risk of males dying prematurely (before age 75) from melanoma in Queensland was approximately 1 in 170, and 1 in 375 for females.

There were 1693 potential years life lost (to age 74) due to melanoma among males in Queensland in 1997, with an average of 14.3 potential years life lost per death. Corresponding figures for females were 1013 and 17.2.

The median age at death was 66 years for males and 64 years for females (based on data for 1993 to 1997).

Melanoma in Queensland (1997)	Male	Female
Incidence		
Number diagnosed (1997)	1223	889
Incidence rate per 100,000 (Australia 1991)	73.3 (69.2, 77.5)	50.3 (47.0, 53.7)
Incidence rate per 100,000 (World 1960)	57.7 (54.5, 61.0)	42.4 (39.7, 45.3)
Annual percentage change (1982-1997)	2.9 % per year	1.1 % per year
Lifetime risk (0-74 years)	1 in 16	1 in 24

Mortality

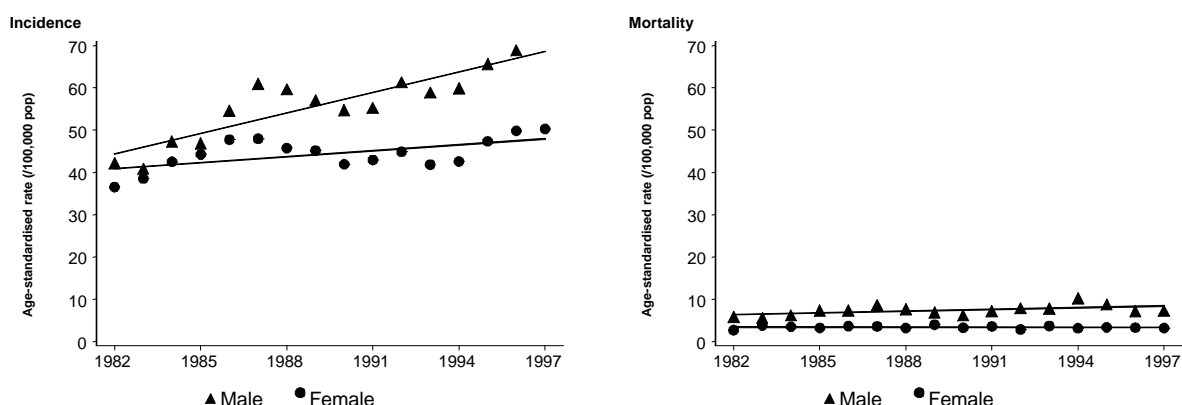
Number of deaths (1997)	118	59
Mortality rate per 100,000 (Australia 1991)	7.3 (6.0, 8.7)	3.2 (2.4, 4.1)
Mortality rate per 100,000 (World 1960)	5.5 (4.5, 6.5)	2.5 (1.9, 3.3)
Annual percentage change (1982-1997)	1.3 % per year	-0.6 % per year
Lifetime risk (0-74 years)	1 in 172	1 in 374
Potential years of life lost (0-74 years)	1693 years	1013 years

Trends

The incidence of melanoma increased by 3% per year for males and by 1% per year for females between 1982 and 1997.

There was only a marginal increase in male mortality from melanoma and no evidence of a change for females.

Figure 25 Trends in melanoma incidence and mortality between 1982 and 1997.



Variation with age

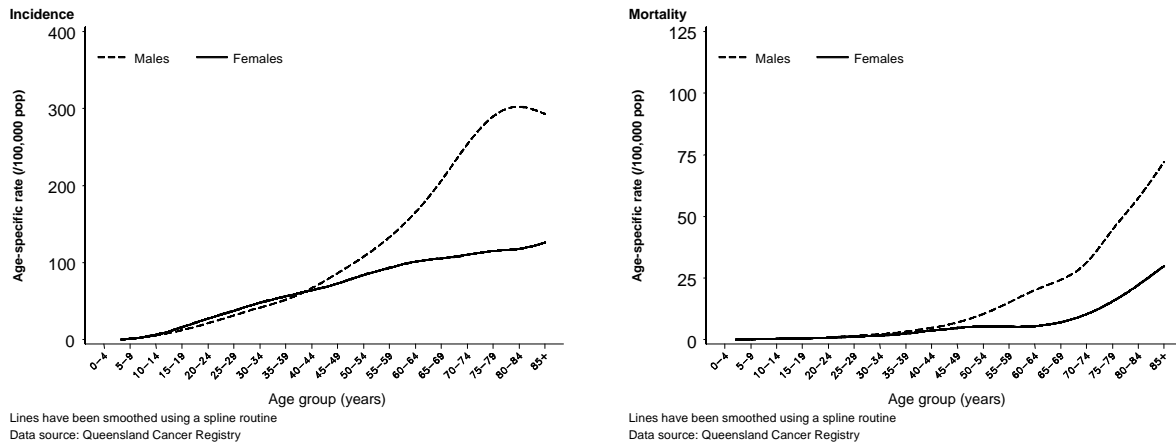
Melanoma is one of the few cancers to affect young adults. Almost a third (31%) of all melanomas occur in people younger than 44 years. In those aged 15 to 44 years it is the commonest cancer diagnosed.

Incidence and mortality rates generally increased with age, with the increase more pronounced among males than females, especially after age 45 years. For people younger than 45 years, rates are similar for males and females, or perhaps slightly higher in females.

Among males, 16% of new cases and 29% of deaths occurred in those aged 75 years or older, while among females 13% of new cases and 33% of deaths occurred in those aged 75 years or older.

Figure 26

Age-specific incidence and mortality rates, melanoma, Queensland, 1995-1997

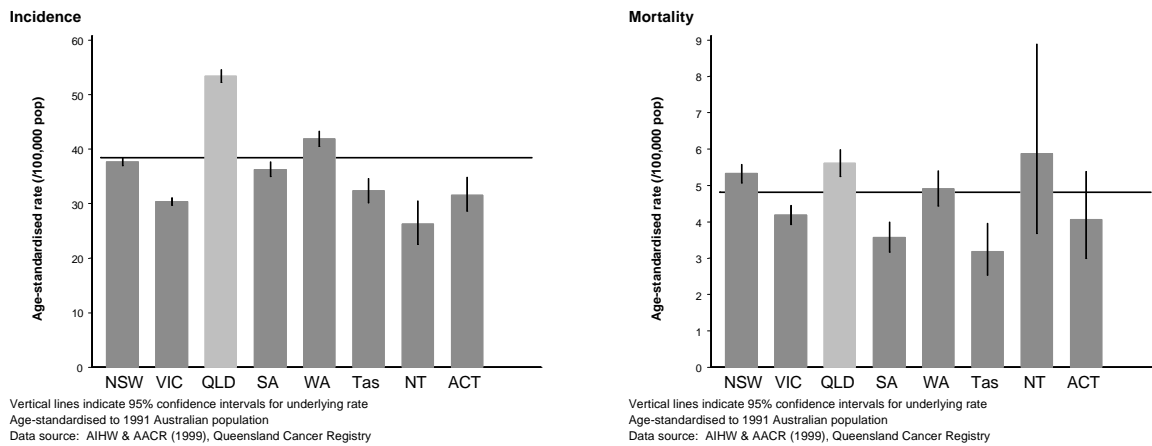


Interstate comparisons

Queensland had the highest incidence rate for melanoma of all Australian states and territories. Mortality was also high, but the excess was not as large as that for incidence.

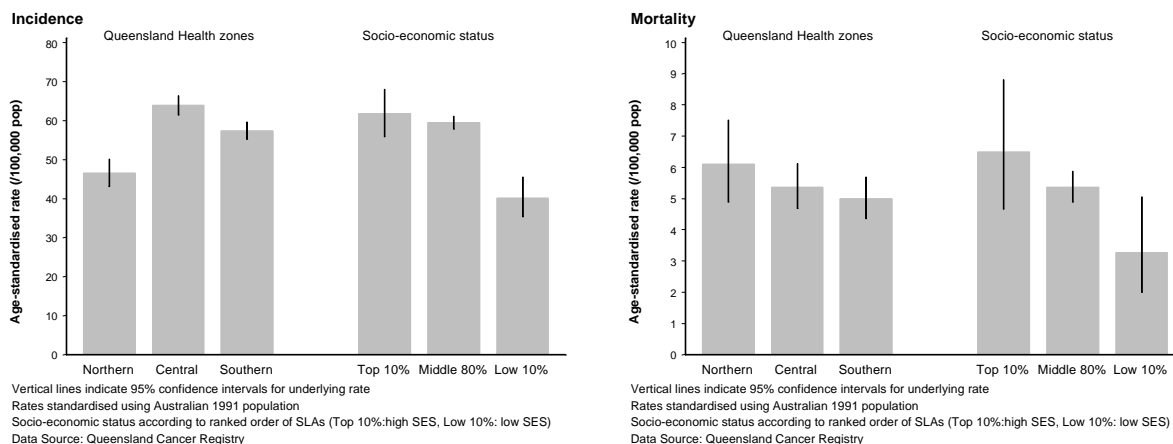
Figure 27

Interstate comparisons, melanoma, 1992-1996



Zonal and socio-economic variation

The incidence of melanoma was higher in the Central and Southern Zones than in the Northern Zone. There was a socio-economic gradient with affluent people having higher rates. This has been observed in other states and might be related to non-habitual, recreational exposure to sunlight.

Figure 28**Melanoma, incidence and mortality by Queensland Health Zones and socio-economic status, Queensland, 1995-1997****Prevention & control**

Queensland has the highest rates of melanoma in the world. Sunlight is the main causal factor. The incidence of melanoma is higher in people with fair, sun-sensitive skin, those with pigmented naevi or moles on their skin, and those whose pattern of sun exposure has been non-habitual, as indicated by high recreational exposure, or frequent sunburns. Over exposure to sunlight as a child is an important risk factor for developing melanoma later in life.

The primary focus of prevention programs in Australia has been to reduce overall sun exposure and prevent sunburn, especially in children. Preventive measures include avoidance of exposure to direct sunlight (particularly in the middle of the day), use of sun-protective clothing, development of community facilities to increase shaded areas and use of effective sun screening agents.

SMOKING RELATED CANCERS

Smoking is the most important, preventable cause of cancer. The risk of developing cancer is reduced by stopping smoking and the risk decreases substantially after five years. The results in this section are based on estimates of the proportion of various cancers that are due to smoking. For example, smoking causes 85% of lung cancers; more than 50% of cancers of the oropharynx, oesophagus and larynx; between 25% and 49% of cancers of the pancreas, bladder and kidney; and a smaller proportion of cancers of the cervix and stomach. Appendix C gives more details.

Incidence

For males, there were 1455 new cases of smoking-related cancers diagnosed in Queensland during 1997. This represents 17.6% of all new cancers in males.

For females, there were 472 new cases of smoking-related cancers diagnosed in Queensland during 1997. This represented 7.1% of all new cancers in females.

For males, the age-standardised incidence rate in 1997 was 90.9 cases per 100,000 population; for females the age-standardised rate was 26.4.

Based on the age-specific rates for 1997, about 8% of males (1 in 13) and about 2% (1 in 41) of females will be diagnosed with a smoking-related cancer by the age of 75.

Mortality

For males, there were 938 deaths due to smoking-related cancers in Queensland during 1997. This represents 27.1% of all cancer deaths in males.

For females, there were 321 new cases of smoking-related cancers diagnosed in Queensland during 1997. This represented 12.8% of all cancer deaths in females.

For males, the age-standardised mortality rate in 1997 was 59.6 deaths per 100,000 population; for females the age-standardised rate was 17.7.

Based on the age-specific rates for 1997, about 1 in 20 males and about 1 in 60 females will die prematurely from a smoking-related cancer.

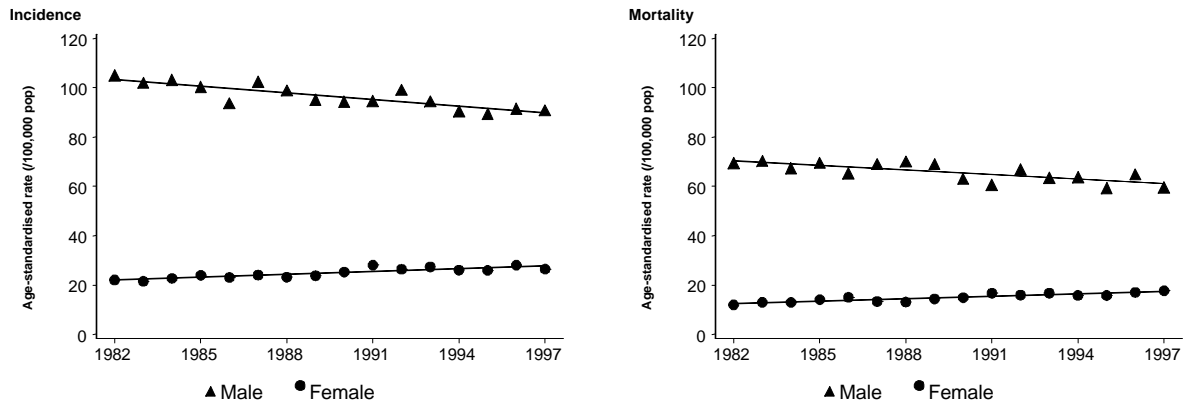
Smoking-related cancers in Queensland (1997) Male		Female
Incidence		
Number diagnosed (1997)	1455	472
Incidence rate per 100,000 (Australia 1991)	90.9 (86.3, 95.7)	26.4 (24.1, 28.9)
Incidence rate per 100,000 (World 1960)	65.6 (62.3, 69.1)	20.1 (18.3, 22.0)
Annual percentage change (1982-1997)	-1.0 % per year	1.6 % per year
Lifetime risk (0-74 years)	1 in 13	1 in 41
Mortality		
Number of deaths (1997)	938	321
Mortality rate per 100,000 (Australia 1991)	59.6 (55.9, 63.6)	17.7 (15.8, 19.7)
Mortality rate per 100,000 (World 1960)	41.7 (39.1, 44.5)	13.0 (11.6, 14.5)
Annual percentage change (1982-1997)	-1.1 % per year	2.2 % per year
Lifetime risk (0-74 years)	1 in 20	1 in 60
Potential years of life lost (0-74 years)	7083 years	2721 years

Trends

Incidence and mortality rates for men are decreasing, while rates for women are increasing. This pattern reflects patterns in the prevalence of smoking with fewer men and more women smoking.

Figure 29

Trends in smoking-related cancers, Queensland, 1982 to 1997.



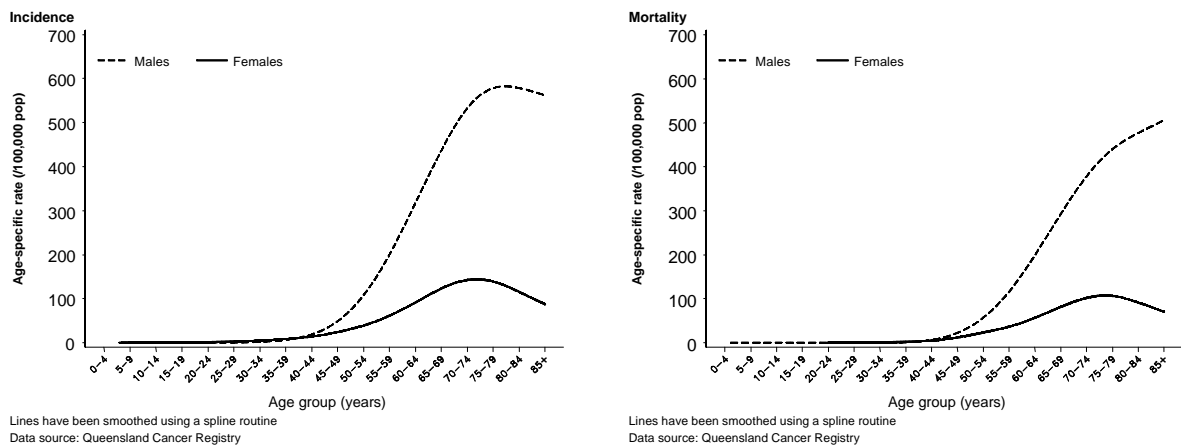
Variation with age

Incidence and mortality rates increased with increasing age, especially in men older than 45 years.

For both males and females, 75% of new cases and 70% of deaths occurred in those younger than 75 years.

Figure 30

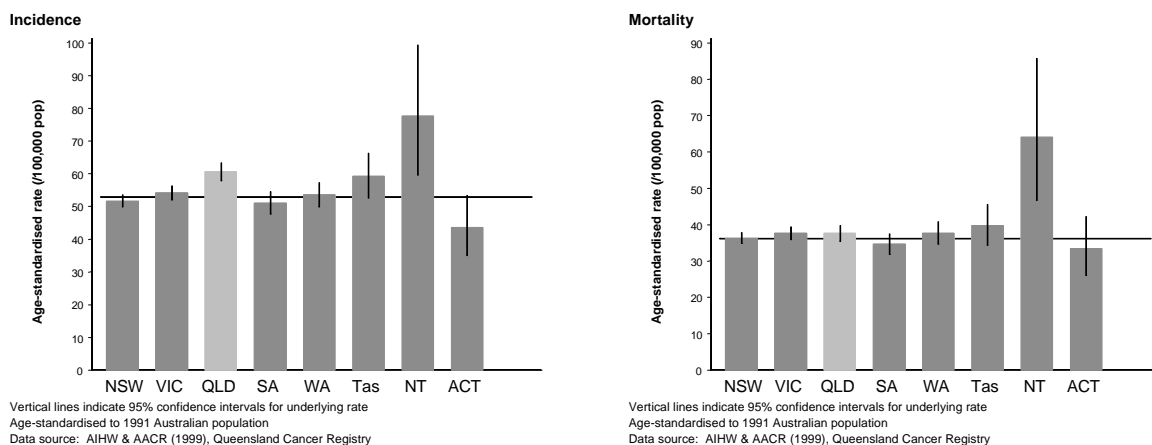
Age-specific incidence and mortality rates, smoking related cancers, Queensland, 1995 to 1997



Interstate comparisons

In Queensland, the incidence of smoking-related cancers was higher than the national average. Mortality was marginally higher than the national average, but the difference was not statistically significant.

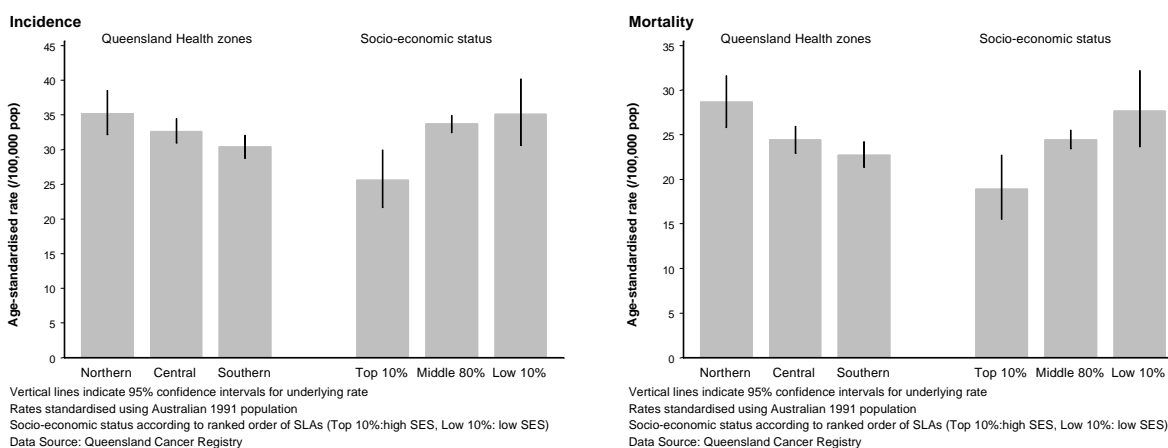
Figure 31 Interstate comparisons, smoking-related cancers, 1992 to 1996



Zonal and socio-economic variation

Incidence and mortality rates were highest in the Northern Zone and among the most economically disadvantaged group. This is consistent with variations in the prevalence of smoking.

Figure 32 Smoking related cancers, incidence and mortality by Queensland Health Zones and socio-economic status, 1995-1997



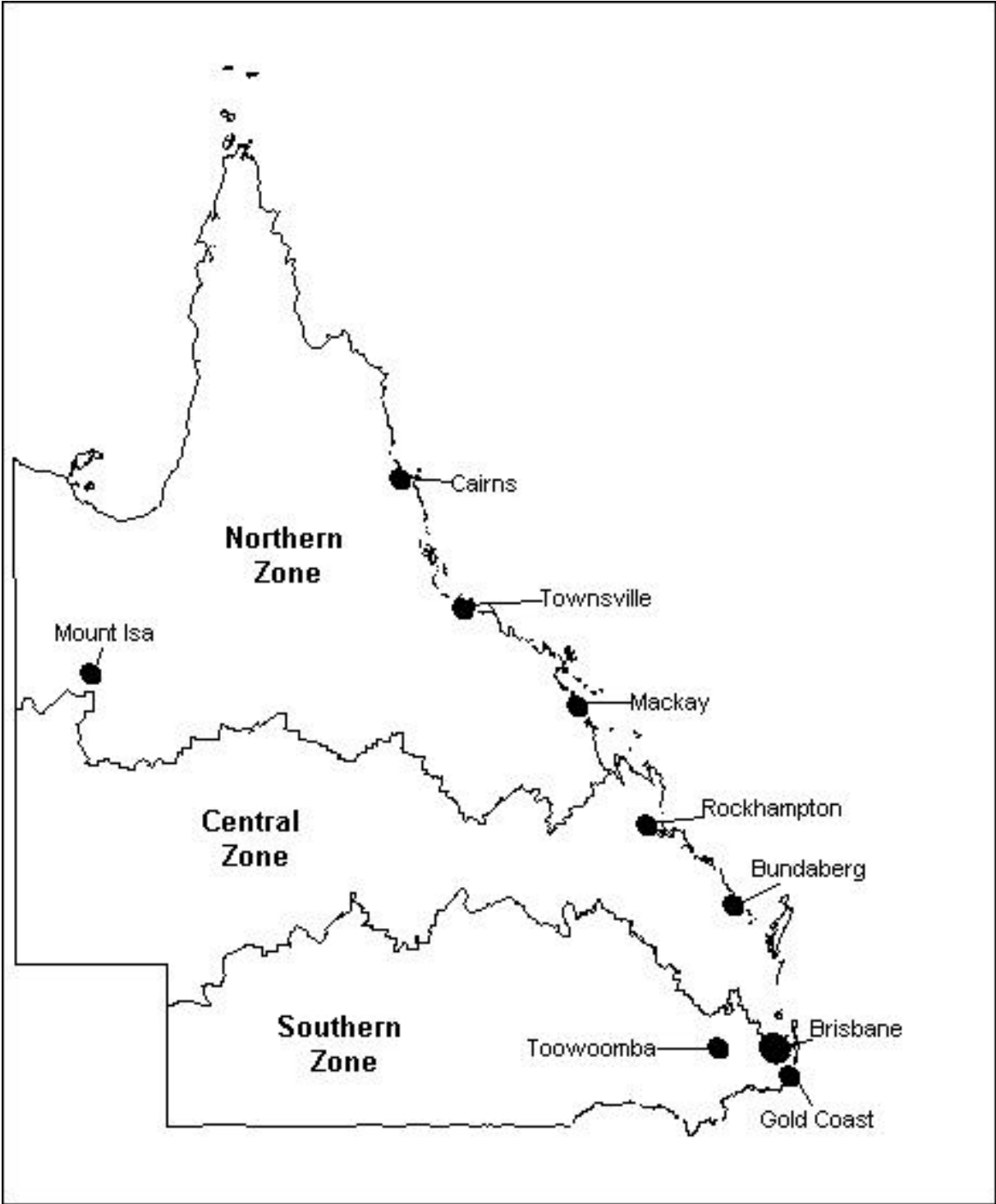
Prevention & control

This is discussed in the section on lung cancer.

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APPENDIX A
Geographical Boundaries of the Queensland Health Zones



APPENDIX B

List of Statistical local areas (SLA) that comprise affluent and disadvantaged areas

Affluent SLAs	Disadvantaged SLAs
Albany Creek	Acacia Ridge
Anstead	Aurukun
Ashgrove	Beenleigh
Bardon	Biggenden
Bellbowrie	Bilinga
Belmont-Mackenzie	Boulia
Bridgeman Downs	Bowen
Brookfield	Burke
Burbank	Carpentaria
Carindale	Cook (excluding Weipa)
Carseldine	Coolangatta
Chapel Hill	Croydon
Ferry Grove	Darra-Sumner
Fig Tree Pocket	Deception Bay
Graceville	Eagleby
Hamilton	Eidsvold
Indooroopilly	Garbutt
Ipswich - North	Herberton
Jamboree Heights	Inala
Jindalee	Kingston
Kenmore	Kolan
Kenmore Hills	Labrador
McDowall	Loganlea
Middle Park	Margate-Woody Point
Moggill	Miriam Vale
Mount Ommaney	Morningson
Murray	Mount Morgan
Paddington	Murgon
Pallarenda-Shelley Beach	Nanango
Pinjarra Hills	Paroo
Pullenvale	Perry
Riverhills	Pinkenba-Eagle Farm
Seventeen Mile Rocks	Richlands
Sherwood	Tara
St Lucia	Tiaro
Taringa	Torres
The Gap	Vincent
Toowong	Wacol
Upper Brookfield	Waterford West
Upper Kedron	Wondai
Westlake	Woodridge
	Zillmere

APPENDIX C

Estimates of the proportion of cancers attributable to smoking

CANCER	Age group (years)																	
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85+
Males																		
Oropharyngeal cancer	0	0	0	0.51	0.60	0.61	0.60	0.60	0.57	0.59	0.57	0.58	0.57	0.54	0.50	0.46	0.44	0.44
Oesophageal cancer	0	0	0	0.47	0.56	0.57	0.56	0.57	0.54	0.56	0.54	0.55	0.54	0.52	0.48	0.44	0.42	0.42
Stomach cancer	0	0	0	0.11	0.15	0.15	0.15	0.15	0.14	0.15	0.14	0.14	0.14	0.13	0.11	0.10	0.09	0.09
Anal cancer	0	0	0	0.40	0.48	0.50	0.50	0.50	0.48	0.50	0.49	0.50	0.49	0.48	0.45	0.42	0.40	0.40
Pancreatic cancer	0	0	0	0.20	0.26	0.27	0.26	0.26	0.24	0.25	0.24	0.24	0.23	0.21	0.18	0.16	0.15	0.15
Laryngeal cancer	0	0	0	0.66	0.73	0.74	0.74	0.74	0.72	0.73	0.72	0.73	0.72	0.71	0.67	0.64	0.63	0.63
Lung cancer	0	0	0	0.79	0.84	0.85	0.85	0.85	0.84	0.85	0.85	0.86	0.85	0.85	0.84	0.82	0.81	0.81
Endometrial cancer	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cervical cancer	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vulvar cancer	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Penile cancer	0	0	0	0.21	0.27	0.29	0.30	0.31	0.30	0.31	0.31	0.33	0.33	0.33	0.31	0.30	0.29	0.29
Bladder cancer	0	0	0	0.35	0.43	0.44	0.44	0.45	0.42	0.44	0.43	0.44	0.43	0.42	0.39	0.36	0.35	0.35
Renal paren. cancer	0	0	0	0.18	0.24	0.26	0.27	0.28	0.28	0.29	0.29	0.31	0.31	0.32	0.30	0.29	0.28	0.28
Renal pelvic cancer	0	0	0	0.47	0.56	0.57	0.57	0.57	0.55	0.56	0.55	0.56	0.55	0.54	0.50	0.47	0.45	0.45
Females																		
Oropharyngeal cancer	0	0	0	0.56	0.58	0.57	0.55	0.52	0.49	0.51	0.48	0.47	0.44	0.4	0.39	0.33	0.17	0.17
Oesophageal cancer	0	0	0	0.52	0.55	0.53	0.51	0.48	0.46	0.47	0.44	0.43	0.41	0.37	0.36	0.31	0.17	0.17
Stomach cancer	0	0	0	0.13	0.14	0.13	0.13	0.11	0.1	0.11	0.1	0.09	0.09	0.08	0.07	0.06	0.03	0.03
Anal cancer	0	0	0	0.45	0.48	0.47	0.45	0.42	0.4	0.41	0.38	0.37	0.35	0.33	0.32	0.27	0.15	0.15
Pancreatic cancer	0	0	0	0.23	0.25	0.24	0.22	0.2	0.19	0.19	0.18	0.17	0.15	0.13	0.13	0.1	0.04	0.04
Laryngeal cancer	0	0	0	0.7	0.72	0.71	0.7	0.67	0.65	0.66	0.64	0.63	0.6	0.57	0.56	0.5	0.31	0.31
Lung cancer	0	0	0	0.79	0.81	0.81	0.8	0.78	0.76	0.77	0.75	0.74	0.72	0.7	0.69	0.64	0.47	0.47
Endometrial cancer	0	0	0	0	0	0	0	0	0	0	-0.13	-0.13	-0.11	-0.09	-0.09	-0.07	-0.03	-0.03
Cervical cancer	0	0	0	0.22	0.24	0.23	0.22	0.2	0.19	0.2	0.18	0.17	0.16	0.15	0.14	0.12	0.06	0.06
Vulvar cancer	0	0	0	0.46	0.48	0.46	0.44	0.41	0.39	0.4	0.37	0.36	0.33	0.3	0.29	0.23	0.11	0.11
Penile cancer	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bladder cancer	0	0	0	0.39	0.42	0.41	0.39	0.36	0.34	0.36	0.33	0.32	0.3	0.28	0.27	0.23	0.13	0.13
Renal paren. cancer	0	0	0	0.21	0.24	0.25	0.24	0.22	0.21	0.22	0.2	0.19	0.18	0.18	0.18	0.15	0.1	0.1
Renal pelvic cancer	0	0	0	0.52	0.55	0.54	0.52	0.49	0.47	0.48	0.45	0.44	0.41	0.38	0.37	0.32	0.18	0.18

Taken from

English DR, Holman CDJ, Milne E, Winter MG, Hulse GK, Codde JP, Bower CI, Corti B, de Klerk N, Knuiman MW, Kurinczuk JJ, Lewin GF, Ryan GA. The quantification of drug-caused morbidity and mortality in Australia 1995 edition. Commonwealth Department of Human Services and Health, Canberra, 1995.

APPENDIX D

Age-standardised incidence rates between 1995 and 1997 by Queensland Health Zone and socio-economic status.

Cancer	Geographical area	Age standardised rate (/100,000 population)		
		Estimate	95% CI	
Breast (female)	Top 10%: most affluent SLAs	49.2	44.1	54.8
	Middle 80% SLAs	49.1	47.6	50.5
	Bottom 10%: most disadvantaged SLAs	41.1	36.2	46.4
	Northern Zone	38.5	35.5	41.8
	Central Zone	51.3	49.1	53.5
	Southern Zone	49.2	47.2	51.3
Cervix	Top 10%: most affluent SLAs	3.6	2.3	5.3
	Middle 80% SLAs	5.3	4.8	5.8
	Bottom 10%: most disadvantaged SLAs	6.4	4.6	8.7
	Northern Zone	6.0	4.8	7.3
	Central Zone	4.6	4.0	5.3
	Southern Zone	5.3	4.6	6.0
Colorectal	Top 10%: most affluent SLAs	59.6	53.6	66.1
	Middle 80% SLAs	60.1	58.5	61.7
	Bottom 10%: most disadvantaged SLAs	50.0	44.5	55.9
	Northern Zone	61.3	57.2	65.5
	Central Zone	57.7	55.4	60.0
	Southern Zone	59.8	57.6	62.1
Lung	Top 10%: most affluent SLAs	30.8	26.5	35.6
	Middle 80% SLAs	41.5	40.1	42.8
	Bottom 10%: most disadvantaged SLAs	50.5	45.0	56.5
	Northern Zone	43.1	39.7	46.8
	Central Zone	41.1	39.2	43.1
	Southern Zone	40.6	38.8	42.5
Melanoma	Top 10%: most affluent SLAs	61.7	55.9	68.0
	Middle 80% SLAs	59.5	57.9	61.1
	Bottom 10%: most disadvantaged SLAs	40.1	35.3	45.5
	Northern Zone	46.5	43.1	50.0
	Central Zone	63.9	61.4	66.4
	Southern Zone	57.3	55.2	59.6
Prostate	Top 10%: most affluent SLAs	48.0	42.6	54.0
	Middle 80% SLAs	49.5	48.1	51.0
	Bottom 10%: most disadvantaged SLAs	43.3	38.2	49.0
	Northern Zone	46.4	42.8	50.3
	Central Zone	50.3	48.2	52.5
	Southern Zone	47.6	45.6	49.7
Smoking-related cancers	Top 10%: most affluent SLAs	25.6	21.7	30.0
	Middle 80% SLAs	33.7	32.5	34.9
	Bottom 10%: most disadvantaged SLAs	35.2	30.6	40.2
	Northern Zone	35.2	32.2	38.5
	Central Zone	32.6	30.9	34.4
	Southern Zone	30.4	28.8	32.0

APPENDIX E

Age-standardised mortality rates between 1995 and 1997 by Queensland Health Zone and socio-economic status.

Cancer	Geographical area	Age standardised rate (/100,000 population)		
		Estimate	95% CI	
Breast (female)	Top 10%: most affluent SLAs	12.5	10.0	15.4
	Middle 80% SLAs	12.7	11.9	13.4
	Bottom 10%: most disadvantaged SLAs	10.3	7.9	13.2
	Northern Zone	10.9	9.2	12.7
	Central Zone	12.4	11.4	13.5
	Southern Zone	13.1	12.1	14.2
Cervix	Top 10%: most affluent SLAs	0.1	0.0	0.7
	Middle 80% SLAs	1.6	1.4	1.9
	Bottom 10%: most disadvantaged SLAs	1.9	1.0	3.4
	Northern Zone	1.3	0.8	2.0
	Central Zone	1.5	1.2	1.9
	Southern Zone	1.6	1.3	2.0
Colorectal	Top 10%: most affluent SLAs	24.9	21.1	29.2
	Middle 80% SLAs	24.2	23.2	25.2
	Bottom 10%: most disadvantaged SLAs	20.3	16.8	24.2
	Northern Zone	26.2	23.5	29.1
	Central Zone	22.8	21.4	24.3
	Southern Zone	24.5	23.1	26.0
Lung	Top 10%: most affluent SLAs	26.4	22.4	30.9
	Middle 80% SLAs	34.4	33.1	35.6
	Bottom 10%: most disadvantaged SLAs	41.7	36.7	47.2
	Northern Zone	40.7	37.4	44.3
	Central Zone	34.6	32.8	36.4
	Southern Zone	32.3	30.6	34.0
Melanoma	Top 10%: most affluent SLAs	6.5	4.7	8.8
	Middle 80% SLAs	5.4	4.9	5.9
	Bottom 10%: most disadvantaged SLAs	3.3	2.0	5.0
	Northern Zone	6.1	4.9	7.5
	Central Zone	5.4	4.7	6.1
	Southern Zone	5.0	4.4	5.7
Prostate	Top 10%: most affluent SLAs	13.1	10.4	16.3
	Middle 80% SLAs	13.5	12.7	14.3
	Bottom 10%: most disadvantaged SLAs	12.8	10.1	16.1
	Northern Zone	14.9	12.9	17.2
	Central Zone	13.8	12.7	14.9
	Southern Zone	12.6	11.6	13.7
Smoking-related cancers	Top 10%: most affluent SLAs	18.9	15.5	22.7
	Middle 80% SLAs	24.5	23.4	25.5
	Bottom 10%: most disadvantaged SLAs	27.7	23.7	32.2
	Northern Zone	28.6	25.8	31.6
	Central Zone	24.4	22.9	26.0
	Southern Zone	22.8	21.4	24.2

APPENDIX F

Interstate age-standardised incidence rates between 1992 and 1996.

Cancer	State	Age standardised rate (/100,000 population)		
		Estimate	95% CI	
Breast (female)	New South Wales	49.4	48.6	50.2
	Victoria	50.8	49.9	51.7
	Queensland	48.0	47.0	49.1
	Western Australia	50.5	49.0	52.1
	South Australia	50.3	48.8	51.9
	Tasmania	48.8	46.1	51.6
	Northern Territory	29.7	25.6	34.3
	Australian Capital Territory	49.7	45.9	53.8
	Australia	49.5	49.1	50.0
Cervix	New South Wales	5.6	5.3	5.8
	Victoria	5.4	5.1	5.8
	Queensland	6.0	5.7	6.4
	Western Australia	5.6	5.1	6.1
	South Australia	4.0	3.6	4.5
	Tasmania	6.0	5.0	7.0
	Northern Territory	9.9	7.6	12.7
	Australian Capital Territory	4.6	3.6	5.9
	Australia	5.5	5.3	5.6
Colorectal	New South Wales	54.3	53.5	55.1
	Victoria	57.3	56.4	58.3
	Queensland	59.0	57.8	60.2
	Western Australia	52.7	51.1	54.3
	South Australia	56.3	54.8	58.0
	Tasmania	58.7	55.8	61.8
	Northern Territory	47.4	40.4	55.2
	Australian Capital Territory	54.7	50.4	59.4
	Australia	56.0	55.5	56.5
Lung	New South Wales	39.2	38.5	39.9
	Victoria	40.3	39.4	41.1
	Queensland	41.8	40.8	42.8
	Western Australia	42.1	40.7	43.6
	South Australia	38.7	37.4	40.1
	Tasmania	43.4	40.9	46.0
	Northern Territory	63.7	55.7	72.4
	Australian Capital Territory	32.9	29.5	36.6
	Australia	40.2	39.8	40.7

(continued over)

Source: Interstate data from AIHW & AACR, 1999 (1999), Queensland data from Queensland Cancer Registry.

Cancer	State	Age standardised rate (/100,000 population)		
		Estimate	95% CI	
Melanoma	New South Wales	37.6	37.0	38.3
	Victoria	30.4	29.7	31.1
	Queensland	53.4	52.3	54.6
	Western Australia	41.8	40.5	43.3
	South Australia	36.3	35.0	37.6
	Tasmania	32.3	30.1	34.7
	Northern Territory	26.3	22.5	30.5
	Australian Capital Territory	31.6	28.6	34.8
	Australia	38.5	38.1	38.9
Prostate	New South Wales	58.1	57.3	58.9
	Victoria	53.7	52.8	54.6
	Queensland	56.3	55.1	57.5
	Western Australia	66.9	65.0	68.7
	South Australia	60.6	59.0	62.3
	Tasmania	68.3	65.1	71.6
	Northern Territory	37.2	30.4	45.1
	Australian Capital Territory	64.2	59.3	69.4
	Australia	57.8	57.3	58.3
Smoking-related	New South Wales	51.7	50.0	53.5
	Victoria	54.1	52.0	56.2
	Queensland	60.6	57.9	63.4
	Western Australia	53.5	50.0	57.2
	South Australia	51.0	47.6	54.5
	Tasmania	59.2	52.7	66.3
	Northern Territory	77.7	59.7	99.4
	Australian Capital Territory	43.5	35.1	53.3
	Australia	52.9	51.9	53.9

Source: Interstate data from AIHW & AACR (1999), Queensland data from Queensland Cancer Registry.

APPENDIX G

Interstate age-standardised mortality rates between 1992 and 1996.

Cancer	State	Age standardised rate (/100,000 population)		
		Estimate	95% CI	
Breast (female)	New South Wales	13.5	13.1	13.9
	Victoria	15.1	14.6	15.6
	Queensland	13.3	12.7	13.8
	Western Australia	13.6	12.8	14.5
	South Australia	14.4	13.6	15.2
	Tasmania	13.2	11.9	14.7
	Northern Territory	8.4	5.9	11.6
	Australian Capital Territory	16.9	14.6	19.6
	Australia	13.9	13.7	14.2
Cervix	New South Wales	1.8	1.7	2.0
	Victoria	1.6	1.4	1.8
	Queensland	1.8	1.6	2.0
	Western Australia	1.9	1.6	2.2
	South Australia	1.3	1.0	1.5
	Tasmania	2.6	2.0	3.3
	Northern Territory	5.9	3.8	8.8
	Australian Capital Territory	1.8	1.1	2.7
	Australia	1.7	1.7	1.8
Colorectal	New South Wales	22.8	22.3	23.3
	Victoria	26.2	25.6	26.9
	Queensland	23.9	23.1	24.6
	Western Australia	23.6	22.5	24.7
	South Australia	23.4	22.3	24.4
	Tasmania	28.4	26.4	30.5
	Northern Territory	25.6	20.4	31.8
	Australian Capital Territory	27.9	24.7	31.3
	Australia	24.0	23.7	24.4
Lung	New South Wales	35.3	34.6	35.9
	Victoria	36.6	35.8	37.4
	Queensland	34.9	33.9	35.8
	Western Australia	36.6	35.3	38.0
	South Australia	33.4	32.2	34.7
	Tasmania	38.5	36.1	41.0
	Northern Territory	63.5	55.2	72.7
	Australian Capital Territory	30.4	27.1	34.0
	Australia	35.7	35.3	36.1

(continued over)

Source: Interstate data from AIWH (1999), Queensland data from Queensland Cancer Registry.

Cancer	State	Age standardised rate (/100,000 population)		
		Estimate	95% CI	
Melanoma	New South Wales	5.3	5.1	5.6
	Victoria	4.2	3.9	4.5
	Queensland	5.6	5.3	6.0
	Western Australia	4.9	4.4	5.4
	South Australia	3.6	3.2	4.0
	Tasmania	3.2	2.5	4.0
	Northern Territory	5.9	3.7	8.9
	Australian Capital Territory	4.1	3.0	5.4
	Australia	4.8	4.7	5.0
Prostate	New South Wales	12.8	12.4	13.2
	Victoria	13.4	13.0	13.9
	Queensland	14.5	13.9	15.1
	Western Australia	13.4	12.6	14.2
	South Australia	13.5	12.8	14.3
	Tasmania	15.7	14.2	17.2
	Northern Territory	12.2	8.1	17.6
	Australian Capital Territory	16.4	13.9	19.3
	Australia	13.4	13.2	13.7
Smoking-related	New South Wales	36.3	34.9	37.8
	Victoria	37.6	35.9	39.4
	Queensland	37.6	35.5	39.8
	Western Australia	37.6	34.6	40.8
	South Australia	34.6	31.9	37.5
	Tasmania	39.7	34.4	45.6
	Northern Territory	64.1	46.8	85.8
	Australian Capital Territory	33.4	26.0	42.3
	Australia	36.2	35.4	37.1

Source: Interstate data from AIHW & AACR (1999), Queensland data from Queensland Cancer Registry.