CANCER IN QUEENSLAND
Trends in incidence and mortality for selected cancer sites 1982 to 1996

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Acknowledgment is made of the work of the members of staff of the Queensland Cancer Registry. The Registry staff have now completed a major quality review of the data from 1982 and therefore the information presented in this publication is substantially different to that released in previous years.

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EXECUTIVE SUMMARY

- ➤ Data from the Queensland Cancer Registry have been used to monitor trends in cancer incidence and mortality in Queensland between 1982 and 1996.

- ➤ In Queensland during 1996, cancer was the second most common cause of potential years life lost (before age 75) behind injury, the second most common cause of death behind cardiovascular disease, and the eighth most common reason for hospitalisation.

- ➤ Approximately 29% of all male deaths and 25% of all female deaths were due to cancer during 1996 in Queensland. The comparable percentages in 1982 were 21% and 20% for males and females respectively. This reflects a reduction in deaths due to other causes (notably cardiovascular disease) rather than an increase in cancer mortality rates.

- ➤ The rate of new cancer registrations (age-standardised) increased by between 1-2% per year for both males and females in Queensland between 1982 and 1996.

- ➤ Age-standardised rates of mortality remained stable for males and females in Queensland between 1982 and 1996. However, a single figure that combines the trend for all age groups can hide important differences. Specifically, for all cancers combined, age-standardised mortality rates increased among people aged 65 years and over, whereas the age-standardised rates decreased among younger people.

- ➤ The number of potential years life lost (0-74 years) due to cancer rose from 34,925 in 1982 to 48,562 in 1996. However, the average of potential years life lost for each cancer death decreased over the same period from 10.0 in 1982 to 8.2 in 1996. The average has decreased because of the increase in the size of the Queensland population and the older age at death of people with cancer.

- ➤ Site-specific cancer trends were examined for stomach, colorectal, pancreas, lung, melanoma of the skin, female breast, cervix, body of uterus, ovarian, prostate, bladder, renal, non-Hodgkin's lymphoma and leukaemia. Combined, these sites represented 82% of all new cancer registrations and 80% of all cancer deaths during 1996 in Queensland. Poisson regression models were used to investigate the age-adjusted linear trends for each of these sites.

    - ■ Between 1982 and 1996, significant increases in cancer incidence rates among males were observed for prostate cancer (5.0% per year), melanoma of the skin (2.7% per year), renal cancer (2.3% per year), non-Hodgkin's lymphoma (2.2% per year) and colorectal cancer (1.4% per year).

    - ■ Significant decreases in cancer incidence rates among males between 1982 and 1996 were observed for stomach cancer (-2.2% per year) and lung cancer (-1.8% per year).

    - ■ Between 1982 and 1996, significant increases in cancer mortality rates among males were observed for prostate cancer (2.9% per year) and melanoma of the skin (1.8% per year).

    - ■ There were significant decreases in cancer mortality rates observed among males between 1982 and 1996 for stomach cancer (-2.7% per year) and lung cancer (-1.4% per year).

    - ■ Between 1982 and 1996, significant increases in cancer incidence rates among females were observed for lung cancer (3.0% per year), renal cancer (2.2% per year), breast cancer (1.7% per year) and non-Hodgkin's lymhoma (1.5%).

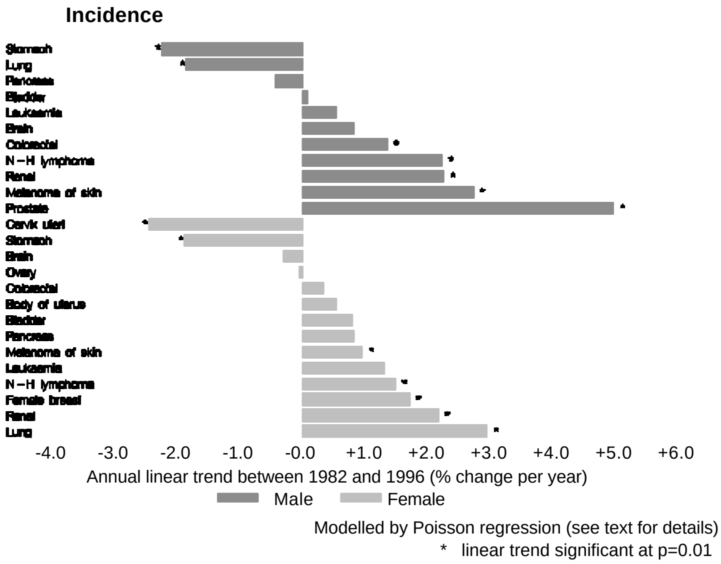
    - ■ A significant decrease in cervical cancer incidence rates (-2.4% per year) was observed between 1982 and 1996, and there was a corresponding significant decrease in mortality (-1.9% per year).

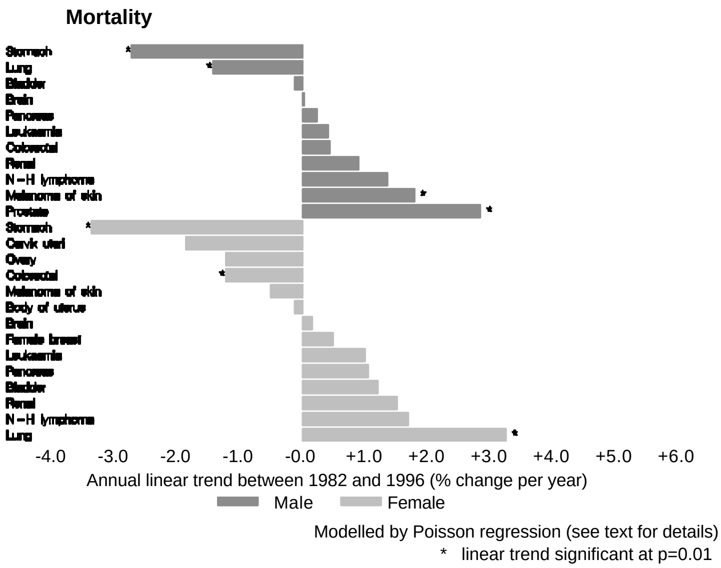
■ Between 1982 and 1996, lung cancer mortality rates among females increased significantly by 3.3% per year.

■ There was a significant decrease of 1.2% per year in colorectal cancer mortality rates among females between 1982 and 1996.

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

Figure 1: Summary of trends in cancer incidence and mortality in Queensland, 1982-1996





Note: Cancers were classified according to the ICD9 codes 140-208 (excl. non-melanocytic skin cancers). Estimates and confidence intervals for linear trends were calculated using Poisson regression.

Source: Queensland Cancer Registry, Queensland Health
Australian Bureau of Statistics population estimates

INTRODUCTION

In Queensland during 1996, cancer was the second leading cause of death (behind injury) in terms of potential years life lost before age 75, the second most common cause of mortality behind cardiovascular disease (ABS mortality data), and the eighth most common cause of hospitalisation (Queensland Hospital Admitted Patient Data Collection). In comparison with 20 OECD countries in 1994, Queensland had the 8th lowest mortality rate due to malignant neoplasms (EHIB, 1998).

In Queensland in 1996, approximately 29% of deaths in males and 25% of deaths in females were due to cancer (ABS mortality data). Corresponding percentages in 1982 were 21% in males and 20% in females. Cancer rates were particularly high among the older population. Over half of the incident cancers in Queensland during 1996 occurred among persons aged 65 years and over. Therefore, with reductions in death rates from cardiovascular disease and other competing causes of death in Queensland, life expectancy is increasing, and more people are being diagnosed with cancer. Analyses of time trends in cancer incidence and mortality are therefore important with regard to close monitoring of disease rates and evaluation of treatment outcomes.

Methods

Data from the Queensland Cancer Registry have been used, together with population estimates for Queensland, to calculate annual age-specific and sex-specific incidence and mortality rates over the 1982-1996 time period. The most common cancer sites were included in this report.

The commentary on time trends is based on rates (per 100,000 population) standardised by age to the 1991 Australian population. Apart from age-standardised rates, cumulative life-time (0-74 years) risks of cancer and cancer death, potential years life lost and 95% confidence intervals are also referred to throughout the commentary. An explanation of these statistical measures has been included in Appendix A. For comparison with other cancer registry publications which have used the World population, rates standardised by the World population have been included in Appendix B (incidence) and Appendix C (mortality)

Poisson regression analyses were undertaken for each cancer site, and all cancers combined, to test for age-adjusted linear trends across periods. The predictor variables in these multivariate analyses were year of death or diagnosis (as appropriate) and age, which was expressed in five-year age groups as indicator variables. The outcome variable was the number of cases or deaths, with the log of the age-specific populations used as the offset variable in the Poisson model. The Poisson regression model assumed that the annual trend in rates was linear, and hence departures from this linear trend have not been tested. Linear trends were expressed in terms of the percent change per year, based on the parameter estimates of the Poisson model. Confidence intervals (95%) for the percent change per year were calculated using the parameter estimates of the Poisson model and the standard error of those estimates.

Unless otherwise stated, a statistically significant linear trend in rates over time was taken to be when the probability of getting a spuriously “significant” test result was less than 0.01. This was chosen in a further attempt to reduce the multiple testing effect. However, those results that were between 0.01 and the more standard 0.05 level have been noted in the text.

Age-specific trends for males and females were investigated using 5-year time periods in an attempt to reduce the random fluctuation in rates associated with the smaller numbers. Due to the problem of multiple testing, Poisson regression models were not used to assess the significance of age-specific trends for cancer sites, however age-specific trends were presented graphically and descriptively noted in the text.

Where possible, comparisons of Queensland trends have been made with published trends for other Australian states (particularly South Australia, New South Wales and Victoria) and overseas countries. However, these other publications have not always used or reported on the statistical models to test for significance of trends, or alternately have used statistical models different to those used in this report. As such, comparisons with interstate and international trends are by necessity relatively broad and general in nature. Published trend information for some specific sites was not available for some states, and hence were not included in this report.

Structure of report

The data in this report are presented by primary cancer site, based on the International Classification of Disease, ninth revision (ICD9) codes. The selection of the specific cancer sites to include in this report was based on the level of burden that cancers of that site place on the community. Data relating to trends for other sites can be obtained from a separate publication (Queensland Health, 1998).

A brief commentary on the suggested risk factors of the specific cancer is included, which is based on results of epidemiological studies published in the literature. It is important to note that the majority of these risk factors have not been proven to be causal, and do not necessarily explain a substantial proportion of the variation observed in the cancer incidence or mortality. For this reason, it is possible for the prevalence of known risk factors to change without a corresponding change in the cancer incidence or mortality. In addition, experts still argue about the strength and consistency of many of the risk factor associations.

Additional information concerning the Queensland Cancer Registry and other statistical information are available on request. See Appendix D for details.

DESCRIPTION OF THE QUEENSLAND CANCER REGISTRY

Establishment of the Cancer Registry

The Queensland Cancer Registry was established as a population-based registry in 1982 (*Health Act Amendment Act 1982)* in response to the need for Statewide information on cancer expressed by community and state organisations such as the Queensland Institute of Medical Research and the Queensland Cancer Fund. The Registry is now governed by the *Health and Other Legislation Amendment Act 1998.*

Aims of the Registry

The main aim of the Queensland Cancer Registry is to collect data to describe the nature and extent of cancer in Queensland. This can be combined with related data to assist in the control and prevention of cancer.

To this end, Queensland Cancer Registry data is available for use in research projects on the causes, treatment and prevention of cancer, in the planning and assessment of cancer treatment and prevention services, in monitoring survival times of cancer patients, and for the education of health professionals and members of the general public.

Sources of Data

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. Data on all persons who die of cancer or cancer patients who die of other diseases are abstracted from the mortality files of the Registrar-General and linked to hospital and pathology data. A comparison of cancer deaths coded by the Australian Bureau of Statistics was also undertaken.

Classification System

The Queensland Cancer Registry codes the site of the cancers to the International Classification of Diseases, 9th Revision (ICD-9) and the histology to the International Classification of Diseases for Oncology (ICDO) 2nd edition.

Coverage of the Registry

All malignant neoplasms (ICD-9 rubrics 140-208) and carcinoma in-situ (ICD-9 rubrics 230-234) are registered. Benign brain cancers (ICD-9 rubric 225) are also registered.

As is the case for all the population-based cancer registries in Australia, non-melanocytic skin cancers are not registered by the Queensland Cancer Registry. The Australian Bureau of Statistics has reported that 66 Queensland residents died in 1996 from non-melanocytic skin cancer.

Cancer Reporting

Incidence

Cancer incidence is defined as the occurrence of new cancers in a defined population during a specified time period. For the purposes of this report, 1996 incidence, for example, is based on those cancers notified to the registry which were first diagnosed between 1st January 1996 and 31 December 1996 for residents of Queensland.

Mortality

Cancer mortality is defined as the number of deaths notified to the cancer registry for persons who died during a specified time period and who usually resided in Queensland at the time of diagnosis of cancer. Therefore mortality rates in this report may differ from those derived from ABS Causes of Death which is based on usual residence in Queensland at the time of death. In addition, staff of the Queensland Cancer Registry have more information when they code the cause of death than staff at the ABS, which may result in slight differences in coding between the two groups. However, these differences are marginal.

Multiple Primary Tumours

The Queensland Cancer Registry records multiple primary cancers in the same person and bases incidence rates on the number of new primary tumours diagnosed in a particular year, not the number of individuals who are diagnosed with cancer for the first time. Reporting is according to the rules of the International Agency for Research on Cancer and International Association of Cancer Registries. In brief, these rules state that:-

> The recognition of the existence of one or more primary tumours does not depend on time. Hence synchronous and metachronous multiple lesions are not distinguished as the definitions are frequently arbitrary.
>
> A primary cancer is one that originates in a primary site or tissue and is thus neither an extension, a recurrence, or a metastasis of a pre-existing tumour.
>
> Only one tumour shall be recognised in an organ or pair of organs or tissue (as defined by the three-digit rubric of the ICD-9 topography) unless of 'different' histology.
>
> A 'different' cancer in the same organ is counted as a new tumour. There are eight defined groups of malignant neoplasms considered to be histologically 'different' based on the first three digits of the ICDO morphology code, and incidence reporting of multiple tumours is based upon these groups. (ICDO 2nd edition. Ed Percy C, Van Holten V, and Muir C. Geneva: WHO, 1990.)

Publication of Reports

Generally, there will be a thirty month time delay from the year of diagnosis to the date of publishing data. This is due to the delay between the date of cancer diagnosis and receipt of notification to the Queensland Cancer Registry, and to the considerable time spent on matching, classifying and checking cases at the Registry.

It should be noted that despite intensive efforts to ensure the completeness of incidence and mortality data before publication, the rates for a given time period change by a small amount over time. The Registry may continue to receive notifications for cases already counted in incidence and the diagnosis date or diagnosis may be amended as a result of this later notification. Reports for previously uncounted cases diagnosed in a particular year may continue to arrive at the Registry for some years after the incidence for that year has been published. The database is therefore continually being updated and the quality of data improved across the entire period of cancer reporting.

The incidence and mortality data reported in this publication are the 1982 to 1996 statistics as they stood in July 1999. Future publications and requests for data may not exactly correspond to the figures in this report as they will reflect subsequent improvements to the data.

TRENDS IN CANCER INCIDENCE AND MORTALITY

ALL CANCER SITES

Incidence

During 1996, there were 14,662 new cancer registrations (defined by the ICD9 codes of 140 to 208, excluding 173) in Queensland. When standardised to the 1991 Australian population distribution (Aust91), the age standardised incidence rate for males was 528.9 cases/100,000 population and 366.4 cases/100,000 population for females (M:F ratio of 1.4:1). Since 1982, there has been a statistically significant annual increase (modelled by age-adjusted Poisson regression) in new cancer registrations of 1-2% per year for both males and females in Queensland (Figure 2).

The lifetime risk of persons developing some kind of malignant cancer (excluding non-melanocytic skin cancer) between the ages of 0-74 years was approximately 1 in 3 for males and 1 in 4 for females living in Queensland in 1996. This risk has not changed markedly over the previous 15 years.

In contrast to the incidence rates, the lack of change in lifetime risk was partly due to the majority of the increase in cancer incidence being observed among people aged 65 years and over (Figure 3). Cancer incidence rates for people less than 65 years of age appear to have remained constant, or have slightly decreased between 1982 and 1996 (Figure 2).

It should be noted that increases in recorded incidence can reflect either a real increase in incidence or an increase in the rate of detection or notification of cancers. Short term rises may also result from earlier diagnosis of some cancers, notably prostate and female breast cancers, following increased screening activity.

Increases in all site cancer incidence over similar time periods have also been reported in South Australia (SACR, 1998), New South Wales (Coates & Armstrong, 1997) and Victoria (ACCV, 1998).

Mortality

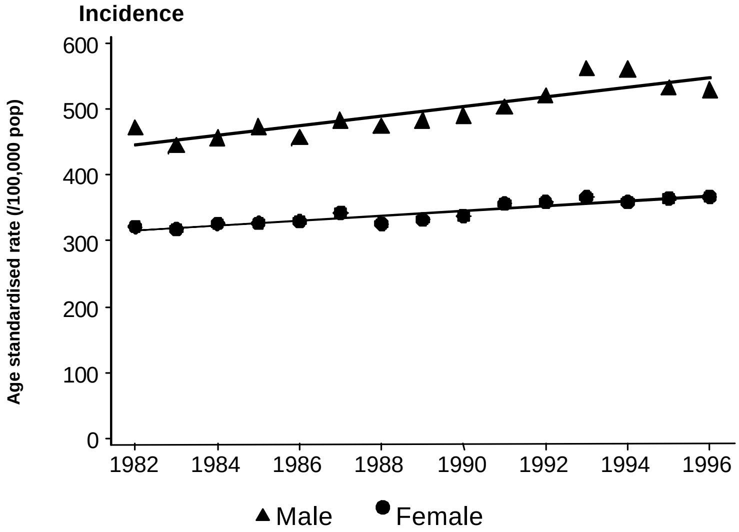
During 1996, there were 5,938 deaths due to cancer in Queensland. The age standardised mortality (Aust91) rate for males was 231.1 deaths/100,000 population and 135.0 deaths/100,000 population for females (M:F ratio of 1.7:1). Since 1982, the mortality rates have remained relatively stable (Figure 2).

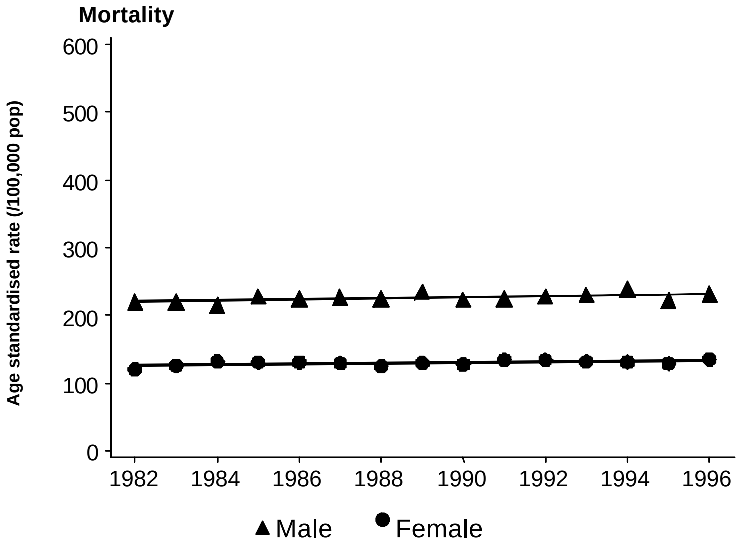
Mortality rates have remained relatively stable in Victoria (ACCV, 1998), while the mortality rates from cancer in NSW decreased slightly (Coates & Armstrong, 1997). In South Australia, mortality decreased among males, but there was a very small increase in mortality among females (SACR, 1998).

The lifetime risk of people dying from some form of malignant cancer (excluding non-melanocytic skin cancer) between the ages of 0-74 years was approximately 1 in 6 for males and 1 in 10 for females in 1996. As for cancer incidence, this lifetime risk has not changed markedly since 1982, and was partly due to the majority of the increase in cancer deaths being among people aged 65 years and over (Figure 3). Cancer mortality rates for people less than 65 years of age appear to have been relatively constant, or have slightly decreased between 1982 and 1996 (Figure 3).

In 1982, there were 34,925 potential years life lost (PYLL) due to cancer, with an average of 10.0 potential years life lost for each cancer death. Since then the number of PYLL has increased, with 48,562 PYLL during 1996, although the average PYLL for each cancer death has decreased (8.2 PYLL for each death in 1996). This reduction in the average PYLL per death is owed to the increasing size of the population and an older age at death for people with cancer.

Figure 2: Trends in cancer incidence and mortality in Queensland, 1982-1996



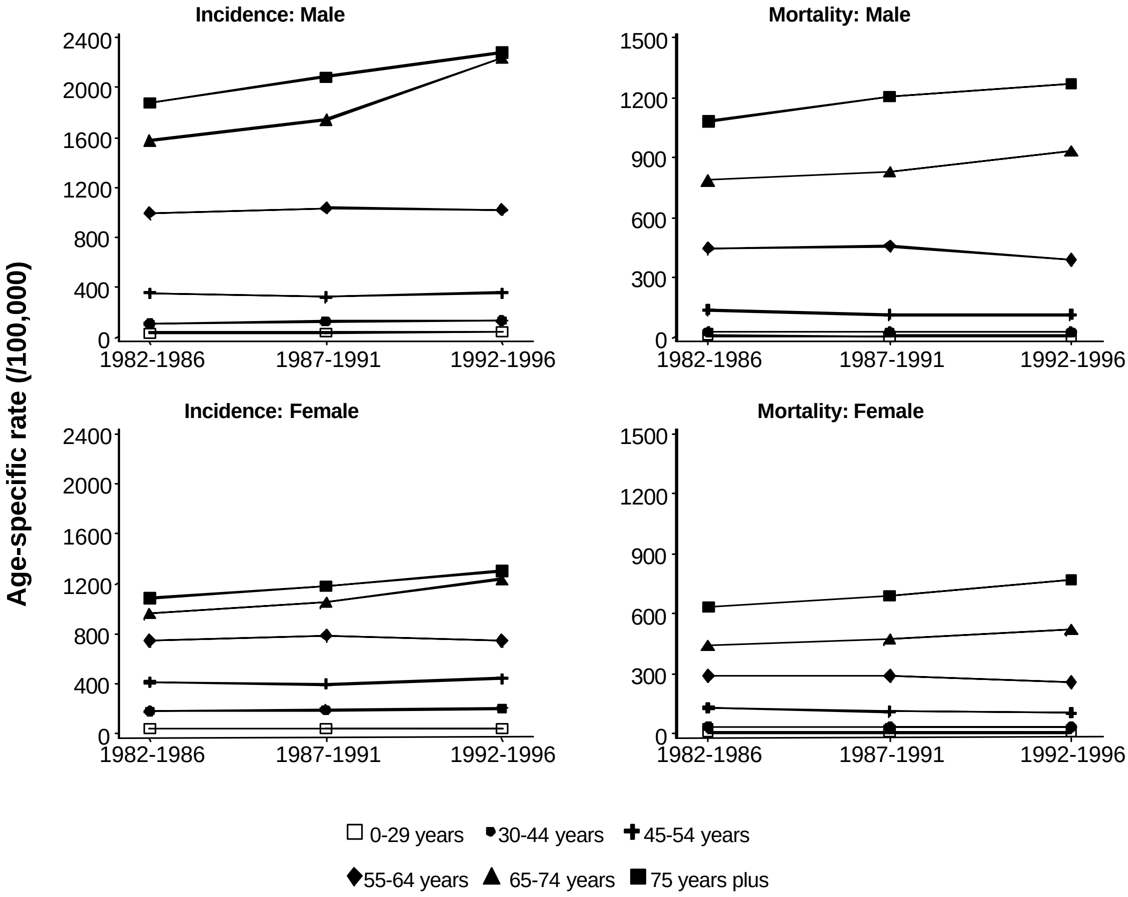


Linear trend [A] *(% change/year)*	Incidence *Estimate*	*95% CI*	Mortality *Estimate*	*95% CI*
Male	+1.5	(+1.3, +1.7)	+0.2	(-0.1, +0.5)
Female	+1.1	(+0.9, +1.3)	+0.5	(+0.2, +0.7)

Note: Cancers were classified according to ICD9 codes 140-208 (excluding non-melanocytic skin cancers).
Age-standardised rates were age-adjusted using the Australian population as at 30 June 1991.
[A]Estimates and confidence intervals for linear trends were calculated using Poisson regression.

Source: Queensland Cancer Registry, Queensland Health
Australian Bureau of Statistics population estimates

Figure 3: Age-specific trends in cancer incidence and mortality in Queensland, 1982-1996



Note: Cancers were classified according to the ICD9 codes 140-208 (excluding non-melanocytic skin cancers).

Source: Queensland Cancer Registry, Queensland Health
Australian Bureau of Statistics population estimates

STOMACH CANCER

Cancers of the stomach are defined by the ICD9 code of 151. These cancers accounted for 4% of all cancer deaths and 2% of all new cancer registrations in Queensland during 1996. For females, stomach cancers were the eighth and thirteenth most common site in terms of cancer deaths and registrations respectively. Corresponding rankings for males were fourth and ninth.

Cancers of the stomach are generally associated with low survival rates (Nomura, 1996). Mortality rates of stomach cancer have decreased in many populations in the past 40 years (Nomura, 1996). There is emerging evidence from epidemiological studies that carriers of the bacteria *Helicobacter pylori* are at higher risk of developing gastric cancer (Wong et al., 1999; You et al., 1998). The postulated mechanism is atrophic gastritis that leads to reduced acid secretion, bacterial colonisation and in vivo formation of carcinogens (Wong et al., 1999; You et al., 1998). Proposed dietary factors that increase the risk of stomach cancer include starchy, smoked, fried and salty foods.

Incidence

During 1996, there were 354 new registrations of stomach cancer in Queensland. The age-standardised (Aust91) incidence rate for males was 14.6 cases/100,000; while for females it was 7.0 cases/100,000 (M:F ratio of 2.1:1). Since 1982, there has been a statistically significant annual decrease (modelled by age-adjusted Poisson regression) in new stomach cancer registrations of approximately 2% per year for males and females in Queensland (Figure 4). Reasons for the sharp decrease in male stomach cancer incidence rates in 1988 are unclear.

During 1996, the lifetime risk of Queenslanders being diagnosed with stomach cancer between the ages of 0-74 years was 1 in 211 for females and 1 in 89 for males. Compared to 1982, these lifetime risks have reduced slightly for females (1 in 168) and males (1 in 66).

Stomach cancer incidence rates have decreased in South Australia (SACR, 1998) and New South Wales (Coates & Armstrong, 1997), while incidence rates in Victoria have decreased slightly (ACCV, 1998). Incidence from stomach cancer was relatively low among people aged under 45 years, but then increased as age increased (Figure 5).

Mortality

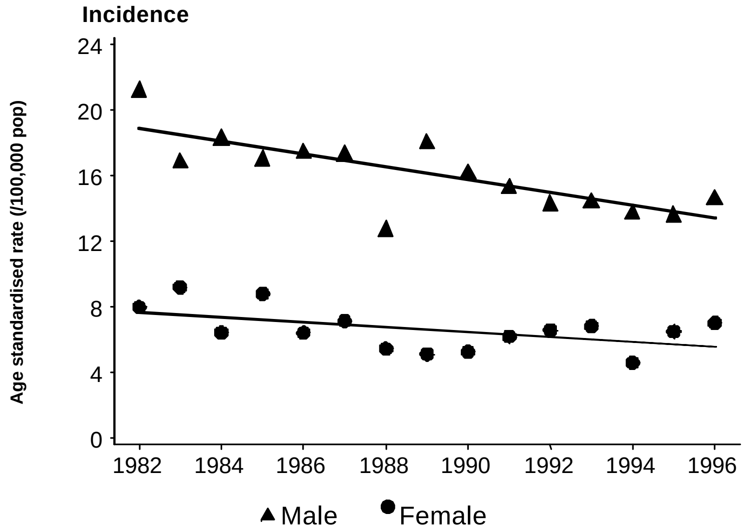
There were 232 deaths during 1996 in Queensland that were attributable to stomach cancer. The age-standardised (Aust91) mortality rate for females was 3.9 deaths/ 100,000 and 10.4 deaths/100,000 for males (M:F ratio of 2.7:1).

In 1996, the lifetime risk of Queenslanders dying from stomach cancer between the ages of 0-74 years was 1 in 389 for females and 1 in 131 for males. This risk has decreased for females (1 in 229) and (1 in 89) since 1982.

Between 1982 and 1996, based on age-adjusted Poisson regression, both the male and female mortality rates for stomach cancer have decreased (Figure 4). As for incidence, mortality from stomach cancer was relatively low among people aged under 45 years, but then increased as age increased (Figure 5).

There has been a worldwide decline in the mortality due to stomach cancer since 1930, primarily among western societies (Nomura, 1996; SACR, 1996). In the United States the mortality rate from stomach cancer has decreased to about one fifth of its rate in 1930 (Nomura, 1996). Decreases have also been observed in South Australia (SACR, 1998), New South Wales (Coates & Armstrong, 1997) and Victoria (ACCV, 1998).

Figure 4: **Trends in stomach cancer incidence and mortality in Queensland, 1982-1996**

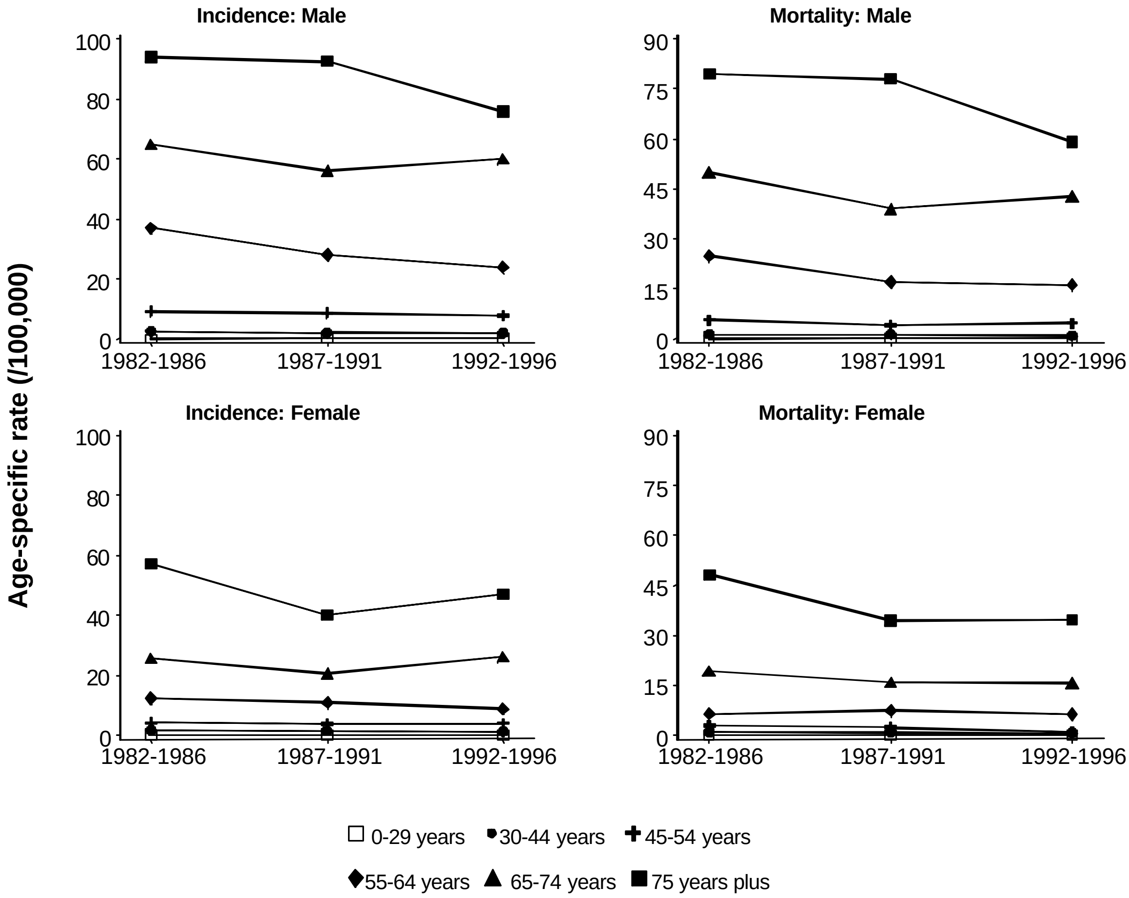


Linear trend [A]	**Incidence**		**Mortality**	
(% change/year)	*Estimate*	*95% CI*	*Estimate*	*95% CI*
Male	-2.2	(-3.1, -1.4)	-2.7	(-3.7, -1.8)
Female	-1.9	(-3.0, -0.7)	-3.4	(-4.6, -2.2)

Note: Stomach cancer was classified according to the ICD9 code 151.
Age-standardised rates were age-adjusted using the Australian population as at 30 June 1991.
[A]Estimates and confidence intervals for linear trends were calculated using Poisson regression.

Source: Queensland Cancer Registry, Queensland Health
Australian Bureau of Statistics population estimates

Figure 5: **Age-specific trends in stomach cancer incidence and mortality in Queensland, 1982-1996**



Note: Stomach cancer was classified according to the ICD9 code 151.

Source: Queensland Cancer Registry, Queensland Health
Australian Bureau of Statistics population estimates

COLORECTAL CANCER

Colorectal cancer is one of six priority areas targeted by national and state programs (AIHW, 1997). Colorectal cancers, or cancers of the large intestine, include cancers of the colon and rectum (ICD9 codes of 153 and 154). These cancers accounted for 14% of all cancer deaths (second most common for females behind breast cancer, and third for males behind lung and prostate cancer) and 14% of all new cancer registrations (second to breast cancer for females and third to melanoma and prostate cancer for males) in Queensland in 1996.

Some studies have found that diets high in fat, meat or protein, low in vegetables, fresh fruit and fibre, and low levels of physical activity are associated with increased risk of colorectal cancer (Schottenfeld & Fraumeni, 1996; Tomatis, 1990). Inherited conditions account for approximately 10-15% of colorectal carcinomas in the general population (Schottenfeld & Winawer, 1996).

Incidence

During 1996, there were 2,031 colorectal cancer registrations in Queensland. The age-standardised (Aust91) incidence rate for males was 71.7 cases/100,000, while for females it was 51.2 cases/100,000 (M:F ratio of 1.4:1).

Since 1982, based on age-adjusted Poisson regression, there was a statistically significant increase in the incidence rate for colorectal cancer among males of about 1% per year, however there was no evidence of change in the female incidence rate (Figure 6). Queensland trends in colorectal cancer incidence are similar to those in South Australia (SACR, 1998), Victoria (ACCV, 1998) and New South Wales (Coates & Armstrong, 1997). International trends vary depending on the specific ethnic groups and country (Muir & Nectoux, 1996). It is possible that any real increases in colorectal cancer incidence may have been supplemented with an artificial increase due to improved detection of the disease (SACR, 1998).

The lifetime risk of persons developing colorectal cancer between the ages of 0-74 years in 1996 was approximately 1 in 16 for males and 1 in 22 for females living in Queensland. This risk has not changed markedly since 1982 (1 in 20 for males and 1 in 24 for females).

There was a prominent increase in the colorectal cancer registrations among both males and females aged 65-74 years between 1982 and 1996, with very few cases reported for persons aged under 45 (Figure 7).

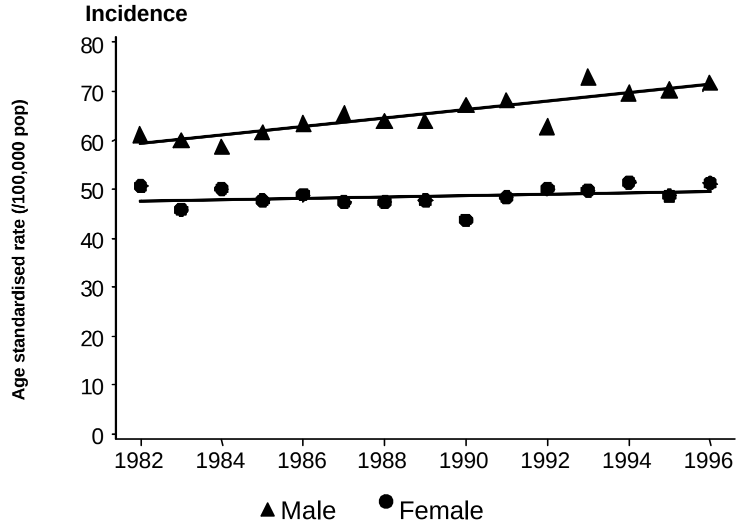
Mortality

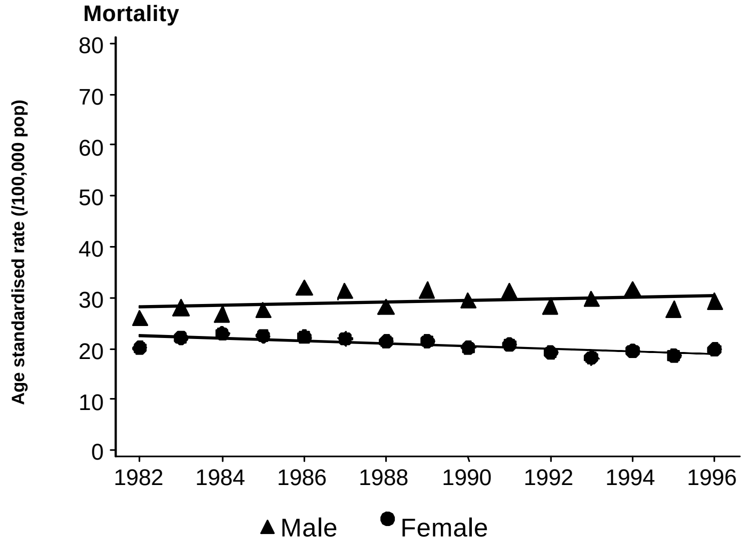
During 1996, there were 813 deaths due to colorectal cancer in Queensland. The age standardised (Aust91) mortality rate for males was 29.3 deaths/100,000, and 19.8 deaths/100,000 for females. (M:F ratio of 1.5:1).

Since 1982, the mortality rate has decreased by about 1% per year for females. However there was no evidence of a change in male mortality rates from colorectal cancer (Figure 6). Queensland trends in mortality due to colorectal cancer are similar to those in South Australia (SACR, 1998), Victoria (ACCV, 1998) and New South Wales (Coates & Armstrong, 1997). International trends vary depending on the specific population and country (Muir & Nectoux, 1996).

The lifetime risk of persons dying from colorectal cancer between the ages of 0-74 years was approximately 1 in 44 for males and 1 in 67 for females living in Queensland. This lifetime risk has increased slightly since 1982 for males (1 in 52) but remained unchanged for females (1 in 67).

Figure 6: Trends in colorectal cancer incidence and mortality in Queensland, 1982-1996





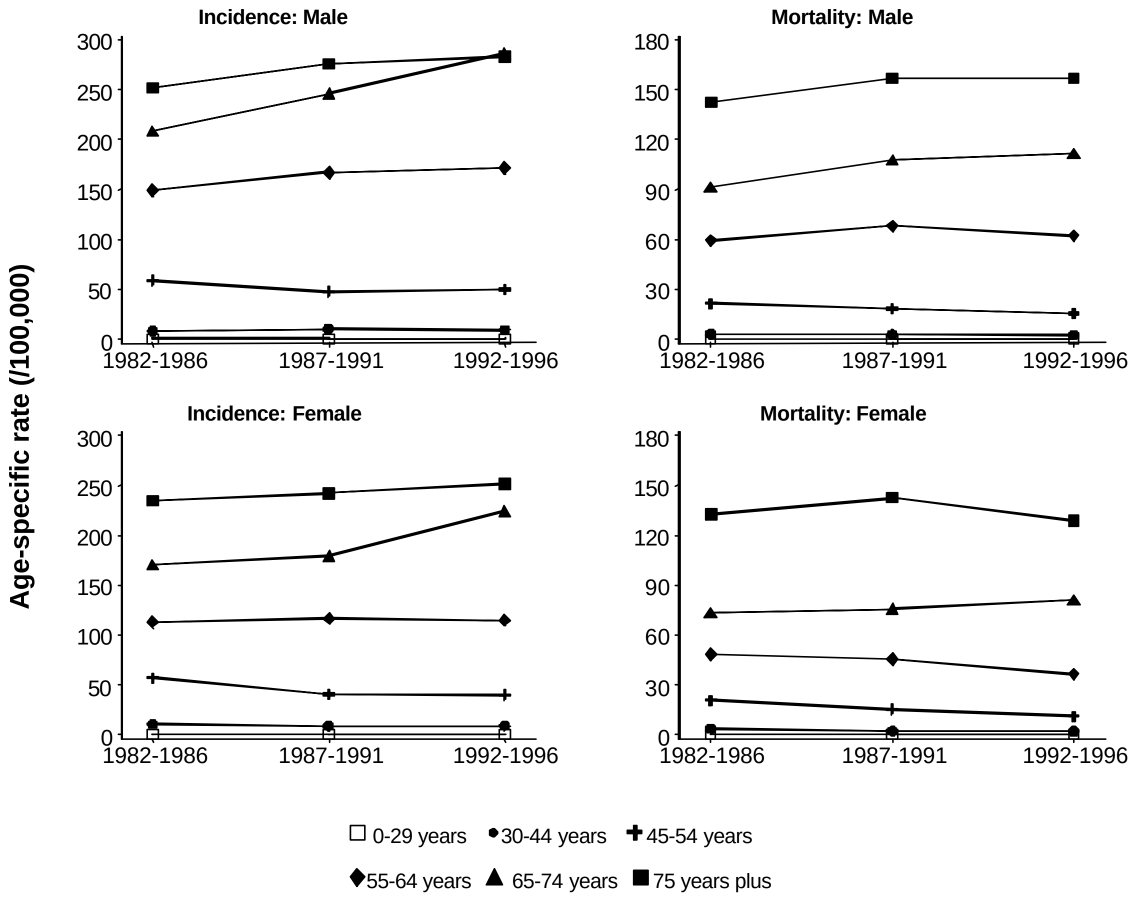
Linear trend [A]	**Incidence**		**Mortality**	
(% change/year)	*Estimate*	*95% CI*	*Estimate*	*95% CI*
Male	+1.4	(+0.9, +1.8)	+0.4	(-0.2, +1.1)
Female	+0.3	(-0.1, +0.8)	-1.2	(-1.9, -0.6)

Note: Colorectal cancer was classified according to the ICD9 codes 153 and 154.
Age-standardised rates were age-adjusted using the Australian population as at 30 June1991.
[A]Estimates and confidence intervals for linear trends were calculated using Poisson regression.

Source: Queensland Cancer Registry, Queensland Health
Australian Bureau of Statistics population estimates

The majority of deaths from colorectal cancers were in persons aged 55 years and over. There was a slight increase in mortality rates for males over 65 years of age; while other rates remained relatively stable or slightly decreased between 1982 and 1996 (Figure 7).

Figure 7: Age-specific trends in colorectal cancer incidence and mortality in Queensland, 1982-1996



Note: Colorectal cancer was classified according to the ICD9 codes 153 and 154.

Source: Queensland Cancer Registry, Queensland Health
Australian Bureau of Statistics population estimates

PANCREATIC CANCER

Although cancer of the pancreas (ICD9 code of 157) accounted for about 2% of all new cancer registrations in Queensland during 1996 (twelfth most common site for females, eleventh most common site for males), it accounted for more than 4% of all cancer deaths (fourth most common site among females, and sixth for males).

Cancer of the pancreas is one of the most rapidly fatal cancers and is usually marked by severe pain (Anderson et al., 1996). The most consistent risk factor for pancreatic cancer is cigarette smoking (Tomatis, 1990; Anderson et al., 1996). There is some inconsistent evidence that the intake of fruits and vegetables has a protective role for cancer of the pancreas, while there might be increased risks associated with animal protein and fat consumption (Anderson et al., 1996).

Incidence

There were 286 new registrations of pancreatic cancer in Queensland during 1996. The age-standardised (Aust91) incidence rate for males was 9.7 cases/100,000 and 7.5 cases/100,000 for females in 1996, with a M:F ratio of 1.3:1.

There was no evidence of a statistically significant change in the incidence of pancreatic cancer between 1982 and 1996 for either males or females (Figure 8). South Australia and New South Wales have reported slight reductions in incidence for males (SACR, 1998; Coates & Armstrong, 1997), while incidence rates for females have increased in New South Wales (Coates & Armstrong, 1997) and remained steady in South Australia (SACR, 1998). Similar trends for males have also been reported in Canada and some European countries (Doll et al., 1994). However, the dominant international trend for both sexes was for an increase in the incidence of pancreatic cancer (Muir & Nectoux, 1996).

The lifetime risk of males being diagnosed with cancer of the pancreas in Queensland in 1996 was approximately 1 in 122 and 1 in 179 for females. Since 1982 this lifetime risk has reduced for males (1 in 99) but increased for females (1 in 309).

Cancer of the pancreas was very rare among people less than 45 years of age (Figure 9). The incidence rate for males over 75 years of age decreased between 1982 and 1996, while there was an increase among females of the same age group (Figure 9).

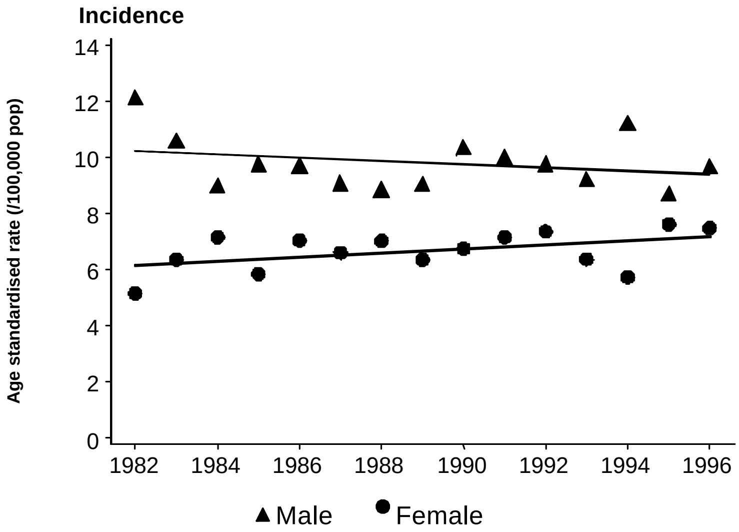
Mortality

During 1996, there were 259 registered deaths due to cancer of the pancreas in Queensland. The age-standardised (Aust91) mortality rate for males was 8.6 deaths/100,000 and 7.0 deaths/100,000 for females, with a M:F mortality ratio of 1.2:1.

There was no evidence of a statistically significant change in mortality due to cancer of the pancreas for males or females between 1982 and 1996 (Figure 8). In South Australia there was a slight reduction in mortality for males only, with no change recorded for females (SACR, 1998). In New South Wales there was a slight reduction in male mortality, while female mortality increased slightly (Coates & Armstrong, 1997). Similar trends in pancreatic cancer mortality for males have also been reported in Canada and some European countries (Doll et al., 1994). However, the dominant international trend was for an increase in the mortality due to pancreatic cancer (Muir & Nectoux, 1996).

Based on 1996 data, the lifetime risk of dying from pancreatic cancer in Queensland was approximately 1 in 149 for males, and 1 in 193 for females. This lifetime risk has decreased slightly for males since 1982 (1 in 134) and increased for females (1 in 340).

Figure 8: Trends in incidence and mortality for cancer of the pancreas in Queensland, 1982-1996



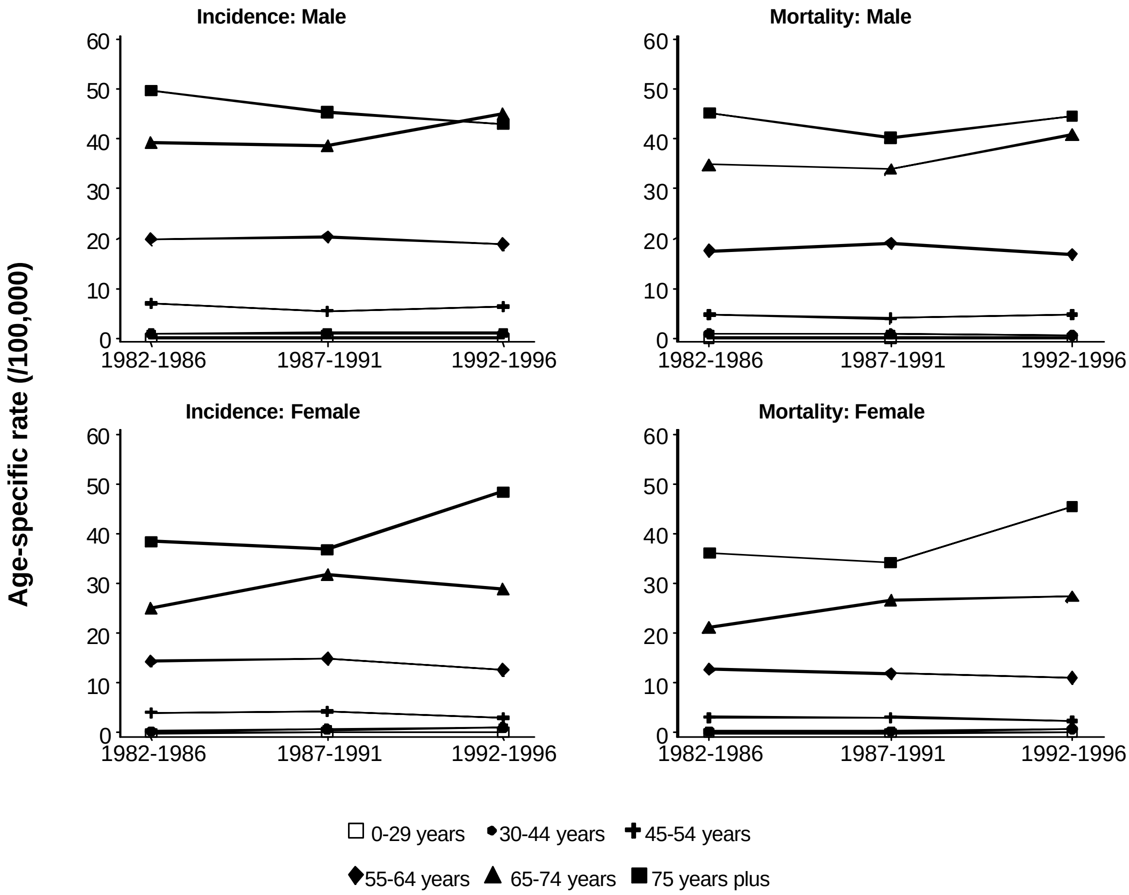
Linear trend[A] (% change/year)	Incidence Estimate	Incidence 95% CI	Mortality Estimate	Mortality 95% CI
Male	-0.4	(-1.4, +0.5)	+0.2	(-0.8, +1.3)
Female	+0.8	(-0.3, +2.0)	+1.1	(-0.2, +2.4)

Note: Cancer of the pancreas was classified according to the ICD9 code 157
Age-standardised rates were age-adjusted using the Australian population as at 30 June 1991.
[A]Estimates and confidence intervals for linear trends were calculated using Poisson regression.

Source: Queensland Cancer Registry, Queensland Health
Australian Bureau of Statistics population estimates

The majority of deaths due to pancreatic cancer were among people aged 55 years and over. The age-specific trends suggest that mortality rates may have increased slightly for people aged 65 years and over (particularly among females), but decreased slightly for people aged between 55 and 64 years (Figure 9).

Figure 9: Age-specific tends in incidence and mortality for cancer of the pancreas in Queensland, 1982-1996



Note: Cancer of the pancreas was classified according to the ICD9 code 157

Source: Queensland Cancer Registry, Queensland Health
Australian Bureau of Statistics population estimates

LUNG CANCER

Lung cancer is one of six priority areas targeted by national and state programs (AIHW, 1997). Lung cancers include cancers of the trachea, bronchus and lung (ICD9 code of 162). These cancers accounted for 20% of all cancer deaths (most common cancer site for males and ranked third for females) and 12% of new cancers (fourth most common for both males and females) in Queensland in 1996. Survival rates from lung cancer are typically low, with most people who develop lung cancer succumbing to the disease (Blot & Fraumeni, 1996).

Nearly all cases of lung cancer are caused by cigarette smoking. Trends in lung cancer largely reflect the change in smoking habits or occupational exposure that took place more than 20 years ago. A comprehensive approach is required to reduce incidence and mortality rates, including strategies which prevent the uptake of smoking, promote smoking cessation and reduce exposure to tobacco.

Incidence

There were 1,397 new lung cancer registrations in Queensland during 1996. The age-standardised (Aust91) incidence rate for males was 63.7 cases/100,000 and 24.1 cases/100,000 for females in 1996.

Between 1982 and 1996 there was a statistically significant increase in the lung cancer incidence for females (3% per year), while incidence decreased by almost 2% per year for males (Figure 10). Similar trends in lung cancer incidence have been reported for South Australia (SACR, 1998), New South Wales (Coates & Armstrong, 1997), Victoria (ACCV, 1998) and the United States (Miller et al., 1993). These trends in Queensland incidence rates have resulted in a reduction in the sex incidence ratio for lung cancer. In 1996, the M:F incidence ratio was 2.7:1, while in 1982 it was 5.3:1.

The lifetime risk of males being diagnosed with lung cancer in Queensland in 1996 was approximately 1 in 18, and 1 in 43 for females. Reflecting the changes in incidence rates, this lifetime risk has reduced slightly for males (1 in 13) and increased slightly for females (1 in 62) since 1982.

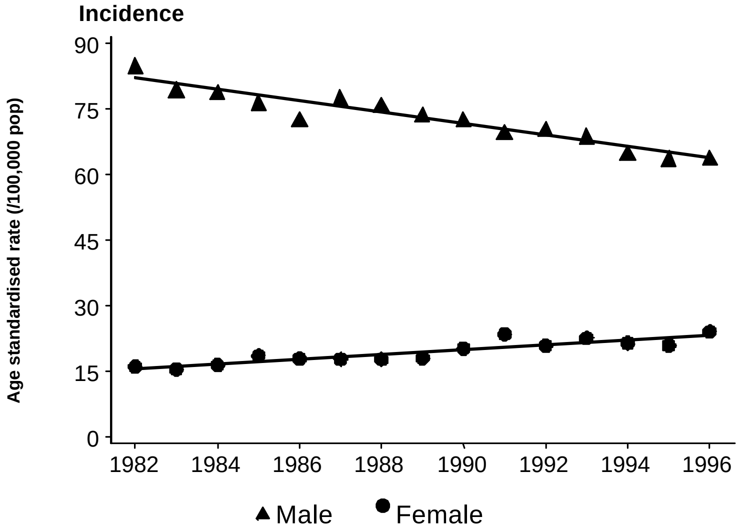
The difference in sex-specific trends was reflected in the age-specific trends (Figure 11). Among the older age groups (65 years and over) lung cancer incidence was stable among males but increasing among females, while for those aged between 45 and 64 years the incidence was decreasing among males but stable among females. A similar sex and age-specific pattern in lung cancer incidence was reported in South Australia (SACR, 1998).

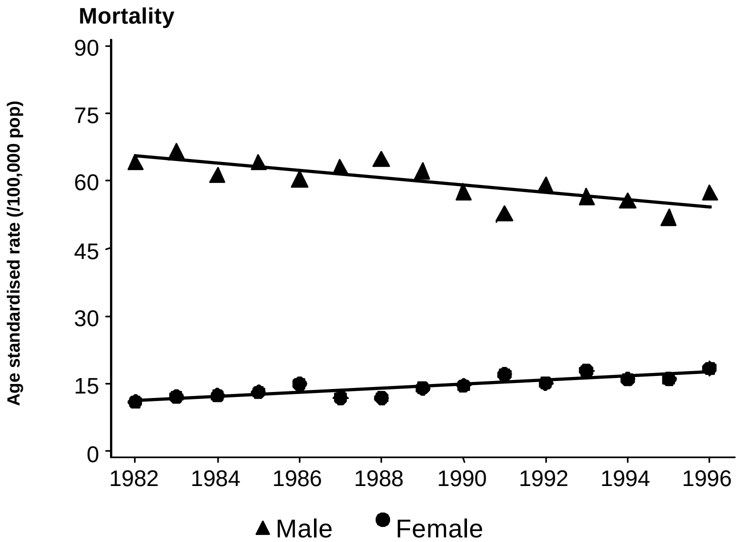
Mortality

During 1996, there were 1,195 deaths due to lung cancer in Queensland. The age-standardised (Aust91) mortality rate for males was 57.4 deaths/100,000 and 18.4 deaths/100,000 for females, with a male to female mortality ratio of 3.1:1. Between 1982 and 1996 there was a statistically significant decrease in the lung cancer mortality for males (1% per year), while mortality increased by 3% per year for females (Figure 10). Similar trends in mortality due to lung cancer have been reported for South Australia (SACR, 1998), New South Wales (Coates & Armstrong, 1997) and Victoria (ACCV, 1998).

Based on 1996 data, the lifetime risk of males dying from lung cancer in Queensland was approximately 1 in 21, and 1 in 59 for females. Since 1982, this lifetime risk has increased for females (1 in 92) and remained relatively constant for males (1 in 18).

Figure 10: Trends in lung cancer incidence and mortality in Queensland, 1982-1996





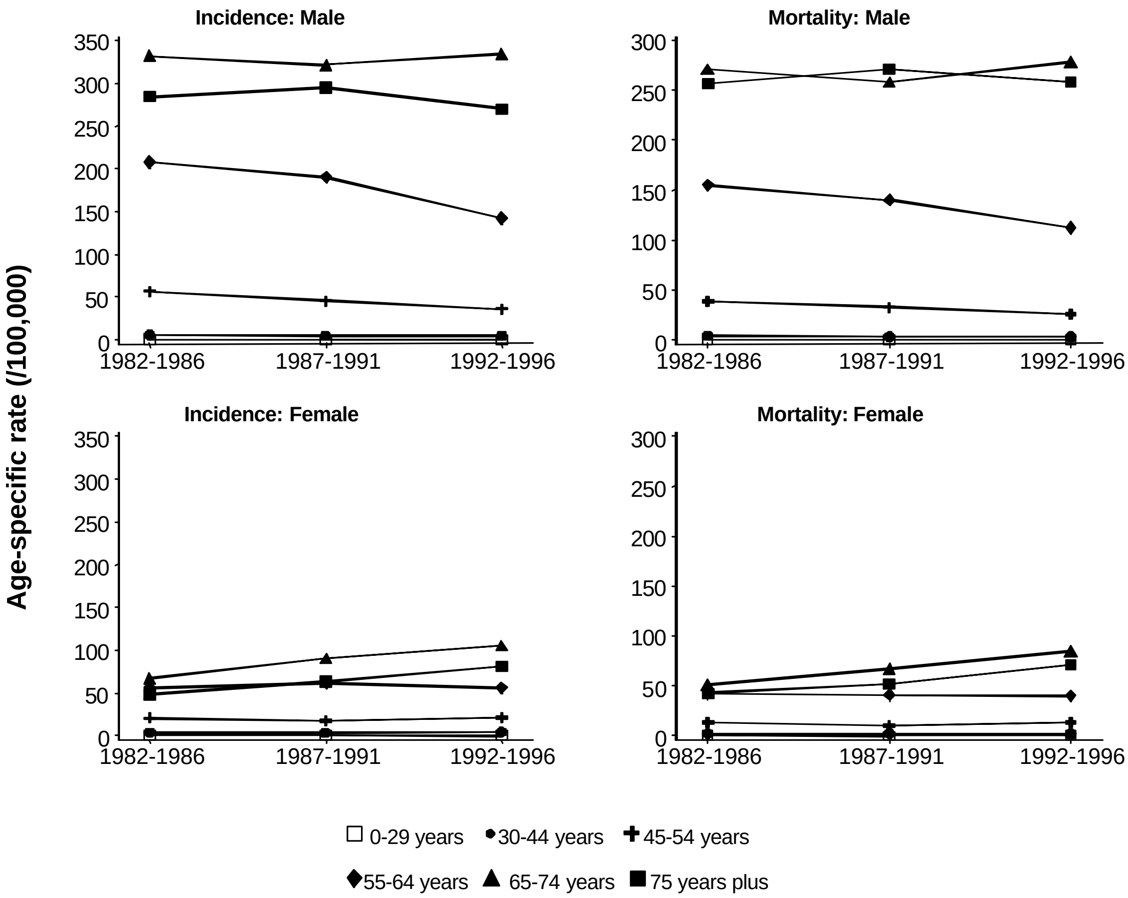
Linear trend [A]	**Incidence**		**Mortality**	
(% change/year)	*Estimate*	*95% CI*	*Estimate*	*95% CI*
Male	-1.9	(-2.2, -1.5)	-1.4	(-1.9, -1.0)
Female	+3.0	(+2.2, +3.7)	+3.3	(+2.4, +4.1)

Note: Lung cancer was classified according to the ICD9 code 162.
Age-standardised rates were age-adjusted using the Australian population as at 30 June 1991.
[A]Estimates and confidence intervals for linear trends were calculated using Poisson regression.

Source: Queensland Cancer Registry, Queensland Health
Australian Bureau of Statistics population estimates

Similar age and sex-specific trends in mortality was observed as for incidence (Figure 11). Among the older age groups (65 years and over) lung cancer mortality was stable among males but increasing among females, while for those aged between 45 and 64 years mortality was decreasing among males but stable among females. A similar age-specific pattern in deaths due to lung cancer was reported in South Australia (SACR, 1998).

Figure 11: Age-specific trends in lung cancer incidence and mortality in Queensland, 1982-1996



Note: Lung cancer was classified according to the ICD9 code 162.

Source: Queensland Cancer Registry, Queensland Health
Australian Bureau of Statistics population estimates

MELANOMA OF THE SKIN

Malignant melanoma of the skin is one of six priority areas targeted by national and state programs (AIHW, 1997). Melanoma of the skin is defined by the ICD9 code of 172. Melanomas accounted for approximately 3% of all cancer deaths (ranked twelfth for females and eighth for males) and approximately 13.4% of all new cancer registrations (ranked second for males and third for females) in Queensland during 1996. Only invasive cancers are included in this report. Consequently, the figures given here under-estimate the true burden of this disease because many lesions are removed while they are still in-situ.

Queensland has the highest melanoma incidence and mortality in the world (MacLennan et al., 1992). Exposure to sunlight has been the most consistently implicated aetiological factor in melanoma, however the precise nature of this association and its quantification are poorly understood. However, intermittent sun exposure, excessive sun exposure especially when young and ultraviolet light have been linked with melanoma risk tendency (Rhodes et al., 1987; Kripke et al., 1994; Boyle et al., 1995). Other factors linked with increased risk of melanoma include family history of melanoma, congenital moles and freckling tendency (Rhodes et al., 1987; Boyle et al., 1995). Mortality from melanoma is preventable if the cancer detected early, with the survival rate being closely linked to the depth of invasion of the melanoma.

Incidence

There were 1,961 new registrations of malignant melanoma in Queensland during 1996. The age-standardised (Aust91) incidence rate for males was 68.7 cases/ 100,000 and 49.7 cases/100,000 for females in 1996 (M:F ratio of 1.4:1).

Between 1982 and 1996 there has been an annual 3% increase in the malignant melanoma registrations for males and a 1% increase for females. These trends appear to fluctuate however the steady upward trend has been maintained (Figure 12). Increases in melanoma incidence have been reported for both males and females in New South Wales (Coates & Armstrong, 1997), Victoria (ACCV, 1998), South Australia (SACR, 1998) and among most populations of mainly European origin (Muir & Nectoux, 1996).

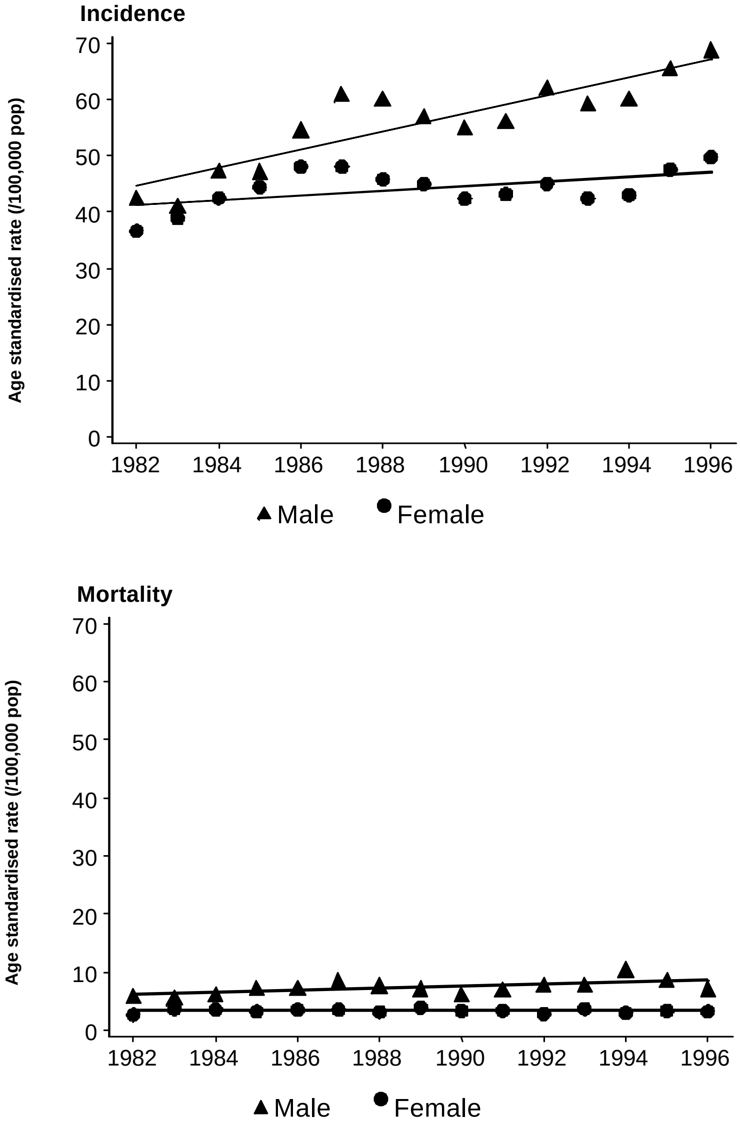
The lifetime risk of males being diagnosed with melanoma in Queensland in 1996 was approximately 1 in 18, and 1 in 24 for females. This lifetime risk increased males (1 in 28) and for females (1 in 33) since 1982. Although melanoma was not rare among people under 30 years of age, incidence generally increased as age increased. For both males and females, the largest increases in incidence were among those 65 years of age and over, while trends among the other age groups were relatively stable (Figure 13).

Mortality

During 1996, there were 169 deaths due to malignant melanoma recorded in Queensland. The age-standardised (Aust91) mortality rate for males was 7.1 deaths/ 100,000 and 3.2 deaths/100,000 for females (M:F ratio of 2.2:1).

Between 1982 and 1996 there was only slight evidence of an increase in the male mortality from melanoma and no evidence of a change for females (Figure 12). Although mortality rates from malignant melanoma rose among males in New South Wales (Coates & Armstrong, 1997), generally mortality rates have remained constant in South Australia (SACR, 1998), Victoria (ACCV, 1997) and internationally (Muir & Nectoux, 1996), and among females in New South Wales (Coates & Armstrong, 1997). Nationally, deaths from melanoma peaked in 1985, and have not risen since (Giles et al., 1996).

Figure 12: **Trends in melanoma incidence and mortality in Queensland, 1982-1996.**



Linear trend [A] (% change/year)	Incidence Estimate	95% CI	Mortality Estimate	95% CI
Male	+2.7	(+2.3, +3.2)	+1.8	(+0.5, +3.1)
Female	+1.0	(+0.4, +1.5)	-0.5	(-1.9, +0.9)

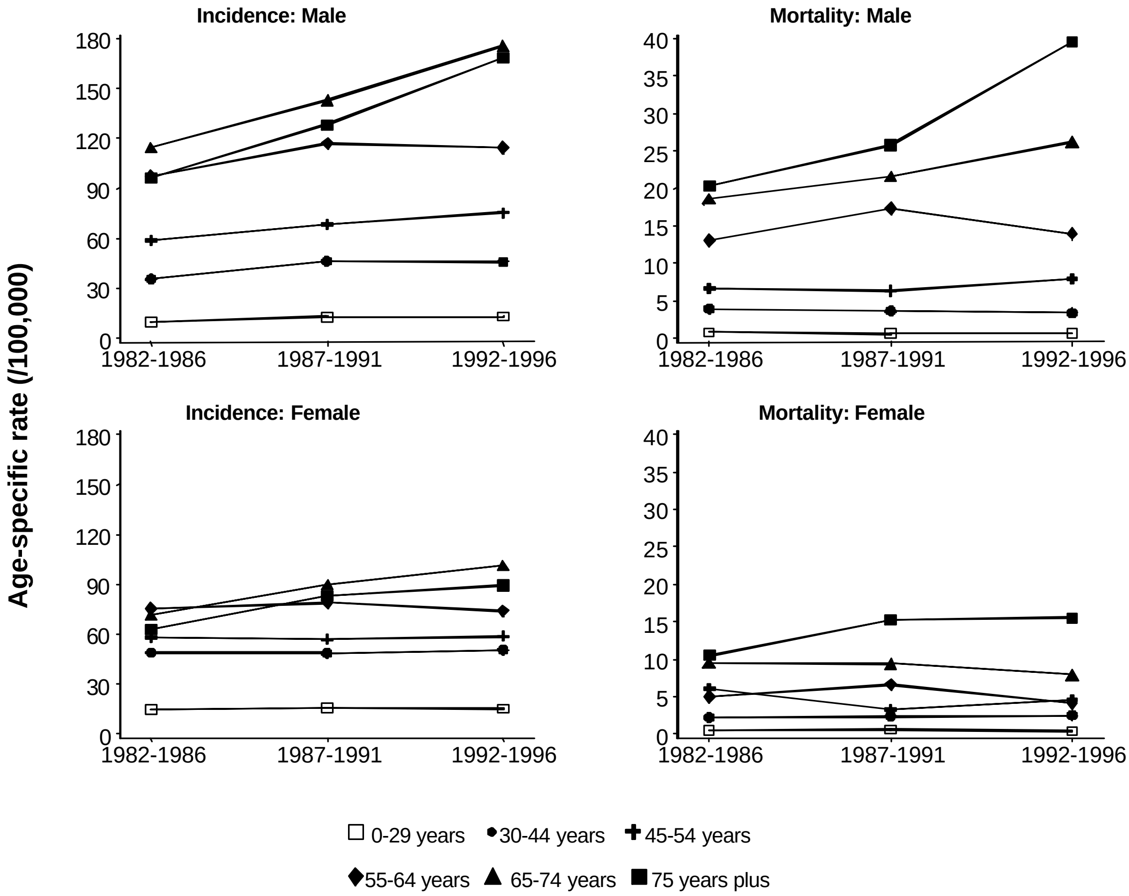
Note: Melanoma of the skin was classified according to the ICD9 code 172.
Age-standardised rates were age-adjusted using the Australian population as at 30 June 1991.
[A]Estimates and confidence intervals for linear trends were calculated using Poisson regression.

Source: Queensland Cancer Registry, Queensland Health
Australian Bureau of Statistics population estimates

The lifetime risk of females dying from melanoma in Queensland in 1996 was approximately 1 in 472 and 1 in 207 for males. This lifetime risk has reduced for females (1 in 423) and males (1 in 181) since 1982.

There were substantial increases in mortality among males aged 65 years and over between 1982 and 1996 (Figure 13), while mortality among males in the younger age groups was relatively stable. For females, there was a less pronounced increase among those aged 75 years and over, while mortality among those aged under 75 years was relatively stable (Figure 13).

Figure 13: Age-specific trends in melanoma incidence and mortality in Queensland, 1982-1996.



Note: Melanoma of the skin was classified according to the ICD9 code 172.
Source: Queensland Cancer Registry, Queensland Health
Australian Bureau of Statistics population estimates

FEMALE BREAST CANCER

Female breast cancer is one of six priority areas targeted by national and state programs (AIHW 1997). Female breast cancer (ICD9 code of 174) was the most common cancer site for new cancer registrations (25%) and deaths (18%) from cancer among females in Queensland during 1996. In comparison with 20 OECD countries in 1994, Queensland had the 7th lowest mortality rate due to female breast cancer (EHIB, 1998).

A small proportion (less than 10 per cent) of women who develop breast cancer have a 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-menopausaly, 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 have 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 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.

Incidence

There were 1,594 new registrations of breast cancer among females in Queensland during 1996, with the age-standardised (Aust91) incidence rate being 90.5 cases/ 100,000 females. Between 1982 and 1996 there was a statistically significant 2% increase per year in breast cancer incidence among females (Figure 14). Increases in female breast cancer incidence have also been reported in New South Wales (Coates & Armstrong, 1997), South Australia (SACR, 1998), Victoria (ACCV, 1998) and most international countries (Muir & Nectoux, 1996).

The lifetime risk of females being diagnosed with breast cancer in Queensland in 1996 was approximately 1 in 12, with lifetime risk having increased since 1982 (1 in 15). Breast cancer was extremely rare among women aged under 30 years. The most prominent increasing age-specific trends were observed among women aged 45-54 years and 65-74 years (Figure 15).

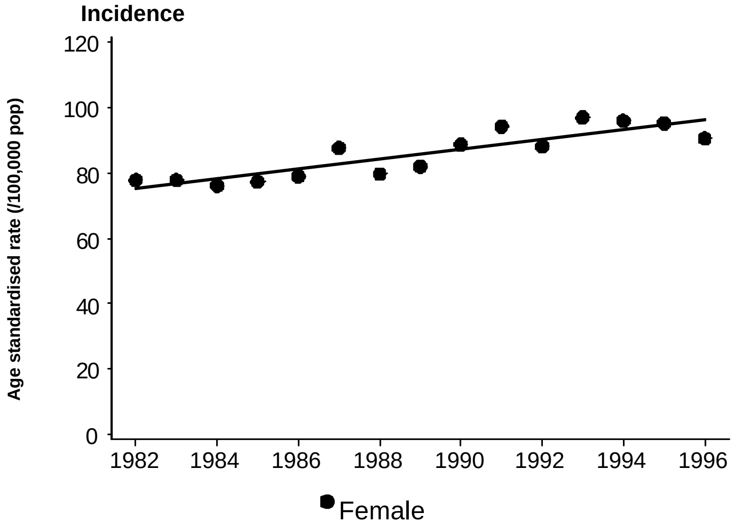
The increase in incidence and lack of change in mortality was most likely a result of early detection of breast cancer, which is likely to be due to increased screening activity in Queensland and the commencement of the Breastscreen Queensland Program in 1991. Incidence of female breast cancer can be expected to increase until the Breastscreen Queensland Program reaches a steady state in terms of population coverage.

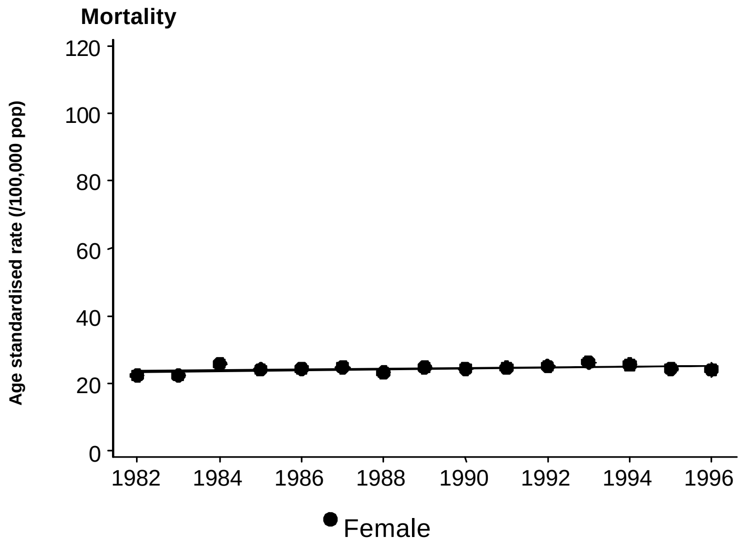
Mortality

During 1996, there were 435 deaths among females due to breast cancer in Queensland. The age-standardised (Aust91) mortality rate was 24.1 deaths/100,000. Between 1982 and 1996 there was no evidence of an increase in the female breast cancer mortality (Figure 14). This lack of increase in mortality was observed across all age groups, except in women aged 75 years and over, where the rates have increased (Figure 15).

Cancer registries in New South Wales (Coates & Armstrong, 1997), South Australia (SACR, 1998) and Victoria (ACCV, 1998) have also reported no recent changes in female breast cancer mortality. Female breast cancer mortality has tended to remain stationary in most western countries (Muir & Nectoux, 1996).

Figure 14: Trends in female breast cancer incidence and mortality in Queensland, 1982-1996





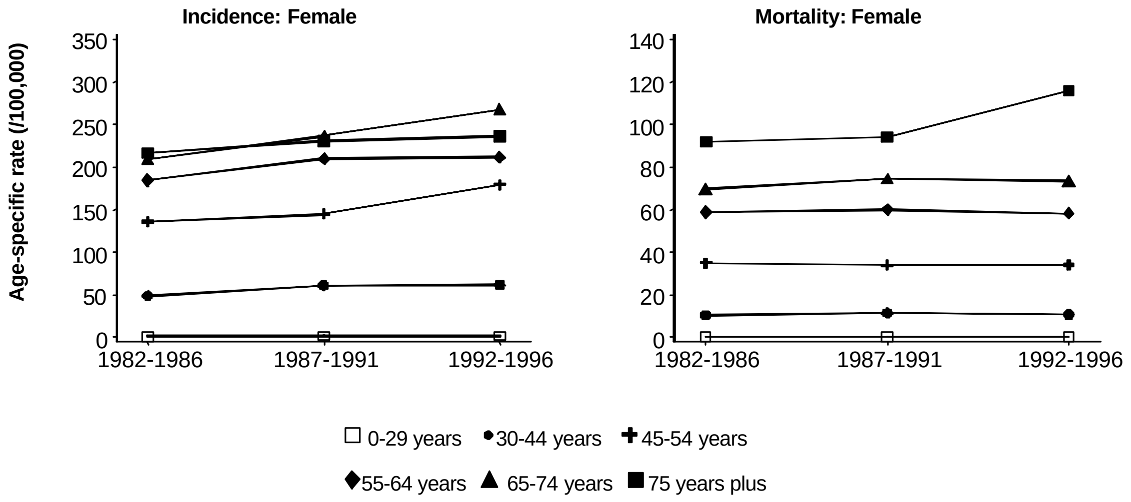
Linear trend [A]	**Incidence**		**Mortality**	
(% change/year)	*Estimate*	*95% CI*	*Estimate*	*95% CI*
Female	+1.7	(+1.3, +2.1)	+0.5	(-0.1, +1.1)

Note: Female breast cancer was classified according to the ICD9 code 174.
Age-standardised rates were age-adjusted using the Australian population as at 30 June 1991.
[A]Estimates and confidence intervals for linear trends were calculated using Poisson regression.

Source: Queensland Cancer Registry, Queensland Health
Australian Bureau of Statistics population estimates

Based on 1996 data, the lifetime risk of females dying from breast cancer in Queensland was approximately 1 in 51, with the risk having increased slightly since 1982 (1 in 55).

Figure 15: Age-specific trends in female breast cancer incidence and mortality in Queensland, 1982-1996



Note: Female breast cancer was classified according to the ICD9 code 174.
Source: Queensland Cancer Registry, Queensland Health
Australian Bureau of Statistics population estimates

CERVICAL CANCER

Cervical cancer is one of six priority areas targeted by national and state programs (AIHW, 1997). Cancers of the cervix are defined by the ICD9 code of 180. These cancers accounted for approximately 3% of all female cancers deaths (tenth most common) and approximately 3% of all new cancer registrations (eighth most common) in Queensland during 1996. In comparison with 20 OECD countries in 1994, Queensland has the 8th highest mortality rate due to cancer of the cervix (EHIB, 1998).

Human papillomaviruses (HPV) is the principal cause of cervical cancer. However the vast majority of women with HPV do not develop cervical cancer or its precursor lesions. Epidemiological studies are now concentrating on cofactors such as smoking that need to be present in addition to HPV to cause cancer. A convincing body of epidemiological evidence points to the effectiveness of Pap smears in detecting cervical cancer and its precursor lesions.

Incidence

There were 190 new registrations of cervical cancer among females in Queensland during 1996, with the age-standardised (Aust91) incidence rate being 11.1 cases/100,000 females. Between 1982 and 1996, there has been a statistically significant 2% decrease per year in cervical cancer incidence among females (Figure 16). Similar decreases in cervical cancer incidence have been reported in New South Wales (Coates & Armstrong, 1997), South Australia (SACR, 1998) and most other countries (Muir & Nectoux, 1996).

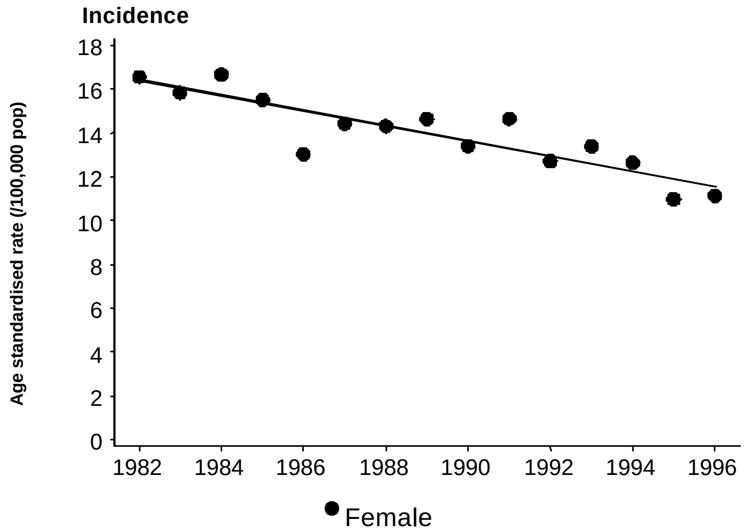
The lifetime risk of females being diagnosed with cervical cancer in Queensland in 1996 was approximately 1 in 112, with the risk having reduced since 1982 (1 in 76). Cervical cancer incidence was comparatively low among females aged less than 30 years (Figure 17).

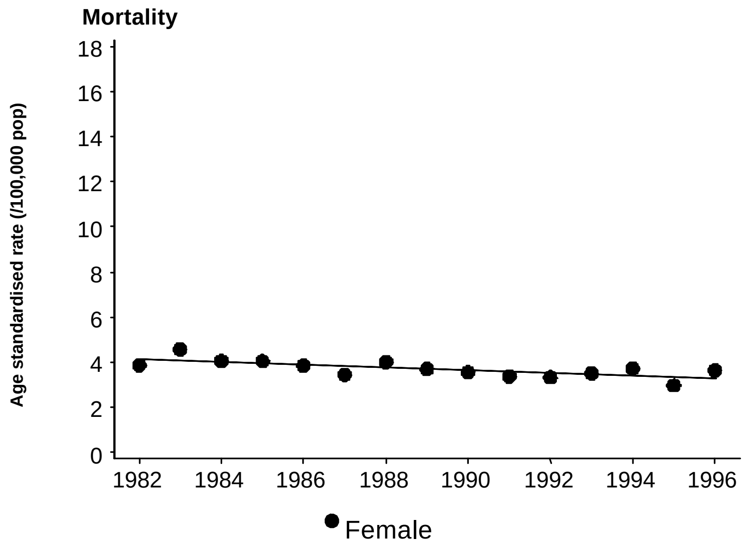
Mortality

During 1996, there were 64 deaths among females due to cervical cancer in Queensland. The age-standardised (Aust91) mortality rate was 3.6 deaths/100,000. There was a significant decrease in mortality rates for cervical cancer between 1982 and 1996 of about 2% per year (Figure 16). Reductions in mortality due to cervical cancer have been reported in New South Wales (Coates & Armstrong, 1997), South Australia (SACR, 1998) and most developed countries (Muir & Nectoux, 1996).

Based on 1996 data, the lifetime risk of females dying from cervical cancer in Queensland was approximately 1 in 381, with this lifetime risk having reduced since 1986 (1 in 329). Mortality due to cervical cancer was rare among women aged less than 30 years (Figure 17).

Figure 16: Trends in cervical cancer incidence and mortality in Queensland, 1982-1996



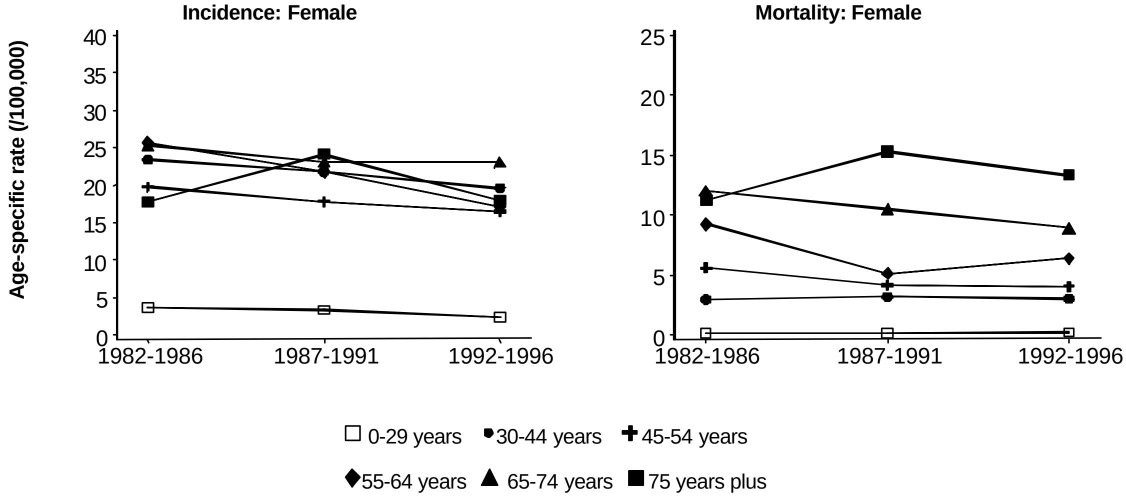


Linear trend [A]	**Incidence**		**Mortality**	
(% change/year)	*Estimate*	*95% CI*	*Estimate*	*95% CI*
Female	-2.5	(-3.2, -1.7)	-1.9	(-3.5, -0.2)

Note: Cervical cancer was classified according to the ICD9 code 180.
Age-standardised rates were age-adjusted using the Australian population as at 30 June 1991.
[A]Estimates and confidence intervals for linear trends were calculated using Poisson regression.

Source: Queensland Cancer Registry, Queensland Health
Australian Bureau of Statistics population estimates

Figure 17: Age-specific trends in cervical cancer incidence and mortality in Queensland, 1982-1996



Note: Cervical cancer was classified according to the ICD9 code 180.

Source: Queensland Cancer Registry, Queensland Health
Australian Bureau of Statistics population estimates

CANCER OF BODY OF UTERUS

Cancers of the body of the uterus are defined by the ICD9 code of 182. These cancers accounted for approximately 2% of all female cancer deaths (fifteenth most common) and approximately 3% of all new female cancer registrations (sixth most common) in Queensland during 1996. The majority of cancers of body of uterus are endometrial cancers.

There are no known practical measures for preventing cancer of the uterus. There is some evidence that childlessness, later age at menopause, elevated endogenous oestrogen levels, obesity and high total dietary fat consumption are risk factors for endometrial cancer (Grady & Ernster, 1996).

Incidence

There were 223 new registrations of cancers of the uterus among females in Queensland during 1996, with the age-standardised (Aust91) incidence rate being 12.8 cases/100,000 females. Since 1982, there has been no statistically significant change in the incidence of cancers of the uterus among females (Figure 18). The incidence of cancer of body of uterus in South Australia and New South Wales (particularly in the last three years) has remained relatively constant (SACR, 1998; Coates & Armstrong, 1977), while international trends are variable (Muir & Nectoux, 1996).

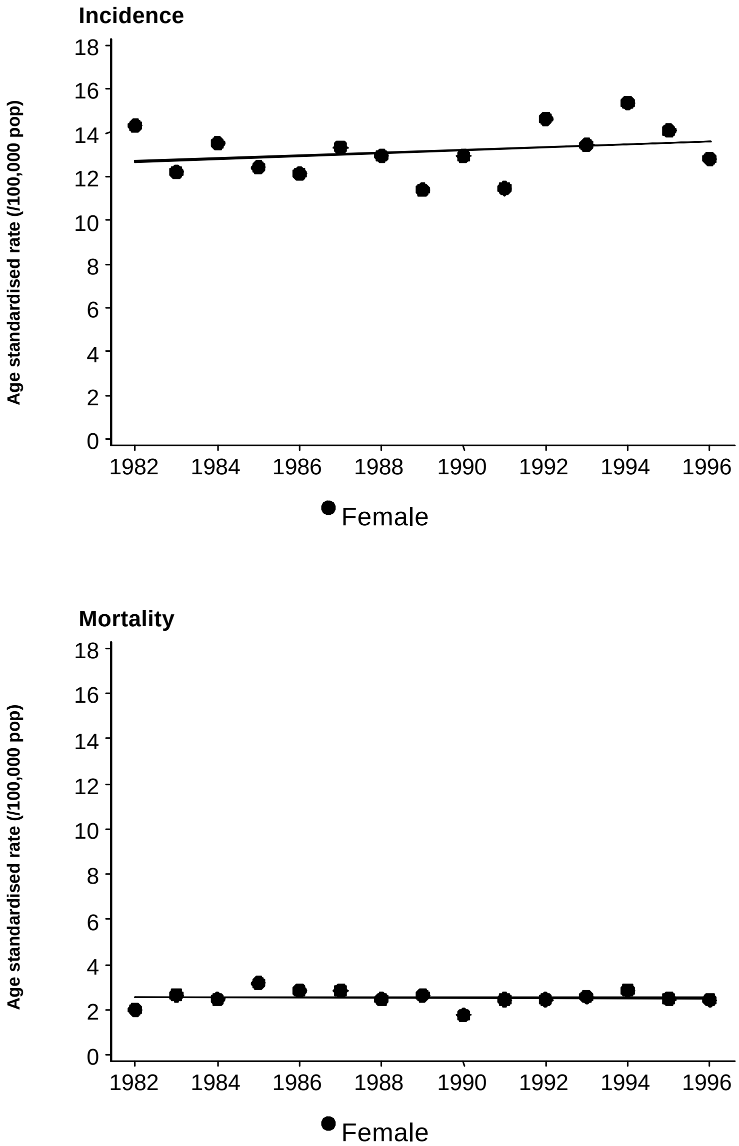
The lifetime risk of females being diagnosed with cancer of the uterus in Queensland in 1996 was approximately 1 in 86, with the risk having reduced slightly since 1986 (1 in 65). The majority of incident cases were recorded among women over 54 years of age, and there appeared to be an increase in incident cases among women aged 65 years and over (Figure 19).

Mortality

During 1996, there were 45 deaths among females due to cancers of the uterus in Queensland. The age-standardised (Aust91) mortality rate was 2.4 deaths/100,000. There was no statistically significant evidence of a change in mortality between 1982 and 1996 (Figure 18), and there were no consistent age-specific trends (Figure 19). In contrast, the mortality due to cancers of the uterus in South Australia (SACR, 1998), New South Wales (Coates & Armstrong, 1997) and the United States (Muir & Nectoux, 1996) has reduced.

The lifetime risk of females dying from cancer of body of uterus in Queensland in 1996 was approximately 1 in 571, with the risk having reduced slightly since 1982 (1 in 469).

Figure 18: Trends in incidence and mortality for cancer of body of uterus in Queensland, 1982-1996

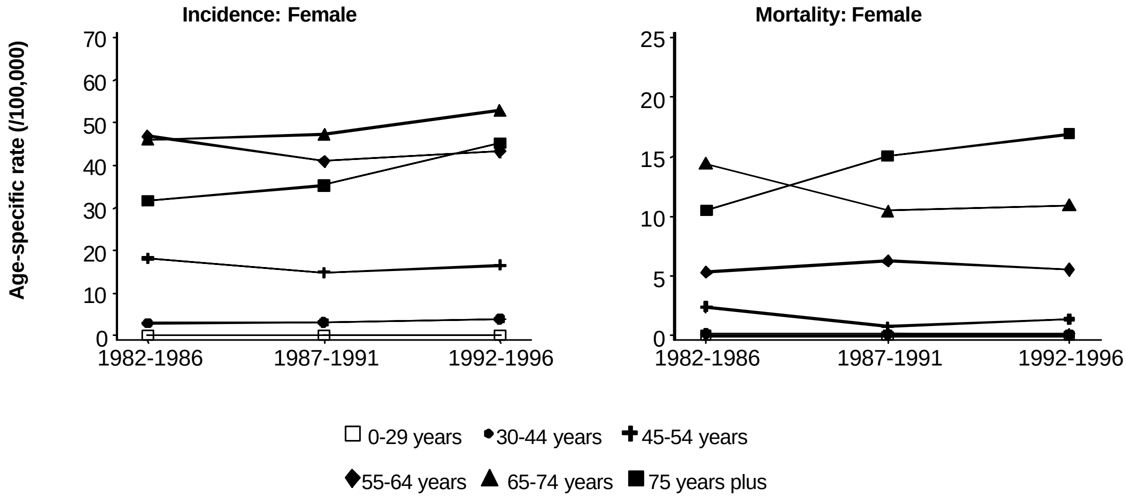


Linear trend [A]	**Incidence**		**Mortality**	
(% change/year)	*Estimate*	*95% CI*	*Estimate*	*95% CI*
Female	+0.5	(-0.3, +1.4)	-0.1	(-1.8, +1.6)

Note: Cancer of body of uterus was classified according to the ICD9 code 182.
Age-standardised rates were age-adjusted using the Australian population as at 30 June 1991.
[A]Estimates and confidence intervals for linear trends were calculated using Poisson regression.

Source: Queensland Cancer Registry, Queensland Health
Australian Bureau of Statistics population estimates

Figure 19: **Age-specific trends in incidence and mortality for cancer of body of uterus in Queensland, 1982-1996**



Note: Cancer of body of uterus was classified according to the ICD9 code 182.
Source: Queensland Cancer Registry, Queensland Health
Australian Bureau of Statistics population estimates

OVARIAN CANCER

Cancers of the ovary are defined by the ICD9 code of 183. These cancers accounted for 5% of all female cancer deaths (fifth most common site) and 3% of all new female cancer registrations (ninth most common) in Queensland in 1996.

The cause or causes of ovarian cancer are not known. Factors associated with the suppression of ovulation, such as complete or incomplete pregnancy, use of oral contraceptives and breast feeding are thought to be protective for ovarian cancer (Tomatis, 1990; Weiss et al., 1996). Exposure to ionizing radiation and asbestos may increase the risk (Weiss et al., 1996).

Incidence

There were 179 new registrations of ovarian cancer among females in Queensland during 1996, with the age-standardised (Aust91) incidence rate being 10.1 cases/ 100,000 females. There was no statistically significant evidence of a change in ovarian cancer incidence between the years 1982 and 1996 (Figure 20), which corresponds with reported trends in South Australia (SACR, 1998) and New South Wales (Coates & Armstrong, 1997) and published international trends (Muir & Nectoux, 1996). There were no consistent age-specific trends in ovarian cancer incidence (Figure 21).

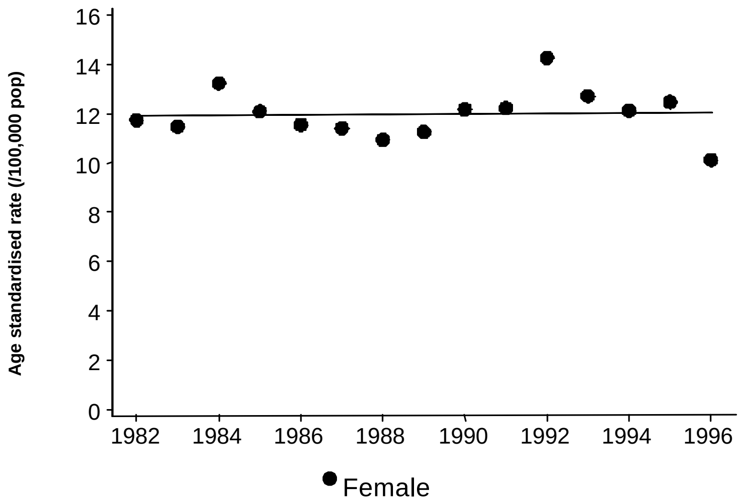
The lifetime risk of females being diagnosed with ovarian cancer in Queensland in 1996 was approximately 1 in 106, with the risk having reduced slightly since 1982 (1 in 94).

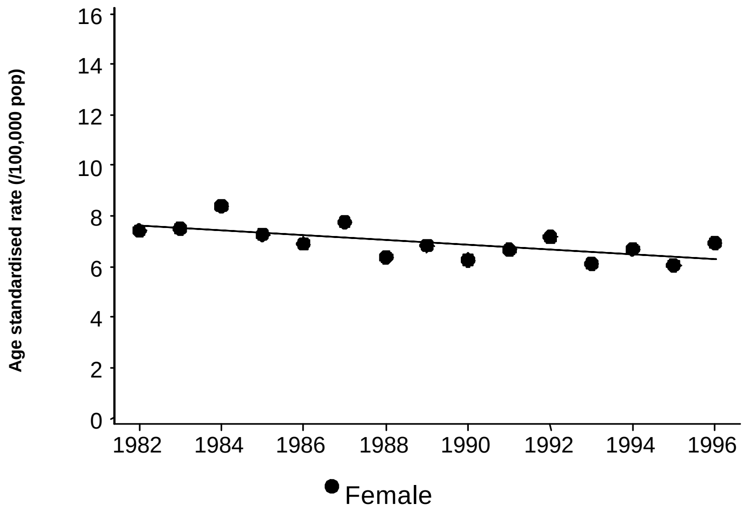
Mortality

During 1996, there were 124 deaths among females due to ovarian cancer in Queensland. The age-standardised (Aust91) mortality rate was 6.9 deaths/100,000. There was no statistically significant evidence of a change in female ovarian cancer mortality between 1982 and 1996 (Figure 20), which was consistent with that reported for New South Wales (Coates & Armstrong, 1997) and South Australia (SACR, 1998).

The lifetime risk of females dying from ovarian cancer in Queensland in 1996 was approximately 1 in 163, with the risk having reduced slightly since 1982 (1 in 134). The majority of recorded deaths due to ovarian cancer were among women aged 55 years and over (Figure 21).

Figure 20: Trends in ovarian cancer incidence and mortality in Queensland, 1982-1996



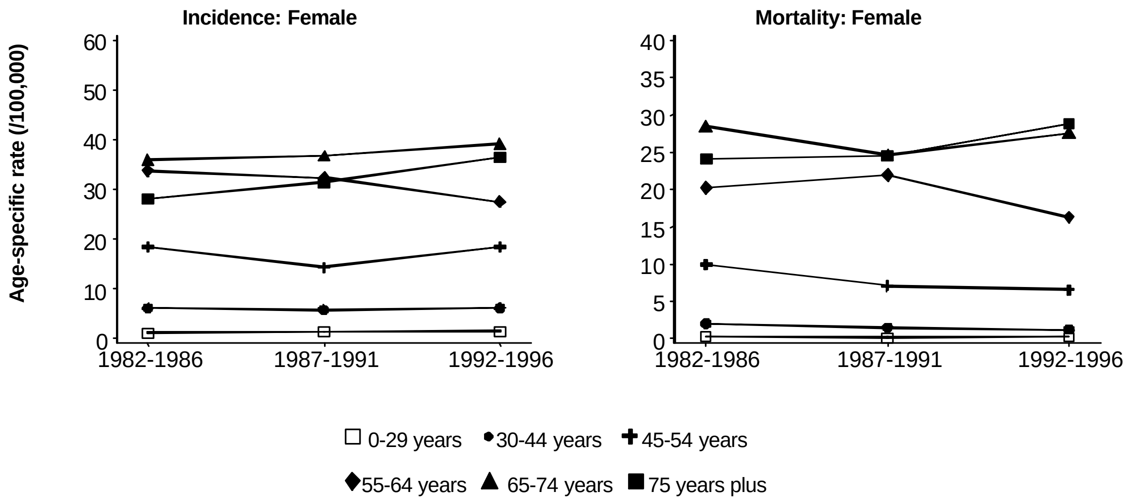


Linear trend [A] (% change/year)	Incidence Estimate	Incidence 95% CI	Mortality Estimate	Mortality 95% CI
Female	-0.1	(-0.8, +0.7)	-1.2	(-2.2, -0.2)

Note: Ovarian cancer was classified according to the ICD9 code 183.
Age-standardised rates were age-adjusted using the Australian population as at 30 June 1991.
[A]Estimates and confidence intervals for linear trends were calculated using Poisson regression.

Source: Queensland Cancer Registry, Queensland Health
Australian Bureau of Statistics population estimates

Figure 21: Age-specific trends in ovarian cancer incidence and mortality in Queensland, 1982-1996



Note: Ovarian cancer was classified according to the ICD9 code 183.
Source: Queensland Cancer Registry, Queensland Health
Australian Bureau of Statistics population estimates

PROSTATE CANCER

Prostate cancer (ICD9 code of 185) is one of six priority areas targeted by national and state programs (AIHW, 1997). In 1996, prostate cancer was the most common malignant cancer (19% of all male cancers) and second most common cause of cancer death (14% of all male cancer deaths) behind lung cancer among Queensland males. In comparison with 20 OECD countries in 1994, Queensland had the 6th highest mortality rate due to prostate cancer (EHIB, 1998).

Knowledge about risk factors for prostate cancer is poor. Prostate cancer rates increase with age, being rare in men under 50 years of age. Epidemiological studies have suggested that risk factors for prostate cancer may include high dietary fat intake, obesity, low levels of physical activity and family history of prostate cancer (Ross & Schottenfeld, 1996).

Incidence

There were 1,579 new registrations of prostate cancer among males in Queensland during 1996, with the age-standardised (Aust91) incidence rate being 106.6 cases/ 100,000 males. Between 1982 and 1996 there was a statistically significant 5% annual increase in the incidence of prostate cancer among males in Queensland (Figure 22). However, the magnitude of this annual increase was influenced by the substantial jump in the incidence rate between 1992 and 1993 (Figure 22). Much of the increase is due to increased 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 new cases of prostate cancer occurred in 1993. Incidence rates decreased somewhat after 1994, but are still much 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. Therefore, the real underlying increase in prostate cancer may be somewhat lower than the reported 5% per year, and the linear assumption by the model may not be the best description of the trend.

Increases in prostate cancer incidence have been reported in New South Wales (Coates & Armstrong, 1997), South Australia (SACR, 1998) and Victoria (ACCV, 1998) and most other countries (Muir & Nectoux, 1996). However, as observed in Queensland, there is evidence that the increase in prostate cancer may have peaked, with South Australia reporting declines in 1996 incidence rates compared to 1995 (SACR, 1998).

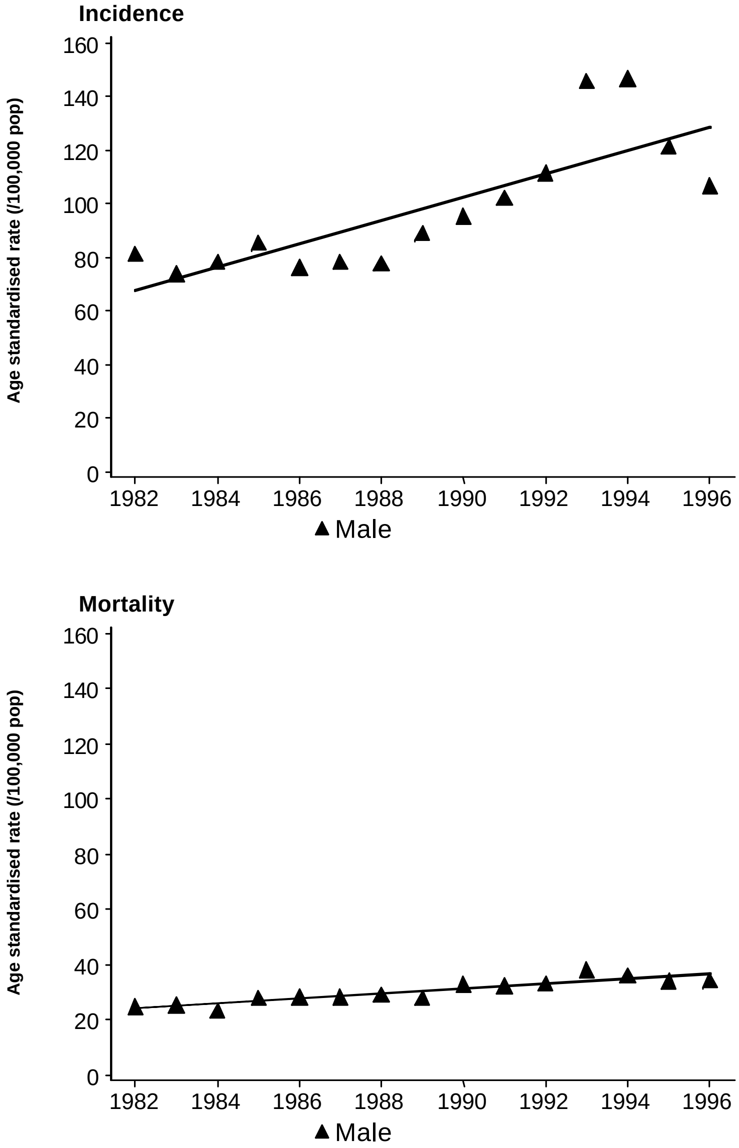
The lifetime risk of males being diagnosed with prostate cancer in Queensland in 1996 was 1 in 12, with the lifetime risk having almost doubled since 1982 (1 in 20).

The majority of the increase in prostate cancer incidence was among males aged 65 years and over, while prostate cancer was very rare among males aged under 55 years (Figure 23).

Mortality

During 1996, there were 480 deaths among males due to prostate cancer recorded in Queensland. The age-standardised (Aust91) mortality rate was 34.1 deaths/ 100,000. Between 1982 and 1996, there was a statistically significant 3% annual increase in male deaths due to prostate cancer in Queensland (Figure 22). This is higher than the trends reported for the other states in Australia. In South Australia there has been a marginal increase in prostate cancer mortality (SACR, 1998), while it was relatively stable in New South Wales and Victoria. (Coates & Armstrong, 1997; ACCV, 1998). Internationally, increases in the mortality rate due to prostate cancer have been reported in many countries (Muir & Nectoux, 1996).

Figure 22: **Trends in prostate cancer incidence and mortality among males in Queensland, 1982-1996**



Linear trend [A]	Incidence		Mortality	
(% change/year)	*Estimate*	*95% CI*	*Estimate*	*95% CI*
Male	+5.0	(+4.1, +5.8)	+2.9	(+2.2, +3.5)

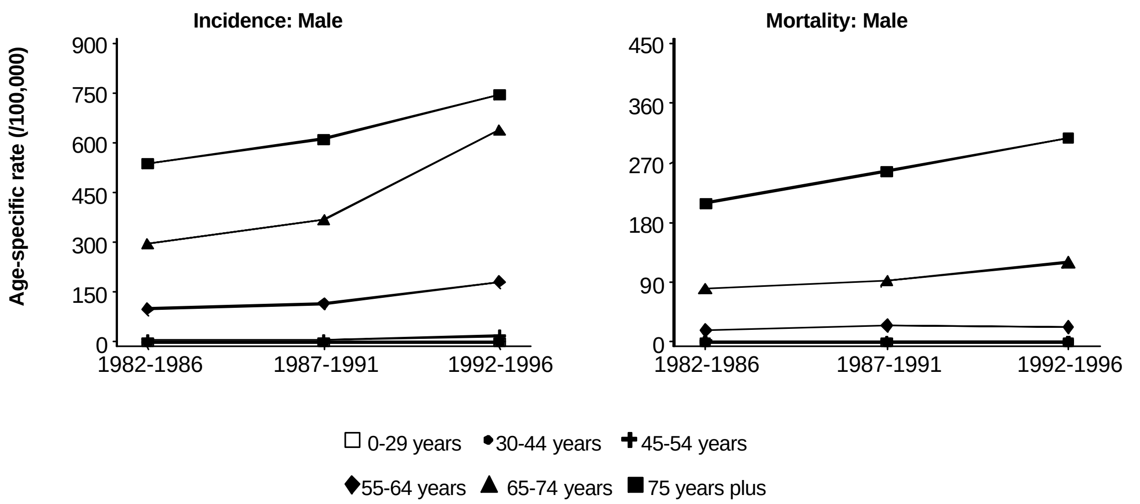
Note: Prostate cancer was classified according to the ICD9 code 185.
Age-standardised rates were age-adjusted using the Australian population as at 30 June 1991.
[A]Estimates and confidence intervals for linear trends were calculated using Poisson regression.

Source: Queensland Cancer Registry, Queensland Health
Australian Bureau of Statistics population estimates

Reasons for the higher increase in mortality rate in Queensland compared to other states are unclear. 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. 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. Because the numbers of diagnosed cases of prostate cancer have increased markedly in recent years, it is likely that the level of interpretation used when certifying or coding the cause-of-death has increased. 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.

Based on 1996 data, the lifetime risk of males dying from prostate cancer in Queensland was approximately 1 in 60, with the risk having increased since 1982 (1 in 79). The majority of the increase in prostate cancer mortality was among males aged 75 years and over, with a slight increase among males aged 65-74 years. Death due to prostate cancer was very rare among males aged under 55 years (Figure 23).

Figure 23: Age-specific trends in prostate cancer incidence and mortality among males in Queensland, 1982-1996



Note: Prostate cancer was classified according to the ICD9 code 185.
Source: Queensland Cancer Registry, Queensland Health
Australian Bureau of Statistics population estimates

BLADDER CANCER

Cancer of the urinary bladder is defined by the ICD9 code of 188. These cancers accounted for 3% of all cancer deaths (eleventh in males and females) and 4% of all new cancer registrations (eleventh for females, fifth among males) in Queensland in 1996.

Scientists believe that most cases of bladder cancer are caused by chronic exposure to carcinogens in urine. The major risk is tobacco smoking, which is thought to exert its effect by introducing aromatic amines into the urine. Some occupational groups such as leather workers and painters have a higher risk. Dietary links have been proposed but are relatively weak (Silverman et al., 1996).

Incidence

There were 589 new registrations of bladder cancer in Queensland during 1996. The age-standardised (Aust91) incidence rate for males was 28.5 cases/100,000 and 8.6 cases/100,000 for females in 1996 (M:F ratio 3.3:1). There was no statistically significant evidence of a change in the incidence of bladder cancer among males or females between 1982 and 1996 (Figure 24). The incidence of bladder cancer in South Australia was reported to have reduced recently (SACR, 1998). In Victoria there has been a slight reduction among females and while male rates had initially reduced a recent increase has been reported (ACCV, 1998). In New South Wales, incidence rates increased between 1970 and the mid 1980s, but since then have decreased for both males and females (Coates & Armstrong, 1997). Slight increases in bladder cancer incidence have been reported internationally (Muir & Nectoux, 1996).

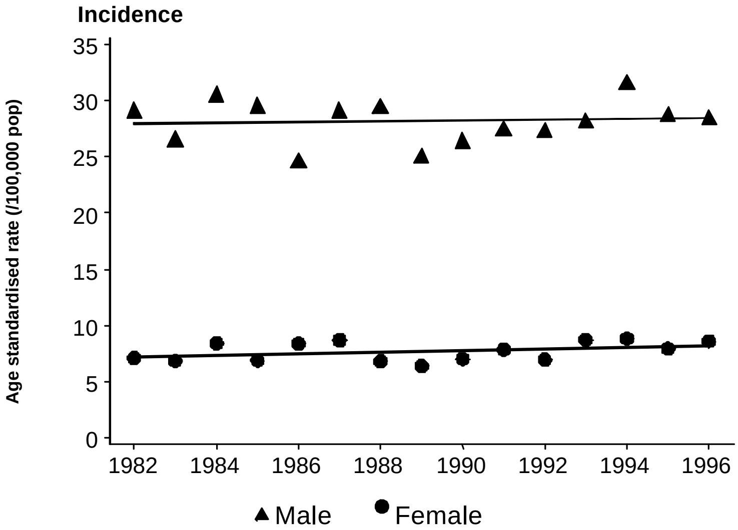
The lifetime risk of males being diagnosed with bladder cancer in Queensland in 1996 was approximately 1 in 45, and 1 in 140 for females. Since 1982, this lifetime risk has reduced for females (1 in 132) and remained relatively constant for males (1 in 42). Bladder cancer incidence was particularly high among people aged 65 years and over, and very rare among people under 45 years of age (Figure 24).

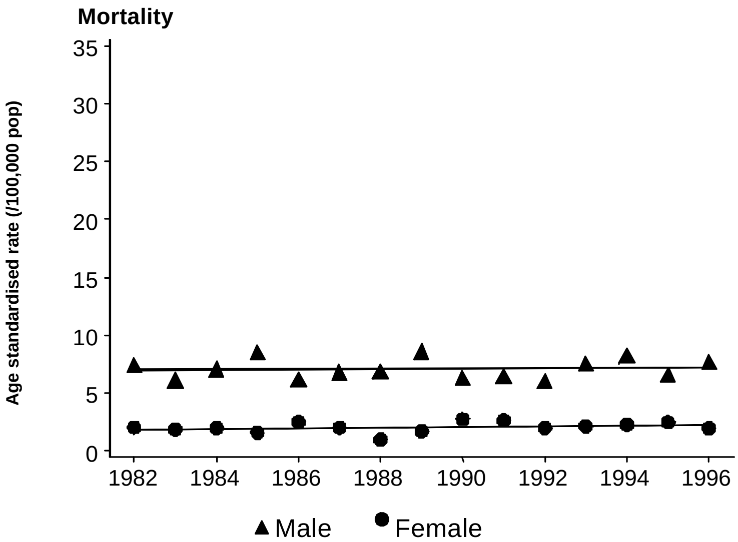
Mortality

During 1996, there were 147 deaths due to bladder cancer in Queensland. The age-standardised (Aust91) mortality rate for males was 7.6 deaths/100,000 and 1.9 deaths/100,000 for females (M:F ratio of 4.0:1). Between 1982 and 1996 there was no significant evidence of a change in mortality due to bladder cancer for males or females (Figure 24). Similar lack of trends in bladder cancer mortality have been reported in South Australia (SACR, 1998),Victoria (ACCV, 1998) and most international countries (Muir & Nectoux, 1996), while reductions for males and females have been reported in New South Wales (Coates & Armstrong, 1997).

The lifetime risk of males dying from bladder cancer in Queensland in 1996 was approximately 1 in 296, and 1 in 914 for females. This lifetime risk has reduced for males (1 in 182) and increased slightly for females (1 in 1077) since 1982.

Figure 24: **Trends in bladder cancer incidence and mortality in Queensland, 1982-1996.**



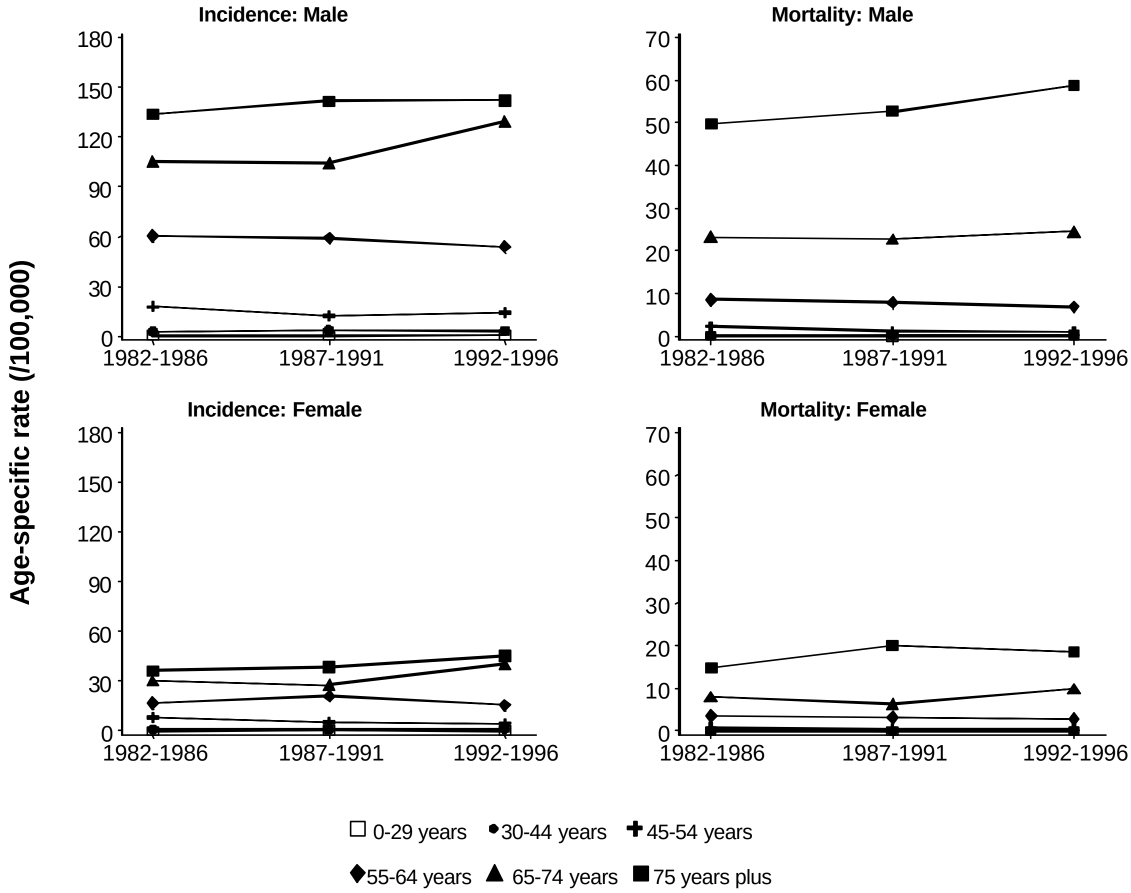


Linear trend [A]	**Incidence**		**Mortality**	
(% change/year)	*Estimate*	*95% CI*	*Estimate*	*95% CI*
Male	+0.1	(-0.6, +0.7)	-0.1	(-1.3, +1.1)
Female	+0.8	(-0.3, +1.9)	+1.2	(-1.0, +3.5)

Note: Cancer of the bladder was classified according to the ICD9 code 188.
Age-standardised rates were age-adjusted using the Australian population as at 30 June 1991.
[A]Estimates and confidence intervals for linear trends were calculated using Poisson regression.

Source: Queensland Cancer Registry, Queensland Health
Australian Bureau of Statistics population estimates

Figure 25: **Age-specific rends in bladder cancer incidence and mortality in Queensland, 1982-1996.**



Note: Cancer of the bladder was classified according to the ICD9 code 188.

Source: Queensland Cancer Registry, Queensland Health
Australian Bureau of Statistics population estimates

RENAL CANCER

Renal cancer represents the cancers of the kidney, renal pelvis and ureter that are grouped together under the ICD9 code of 189. In Queensland during 1996 these cancers accounted for approximately 3% of all cancer deaths (eleventh most common for males and females) and approximately 3% of all new cancer registrations (tenth for females, eighth among males) in Queensland in 1996. The causes of renal cancer are poorly understood.

Incidence

There were 419 new renal cancer registrations in Queensland during 1996. The age-standardised (Aust91) incidence rate for males was 16.6 cases/100,000 and 8.9 cases/100,000 for females in 1996, with a M:F incidence ratio of 1.9:1.

There was statistically significant evidence of a linear increase in the incidence of renal cancer among both males and females of about 2% per year between 1982 and 1996 (Figure 26). This increasing trend was similar to that reported in South Australia (SACR, 1998) and New South Wales (Coates & Armstrong, 1997). Increases have been reported in many countries, but are partly attributed to increased detection which has resulted from advances in ultrasonography and other diagnostic procedures (Doll et al., 1994). The most prominent increases in renal cancer incidence were among males and females aged 65 years and over (Figure 27).

The lifetime risk of males being diagnosed with renal cancer in Queensland in 1996 was approximately 1 in 66, and 1 in 140 for females. Since 1982, this lifetime risk has increased slightly for both males (1 in 95 during 1986) and females (1 in 165).

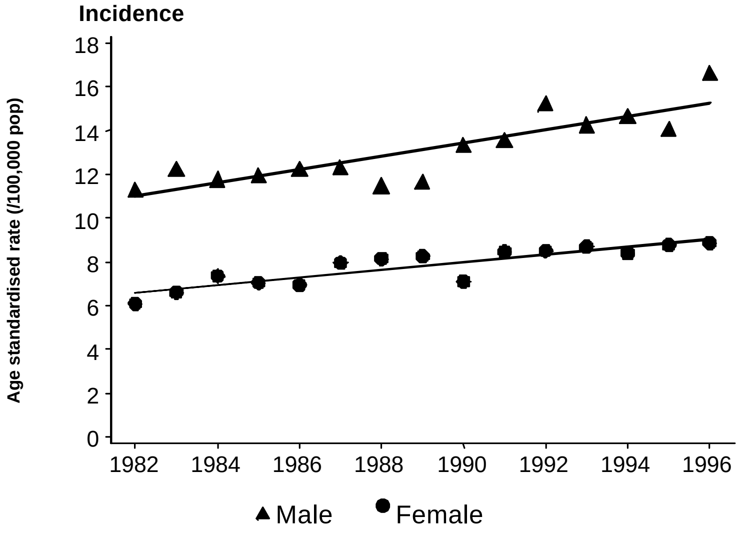
Mortality

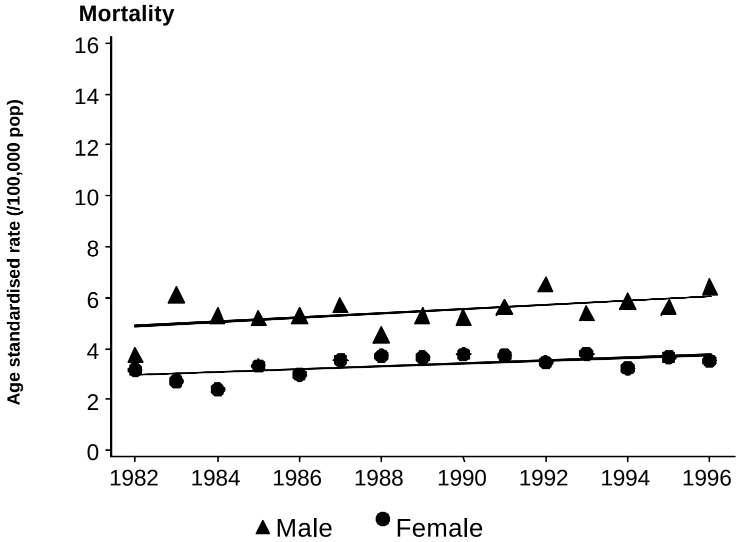
During 1996, there were 162 deaths due to renal cancer in Queensland. The age-standardised (Aust91) mortality rate for males was 6.4 deaths/100,000 and 3.5 deaths/100,000 for females, with a M:F mortality ratio of 1.8:1.

Between 1982 and 1996 there was no evidence of a change in mortality due to renal cancer for males or females (Figure 26), which was similar to that reported in South Australia (SACR, 1998). However mortality increased in New South Wales (Coates & Armstrong, 1997). Age-specific trends suggest a slight increase in renal cancer for males and females 65 years and over but a decrease for males and females aged under 65 (Figure 27).

Based on 1996 data, the lifetime risk of males dying from renal cancer in Queensland was approximately 1 in 182, and 1 in 392 for females. This lifetime risk has increased slightly for males and reduced slightly for females since 1982 (1 in 271 and 1 in 349 for males and females respectively).

Figure 26: Trends in renal cancer incidence and mortality in Queensland, 1982-1996.



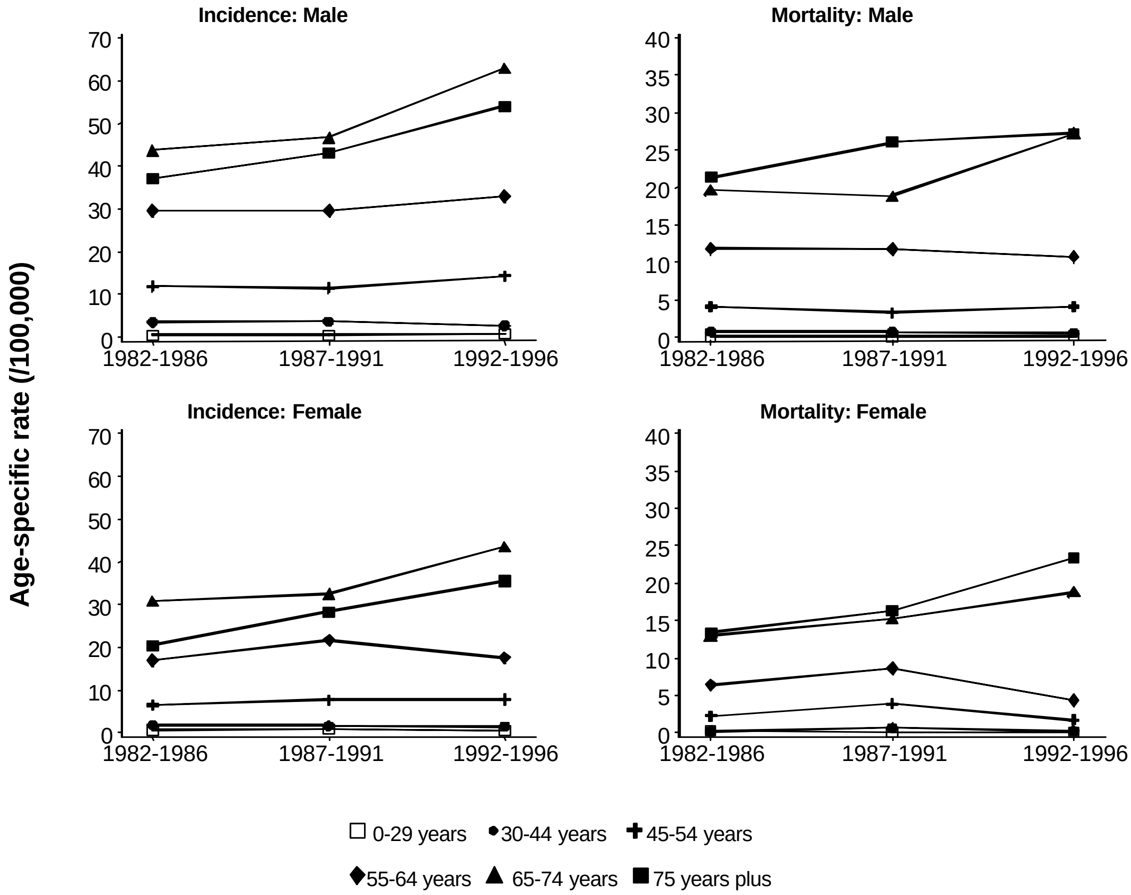


Linear trend [A]	**Incidence**		**Mortality**	
(% change/year)	*Estimate*	*95% CI*	*Estimate*	*95% CI*
Male	+2.3	(+1.4, +3.2)	+0.9	(-0.4, +2.2)
Female	+2.2	(+1.1, +3.2)	+1.5	(-0.2, +3.2)

Note: Renal cancer was classified according to the ICD9 code 189.
Age-standardised rates were age-adjusted using the Australian population as at 30 June 1991.
[A]Estimates and confidence intervals for linear trends were calculated using Poisson regression.

Source: Queensland Cancer Registry, Queensland Health
Australian Bureau of Statistics population estimates

Figure 27: **Age-specific trends in renal cancer incidence and mortality in Queensland, 1982-1996.**



Note: Renal cancer was classified according to the ICD9 code 189.

Source: Queensland Cancer Registry, Queensland Health
Australian Bureau of Statistics population estimates

BRAIN CANCER

Cancer of the brain is defined by the ICD9 code of 191. In Queensland during 1996 brain cancers accounted for approximately 3% of all cancer deaths (ninth in both males and females) and approximately 2% of all new cancer registrations (twelfth for males, fifteenth among females). Among cancer sites with more than ten deaths in 1996, brain cancer caused the second highest number of potential years life lost per death for both males (19 years of life lost per death) and females (17 years of life lost per death), behind cancer of connective and other soft tissue. The causes of brain cancer are unclear.

Incidence

There were 234 new brain cancer registrations in Queensland during 1996. The age-standardised (Aust91) incidence rate for males was 8.6 cases/100,000 and 5.5 cases/100,000 for females in 1996, with a male:female incidence ratio of 1.6:1.

There was no evidence of a statistically significant change in brain cancer incidence for males or females between 1982 and 1996 (Figure 28). Apart from an increase among males and females aged 75 years and over, this lack of change was generally consistent across all other age groups (Figure 29). In South Australia, increases have been reported for females, while not for males (SACR, 1998).

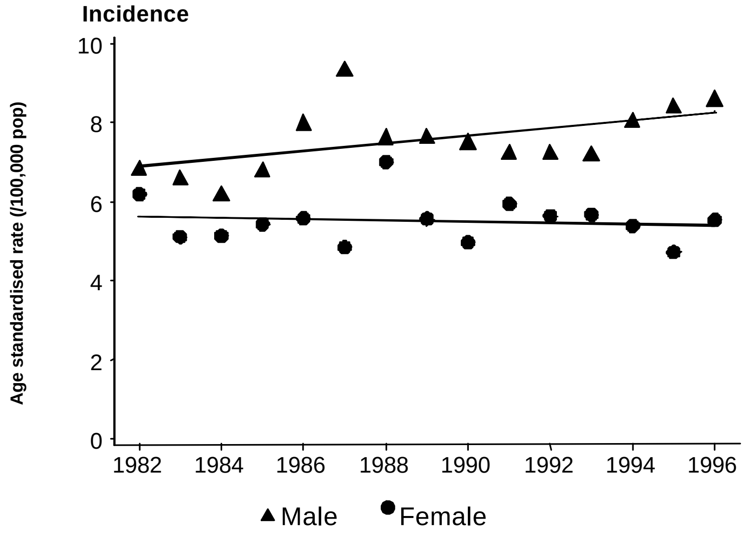
The lifetime risk of males being diagnosed with brain cancer in Queensland in 1996 was approximately 1 in 149, and 1 in 212 for females. Since 1982 this lifetime risk has remained stable for both males (1 in 156) and reduced slightly for females (1 in 180).

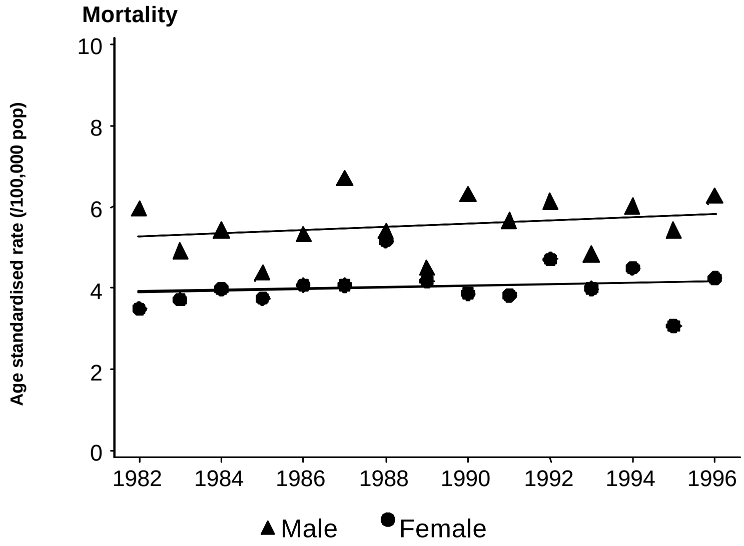
Mortality

During 1996, there were 172 deaths due to brain cancer in Queensland. The age-standardised (Aust91) mortality rate for males was 6.3 deaths/100,000 and 4.2 deaths/100,000 for females, with a male:female mortality ratio of 1.5:1. Between 1982 and 1996 there was no significant evidence of a change in mortality due to brain cancer for males or females (Figure 28), corresponding to that observed in South Australia (SACR, 1998). Apart from an increase in mortality among males and females aged 75 years and over, this lack of change was generally consistent across all other age groups (Figure 29).

The lifetime risk of males dying from brain cancer in Queensland in 1996 was approximately 1 in 178, and 1 in 240 for females. This lifetime risk has increased slightly for females (1 in 320) and remained relatively constant for males (1 in 170) since 1982.

Figure 28: **Trends in brain cancer incidence and mortality in Queensland, 1982-1996.**



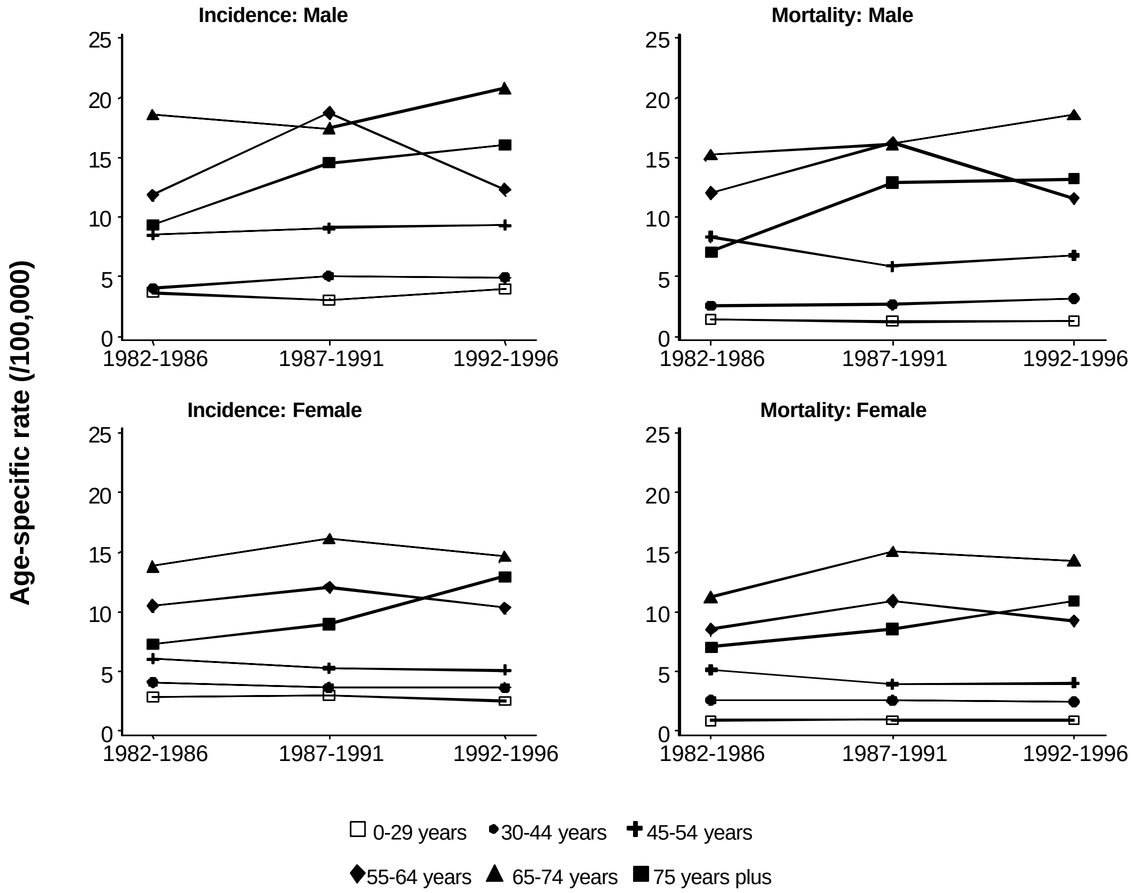


Linear trend [A] (% change/year)	Incidence Estimate	Incidence 95% CI	Mortality Estimate	Mortality 95% CI
Male	+0.8	(-0.3, +1.9)	+0.0	(-1.2, +1.3)
Female	-0.3	(-1.5, +0.9)	+0.1	(-1.2, +1.5)

Note: Cancer of the brain was classified according to the ICD9 code 191.
Age-standardised rates were age-adjusted using the Australian population as at 30 June 1991.
[A]Estimates and confidence intervals for linear trends were calculated using Poisson regression.

Source: Queensland Cancer Registry, Queensland Health
Australian Bureau of Statistics population estimates

Figure 29: Age-specific trends in brain cancer incidence and mortality in Queensland, 1982-1996.



Note: Cancer of the brain was classified according to the ICD9 code 191.

Source: Queensland Cancer Registry, Queensland Health
Australian Bureau of Statistics population estimates

NON-HODGKIN'S LYMPHOMA

Non-Hodgkin's lymphoma is defined by those conditions with an ICD9 code of either 200 or 202, including lymphosarcoma, reticulosarcoma, nodular lymphoma and mycosis fungoides. In Queensland during 1996, non-Hodgkin's lymphomas accounted for approximately 4% of all cancer deaths (seventh for males and sixth for females) and approximately 4% of all new cancer registrations (sixth for males and fifth for females).

No practical preventive measure for non-Hodgkin's lymphoma is known. There is some thought that HIV infection has contributed to lymphoma trends, with the age/sex profile consistent with a HIV effect (Doll et al., 1994; Scherr & Mueller, 1996), and a small proportion of non-Hodgkin's lymphomas may be attributable to occupational and industrial exposures to herbicides, although the evidence is not conclusive (Tomatis, 1990; Scherr & Mueller, 1996).

Incidence

There were 524 new registrations of non-Hodgkin's lymphoma in Queensland during 1996. The age-standardised (Aust91) incidence rate for males was 18.3 cases/100,000 and 13.1 cases/100,000 for females in 1996, with a male:female incidence ratio of 1.4:1.

There was evidence of a statistically significant increase in the incidence of non-Hodgkin's lymphomas between 1982 and 1996 of approximately 2% per year for both males and females (Figure 30). This is consistent with the increases reported in New South Wales (Coates & Armstrong, 1997), South Australia (SACR, 1998) and Victoria (ACCV, 1998). However, these increases were mainly among males and females aged 65 years and over, with incidence rates being stable or slightly decreasing for other age groups (Figure 31).

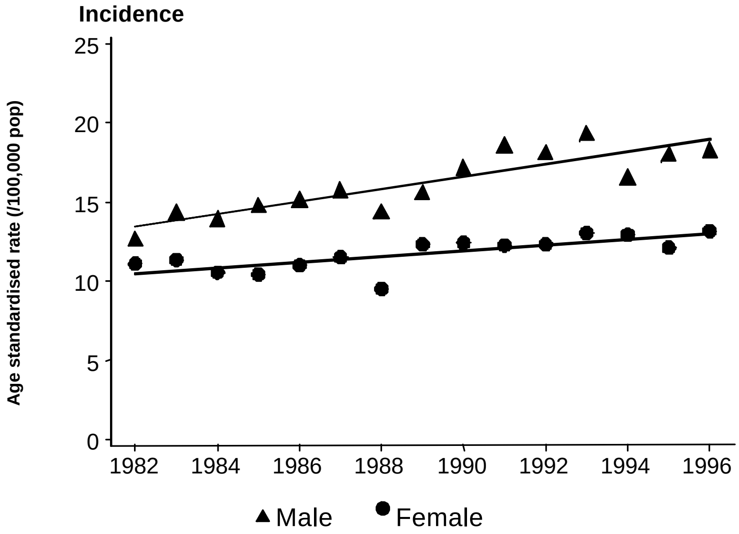
The lifetime risk of males being diagnosed with non-Hodgkin's lymphoma in Queensland in 1996 was approximately 1 in 64 and 1 in 92 for females. Since 1982 this lifetime risk has increased only slightly for both males (1 in 88) and females (1 in 107).

Mortality

During 1996, there were 225 deaths due to non-Hodgkin's lymphoma in Queensland. The age-standardised (Aust91) mortality rate for males was 7.5 deaths/100,000 and 5.9 deaths/100,000 for females, with a male:female mortality ratio of 1.3:1. Between 1982 and 1996 there was no evidence of a change in mortality due to non-Hodgkin's lymphoma for males or females (Figure 30), similar to that reported in Victoria (ACCV, 1998). In comparison, there has been an increase in mortality rates in New South Wales (Coates & Armstrong, 1997), and an increase for females in South Australia (SACR, 1998). As was observed for incidence, increases in mortality were observed among males and females aged 65 years and over, while mortality rates were stable or decreasing for younger age groups (Figure 31).

The lifetime risk of males dying from non-Hodgkin's lymphoma in Queensland based on 1996 data was approximately 1 in 180, and 1 in 254 for females. Compared to 1982 data, this lifetime risk has remained steady for males (1 in 180) and increased for females (1 in 354).

Figure 30: **Trends in non-Hodgkin's lymphoma incidence and mortality in Queensland, 1982-1996**

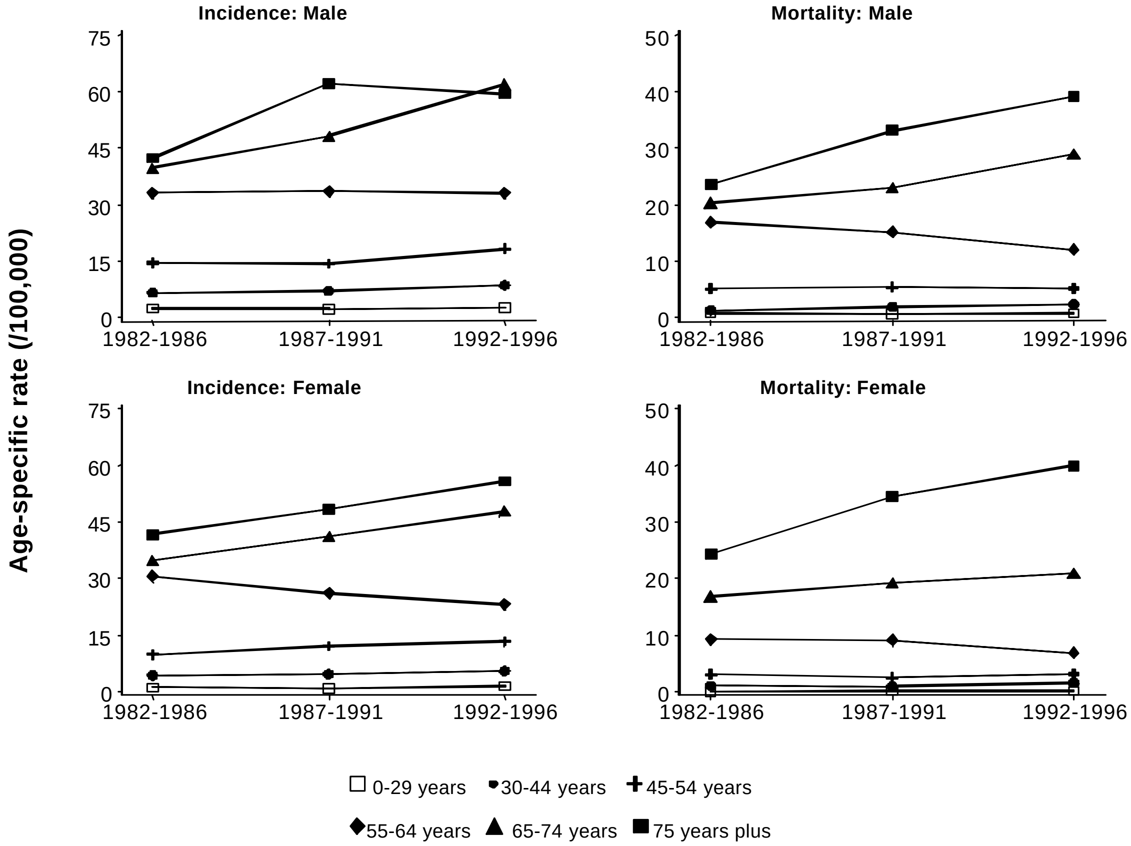


Linear trend [A]	**Incidence**		**Mortality**	
(% change/year)	*Estimate*	*95% CI*	*Estimate*	*95% CI*
Male	+2.2	(+1.4, +3.1)	+1.4	(+0.3, +2.4)
Female	+1.5	(+0.6, +2.4)	+1.7	(+0.3, +3.1

Note: Non-Hodgkin's lymphoma was classified according to the ICD9 codes 200 and 202
Age-standardised rates were age-adjusted using the Australian population as at 30 June 1991.
[A]Estimates and confidence intervals for linear trends were calculated using Poisson regression.

Source: Queensland Cancer Registry, Queensland Health
Australian Bureau of Statistics population estimates

Figure 31: **Age-specific rends in non-Hodgkin's lymphoma incidence and mortality in Queensland, 1982-1996**



Note: Non-Hodgkin's lymphoma was classified according to the ICD9 codes 200 and 202

Source: Queensland Cancer Registry, Queensland Health
Australian Bureau of Statistics population estimates

LEUKAEMIA

Leukaemia is defined by those conditions with an ICD9 code between 204 and 208 (inclusive), including lymphoid leukaemia, myeloid leukaemia, monocytic leukaemia and other specified and unspecified types of leukaemia. During 1996, leukaemia accounted for 4% of all cancer deaths (fifth most common site among males, and seventh for females) in Queensland. In addition, leukaemia made up 3% of all new cancer registrations in Queensland during 1996 (seventh for males and females). Between 1992 and 1996 leukaemia was the most common cancer site in terms of childhood (0-14 years) cancer incidence and mortality in Queensland.

Factors contributing to leukaemia are not clear, although it is postulated that ionizing radiation, certain drugs and chemicals play some role. However, population levels of these factors are typically too low to account for more than a small percentage of cases (Tomatis 1990; Linet & Cartwright, 1996).

Incidence

There were 470 new registrations of leukaemia in Queensland during 1996. The age-standardised (Aust91) incidence rate for males was 17.6 cases/100,000 and 10.8 cases/100,000 for females in 1996 (M:F ratio of 1.6:1). There was no evidence of a statistically significant change in the incidence of leukaemia between 1982 and 1996 (Figure 32). This was similar to that reported in Victoria (ACCV, 1997) and the United States (Muir & Nectoux, 1996), while there was an increase in South Australia (SACR, 1998). In New South Wales, incidence has decreased since the mid 1980s (Coates & Armstrong, 1997).

The lack of change in leukaemia incidence was generally consistent across all age groups, although there was an increase in leukaemia incidence among females 75 years of age and over (Figure 33)

Based on 1996 data, the lifetime risk of males being diagnosed with leukaemia in Queensland was approximately 1 in 73 and 1 in 135 for females. Since 1982 this lifetime risk has increased slightly for males (1 in 80) and remained relatively constant for females (1 in 134).

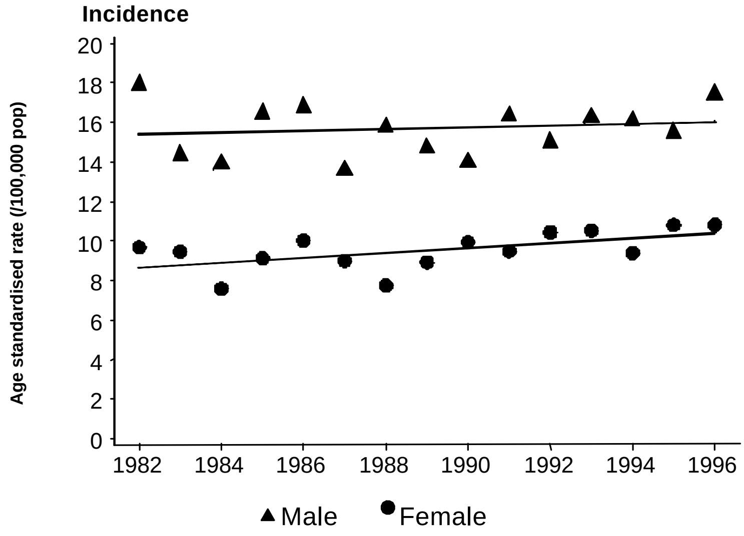
Mortality

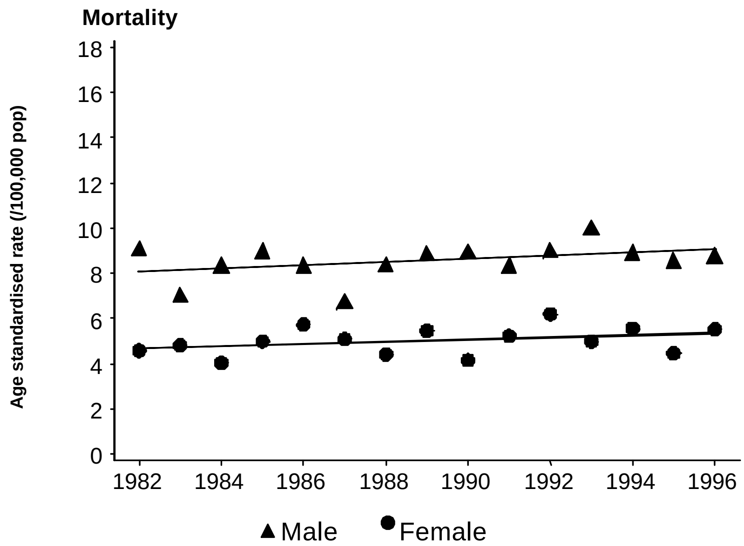
During 1996, there were 237 deaths due to leukaemia in Queensland. The age-standardised (Aust91) mortality rate for males was 8.8 deaths/100,000 and 5.5 deaths/100,000 for females (M:F ratio of 1.6:1). There was no evidence of a change in mortality due to leukaemia for males or females between 1982 and 1996 (Figure 32), which corresponds to that reported in South Australia (SACR, 1998) and Victoria (ACCV, 1997). In New South Wales, mortality has decreased since the mid 1980s (Coates & Armstrong, 1997).

Based on 1996 data, the lifetime risk of males dying from leukaemia in Queensland was approximately 1 in 164, and 1 in 277 for females. This lifetime risk has increased slightly for females (1 in 315) and remained relatively constant for males (1 in 161) compared to 1982.

As for incidence, the lack of change in leukaemia mortality was generally consistent across all age groups, although there was an increase in leukaemia mortality among females 75 years of age and over (Figure 33)

Figure 32: **Trends in leukaemia incidence and mortality in Queensland, 1982-1996**



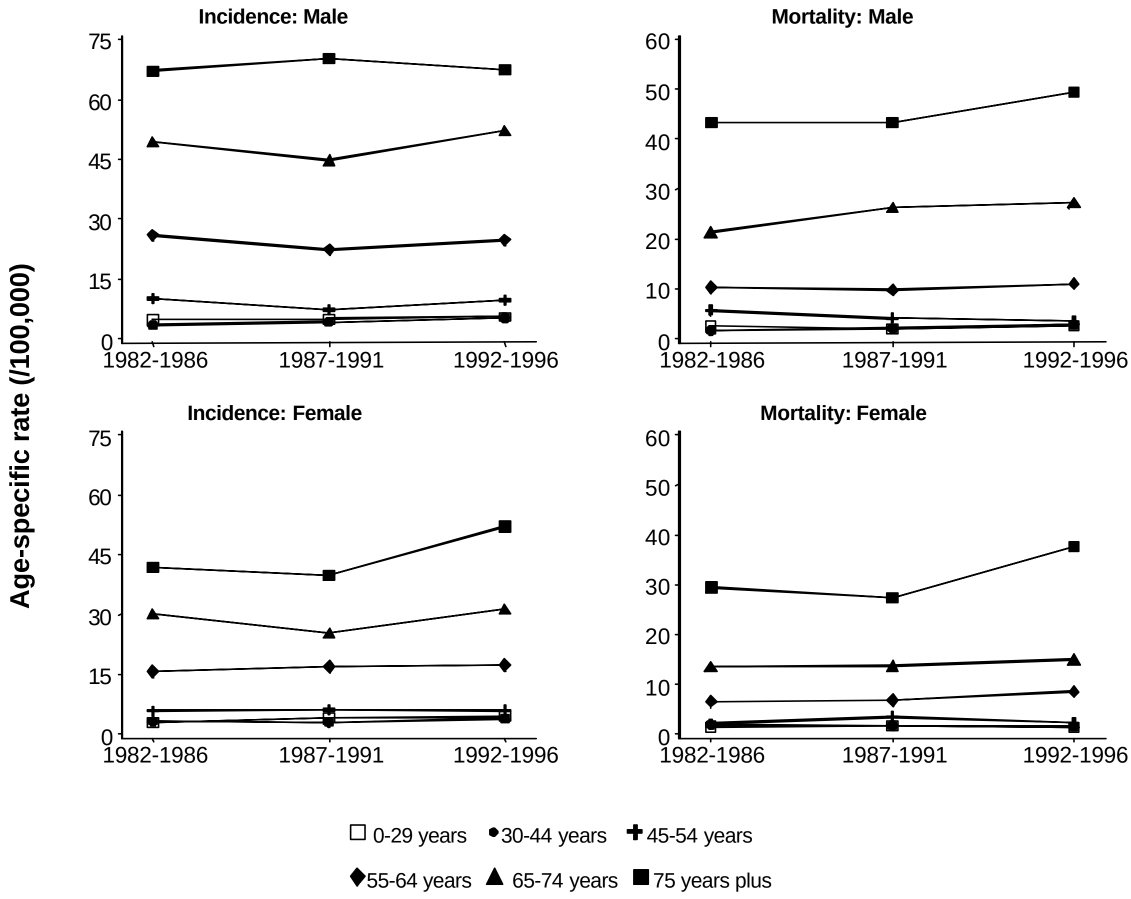


Linear trend [A]	**Incidence**		**Mortality**	
(% change/year)	*Estimate*	*95% CI*	*Estimate*	*95% CI*
Male	+0.5	(-0.2, +1.3)	+0.4	(-0.7, +1.5)
Female	+1.3	(+0.3, +2.3)	+1.0	(-0.1, +2.1)

Note: Leukaemia was classified according to the ICD9 codes 204 to 208
Age-standardised rates were age-adjusted using the Australian population as at 30 June 1991.
[A]Estimates and confidence intervals for linear trends were calculated using Poisson regression.

Source: Queensland Cancer Registry, Queensland Health
Australian Bureau of Statistics population estimates

Figure 33: **Trends in leukaemia incidence and mortality in Queensland, 1982-1996**



Note: Leukaemia was classified according to the ICD9 codes 204 to 208

Source: Queensland Cancer Registry, Queensland Health
Australian Bureau of Statistics population estimates

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APPENDIX A: Explanation of statistics and measures presented in the report

Cancer incidence is defined as the number of new cancers first registered for a given population during a specified period. The data presented in this report only includes invasive cancers at the primary sites, and exclude non-melanocytic skin cancers.

Confidence intervals. All of the rates and linear trends presented in this report are estimates of the true or underlying values. It is possible to attach an estimate of the precision, or confidence, to these rates or trends. Confidence intervals give an indication of the degree of precision that a given estimate has. In this report, 95% confidence intervals are presented. The 95% confidence interval is the range of values that contains the true value of the estimate with a probability of 0.95. Confidence intervals for incidence and mortality rates were calculated using the method described in Rothman & Boice (1979), while the confidence intervals for the percent change per year were calculated using the parameter estimates and their standard error from the Poisson regression model.

Expected lifetime is the number of years taken to be a person's expected lifetime, and for this report is equal to 75 years. Although current data suggests that the average life expectancy for males in Australia is 75 years and for females 81 years, 75 years is still regarded as the standard cut-off for lifetime in cancer publications worldwide. In addition, it was considered confusing to use 75 years for males and 80 years for females.

Lifetime risk is the estimated risk that a person will develop cancer during their expected lifetime (before 75 years of age).

Sex ratio (M:F ratio) indicates the relative incidence or mortality between males and females. In this publication, it is based on age-standardised rates where the male rate is divided by the female rate for each cancer site. Ratios greater than 1 indicate an excess in males, while ratios less than 1 indicate an excess in females. Sex ratios can be calculated using crude rates, observed numbers, age standardised rates or cumulative rates. However, the use of age standardised rates provides the only way of adjusting for age differences in the sex-specific population distribution and including cases for persons aged over 75 years.

Risk of premature death from cancer is the estimated risk that a person will die from cancer during their expected lifetime (before 75 years of age).

Potential-years life lost (PYLL) 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.

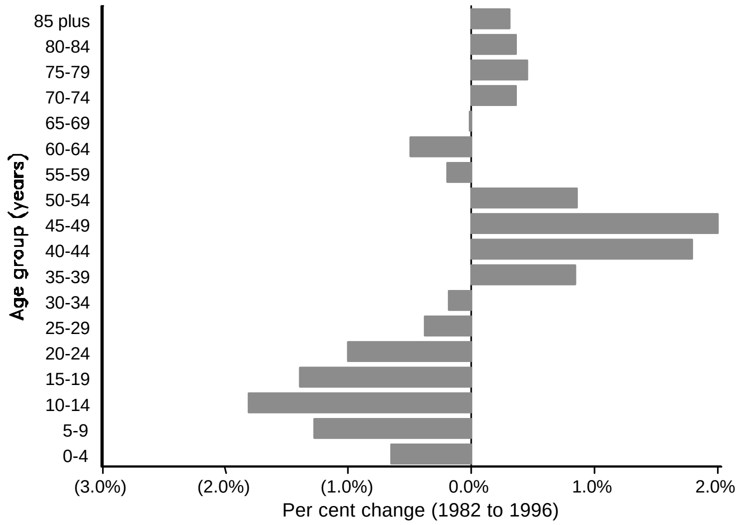
Direct age-standardised rates (ASR) are used to enable comparison between populations where the age profile changes over time (see below). In the text of this report, the rates are standardised to the Australian age-specific population distribution in 1991 (denoted by Aust91).

Changes in Queensland populations between 1982 and 1996

As shown in Figure A1, the proportion of the population younger than 34 years of age has decreased between 1982 and 1996, while the proportion of people aged 40-54 has increased. There was little change in the proportion of the population aged 65 years and over.

Any comparisons of cancer incidence or mortality between 1982 to 1996 need to account for these changes in the population distribution, otherwise the comparisons may be influenced by the different populations. For example, since cancer is more common among older people, cancer counts may increase over time simply due to an increased number and proportion of older people in the population. For this reason, age standardised rates are used for comparisons and trends over time.

Figure A1 Age-specific changes in population distribution (persons) in Queensland between 1982 and 1996



APPENDIX B: Cancer Incidence in Queensland, 1982-1996

Site	Sex		1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Bladder	**Male**	Cases	278	259	311	315	272	327	350	303	328	345	362	388	452	431	432
		Lifetime risk (1 in …)	42.1	50.9	38.7	42.1	48.6	42.2	40.2	51	49.6	49.8	44.5	43.5	38.3	40.4	44.7
		ASR (Aust91) / 100,000	29.1	26.5	30.5	29.5	24.6	29.1	29.5	25	26.4	27.4	27.3	28.2	31.6	28.7	28.4
		95% CI	(26-33)	(23-30)	(27-34)	(26-33)	(22-28)	(26-32)	(27-33)	(22-28)	(24-29)	(25-31)	(25-30)	(25-31)	(29-35)	(26-32)	(26-31)
		ASR (World) / 100,000	20	18	20.8	20.2	17.1	20.4	20.5	17	17.9	18.4	19	19.1	21.8	20.3	19.6
		95% CI	(18-23)	(16-20)	(19-23)	(18-23)	(15-19)	(18-23)	(18-23)	(15-19)	(16-20)	(17-20)	(17-21)	(17-21)	(20-24)	(18-22)	(18-22)
	Female	Cases	84	82	104	87	111	119	97	94	107	122	112	145	152	138	157
		Lifetime risk (1 in …)	184.2	154.8	136	167	140.6	137.1	169.8	175.8	168.6	154.1	170.8	133.8	140.1	139.4	139.8
		ASR (Aust91) / 100,000	7.1	6.8	8.4	6.8	8.3	8.6	6.8	6.3	7	7.8	6.9	8.7	8.8	7.9	8.6
		95% CI	(6-9)	(5-8)	(7-10)	(6-8)	(7-10)	(7-10)	(6-8)	(5-8)	(6-8)	(7-9)	(6-8)	(7-10)	(7-10)	(7-9)	(7-10)
		ASR (World) / 100,000	4.8	5.1	5.9	5.1	6	6.3	5	4.7	5.1	5.5	4.8	6.1	6.1	5.8	5.8
		95% CI	(4-6)	(4-6)	(5-7)	(4-6)	(5-7)	(5-8)	(4-6)	(4-6)	(4-6)	(5-7)	(4-6)	(5-7)	(5-7)	(5-7)	(5-7)
Body of uterus	**Female**	Cases	168	146	166	156	157	178	177	162	190	172	225	217	253	245	223
		Lifetime risk (1 in …)	64.8	88.4	73.5	81.5	85.7	78.2	79.4	92.2	75.2	90.4	70.2	77.1	64.4	77.4	85.8
		ASR (Aust91) / 100,000	14.3	12.1	13.5	12.4	12.1	13.3	12.9	11.3	12.9	11.4	14.6	13.4	15.3	14	12.8
		95% CI	(12-17)	(10-14)	(12-16)	(11-15)	(10-14)	(11-15)	(11-15)	(10-13)	(11-15)	(10-13)	(13-17)	(12-15)	(14-17)	(12-16)	(11-15)
		ASR (World) / 100,000	11.8	9.6	10.7	9.8	9.8	10.6	10.3	9	10.2	8.9	11.8	10.4	12.2	10.8	10
		95% CI	(10-14)	(8-11)	(9-13)	(8-12)	(8-12)	(9-12)	(9-12)	(8-11)	(9-12)	(8-10)	(10-13)	(9-12)	(11-14)	(10-12)	(9-11)
Brain	**Male**	Cases	77	74	71	84	101	119	99	104	102	102	105	108	125	138	138
		Lifetime risk (1 in …)	155.9	161.8	177.2	173.6	138.7	117	152.6	150.3	152.9	157.3	154.6	180.4	142.1	129.5	149
		ASR (Aust91) / 100,000	6.8	6.6	6.2	6.8	8	9.3	7.6	7.6	7.5	7.2	7.2	7.2	8	8.4	8.6
		95% CI	(5-9)	(5-8)	(5-8)	(5-8)	(7-10)	(8-11)	(6-9)	(6-9)	(6-9)	(6-9)	(6-9)	(6-9)	(7-10)	(7-10)	(7-10)
		ASR (World) / 100,000	5.9	5.7	5.4	6.3	7.1	8	6.8	6.8	6.1	6.2	6.3	6.3	7	7.5	7
		95% CI	(5-7)	(5-7)	(4-7)	(5-8)	(6-9)	(7-10)	(6-8)	(6-8)	(5-7)	(5-8)	(5-8)	(5-8)	(6-8)	(6-9)	(6-8)
	Female	Cases	70	60	63	69	71	64	96	78	72	88	86	89	88	80	96
		Lifetime risk (1 in …)	180.3	215.7	226.8	204.7	212.1	232.9	154	202	218.5	195.6	202.1	219.1	213.6	260.9	211.9
		ASR (Aust91) / 100,000	6.1	5.1	5.1	5.4	5.5	4.8	7	5.5	4.9	5.9	5.6	5.6	5.3	4.7	5.5
		95% CI	(5-8)	(4-7)	(4-7)	(4-7)	(4-7)	(4-6)	(6-9)	(4-7)	(4-6)	(5-7)	(5-7)	(5-7)	(4-7)	(4-6)	(4-7)
		ASR (World) / 100,000	5.5	4.2	4.7	4.8	5	4.2	5.9	4.9	4.4	5.4	4.6	5.1	4.6	4	4.6
		95% CI	(4-7)	(3-6)	(4-6)	(4-6)	(4-6)	(3-5)	(5-7)	(4-6)	(3-6)	(4-7)	(4-6)	(4-6)	(4-6)	(3-5)	(4-6)

Site	Sex		1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Breast	**Female**	Cases	883	899	908	947	1005	1149	1082	1159	1292	1411	1363	1555	1596	1642	1594
(Female)		Lifetime risk (1 in …)	15.3	15.2	15.2	14.8	14.8	13.5	14.4	13.8	12.8	12.5	12.9	11.9	11.8	12	12.4
		ASR (Aust91) / 100,000	77.7	77.7	76	77.3	78.9	87.6	79.6	81.9	88.7	94.2	88	96.9	95.9	95.2	90.5
		95% CI	(73-83)	(73-83)	(71-81)	(72-82)	(74-84)	(83-93)	(75-85)	(77-87)	(84-94)	(89-99)	(83-93)	(92-102)	(91-101)	(91-100)	(86-95)
		ASR (World) / 100,000	61.4	62	60.8	62.3	62.1	70.2	64.3	66.4	71.9	75.6	71.7	79.3	78.3	77.7	73.9
		95% CI	(57-66)	(58-66)	(57-65)	(58-66)	(58-66)	(66-74)	(61-68)	(63-70)	(68-76)	(72-80)	(68-76)	(75-83)	(75-82)	(74-82)	(70-78)
Cervix	**Female**	Cases	185	181	196	188	163	186	193	205	192	217	193	210	207	185	190
		Lifetime risk (1 in …)	76.4	73.3	75.6	78.8	95	89.5	90.5	85.5	93.3	84.9	97.2	89.8	95.3	112.7	112.4
		ASR (Aust91) / 100,000	16.5	15.8	16.6	15.5	13	14.4	14.2	14.6	13.3	14.6	12.6	13.3	12.6	10.9	11.1
		95% CI	(14-19)	(14-18)	(14-19)	(13-18)	(11-15)	(12-17)	(12-16)	(13-17)	(12-15)	(13-17)	(11-15)	(12-15)	(11-14)	(9-13)	(10-13)
		ASR (World) / 100,000	13.7	12.9	13.5	13.1	10.7	11.7	11.4	11.7	11.2	11.9	10.3	11	10.4	8.8	9.2
		95% CI	(12-16)	(11-15)	(12-16)	(11-15)	(9-13)	(10-14)	(10-13)	(10-14)	(10-13)	(10-14)	(9-12)	(10-13)	(9-12)	(8-10)	(8-11)
Colorectal	**Male**	Cases	601	598	620	668	709	762	762	791	862	890	859	1029	1016	1062	1107
		Lifetime risk (1 in …)	19.6	20.9	20.7	19.2	19.2	17.8	18.3	18.3	17.9	17.5	18.1	16.1	16.7	16.7	15.8
		ASR (Aust91) / 100,000	61.1	59.9	58.7	61.6	63.4	65.3	63.9	63.9	67.1	68	62.8	72.9	69.6	70.2	71.6
		95% CI	(56-66)	(55-65)	(54-64)	(57-67)	(59-68)	(61-70)	(59-69)	(60-69)	(63-72)	(64-73)	(59-67)	(69-78)	(65-74)	(66-75)	(68-76)
		ASR (World) / 100,000	44.1	43	42.7	44.1	45.9	47.5	46.3	45.9	48.4	49	46.4	52.9	50.7	51.3	51.7
		95% CI	(41-48)	(40-47)	(39-46)	(41-48)	(43-49)	(44-51)	(43-50)	(43-49)	(45-52)	(46-52)	(43-50)	(50-56)	(48-54)	(48-55)	(49-55)
	Female	Cases	591	549	617	605	644	647	672	700	662	743	797	821	878	860	924
		Lifetime risk (1 in …)	24.2	27.8	24	24.3	25.4	26.6	25.8	24	27.6	24.7	23.3	23.4	22.6	23.5	22.4
		ASR (Aust91) / 100,000	50.6	45.8	50	47.6	48.8	47.3	47.3	47.6	43.6	48.2	50.1	49.7	51.3	48.5	51.1
		95% CI	(47-55)	(42-50)	(46-54)	(44-52)	(45-53)	(44-51)	(44-51)	(44-51)	(40-47)	(45-52)	(47-54)	(46-53)	(48-55)	(45-52)	(48-55)
		ASR (World) / 100,000	36.8	33.2	36.8	35.6	35.5	34.3	33.5	34.8	31.6	35.3	36.3	36.2	37.5	35.1	37.1
		95% CI	(34-40)	(30-36)	(34-40)	(33-39)	(33-38)	(32-37)	(31-36)	(32-38)	(29-34)	(33-38)	(34-39)	(34-39)	(35-40)	(33-38)	(35-40)
Leukaemia	**Male**	Cases	176	149	147	178	195	162	192	183	178	212	203	231	242	237	274
		Lifetime risk (1 in …)	80	88.7	95	79.9	74	94.5	85.3	92.5	103.2	85.4	92.2	83.5	73.3	83.6	73.1
		ASR (Aust91) / 100,000	18	14.4	14	16.5	16.9	13.6	15.8	14.8	14	16.4	15.1	16.3	16.2	15.6	17.5
		95% CI	(15-21)	(12-17)	(12-16)	(14-19)	(15-19)	(12-16)	(14-18)	(13-17)	(12-16)	(14-19)	(13-17)	(14-19)	(14-18)	(14-18)	(16-20)
		ASR (World) / 100,000	13.2	11.1	10.8	12.5	13.3	10.5	12.6	10.9	10.5	12	11.4	12.6	12.8	12.4	13.5
		95% CI	(11-15)	(9-13)	(9-13)	(11-15)	(12-15)	(9-12)	(11-15)	(9-13)	(9-12)	(11-14)	(10-13)	(11-14)	(11-15)	(11-14)	(12-15)
	Female	Cases	114	114	97	117	135	123	110	131	149	146	169	171	163	190	196
		Lifetime risk (1 in …)	134.4	119	173.8	143.2	135.8	141.5	163.8	151	125.5	140.3	147.7	112.8	142.9	106.8	135.3
		ASR (Aust91) / 100,000	9.6	9.4	7.5	9.1	10	9	7.7	8.9	9.9	9.4	10.4	10.5	9.3	10.8	10.8
		95% CI	(8-12)	(8-11)	(6-9)	(8-11)	(8-12)	(7-11)	(6-9)	(7-11)	(8-12)	(8-11)	(9-12)	(9-12)	(8-11)	(9-12)	(9-12)
		ASR (World) / 100,000	7.3	7.2	6	7.7	7.6	7.4	6	6.9	8.6	7.7	8.2	8.6	7.6	8.9	8.6
		95% CI	(6-9)	(6-9)	(5-7)	(6-9)	(6-9)	(6-9)	(5-7)	(6-8)	(7-10)	(7-9)	(7-10)	(7-10)	(6-9)	(8-10)	(7-10)

Ste	Sex		1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Lung	**Male**	Cases	844	818	840	828	822	908	908	919	927	915	962	966	948	958	978
		Lifetime risk (1 in …)	12.9	13.9	14.3	14.4	15.2	14.1	14.8	14.8	15.9	16.3	15.3	16.2	16.7	17.3	17.9
		ASR (Aust91) / 100,000	84.6	79.2	78.7	76.3	72.5	77.4	75.8	73.7	72.5	69.6	70.3	68.6	64.9	63.6	63.7
		95% CI	(79-91)	(74-85)	(74-84)	(71-82)	(68-78)	(73-83)	(71-81)	(69-79)	(68-77)	(65-74)	(66-75)	(64-73)	(61-69)	(60-68)	(60-68)
		ASR (World) / 100,000	61.1	58.2	57.5	55.1	52.9	56.5	54.4	53.5	51.4	50.2	50.6	48.7	46.2	45.3	45.1
		95% CI	(57-65)	(54-62)	(54-62)	(51-59)	(49-57)	(53-60)	(51-58)	(50-57)	(48-55)	(47-54)	(48-54)	(46-52)	(43-49)	(43-48)	(42-48)
	Female	Cases	189	185	204	234	231	238	248	258	299	355	323	363	354	367	419
		Lifetime risk (1 in …)	61.9	70.9	60.2	55.6	56.6	55.6	57.5	56	49	43.5	49.1	46.7	47.4	51.9	42.9
		ASR (Aust91) / 100,000	16	15.4	16.3	18.5	17.9	17.7	17.7	18	20.2	23.4	20.8	22.5	21.4	20.8	24
		95% CI	(14-19)	(13-18)	(14-19)	(16-21)	(16-20)	(16-20)	(16-20)	(16-20)	(18-23)	(21-26)	(19-23)	(20-25)	(19-24)	(19-23)	(22-26)
		ASR (World) / 100,000	12.4	12	12.9	14.7	14	13.8	13.2	14	15.9	17.6	16.1	16.9	16.5	15.5	18.1
		95% CI	(11-14)	(10-14)	(11-15)	(13-17)	(12-16)	(12-16)	(12-15)	(12-16)	(14-18)	(16-20)	(14-18)	(15-19)	(15-18)	(14-17)	(16-20)
Non-Hodgkins lymphoma	**Male**	Cases	131	156	151	166	175	186	178	196	226	241	249	280	251	278	288
		Lifetime risk (1 in …)	87.5	77.6	91.4	78.9	81.6	76.3	84.3	83.5	67.7	70.2	65.4	61.3	72.2	64.7	64.1
		ASR (Aust91) / 100,000	12.7	14.3	13.9	14.8	15.1	15.7	14.4	15.6	17.1	18.6	18.1	19.3	16.5	18	18.3
		95% CI	(11-15)	(12-17)	(12-16)	(13-17)	(13-18)	(14-18)	(12-17)	(14-18)	(15-20)	(16-21)	(16-21)	(17-22)	(15-19)	(16-20)	(16-21)
		ASR (World) / 100,000	9.9	11.5	11	11.2	11.6	12	11.2	11.4	13	13.4	13.5	15.2	12.7	13.7	14
		95% CI	(8-12)	(10-14)	(9-13)	(10-13)	(10-14)	(10-14)	(10-13)	(10-13)	(11-15)	(12-15)	(12-15)	(13-17)	(11-14)	(12-15)	(12-16)
	Female	Cases	131	136	131	133	144	154	132	177	188	186	197	213	217	213	236
		Lifetime risk (1 in …)	106.6	97.7	107	109.1	113.7	98.7	122	93.7	93.6	99.6	105.4	90.2	89.2	95.6	91.5
		ASR (Aust91) / 100,000	11	11.3	10.5	10.4	10.9	11.4	9.5	12.3	12.4	12.2	12.3	13	12.9	12.1	13.1
		95% CI	(9-13)	(10-13)	(9-13)	(9-12)	(9-13)	(10-13)	(8-11)	(11-14)	(11-14)	(11-14)	(11-14)	(11-15)	(11-15)	(11-14)	(12-15)
		ASR (World) / 100,000	8.5	8.8	8.1	7.7	8.3	8.7	7.4	9.4	8.8	9.2	9.2	9.6	9.8	9.1	9.8
		95% CI	(7-10)	(7-10)	(7-10)	(7-9)	(7-10)	(7-10)	(6-9)	(8-11)	(8-10)	(8-11)	(8-11)	(8-11)	(9-11)	(8-11)	(9-11)
Melanoma of skin	**Male**	Cases	450	453	531	545	651	753	763	749	742	780	882	868	922	1036	1108
		Lifetime risk (1 in …)	27.8	27.5	24.9	24.9	22.1	18.9	20.5	21.3	21.6	21.2	19	20.9	19.9	18.7	17.8
		ASR (Aust91) / 100,000	42.5	41	47.3	47.1	54.6	60.8	60.2	57	54.9	56.1	62	59.2	60	65.4	68.7
		95% CI	(39-47)	(37-45)	(43-52)	(43-51)	(50-59)	(57-65)	(56-65)	(53-61)	(51-59)	(52-60)	(58-66)	(55-63)	(56-64)	(62-70)	(65-73)
		ASR (World) / 100,000	34.5	33.1	38.1	37.6	43.4	49.3	48.6	45.8	43.8	44.9	48.6	45.9	48.3	51.9	53.8
		95% CI	(31-38)	(30-36)	(35-42)	(35-41)	(40-47)	(46-53)	(45-52)	(43-49)	(41-47)	(42-48)	(45-52)	(43-49)	(45-52)	(49-55)	(51-57)
	Female	Cases	408	454	506	547	604	626	619	630	617	640	685	676	708	796	853
		Lifetime risk (1 in …)	33	31.7	30.1	28.3	25.3	25.2	28	26.8	28.3	28.7	25.9	29.5	27.8	26.8	24.3
		ASR (Aust91) / 100,000	36.5	38.8	42.4	44.3	48	47.9	45.7	44.9	42.3	43	44.9	42.3	42.9	47.4	49.7
		95% CI	(33-40)	(35-43)	(39-46)	(41-48)	(44-52)	(44-52)	(42-49)	(42-49)	(39-46)	(40-47)	(42-48)	(39-46)	(40-46)	(44-51)	(46-53)
		ASR (World) / 100,000	30.8	32.6	35.4	36.9	40.3	40.3	37.8	37.4	34.9	35.6	37.4	34.4	35.6	39.7	41.1
		95% CI	(28-34)	(30-36)	(32-39)	(34-40)	(37-44)	(37-44)	(35-41)	(35-41)	(32-38)	(33-38)	(35-40)	(32-37)	(33-38)	(37-43)	(38-44)

Site	Sex		1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Ovarian	**Female**	Cases	134	137	161	150	149	151	149	160	178	184	220	203	202	214	179
		Lifetime risk (1 in …)	93.9	88.7	80.5	93.5	92.1	93.1	101.1	90.1	89.1	93.1	78.1	84.6	92.9	95.5	106
		ASR (Aust91) / 100,000	11.7	11.4	13.2	12	11.5	11.4	10.9	11.2	12.1	12.2	14.2	12.7	12.1	12.4	10.1
		95% CI	(10-14)	(10-14)	(11-15)	(10-14)	(10-14)	(10-13)	(9-13)	(10-13)	(10-14)	(11-14)	(12-16)	(11-15)	(10-14)	(11-14)	(9-12)
		ASR (World) / 100,000	9.4	9.3	10.8	9.8	9.3	9.3	8.8	9	9.7	9.5	11.5	10.3	9.8	10	8
		95% CI	(8-11)	(8-11)	(9-13)	(8-12)	(8-11)	(8-11)	(7-10)	(8-11)	(8-11)	(8-11)	(10-13)	(9-12)	(9-11)	(9-11)	(7-9)
Pancreas	**Male**	Cases	116	104	90	103	106	103	104	113	132	128	132	130	162	129	148
		Lifetime risk (1 in …)	98.9	129.3	145.1	119.3	127.6	126.3	143.5	132	109.5	123.6	109.4	120.6	106.7	130.9	121.5
		ASR (Aust91) / 100,000	12.1	10.5	9	9.7	9.7	9	8.8	9	10.3	9.9	9.7	9.2	11.1	8.7	9.6
		95% CI	(10-15)	(9-13)	(7-11)	(8-12)	(8-12)	(7-11)	(7-11)	(7-11)	(9-12)	(8-12)	(8-12)	(8-11)	(10-13)	(7-10)	(8-11)
		ASR (World) / 100,000	8.2	7.2	6.1	6.8	6.7	6.1	6	6.4	7.3	6.8	6.9	6.5	7.8	5.8	6.9
		95% CI	(7-10)	(6-9)	(5-7)	(6-8)	(6-8)	(5-7)	(5-7)	(5-8)	(6-9)	(6-8)	(6-8)	(5-8)	(7-9)	(5-7)	(6-8)
	Female	Cases	61	77	90	75	95	92	100	94	103	112	120	109	99	141	138
		Lifetime risk (1 in …)	308.9	203.8	161.4	226.9	156.9	199.6	162.3	168.5	169.5	150	178.2	221.2	215.3	175.9	178.7
		ASR (Aust91) / 100,000	5.1	6.3	7.1	5.8	7	6.5	7	6.3	6.7	7.1	7.3	6.3	5.7	7.6	7.4
		95% CI	(4-7)	(5-8)	(6-9)	(5-7)	(6-9)	(5-8)	(6-9)	(5-8)	(6-8)	(6-9)	(6-9)	(5-8)	(5-7)	(6-9)	(6-9)
		ASR (World) / 100,000	3.1	4.2	5	4	4.9	4.3	5	4.5	4.8	4.9	4.9	4.3	4	4.9	4.9
		95% CI	(2-4)	(3-5)	(4-6)	(3-5)	(4-6)	(4-5)	(4-6)	(4-6)	(4-6)	(4-6)	(4-6)	(4-5)	(3-5)	(4-6)	(4-6)
Prostate	**Male**	Cases	710	660	742	837	777	828	859	1026	1138	1246	1419	1962	2076	1761	1579
		Lifetime risk (1 in …)	20.2	22.7	19.2	18	20.4	19.4	19.5	17.3	15.2	14.2	12.9	9.2	8.5	10.8	12.2
		ASR (Aust91) / 100,000	81.2	73.8	78.2	85.2	76.3	78.2	77.8	88.8	95.1	102.1	111.3	145.7	146.7	121.2	106.5
		95% CI	(75-88)	(68-80)	(73-84)	(80-91)	(71-82)	(73-84)	(73-83)	(84-94)	(90-101)	(97-108)	(106-117)	(139-152)	(141-153)	(116-127)	(101-112)
		ASR (World) / 100,000	48.3	44.3	47.9	52	46.6	47.4	47.4	54.1	58.7	63.1	70.1	92.4	95.8	78.7	70.1
		95% CI	(45-52)	(41-48)	(45-52)	(49-56)	(43-50)	(44-51)	(44-51)	(51-58)	(55-62)	(60-67)	(67-74)	(88-97)	(92-100)	(75-82)	(67-74)
Renal	**Male**	Cases	116	128	126	134	142	147	139	143	174	183	212	207	218	215	260
		Lifetime risk (1 in …)	95	90.6	93	88.7	91	84	100.3	99.7	84.4	81.2	68.8	79.6	74.8	82.6	65.6
		ASR (Aust91) / 100,000	11.3	12.2	11.7	11.9	12.2	12.2	11.4	11.6	13.3	13.5	15.2	14.2	14.6	14	16.6
		95% CI	(9-14)	(10-15)	(10-14)	(10-14)	(10-14)	(10-14)	(10-14)	(10-14)	(11-15)	(12-16)	(13-17)	(12-16)	(13-17)	(12-16)	(15-19)
		ASR (World) / 100,000	8.8	9.3	8.6	9	9.4	9.4	8.6	8.5	9.9	10.4	11.5	10.7	11.3	10.3	12.4
		95% CI	(7-11)	(8-11)	(7-10)	(8-11)	(8-11)	(8-11)	(7-10)	(7-10)	(9-12)	(9-12)	(10-13)	(9-12)	(10-13)	(9-12)	(11-14)
	Female	Cases	71	79	91	89	90	106	112	120	106	129	135	141	139	153	159
		Lifetime risk (1 in …)	165	154.6	136.8	161.2	141.5	126.7	118.3	137.8	156.5	132.8	126.4	121.6	110.6	123.3	139.7
		ASR (Aust91) / 100,000	6	6.6	7.3	7	6.9	7.9	8.1	8.2	7	8.4	8.5	8.6	8.3	8.7	8.8
		95% CI	(5-8)	(5-8)	(6-9)	(6-9)	(6-9)	(7-10)	(7-10)	(7-10)	(6-9)	(7-10)	(7-10)	(7-10)	(7-10)	(7-10)	(8-10)
		ASR (World) / 100,000	4.9	4.9	5.6	5.5	5.4	6.2	6.7	6.2	5.3	6.5	6.1	6.6	6.5	6.6	6.4
		95% CI	(4-6)	(4-6)	(5-7)	(4-7)	(4-7)	(5-8)	(6-8)	(5-8)	(4-6)	(5-8)	(5-7)	(6-8)	(6-8)	(6-8)	(5-8)

Site	Sex		1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Stomach	**Male**	Cases	197	163	186	181	186	192	144	212	200	197	191	198	200	200	221
		Lifetime risk (1 in …)	65.8	76.8	68.5	72.4	77.1	86.8	110.2	83.1	75.3	79.6	81.9	89	84	106.4	89.2
		ASR (Aust91) / 100,000	21.2	16.9	18.3	17	17.5	17.3	12.7	18	16.2	15.3	14.3	14.4	13.7	13.6	14.6
		95% CI	(18-24)	(14-20)	(16-21)	(15-20)	(15-20)	(15-20)	(11-15)	(16-21)	(14-19)	(13-18)	(12-17)	(13-17)	(12-16)	(12-16)	(13-17)
		ASR (World) / 100,000	13.8	11.3	12.7	11.6	11.6	11	8.3	11.7	10.8	10.7	9.7	9.6	9.6	9	9.9
		95% CI	(12-16)	(10-13)	(11-15)	(10-14)	(10-13)	(10-13)	(7-10)	(10-13)	(9-12)	(9-12)	(8-11)	(8-11)	(8-11)	(8-10)	(9-11)
	Female	Cases	93	112	82	113	87	99	79	77	83	98	107	117	85	121	133
		Lifetime risk (1 in …)	167.7	156.7	236.1	194.5	238.2	172	230.7	279.9	312.8	222.6	179.3	194.2	389.4	213.8	210.5
		ASR (Aust91) / 100,000	7.9	9.1	6.4	8.7	6.4	7.1	5.4	5.1	5.2	6.1	6.5	6.8	4.5	6.4	7
		95% CI	(6-10)	(8-11)	(5-8)	(7-11)	(5-8)	(6-9)	(4-7)	(4-6)	(4-7)	(5-8)	(5-8)	(6-8)	(4-6)	(5-8)	(6-8)
		ASR (World) / 100,000	5.3	5.9	4	5.7	4	4.9	3.7	3.3	3.6	4.1	4.5	4.5	2.9	4.3	4.6
		95% CI	(4-7)	(5-7)	(3-5)	(5-7)	(3-5)	(4-6)	(3-5)	(3-4)	(3-5)	(3-5)	(4-5)	(4-5)	(2-4)	(4-5)	(4-5)
All malignant cancers	**Male**	Cases	4635	4508	4790	5118	5123	5610	5689	5975	6268	6575	7054	7907	8207	8050	8172
		Lifetime risk (1 in …)	3.1	3.2	3.1	3	3.1	2.9	3	3	3	2.9	2.8	2.6	2.5	2.7	2.7
		ASR (Aust91) / 100,000	471.8	444.7	456.2	473.5	456.7	482.8	474.8	482.6	490.2	504.1	520.4	562.4	560.3	532.2	528.9
		95% CI	(458-486)	(432-458)	(443-469)	(461-487)	(444-469)	(470-496)	(463-487)	(470-495)	(478-503)	(492-517)	(508-533)	(550-575)	(548-573)	(521-544)	(518-541)
		ASR (World) / 100,000	338.5	322.2	331.3	341.2	332.2	350.9	345.6	347.1	352.4	361.8	376.1	402.6	406.1	386	383.6
		95% CI	(329-348)	(313-332)	(322-341)	(332-351)	(323-341)	(342-360)	(337-355)	(338-356)	(344-361)	(353-371)	(367-385)	(394-412)	(397-415)	(378-395)	(375-392)
	Female	Cases	3700	3750	3973	4090	4263	4564	4507	4759	5001	5400	5605	5930	6013	6330	6490
		Lifetime risk (1 in …)	4.1	4.2	4	4	4	3.9	4	3.9	3.9	3.8	3.7	3.6	3.6	3.6	3.6
		ASR (Aust91) / 100,000	321	317.2	325.8	326.5	329.2	342.3	325.7	331.5	337.1	356.2	358.4	365.6	358.2	364.2	366.4
		95% CI	(311-332)	(307-328)	(316-336)	(317-337)	(319-339)	(333-352)	(316-335)	(322-341)	(328-347)	(347-366)	(349-368)	(356-375)	(349-367)	(355-373)	(358-375)
		ASR (World) / 100,000	248.6	246.3	254.4	257.5	256.2	269.2	253.5	260.1	265.1	276.6	279.7	285.6	281.1	284.5	284.8
		95% CI	(241-257)	(239-254)	(247-262)	(250-266)	(249-264)	(262-277)	(246-261)	(253-268)	(258-273)	(269-284)	(272-287)	(278-293)	(274-288)	(278-292)	(278-292)

APPENDIX C: Cancer Mortality in Queensland, 1982-1996

Site	Sex		1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Bladder	**Male**	Deaths	68	56	66	79	63	71	73	94	73	75	74	97	110	93	109
		PYLL	462.5	307.5	362.5	317.5	285	350	290	472.5	345	317.5	335	457.5	407.5	430	347.5
		Lifetime risk (1 in …)	181.9	260.5	244.8	222.6	284.2	236.1	248.6	217.5	258.1	309.7	319.4	239.4	212.8	245.3	295.8
		ASR (Aust91) / 100,000	7.4	6	7	8.5	6.2	6.8	6.8	8.6	6.3	6.4	6	7.5	8.2	6.6	7.6
		95% CI	(6-9)	(5-8)	(5-9)	(7-11)	(5-8)	(5-9)	(5-9)	(7-11)	(5-8)	(5-8)	(5-8)	(6-9)	(7-10)	(5-8)	(6-9)
		ASR (World) / 100,000	4.8	3.6	4.2	4.9	3.5	4.1	4	5.2	3.9	3.7	3.5	4.5	4.9	4	4.3
		95% CI	(4-6)	(3-5)	(3-5)	(4-6)	(3-5)	(3-5)	(3-5)	(4-6)	(3-5)	(3-5)	(3-5)	(4-6)	(4-6)	(3-5)	(4-5)
	Female	Deaths	25	23	25	21	34	29	14	26	44	45	32	38	42	48	38
		PYLL	112.5	135	87.5	122.5	175	125	60	167.5	140	112.5	167.5	105	155	220	165
		Lifetime risk (1 in …)	1077.1	779.1	655.6	741.9	470.9	833.8	1762.5	1086.2	595	831	587.9	671.2	578.8	624.4	914.3
		ASR (Aust91) / 100,000	2	1.8	1.9	1.5	2.4	2	0.9	1.6	2.7	2.6	2	2.1	2.2	2.4	1.9
		95% CI	(1-3)	(1-3)	(1-3)	(1-2)	(2-3)	(1-3)	(1-2)	(1-2)	(2-4)	(2-4)	(1-3)	(2-3)	(2-3)	(2-3)	(1-3)
		ASR (World) / 100,000	1.3	1.1	1.2	1	1.6	1.2	0.6	1.1	1.6	1.5	1.3	1.2	1.4	1.5	1.1
		95% CI	(1-2)	(1-2)	(1-2)	(1-2)	(1-2)	(1-2)	(0-1)	(1-2)	(1-2)	(1-2)	(1-2)	(1-2)	(1-2)	(1-2)	(1-2)
Body of uterus	**Female**	Deaths	24	32	30	41	38	39	36	40	27	39	39	44	50	46	45
		PYLL	187.5	222.5	352.5	222.5	275	345	245	195	142.5	195	342.5	285	282.5	212.5	255
		Lifetime risk (1 in …)	468.6	396.7	443.3	313.5	349.8	349.7	615.8	484.6	613.5	545.3	440.8	501.3	412.1	527.8	570.9
		ASR (Aust91) / 100,000	1.9	2.6	2.4	3.1	2.8	2.8	2.4	2.6	1.7	2.4	2.4	2.5	2.8	2.4	2.4
		95% CI	(1-3)	(2-4)	(2-4)	(2-4)	(2-4)	(2-4)	(2-3)	(2-4)	(1-3)	(2-3)	(2-3)	(2-3)	(2-4)	(2-3)	(2-3)
		ASR (World) / 100,000	1.4	1.8	1.9	2.1	2	2.1	1.6	1.7	1.1	1.6	1.8	1.7	1.9	1.6	1.6
		95% CI	(1-2)	(1-3)	(1-3)	(2-3)	(1-3)	(2-3)	(1-2)	(1-2)	(1-2)	(1-2)	(1-3)	(1-2)	(1-3)	(1-2)	(1-2)
Brain	**Male**	Deaths	67	55	61	52	66	83	68	61	85	78	88	72	90	88	99
		PYLL	1572.5	1085	1205	1200	1665	1325	1215	1472.5	1670	1395	1757.5	1465	1592.5	1857.5	1850
		Lifetime risk (1 in …)	169.5	213.2	191.1	247.8	188.5	150.5	215.4	222.5	178.5	202.7	174.4	244.7	200.7	186.7	177.1
		ASR (Aust91) / 100,000	5.9	4.9	5.4	4.3	5.3	6.7	5.4	4.5	6.3	5.6	6.1	4.8	6	5.4	6.2
		95% CI	(5-8)	(4-6)	(4-7)	(3-6)	(4-7)	(5-8)	(4-7)	(3-6)	(5-8)	(4-7)	(5-8)	(4-6)	(5-7)	(4-7)	(5-8)
		ASR (World) / 100,000	5.2	4.2	4.3	3.8	4.7	5.4	4.2	4	5.2	4.5	5.2	3.9	4.6	4.7	5
		95% CI	(4-7)	(3-5)	(3-6)	(3-5)	(4-6)	(4-7)	(3-5)	(3-5)	(4-7)	(4-6)	(4-6)	(3-5)	(4-6)	(4-6)	(4-6)
	Female	Deaths	39	43	49	47	52	54	71	59	56	57	73	62	75	53	73
		PYLL	692.5	882.5	770	1232.5	1150	1120	1217.5	1037.5	1120	927.5	1402.5	1187.5	1297.5	842.5	1235
		Lifetime risk (1 in …)	320.4	290	259	314.4	265.5	279.4	208.9	245.1	264.1	260	254.3	266.1	237.5	399.4	239.7
		ASR (Aust91) / 100,000	3.4	3.7	3.9	3.7	4	4	5.1	4.1	3.8	3.8	4.7	3.9	4.4	3	4.2
		95% CI	(2-5)	(3-5)	(3-5)	(3-5)	(3-5)	(3-5)	(4-7)	(3-5)	(3-5)	(3-5)	(4-6)	(3-5)	(4-6)	(2-4)	(3-5)
		ASR (World) / 100,000	2.7	3	3.3	3.3	3.5	3.3	4.2	3.4	3.3	3.1	3.8	3.2	3.7	2.4	3.5
		95% CI	(2-4)	(2-4)	(2-4)	(2-4)	(3-5)	(3-4)	(3-5)	(3-4)	(3-4)	(2-4)	(3-5)	(3-4)	(3-5)	(2-3)	(3-4)

Site	Sex		1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Breast	Female	Deaths	261	262	315	303	314	331	321	357	363	373	397	431	438	429	435
(Female)		PYLL	3290	3267.5	3670	3937.5	4192.5	4525	3885	4280	4660	4717.5	4795	5287.5	5307.5	4852.5	5272.5
		Lifetime risk (1 in …)	54.9	55	46.5	47.6	47.7	47.8	49	48.2	48.1	46.3	49.1	46.8	48.6	50	51
		ASR (Aust91) / 100,000	22.4	22.3	25.8	24	24.3	24.8	23.1	24.7	24.3	24.5	25	26.3	25.5	24.3	24
		95% CI	(20-25)	(20-25)	(23-29)	(21-27)	(22-27)	(22-28)	(21-26)	(22-27)	(22-27)	(22-27)	(23-28)	(24-29)	(23-28)	(22-27)	(22-26)
		ASR (World) / 100,000	17.2	17.1	19.5	18.7	18.8	19.5	18	18.9	18.8	18.9	19	20.1	19.4	18.5	18.3
		95% CI	(15-19)	(15-19)	(17-22)	(17-21)	(17-21)	(18-22)	(16-20)	(17-21)	(17-21)	(17-21)	(17-21)	(18-22)	(18-21)	(17-20)	(17-20)
Cervix	**Female**	Deaths	43	53	49	50	48	46	55	53	53	53	53	56	61	52	64
		PYLL	692.5	922.5	605	810	712.5	532.5	917.5	700	950	827.5	850	987.5	1062.5	707.5	847.5
		Lifetime risk (1 in …)	328.6	250.1	311.7	291.8	244.5	314.6	351.3	312.9	361.1	492.2	418.8	339.2	318.2	400.8	380.6
		ASR (Aust91) / 100,000	3.8	4.5	4	4	3.8	3.4	4	3.6	3.5	3.3	3.3	3.5	3.7	2.9	3.6
		95% CI	(3-5)	(3-6)	(3-5)	(3-5)	(3-5)	(3-5)	(3-5)	(3-5)	(3-5)	(3-4)	(2-4)	(3-5)	(3-5)	(2-4)	(3-5)
		ASR (World) / 100,000	3	3.6	2.9	3.1	3.1	2.5	2.9	2.8	2.7	2.5	2.4	2.7	3	2.1	2.6
		95% CI	(2-4)	(3-5)	(2-4)	(2-4)	(2-4)	(2-3)	(2-4)	(2-4)	(2-4)	(2-3)	(2-3)	(2-4)	(2-4)	(2-3)	(2-3)
Colorectal	**Male**	Deaths	243	270	269	295	347	354	330	376	367	397	373	411	454	402	441
		PYLL	2025	2400	2425	2837.5	3145	2975	2920	3032.5	2905	3197.5	3110	3565	3645	2690	3272.5
		Lifetime risk (1 in …)	52.4	49.2	50.8	45.6	40.7	40.5	43.1	41.8	44.8	41.7	47.8	42.3	37.6	50.7	43.8
		ASR (Aust91) / 100,000	25.9	27.9	26.7	27.6	31.9	31.2	28.1	31.5	29.4	31.1	28.2	29.7	31.7	27.6	29.2
		95% CI	(23-29)	(25-31)	(24-30)	(25-31)	(29-35)	(28-35)	(25-31)	(28-35)	(27-33)	(28-34)	(25-31)	(27-33)	(29-35)	(25-31)	(27-32)
		ASR (World) / 100,000	17.4	19	18.4	19.4	21.9	21.8	19.9	21.5	19.9	21.2	19.3	20.9	22.3	18.3	19.8
		95% CI	(15-20)	(17-21)	(16-21)	(17-22)	(20-24)	(20-24)	(18-22)	(19-24)	(18-22)	(19-23)	(17-21)	(19-23)	(20-24)	(17-20)	(18-22)
	Female	Deaths	237	267	285	291	300	306	308	322	310	327	314	305	346	336	372
		PYLL	2085	2180	2357.5	2087.5	2340	2067.5	2115	2027.5	2277.5	2265	2120	2060	2167.5	2140	2290
		Lifetime risk (1 in …)	66.7	60.8	57.2	59.2	56.6	62.3	62	62.5	62.6	67.4	67.9	68.6	65.9	68.8	66.8
		ASR (Aust91) / 100,000	20	22	22.8	22.4	22.2	21.8	21.3	21.4	20	20.7	19.1	18.1	19.4	18.5	19.8
		95% CI	(18-23)	(19-25)	(20-26)	(20-25)	(20-25)	(20-24)	(19-24)	(19-24)	(18-22)	(19-23)	(17-21)	(16-20)	(17-22)	(17-21)	(18-22)
		ASR (World) / 100,000	14.3	15.6	15.9	15.5	15.8	14.9	14.9	14.4	14.1	14.1	13	12.6	13.5	12.7	13.4
		95% CI	(13-16)	(14-18)	(14-18)	(14-17)	(14-18)	(13-17)	(13-17)	(13-16)	(13-16)	(13-16)	(12-15)	(11-14)	(12-15)	(11-14)	(12-15)

Site	Sex		1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Leukaemia	**Male**	Deaths	91	72	86	93	87	77	97	107	111	105	121	132	126	129	134
		PYLL	1932.5	1260	1770	1422.5	1127.5	1307.5	1315	1415	1755	1442.5	1882.5	1340	1935	2457.5	1932.5
		Lifetime risk (1 in …)	160.8	192	196.1	176.8	201.1	191.4	161.4	148.9	171	190.7	158.3	183.4	168.4	155.5	163.6
		ASR (Aust91) / 100,000	9.1	7	8.3	8.9	8.3	6.7	8.3	8.8	8.9	8.3	9	10	8.9	8.5	8.7
		95% CI	(7-11)	(6-9)	(7-10)	(7-11)	(7-10)	(5-8)	(7-10)	(7-11)	(7-11)	(7-10)	(7-11)	(8-12)	(7-11)	(7-10)	(7-10)
		ASR (World) / 100,000	6.6	5.2	6.3	6.3	5.6	5	5.9	6.2	6.3	5.7	6.4	6.3	6.4	6.6	6.2
		95% CI	(5-8)	(4-7)	(5-8)	(5-8)	(5-7)	(4-6)	(5-7)	(5-8)	(5-8)	(5-7)	(5-8)	(5-8)	(5-8)	(6-8)	(5-7)
	Female	Deaths	54	60	51	65	78	71	63	81	64	81	102	84	98	82	103
		PYLL	667.5	767.5	972.5	947.5	1412.5	1115	782.5	1442.5	1040	1220	1217.5	1120	895	1045	1257.5
		Lifetime risk (1 in …)	315.1	267.8	342.2	372.9	276.2	298.1	316.9	235.9	368.7	261.5	258.3	292.2	267.4	341.9	276.8
		ASR (Aust91) / 100,000	4.5	4.8	4	4.9	5.7	5	4.4	5.4	4.1	5.2	6.1	4.9	5.5	4.4	5.5
		95% CI	(3-6)	(4-6)	(3-5)	(4-6)	(5-7)	(4-6)	(3-6)	(4-7)	(3-5)	(4-6)	(5-8)	(4-6)	(5-7)	(4-6)	(5-7)
		ASR (World) / 100,000	3.2	3.5	3	3.6	4.3	3.8	3.2	4.3	3.1	3.9	4.4	3.7	3.9	3.1	4
		95% CI	(2-4)	(3-5)	(2-4)	(3-5)	(3-5)	(3-5)	(3-4)	(3-5)	(2-4)	(3-5)	(4-5)	(3-5)	(3-5)	(3-4)	(3-5)
Lung	**Male**	Deaths	629	678	639	690	674	729	772	758	727	682	798	790	802	778	871
		PYLL	5290	5770	5462.5	5897.5	5395	5982.5	6365	5837.5	5707.5	5225	6227.5	5932.5	5467.5	5655	6245
		Lifetime risk (1 in …)	17.7	16.5	18.7	17.7	19	17.8	18	18.2	21.3	22.3	18.9	20.2	20.4	21.2	21.4
		ASR (Aust91) / 100,000	64.2	66.4	61.2	64.1	60.4	63	64.8	62.1	57.6	52.7	59.1	56.5	55.7	51.9	57.4
		95% CI	(59-69)	(62-72)	(57-66)	(59-69)	(56-65)	(59-68)	(60-70)	(58-67)	(54-62)	(49-57)	(55-63)	(53-61)	(52-60)	(48-56)	(54-61)
		ASR (World) / 100,000	45.1	47.2	43.3	45.9	42.5	44.9	45.7	43.2	40	36.6	41.8	39.2	38.1	36.3	39.2
		95% CI	(42-49)	(44-51)	(40-47)	(43-49)	(39-46)	(42-48)	(43-49)	(40-46)	(37-43)	(34-40)	(39-45)	(37-42)	(36-41)	(34-39)	(37-42)
	Female	Deaths	129	147	153	166	196	161	167	202	217	260	238	291	266	282	324
		PYLL	1197.5	1475	1637.5	1760	2050	1602.5	1382.5	1882.5	2005	2037.5	2010	2407.5	2297.5	2187.5	2660
		Lifetime risk (1 in …)	91.9	85.2	86.9	79.7	69.6	83.6	91.8	68.1	74	60.5	67.1	57.1	64.8	70.8	59.2
		ASR (Aust91) / 100,000	10.9	12	12.3	13.1	14.9	11.9	11.8	14	14.5	17	15.1	17.8	15.9	16	18.3
		95% CI	(9-13)	(10-14)	(10-14)	(11-15)	(13-17)	(10-14)	(10-14)	(12-16)	(13-17)	(15-19)	(13-17)	(16-20)	(14-18)	(14-18)	(16-20)
		ASR (World) / 100,000	8.3	9.2	9.4	10.3	11.5	9.1	8.6	10.9	10.9	12.5	11.3	13.2	11.9	11.4	13.5
		95% CI	(7-10)	(8-11)	(8-11)	(9-12)	(10-13)	(8-11)	(7-10)	(9-13)	(10-12)	(11-14)	(10-13)	(12-15)	(11-14)	(10-13)	(12-15)

Site	Sex		1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Non-Hodgkins lymphoma	**Male**	Deaths	64	66	63	70	81	81	79	98	89	101	116	115	107	118	114
		PYLL	1110	820	927.5	925	960	992.5	1202.5	1322.5	932.5	1110	1287.5	1422.5	1435	1370	1117.5
		Lifetime risk (1 in …)	177.8	184.4	187.3	189.4	179.7	179.4	177.1	196.7	178.1	148.3	160	158.6	166.2	173.6	180.2
		ASR (Aust91) / 100,000	6.1	6.4	5.8	6.5	7.4	7.1	6.4	8	7	7.7	8.8	8.2	7.2	7.8	7.5
		95% CI	(5-8)	(5-8)	(4-7)	(5-8)	(6-9)	(6-9)	(5-8)	(7-10)	(6-9)	(6-9)	(7-11)	(7-10)	(6-9)	(7-9)	(6-9)
		ASR (World) / 100,000	4.8	4.7	4.5	4.7	5.3	5.1	4.9	5.6	4.9	5.5	6.1	5.8	5.2	5.4	5.2
		95% CI	(4-6)	(4-6)	(4-6)	(4-6)	(4-7)	(4-6)	(4-6)	(5-7)	(4-6)	(5-7)	(5-7)	(5-7)	(4-6)	(4-7)	(4-6)
	Female	Deaths	44	53	56	60	60	81	63	68	85	78	91	88	97	90	111
		PYLL	332.5	557.5	467.5	580	370	602.5	460	425	595	482.5	717.5	502.5	655	627.5	847.5
		Lifetime risk (1 in …)	354.1	346.2	282.3	245.1	255.8	254.8	296.8	327.9	224.7	278.4	254.6	314.5	229.9	296.5	254.2
		ASR (Aust91) / 100,000	3.7	4.4	4.5	4.7	4.4	5.8	4.3	4.5	5.5	4.9	5.5	5.1	5.5	4.8	5.9
		95% CI	(3-5)	(3-6)	(3-6)	(4-6)	(3-6)	(5-7)	(3-6)	(4-6)	(4-7)	(4-6)	(4-7)	(4-6)	(4-7)	(4-6)	(5-7)
		ASR (World) / 100,000	2.5	3.1	3	3.4	3	3.8	3	2.9	3.6	3.2	3.8	3.2	3.5	3.2	3.8
		95% CI	(2-3)	(2-4)	(2-4)	(3-4)	(2-4)	(3-5)	(2-4)	(2-4)	(3-5)	(3-4)	(3-5)	(3-4)	(3-4)	(3-4)	(3-5)
Melanoma of skin	**Male**	Deaths	63	58	69	82	83	101	95	90	81	94	107	113	155	131	110
		PYLL	1172.5	1062.5	1262.5	1215	1277.5	1675	1515	1112.5	1155	1395	1420	1480	1872.5	1760	1402.5
		Lifetime risk (1 in …)	180.5	233.7	203.2	156.3	165.3	145.6	148.7	153.6	204.7	175	170.3	153	125	158.3	206.6
		ASR (Aust91) / 100,000	5.9	5.6	6.2	7.3	7.3	8.5	7.6	7.2	6.2	7.1	7.9	7.9	10.4	8.7	7.1
		95% CI	(5-8)	(4-7)	(5-8)	(6-9)	(6-9)	(7-10)	(6-9)	(6-9)	(5-8)	(6-9)	(6-10)	(7-10)	(9-12)	(7-10)	(6-9)
		ASR (World) / 100,000	4.7	4.1	4.8	5.5	5.4	6.2	5.9	5.3	4.7	5.2	5.6	5.8	7.3	6.3	5
		95% CI	(4-6)	(3-5)	(4-6)	(4-7)	(4-7)	(5-8)	(5-7)	(4-7)	(4-6)	(4-6)	(5-7)	(5-7)	(6-9)	(5-8)	(4-6)
	Female	Deaths	30	43	43	40	46	47	45	58	50	52	44	61	52	61	59
		PYLL	440	795	757.5	697.5	682.5	830	772.5	687.5	720	777.5	715	872.5	827.5	807.5	952.5
		Lifetime risk (1 in …)	423.3	304.3	355.5	389.9	327.1	354.4	432.9	367.4	366.9	338.4	418.9	346.8	465.7	427.8	472
		ASR (Aust91) / 100,000	2.6	3.7	3.5	3.2	3.5	3.5	3.1	3.9	3.3	3.4	2.8	3.6	2.9	3.3	3.2
		95% CI	(2-4)	(3-5)	(3-5)	(2-4)	(3-5)	(3-5)	(2-4)	(3-5)	(2-4)	(3-4)	(2-4)	(3-5)	(2-4)	(3-4)	(2-4)
		ASR (World) / 100,000	2	2.9	2.8	2.5	2.7	2.8	2.3	2.6	2.5	2.7	2.1	2.8	2.2	2.4	2.4
		95% CI	(1-3)	(2-4)	(2-4)	(2-3)	(2-4)	(2-4)	(2-3)	(2-3)	(2-3)	(2-4)	(2-3)	(2-4)	(2-3)	(2-3)	(2-3)
Ovarian	**Female**	Deaths	86	89	104	91	90	104	88	99	92	102	113	100	114	106	124
		PYLL	957.5	1052.5	1160	1130	1027.5	1137.5	925	1020	1095	1095	1040	917.5	1215	1065	1307.5
		Lifetime risk (1 in …)	134.3	135.7	134.8	146.9	155.2	134.1	170.3	148.2	158	182.7	150.4	179	176.8	171.6	163.1
		ASR (Aust91) / 100,000	7.4	7.5	8.3	7.2	6.8	7.7	6.3	6.8	6.2	6.6	7.1	6.1	6.6	6	6.9
		95% CI	(6-9)	(6-9)	(7-10)	(6-9)	(6-8)	(6-9)	(5-8)	(6-8)	(5-8)	(5-8)	(6-9)	(5-7)	(6-8)	(5-7)	(6-8)
		ASR (World) / 100,000	5.7	5.8	6.3	5.5	5.3	6	4.9	5.3	4.9	4.9	5.3	4.4	5	4.6	5.2
		95% CI	(5-7)	(5-7)	(5-8)	(4-7)	(4-7)	(5-7)	(4-6)	(4-6)	(4-6)	(4-6)	(4-6)	(4-5)	(4-6)	(4-6)	(4-6)

Site	Sex		1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Pancreas	**Male**	Deaths	89	95	77	93	99	91	84	115	98	118	100	129	144	138	130
		PYLL	657.5	642.5	720	692.5	825	682.5	635	910	920	922.5	900	955	1180	967.5	847.5
		Lifetime risk (1 in …)	134.2	140.3	173.6	126.1	138.3	145.2	178.7	137	138.6	127.8	145.9	125.8	121.5	127.9	148.5
		ASR (Aust91) / 100,000	9.3	9.8	7.5	8.7	9.2	7.9	7.2	9.3	7.6	9.1	7.3	9.4	9.9	9.2	8.6
		95% CI	(8-12)	(8-12)	(6-9)	(7-11)	(8-11)	(6-10)	(6-9)	(8-11)	(6-9)	(8-11)	(6-9)	(8-11)	(8-12)	(8-11)	(7-10)
		ASR (World) / 100,000	6.2	6.5	5.2	5.9	6.3	5.4	4.8	6.3	5.5	6.4	5.3	6.4	6.8	6.2	5.7
	Female	Deaths	60	71	67	75	79	81	81	88	89	85	119	97	83	127	129
		PYLL	287.5	455	387.5	517.5	562.5	500	467.5	590	565	487.5	690	695	447.5	745	650
		Lifetime risk (1 in …)	339.6	210	258.1	207	207	182.7	254.1	183.6	204.5	222.1	171.8	230.4	296.8	199.7	193.1
		ASR (Aust91) / 100,000	5	5.8	5.2	5.9	5.8	5.8	5.5	5.9	5.7	5.3	7.3	5.6	4.7	6.9	6.9
		95% CI	(4-6)	(5-7)	(4-7)	(5-7)	(5-7)	(5-7)	(4-7)	(5-7)	(5-7)	(4-7)	(6-9)	(5-7)	(4-6)	(6-8)	(6-8)
		ASR (World) / 100,000	3.1	3.9	3.4	4.1	4	3.9	3.6	4.1	4	3.6	4.9	3.9	3.1	4.5	4.5
		95% CI	(2-4)	(3-5)	(3-4)	(3-5)	(3-5)	(3-5)	(3-5)	(3-5)	(3-5)	(3-4)	(4-6)	(3-5)	(3-4)	(4-5)	(4-5)
Prostate	**Male**	Deaths	203	210	210	251	271	279	306	308	368	369	399	473	481	466	480
		PYLL	537.5	530	635	737.5	842.5	802.5	980	867.5	967.5	1055	1287.5	1237.5	1200	1262.5	1077.5
		Lifetime risk (1 in …)	78.7	86.6	75.9	84.6	64.1	81.5	61.3	66.6	63.6	66.1	57.5	58.1	56.1	57.9	59.9
		ASR (Aust91) / 100,000	24.7	25.1	23.1	27.8	28	28.2	28.9	28	32.7	32.1	32.9	37.9	36.1	33.9	34.1
		95% CI	(21-28)	(22-29)	(20-26)	(25-32)	(25-32)	(25-32)	(26-32)	(25-31)	(29-36)	(29-36)	(30-36)	(35-42)	(33-39)	(31-37)	(31-37)
		ASR (World) / 100,000	13.6	13.9	13	15.6	16.2	15.7	16.7	15.8	18.3	18.2	19.1	21.5	20.1	19.5	19.1
		95% CI	(12-16)	(12-16)	(11-15)	(14-18)	(14-18)	(14-18)	(15-19)	(14-18)	(16-20)	(16-20)	(17-21)	(20-24)	(18-22)	(18-21)	(17-21)
Renal	**Male**	Deaths	40	61	53	57	60	67	53	64	65	72	88	76	86	82	98
		PYLL	500	682.5	442.5	595	522.5	775	400	557.5	575	667.5	732.5	775	802.5	732.5	847.5
		Lifetime risk (1 in …)	270.8	183.7	254.5	207.1	223.8	214.2	256.4	215.9	260.8	239	168.6	216.2	175.4	267.4	181.7
		ASR (Aust91) / 100,000	3.7	6.1	5.2	5.2	5.2	5.7	4.5	5.2	5.2	5.6	6.5	5.3	5.8	5.6	6.4
		95% CI	(3-5)	(5-8)	(4-7)	(4-7)	(4-7)	(4-7)	(3-6)	(4-7)	(4-7)	(4-7)	(5-8)	(4-7)	(5-7)	(4-7)	(5-8)
		ASR (World) / 100,000	2.9	4.4	3.5	3.7	3.7	4.1	3.1	3.8	3.5	3.8	4.5	3.9	4.2	3.8	4.5
		95% CI	(2-4)	(3-6)	(3-5)	(3-5)	(3-5)	(3-5)	(2-4)	(3-5)	(3-5)	(3-5)	(4-6)	(3-5)	(3-5)	(3-5)	(4-6)
	Female	Deaths	37	33	30	42	39	48	50	53	57	58	57	63	55	68	64
		PYLL	567.5	285	172.5	435	310	387.5	637.5	517.5	432.5	565	340	405	360	360	340
		Lifetime risk (1 in …)	349	356.9	481.5	406.9	393.4	294.5	277.6	332.1	304.4	315.5	332.2	332.5	375.5	347	391.5
		ASR (Aust91) / 100,000	3.1	2.7	2.3	3.3	2.9	3.5	3.6	3.6	3.7	3.7	3.4	3.7	3.2	3.6	3.5
		95% CI	(2-4)	(2-4)	(2-3)	(2-4)	(2-4)	(3-5)	(3-5)	(3-5)	(3-5)	(3-5)	(3-4)	(3-5)	(2-4)	(3-5)	(3-4)
		ASR (World) / 100,000	2.5	1.9	1.6	2.4	2.1	2.5	2.9	2.7	2.6	2.7	2.3	2.5	2.1	2.3	2.2
		95% CI	(2-3)	(1-3)	(1-2)	(2-3)	(2-3)	(2-3)	(2-4)	(2-4)	(2-3)	(2-4)	(2-3)	(2-3)	(2-3)	(2-3)	(2-3)

Site	Sex		1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Stomach	**Male**	Deaths	147	120	127	140	152	122	129	134	136	150	122	146	154	140	156
		PYLL	927.5	817.5	765	1135	1150	890	790	815	872.5	985	837.5	905	1190	875	1125
		Lifetime risk (1 in …)	88.8	114.5	105.6	101	87.1	153.2	133.8	153.4	127.4	106.5	134.4	125.4	108.2	154.5	130.6
		ASR (Aust91) / 100,000	16.3	12.9	12.9	13.6	14.1	11.2	11.6	11.8	11.3	12	9.2	10.9	10.6	9.7	10.4
		95% CI	(14-19)	(11-15)	(11-15)	(11-16)	(12-17)	(9-13)	(10-14)	(10-14)	(10-13)	(10-14)	(8-11)	(9-13)	(9-12)	(8-11)	(9-12)
	Female	Deaths	76	76	75	68	69	68	73	60	55	83	71	73	74	74	76
		PYLL	485	440	250	417.5	332.5	417.5	445	332.5	402.5	482.5	430	375	437.5	290	315
		Lifetime risk (1 in …)	228.5	227.1	300.2	324.9	411	243.4	323.7	373.8	443.5	297.7	324.5	376.3	388.2	377.5	389.1
		ASR (Aust91) / 100,000	6.4	6.3	5.8	5.1	4.9	4.8	5	3.9	3.4	5.1	4.2	4.1	4	3.8	3.9
		95% CI	(5-8)	(5-8)	(5-7)	(4-7)	(4-6)	(4-6)	(4-6)	(3-5)	(3-4)	(4-6)	(3-5)	(3-5)	(3-5)	(3-5)	(3-5)
		ASR (World) / 100,000	4.2	4	3.4	3.4	2.9	3.2	3.3	2.4	2.3	3.4	2.8	2.6	2.5	2.4	2.4
		95% CI	(3-5)	(3-5)	(3-4)	(3-4)	(2-4)	(2-4)	(3-4)	(2-3)	(2-3)	(3-4)	(2-4)	(2-3)	(2-3)	(2-3)	(2-3)
All malignant cancers	**Male**	Deaths	2105	2159	2187	2374	2428	2553	2617	2805	2763	2838	3011	3143	3403	3265	3465
		PYLL	20787.5	20242.5	21250	22365	22545	22732.5	23037.5	23637.5	23522.5	23560	26082.5	25445	27590	26925	26685
		Lifetime risk (1 in …)	6.2	6.2	6.5	6.2	6.1	6.1	6.1	5.9	6.4	6.3	6	6.2	5.8	6.4	6.3
		ASR (Aust91) / 100,000	219.7	219.5	214.7	227.7	224	226.8	224.7	234.3	223.2	224.2	228.1	230.7	238.6	222.2	231.1
		95% CI	(210-229)	(210-229)	(206-224)	(219-237)	(215-233)	(218-236)	(216-233)	(226-243)	(215-232)	(216-233)	(220-236)	(223-239)	(231-247)	(215-230)	(224-239)
		ASR (World) / 100,000	151.1	151.4	148.6	157.1	154.4	156	154.8	159.6	151.8	151.6	157.1	156.2	162.1	150.9	154.4
		95% CI	(145-158)	(145-158)	(143-155)	(151-164)	(148-161)	(150-162)	(149-161)	(154-166)	(146-158)	(146-157)	(152-163)	(151-162)	(157-168)	(146-156)	(149-160)
	Female	Deaths	1405	1507	1635	1671	1734	1768	1765	1911	1943	2087	2156	2187	2275	2323	2473
		PYLL	14137.5	15557.5	16010	17567.5	18062.5	17877.5	16995	18040	19002.5	18757.5	19960	20540	20455	19535	21877.5
		Lifetime risk (1 in …)	10.9	10.1	9.9	9.7	9.6	9.7	10.3	9.7	9.9	9.9	9.7	9.8	9.9	10.2	9.9
		ASR (Aust91) / 100,000	119.9	125.6	131.6	130.7	130.9	129.1	124.6	129.6	127.4	133.7	133.8	131.4	131	128.7	135
		95% CI	(114-126)	(119-132)	(125-138)	(125-137)	(125-137)	(123-135)	(119-131)	(124-136)	(122-133)	(128-140)	(128-140)	(126-137)	(126-137)	(124-134)	(130-140)
		ASR (World) / 100,000	87.4	92	94.5	96.3	96.3	94.8	90.7	94.2	93.1	95.5	96.1	95	94.4	90.9	95.9
		95% CI	(83-92)	(88-97)	(90-99)	(92-101)	(92-101)	(90-99)	(87-95)	(90-99)	(89-97)	(91-100)	(92-100)	(91-99)	(91-98)	(87-95)	(92-100)

APPENDIX D: Guidelines for release of information: Queensland Cancer Registry

The Health Act Amendment Act (No 2) 1982, provides that the Chief Executive Officer may -

a) give information in statistical or similar form that does not disclose the identity of cancer sufferers to any person; or
b) give information in any form to a person authorised to conduct scientific research and studies under section 154M or any person holding an appointment in any State or Territory of the Commonwealth corresponding to that of the Chief Executive Officer.

Statistical information in an aggregate form may be obtained by contacting the Cancer Registry.

Medical researchers wishing to obtain information on individual patients from the Cancer Registry should therefore submit to the Cancer Registry Advisory Committee an application, which has received ethical approval and sets out the aims and methods of the research. If the application is approved by the Cancer Registry Advisory Committee and the Chief Executive Officer, gazettal may then be granted which would allow the researcher access to Cancer Registry data.

Before information concerning a live patient is released to any researcher, the latter must sign a declaration that any such information will not be used to contact patients, other than the researcher's own patients, without first obtaining permission from each patient's own medical practitioner.

For follow-up studies where information is sought for a list of patients supplied by a research or treatment institution, sufficient details for the adequate identification of each living patient and the name of the doctor responsible for his or her treatment, or in the case of deceased patients, the relevant details from the death certificate may be provided at the discretion of the Chief Executive Officer.

The data set collected for each cancer consists of:-

- name(s)
- usual residential address (at diagnosis and at last contact)
- date of birth/age
- occupation
- country of birth
- sex
- ethnic origin
- marital status
- date of last contact
- institution of last contact
- treating doctor
- date of diagnosis
- site of cancer
- differentiation
- cancer histology
- basis of diagnosis
- date of death
- cause of death