Cancer in Australia 1999

The Australian Institute of Health and Welfare is Australia's national health and welfare statistics and information agency. The Institute's mission is to improve the health and wellbeing of Australians by informing community discussion and decision making through national leadership in developing and providing health and welfare statistics and information.

The Australasian Association of Cancer Registries (AACR) is a collaborative body representing State and Territory cancer registries in Australia and New Zealand. Most are members of the International Association of Cancer Registries. The AACR was formed in November 1982 to provide a formal mechanism for promoting uniformity of collection, classification and collation of cancer data.

The purposes of the AACR are:

- to provide a continuing framework for the development of population-based cancer registration in Australia and New Zealand;
- to facilitate the exchange of scientific and technical information between cancer registries and to promote standardisation in the collection and classification of cancer data;
- to facilitate cancer research both nationally and internationally; and
- to facilitate the dissemination of cancer information.

The Australian Institute of Health and Welfare has joined with the AACR to produce national cancer statistics from the National Cancer Statistics Clearing House.

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A comprehensive set of Excel tables for all cancer sites is available on the AIHW's web site www.aihw.gov.au. These are listed in Appendix F.

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Preface

The Australian Institute of Health and Welfare (AIHW) and the Australasian Association of Cancer Registries (AACR) are pleased to present *Cancer in Australia 1999,* the most recent report generated from the National Cancer Statistics Clearing House.

This report contains updates of the national cancer incidence and mortality data found in previous editions, and presents summary cancer statistics for several other national data sources held by the Australian Institute of Health and Welfare. These include screening, survival and multiple cause of death statistics; general practice patient encounter and hospital inpatient data showing broad patient treatment patterns for the first time; cancer workforce numbers; and trends in some of the major known risk factors. These statistics are supplemented by additional tables, a national cancer data cube and further reports on the AIHW web site at www.aihw.gov.au. There is a wealth of State and Territory cancer data and many cancer research reports found on the State and Territory cancer registry web sites listed in Appendix E. 'Related publications' lists many of the published reports available from State and Territory registries.

The AACR and the AIHW wish to acknowledge the efforts of all the cancer registries in compiling and providing data to the National Cancer Statistics Clearing House so that this report could be published. A considerable amount of work was undertaken by AIHW and AACR in implementing the changeover in reporting of cancer incidence data in this publication from International Classification of Diseases (ICD) version 9 to ICD version 10. While this caused some delay in the publication of this report, AIHW and AACR are hopeful that the transition work undertaken this time will assist in improving timeliness and the quality of the information for the next report.

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Contributors

This joint report between the Australian Institute of Health and Welfare and the Australasian Association of Cancer Registries would not have been possible without the cooperation and effort of those who direct the operation, promotion and development of the State and Territory cancer registries. These people, identified below, have all worked to produce the national cancer incidence statistics in this publication.

Incidence information provided by State and Territory cancer registries is sourced predominantly from hospitals, pathologists and departments of radiation oncology, with supplementary information provided by medical practitioners in private practice. The major contributors of information on cancer deaths are the State and Territory Registrars of Births, Deaths and Marriages, and the Australian Bureau of Statistics. We thank them for their contribution.

Funding and support of cancer registries in Australia is undertaken by State and Territory Governments and various charity bodies. We recognise the support of the State and Territory Governments, the New South Wales Cancer Council, the Cancer Council of Victoria, the Queensland Cancer Fund, the Cancer Foundation of Western Australia, the Northern Territory Anti-Cancer Foundation and the Australian Cancer Society. Finally, the contributions of the staff and volunteers who work with the State and Territory cancer registries are acknowledged.

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Executive summary

This report presents national cancer incidence and mortality statistics for 1999 and cancer-related risk factor, screening, survival and treatment data and associated workforce data. It is part of a series of publications concerning cancer patterns in Australia. The State and Territory cancer registries provide the incidence data for this report whereas the mortality data are provided by the State and Territory Registrars of Births, Deaths and Marriages and coded by the Australian Bureau of Statistics. Other data sources include:

- AIHW National Hospital Morbidity Database;
- AIHW General Practice Statistics and Classification Unit; and
- AIHW health workforce collections.

The main findings are as follows.

New cases of cancer and mortality

• Excluding non-melanocytic skin cancers, there were 82,185 new cancer cases and 34,695 deaths due to cancer in Australia in 1999. At the incidence rates prevailing in 1999, it would be expected that 1 in 3 men and 1 in 4 women would be directly affected by cancer in the first 75 years of life. Further, an estimated 254,000 potential years of life would be lost to the community as a result of people dying of cancer in 1999 before the age of 75. Cancer currently accounts for 29% of male deaths and 25% of female deaths.

Cancers in males and females

- In males, prostate cancer (10,232 new cases diagnosed in 1999) is the most common registrable cancer, followed by colorectal cancer (6,188), lung cancer (5,275) and melanoma (4,627). These four cancers account for 59% of all registrable cancers in males.
- In females, breast cancer (10,592) is the most common registrable cancer, followed by colorectal cancer (5,449), melanoma (3,616) and lung cancer (2,551). These four cancers account for 59% of all registrable cancers in females.

Most common cancers causing death

• The most common cancers causing death are lung (4,645 deaths in 1999), prostate (2,512) and colorectal (2,483) cancers in males, and breast (2,512), lung (2,123) and colorectal (2,092) cancers in females.

Age distribution

• The risk of cancer increases with age, with over four times as many cancers diagnosed in those over the age of 60 as in those under 60.

Trends

- In 1990 there were 62,435 new cases of cancer diagnosed (excluding non-melanocytic skin cancers) 33,915 for males (a rate of 452.1 per 100,000 population) and 28,520 for females (a rate of 315.0 per 100,000 population). This rose to 82,185 new cases in 1999–44,514 for males (a rate of 469.6 per 100,000 population) and 37,671 for females (a rate of 339.2 per 100,000 population).
- Between 1990 and 1999, age-standardised incidence rates for all cancers combined (except non-melanocytic skin cancers) rose for both males and females by an average of

0.3% and 0.8% per year, respectively, but death rates declined for both males and females by an average of 1.1% and 1.0% per year, respectively.

- A significant proportion of the rise in female incidence rates can be attributed to the continuing increase of breast cancer incidence which in turn can be attributed in part to detection of prevalent cancers by the breast screening programs. The recent fall in male incidence rates is strongly influenced by the decline in prostate and lung cancer rates. The introduction of prostate-specific antigen testing and its later fall in use has induced the rapid rise and subsequent fall in the rates of the incidence of prostate cancer in recent years.
- Cervical cancer incidence and mortality between 1990 and 1999 fell rapidly by an average of 5.4% and 5.5% per annum, respectively.

Cancer mortality – multiple causes of death

• In Australia in 1999 there were 35,053 deaths where the underlying cause was malignant cancer and 11,714 additional deaths where cancer was an associated cause reported on the death certificate.

Survival following cancer diagnosis

- The average 5-year relative survival proportion for all registrable cancers diagnosed in Australia in the period 1992–1997 was 56.8% for males and 63.4% for females.
- For registrable cancers diagnosed in males during the period 1992–1997, relative survival in capital cities, other metropolitan areas and large rural centres was close to 57.5%. This was significantly above the proportions in small rural centres (55.2%) and 'other remote' areas (51.9%). There were no statistically significant differences in relative survival for females between metropolitan, rural and remote areas.
- For males diagnosed during the period 1992–1997, relative survival was 51.9% for persons resident in the most disadvantaged areas of Australia, and 61.4% for residents of the most advantaged areas. For females, there was a lesser disparity, with a relative survival of 61.9% in the bottom quintile and 63.4% in the highest. This may be partly attributed to higher rates of breast cancer in women living in higher socioeconomic status areas.
- 5-year relative survival for all registrable cancers increased between 1982–1986 and 1992–1997 on average from 43.8% to 56.8% for males and from 55.3% to 63.4% for females.

Risk factors

- In Australia, smoking rates have been declining since the 1950s, when it was estimated that around 70% of males and 30% of females smoked.
- Cigarette smoking is estimated to have directly caused 10,619 new cases of cancer (12.9% of all new cases of cancer) and 7,554 deaths (21.8% of cancer deaths) in 1999. Between 1990 and 1999, the male incidence rate for smoking-related cancers fell by an average of 1.4% per year, while the rate for females rose by 0.8% per year. Over the same period, mortality rates fell by 1.7% for males and rose by 0.8% for females per annum.
- Hospital separations for each of the eight National Health Priority Area cancers included hypertension, current tobacco use and personal history of tobacco use in their top ten additional diagnoses.

- Alcohol consumption is known to be a contributing cause of cancers of the liver, laryngeal, oropharyngeal, oesophagus, and the female breast. Australia's drinking pattern has remained largely unchanged over the last decade.
- It is estimated that 2,602 new cases of cancer were directly attributable to alcohol consumption in 1999 at a rate of 13.7 cases per 100,000 population, as were 1,199 deaths at a rate of 6.3 per 100,000 population.

Screening

- The proportion of women in the target age group (ages 50 to 69) who were screened under the BreastScreen Australia program in a 2-year period rose from 51.4% in the period 1996–1997 to 55.9% in the period 1998–1999.
- The proportion of women in the target age group who were screened under the National Cervical Cancer Screening Program in a 2-year period rose from 62.3% in the period 1996–1997 to 64.8% in the period 1998–1999.

Hospital inpatients with cancer

- In the financial year 2000–01 there were 306,536 hospital separations where cancer was recorded as the principal diagnosis. This represents 5.0% of all separations in that year.
- Non-melanocytic skin cancer was the principal diagnosis associated with the greatest number of separations. This cancer had the largest proportion of same-day patients. Colorectal cancer was the principal diagnosis associated with the longest average length of stay for non-same-day patients.

Cancer workforce

- In 1998, there were 658 medical specialists working in the fields of medical and radiation oncology, clinical haematology, haematology and nuclear medicine. These are fields of practice with a high proportion of cancer patients. In addition, nearly all other doctors in clinical practice in Australia provide services to at least some cancer patients.
- In 1997 there were 2,412 registered nurses and 273 enrolled nurses working in oncology as their main field of nursing practice.
- In its 2001 report, the Australian Medical Workforce Advisory Committee (AMWAC) reported that there were 337 medical and haematological oncologists in 2000, and there was both a shortage of these oncologists and a maldistribution of the existing workforce. AMWAC also reported that there were 1,148 specialist radiologists in 2000, and that this workforce was also under supplied, together with the specialist radiation oncology workforce.

General practice and cancer patients

- During the period April 1998 to March 2002, general practitioners managed cases of cancer at a rate of 18.8 per 1,000 GP-patient encounters. Extrapolated to the total GP-patient encounters in any one year across the country, these data suggest there are about two million encounters in general practice in which a cancer is managed.
- The top ten types of cancer managed by GPs together accounted for around 78% of the GP-patient contacts with a cancer. The top three types basal and squamous cell carcinoma and prostate cancer accounted for around 51% of cancers managed. All skin cancers (both melanoma and non-melanocytic skin cancers) together accounted for around 46% of cancers managed at these encounters.

1 Introduction

Cancer is a notifiable disease in all States and Territories and is the only major disease category for which an almost complete coverage of incidence data is available. Cancer is also a major cause of death in Australia. If this situation is to be changed, good information on the occurrence of different types of cancer, the characteristics of patients, and survival and mortality is essential. Such information facilitates the monitoring of trends and the impact of interventions, and provides a sound basis for epidemiological studies and the initiation of prevention and treatment programs.

What is cancer?

Cancer describes a range of diseases in which abnormal cells proliferate and spread out of control. Other terms for cancer are tumours and neoplasms, although these terms can also be used for non-cancerous growths.

Normally, cells grow and multiply in an orderly way to form organs that have a specific function in the body. Occasionally, however, cells multiply in an uncontrolled way after being affected by a carcinogen, or after developing from a random genetic mutation, and form a mass which is called a tumour or neoplasm. Tumours can be benign (not a cancer) or malignant (a cancer). Benign tumours do not invade other tissues or spread to other parts of the body, although they can expand to interfere with healthy structures.

The main features of a malignant tumour (cancer) are its ability to grow in an uncontrolled way and to invade and spread to other parts of the body (metastasise). Invasion occurs when cancer cells push between and break through other surrounding cells and structures. Spread to other parts of the body occurs when some cancer cells are carried by the bloodstream or the lymphatic system and lodge some distance away. They can then start a new tumour (a secondary cancer) and begin invading again. They can cause serious damage by destruction, crushing or blocking.

Cancer can develop from most types of cells in different parts of the body, and each cancer has its own pattern of growth and spread. Some cancers remain in the body for years without showing any symptoms. Others can grow, invade and spread rapidly, and are fatal in a short period of time. Apart from the cancer's natural behaviour, its effects can also depend on how much room it has before it damages nearby structures, and whether it starts in a vital organ or is close to other vital organs.

Although a number of cancers share risk factors, most cancers have a unique set of risk factors that are responsible for their onset. Some cancers occur as a direct result of smoking, dietary influences, infectious agents or exposure to radiation (for example, ultraviolet radiation), while others may be a result of inherited genetic faults. It should be noted that for many cancers the causes are unknown. While some of the causes are modifiable through lifestyle changes, some others are inherited and cannot be avoided. However, the risk of death due to particular cancers may be reduced through intensive monitoring of individuals at high risk, reducing external risk factors, detecting and treating cancers early in their development, and treating them in accordance with the best available evidence.

Many cancers can be serious and even fatal. However, medical treatment is often successful if the cancer is detected early. The aim is to destroy the cancer cells and stop them from returning. This can be done by surgery to remove the growth or by other methods such as cancer-destroying drugs (chemotherapy) or ray treatment (radiation therapy). The growth of some cancers can also be controlled through hormone therapy.

The treatment approach often combines a number of these methods and uses them in stages. The first line of treatment aims to remove as many cancer cells as possible; the second line, which may go on for a long time, aims to ensure the cancer does not recur.

Cancer surveillance in Australia

National data on cancer deaths have been available since the early 1900s, based on information in medical certificates of cause of death, as provided to the Registrar of Births, Deaths and Marriages in each State and Territory. The Australian Institute of Health and Welfare (AIHW) and the Australian Bureau of Statistics (ABS) use these data to report national cause of death statistics. Information concerning cancer deaths and non-cancer deaths of cancer cases is also collected by State and Territory cancer registries, based on death certificates and other diagnostic information.

The only effective method of obtaining cancer incidence data is through universal registration of cancer diagnoses. In Australia, cancer registration is required under State and Territory legislation. The cancer registrations are collated by cancer registries that are supported by a mix of State and Territory government and non-government organisations. Some State and Territory cancer registries have been operating for nearly 30 years and obtain their information from hospital, pathology, radiotherapy and physician records (Appendix D). It was not until 1982, however, that cancer registration was universal in Australia (data were published in *Cancer in Australia 1982* (Giles, Armstrong & Smith 1987). Before then, there was no registration in some States and in some others registries covered only particular areas, hospitals or cancer sites.

The National Cancer Statistics Clearing House

In June 1984 the National Health and Medical Research Council endorsed the concept of a national collection of cancer statistics. In April 1985 the National Committee on Health and Vital Statistics agreed that the National Cancer Statistics Clearing House (NCSCH) should be operated by the then Australian Institute of Health under the supervision of the Australasian Association of Cancer Registries (AACR).

Following the enactment of Commonwealth legislation establishing the then Australian Institute of Health as a statutory body in 1987, and subsequent legislation providing for the protection of confidentiality of records supplied to it, the Institute and the AACR established the NCSCH. This provides a facility for compiling data produced by individual State and Territory registries on a continuing basis.

The aim of the NCSCH is to foster the development and dissemination of national cancer statistics for Australia and specifically to:

- enable computation and publication of national statistics on cancer;
- allow tracking of interstate movement of cancer cases via record linkage;

- facilitate exchange of scientific and technical information between cancer registries and promote standardisation in the collection and classification of cancer data; and
- facilitate cancer research both nationally and internationally.

The NCSCH receives data from individual State and Territory cancer registries on cancers diagnosed in residents of Australia. This commenced with cases first diagnosed in 1982. The data items provided to the NCSCH by the State and Territory cancer registries enable record linkage to be performed and the analysis of cancer by site and behaviour.

The NCSCH produces reports of national incidence and mortality data. Periodically, analyses of specific cancer sites, cancer histology, differentials in cancer rates by country of birth, geographical variation, trends over time and survival are undertaken on an accumulation of data which permits examination of the data in greater depth. The section 'Related publications' sets out the range of publications based on these data.

The NCSCH is able to make available a broad range of statistical data. Data identifying individuals may only be released to bona fide researchers after a strict scientific and ethical review process which involves the AACR executive, the AIHW Health Ethics Committee and the State and Territory cancer registries. General database enquiries and enquiries about the release of statistical data should be addressed to:

Australian Institute of Health and Welfare National Cancer Statistics Clearing House Attention: Dr Chris Stevenson GPO Box 570 Canberra ACT 2601 Phone: (02) 6244 1041 E-mail: chris.stevenson@aihw.gov.au

Other sources of data on cancer

In addition to the NCSCH, the AIHW holds several other national databases containing cancer-related data. Many factors determine and influence health. Indeed, the dominant view presently is a 'multicausal' one, in which disease, disability and (ultimately) death are to be seen as the result of the interaction of human biology, lifestyle and environmental (including social) factors, modified by healthcare interventions. Therefore, while the main focus of this report is the presentation of cancer incidence and mortality data, it also includes summary data from these other databases which contribute to a more complete picture of cancer in Australia.

Figure 1 presents a conceptual framework for health (AIHW 2002a). Disability, disease and death are aspects of health and wellbeing, and can be seen as the result of a complex interplay of many factors described as individual or environmental. These causes and effects can be modified to various degrees by health protection, prevention and promotion, or by treatment and rehabilitation; in the end stages of life, palliation services feature. Such interventions are supported by human and material resources, including essential information via research, monitoring and evaluation.

The incidence and mortality data presented in this report contribute to the parts of the framework under 'Health, functioning and wellbeing'. The data in Chapter 5 (multiple causes of death, survival, screening and treatment) extend the coverage of this part of the framework. Chapter 5 also contributes to the 'Resources' part of the framework with a

discussion of the health workforce implications for cancer and to the 'Determinants of health' part of the framework with a discussion of cancer-related risk factors.



There are still significant gaps in cancer-related national data collections. For example, there are still no national data collections of hospital outpatient services and only limited data in areas such as palliative care.

Structure of this report

This report is divided into six major components:

- an introduction and overview of cancer in Australia in 1999;
- summary tables of incidence and mortality for all cancer sites for 1999;
- a series of incidence and mortality data tables for the most common cancer sites, and some less common but topical cancer sites, for 1999;
- an overview of some additional sources of data on cancer in Australia covering cancer survival, risk factors, screening, treatment and workforce issues;
- glossary and reference sections;
- appendixes comprising the cancer coding system and methods used in this report and State and Territory registration features.

In addition, a full set of statistical tables are published separately on the AIHW's web site at www.aihw.gov.au. Also on the web site are two interactive data cubes with cancer incidence data for Australia for 1983–1999. An interactive data cube is a multidimensional representation of data. It contains information organised into dimensions to provide fast retrieval of data and cross-tabulation facilities.

Introduction and overview

The overview of cancer in Australia provides a selection of highlights from the data tables. It describes the patterns of cancer incidence and mortality by site, age, sex, and State and Territory. Trends in cancer incidence and mortality are discussed and a series of graphs are provided presenting the most common cancers by sex and age group, and trends in national cancer incidence (1983–1999) and mortality (1983–2000).

Summary tables

Summary tables of incidence and mortality for 1998 for all cancer sites are provided. These tables list numbers of new cases and deaths, and crude and age-standardised incidence and mortality rates for Australia. Cumulative rates are given for incidence, while the mortality tables provide estimates of the person-years of life lost. Sex ratios are presented in both the incidence and mortality tables.

Series of data tables

The series of data tables for the most common or topical cancers in 1999 contain age-specific, crude, and age-standardised incidence and mortality rates for males, females and persons for each cancer site. The order of the tables is based on the International Classification of Diseases 10th Revision (World Health Organization 1992) (Appendix A). All rates are expressed per 100,000 population and, at the Australian level, are directly age standardised (Appendix B) to both the total estimated resident population of Australia at 30 June 1991 and the new WHO World Standard Population (Appendix C). Included in these tables are estimates of the lifetime risk of contracting each cancer, the person-years of life lost and the numbers of each cancer as a proportion of the total (excluding non-melanocytic skin cancers).

The data tables also include average annual numbers of new cancer cases and deaths, and age-standardised incidence and mortality rates for each State and Territory. It should be noted that the State and Territory incidence and mortality rates have been directly age standardised to the total estimated resident population of Australia at 30 June 1991. Particular care should be taken not to compare these State and Territory rates with previous Cancer Series publications – *Cancer in Australia 1989–1990 (with Projections to 1995), Cancer in Australia 1986–1988* or *Cancer in Australia 1983–1985* – where age standardisation used the old World Standard Population. The NCSCH is able to provide State and Territory rates that have been age standardised to the new WHO World Standard Population on request or State and Territory cancer registries can be contacted directly.

Appendixes

The appendixes include the International Classification of Diseases 10th Revision coding system; a methods section providing formulae, explanations and examples of the techniques used to present the data in the report; population data for Australia for 1999; and a summary table of State and Territory cancer registry characteristics.

This report, together with a comprehensive set of Excel tables for all cancer sites, is available on the AIHW's web site at www.aihw.gov.au/publications/.

2 Cancer in Australia

General

Excluding non-melanocytic skin cancers, there were 82,185 new cancer cases and 34,695 deaths due to cancer in Australia in 1999. At the incidence rates prevailing in 1999, it would be expected that 1 in 3 men and 1 in 4 women would be directly affected by cancer in the first 75 years of life. Further, an estimated 254,000 potential years of life would be lost to the community each year as a result of people dying of cancer before the age of 75. Cancer currently accounts for 29% of male deaths and 25% of female deaths.

In this publication the term 'cancer site' is used to represent cancers located in specific organs or tissues as well as systemic cancers such as leukaemia and lymphoma.

Cancers not reported

Each year, approximately 270,000 new cancer cases of non-melanocytic skin cancer are diagnosed in Australia. Incidence data for this cancer are not collected on a routine basis by cancer registries. Estimates for the incidence numbers are derived from data collected by a national market research company in 1985, 1990 and 1995, and analysis by Staples, Marks and Giles (1998). In the 1995 survey, 63,745 people aged 14–95 years were interviewed about treatment for skin cancer and there was follow-up with treating physicians for 63% of the people who claimed to have had treatment for skin cancer in the last 12 months. Staples, Marks and Giles produced estimated age-standardised incidence rates based on these survey data for treated non-melanocytic skin cancers in 1995 of 1,374 per 100,000 population for males and 857 per 100,000 population for females. These estimates were age standardised to an older version of the World Standard Population and so are not directly comparable to incidence estimates for other cancers published elsewhere in this report. However, if the rates for other cancers based on 1999 data are recalculated using the older World Standard Population, then the incidence rates for treated non-melanocytic skin cancers are 18 times the next most common male cancer (prostate) and 11 times the next most common female cancer (breast). Despite non-melanocytic skin cancer's high incidence rate, it has a relatively low mortality rate at 1.8 per 100,000 population for males and 0.5 per 100,000 for females compared with the high mortality rates of male lung cancer at 33.4 per 100,000 population, female breast cancer (17.2 per 100,000) and prostate cancer (15.6 per 100,000) (1999 data standardised to the older World Standard Population).

Non-melanocytic skin cancer is excluded from any further comparisons in this publication. The totality of other cancers is referred to as 'registrable cancers'.

Most common cancers

Persons

• Among all persons, the combination of cancers of the colon and rectum (11,637 new cases), often referred to as bowel or colorectal cancer, is the most common registrable cancer in 1999 (Table 1). Colorectal cancer, breast cancer (10,667), prostate cancer (10,232), melanoma (8,243) and lung cancer (7,826) together account for 59% of all registrable cancers in 1999.

Males

• In males, the most common registrable cancers after prostate cancer are colorectal cancer (6,188 new cases diagnosed in 1999), lung cancer (5,275) and melanoma (4,627) (Table 1, Figure 2). These four cancers account for 32% of all registrable cancers in males.

Females

• In females, breast cancer (10,592) is the most common registrable cancer, followed by colorectal cancer (5,449), melanoma (3,616) and lung cancer (2,551), which in total account for 27% of all registrable cancers in females.

Cancers causing death

• The cancers most commonly causing death are lung (4,645), prostate (2,512) and colorectal (2,483) in males, and breast (2,512), lung (2,123) and colorectal (2,092) in females (Table 1).

PYLL—person-years of life lost

The number of person-years of life lost due to cancer is generally dominated by the most common cancers due to the large numbers of cases diagnosed, rather than by those less common cancers which occur earlier in life. Lung cancer is responsible for the highest number of person-years of life lost before 75 years of age (43,343 in 1999), followed by breast cancer (29,953) and colorectal cancer (28,683) (Table 1). Cancer of the brain and nervous system is responsible for the fourth highest number of person-years of life lost (16,160). This contrasts with its ranking as the fourteenth most common cancer (1,348 new cases diagnosed in 1999). Further, the ratio of person-years of life lost to new cases for cancer of the brain and nervous system (12.0) is much higher than that for lung cancer (5.5), breast (2.8) or colorectal cancer (2.5). This is a direct result of the relatively large number of younger people diagnosed with, and dying from, cancer of the brain and nervous system.

The most common cancers by age

The most common cancers vary depending on age (Figure 3). In people aged less than 15, the most common cancers diagnosed are lymphoid leukaemia and cancers of the brain and central nervous system. These two cancer sites account for 45.3% of all cancers in this age group. In those aged 15–44, melanoma and breast cancer are the most common cancers, while breast, colorectal, melanoma, prostate and lung cancers are predominant in people aged over 45 years.

The ranking of the most frequently occurring cancers by age group (Figure 3) is based on the number of new cases, and for those cancers the number of deaths is also shown. However, some cancers that would be ranked in the top five cancers based on number of deaths (rather than new cases) are not presented in Figure 2. Cancers which have a substantial number of deaths in each age group that are not presented in Figure 2 are those of myeloid leukaemia (12 deaths) in the 0–14 age group and cancer of the brain and nervous system (132) and cancer of the lung (99) in the 15–44 age group. In the age group 45–64, cancers of unknown primary site (466 deaths), cancer of the brain and nervous system (386), pancreatic cancer (371), and non-Hodgkin's lymphoma (355) are responsible for a substantial number of deaths. Cancers of unknown primary site (1,990 deaths), cancer of the pancreas (1,303) and non-Hodgkin's lymphoma (1,058) are also significant causes of death in the 65 and over age group.

		New case	S					Deaths		
		% of all new	40D	400	l ifatiwa a		% of all	400	400	
Cancer site	Number	cancer cases	ASR (A)	ASR (W)	risk ^(c)	Number	cancer deaths	ASR (A)	ASR (W)	PYLL ^(c)
Males										
Prostate	10,232	23.0	109.5	84.8	1 in 11	2,512	12.8	28.1	20.0	5,470
Colorectal	6,188	13.9	65.1	52.1	1 in 18	2,483	12.7	26.5	20.7	16,453
Lung	5,275	11.9	56.0	43.8	1 in 21	4,645	23.7	49.5	38.3	29,048
Melanoma	4,627	10.4	47.8	41.2	1 in 25	641	3.3	6.7	5.5	7,085
Bladder	2,076	4.7	22.2	17.2	1 in 60	602	3.1	6.7	4.9	2,180
NHL	1,775	4.0	18.5	15.5	1 in 67	793	4.0	8.4	6.6	7,048
Unknown site	1,585	3.6	17.0	13.2	1 in 81	1,248	6.4	13.5	10.3	7,745
Kidney	1,460	3.3	15.1	12.6	1 in 74	528	2.7	5.6	4.4	4,465
Stomach	1,301	2.9	13.8	10.9	1 in 91	754	3.8	8.1	6.3	5,288
Pancreas	916	2.1	9.7	7.7	1 in 129	868	4.4	9.3	7.2	6,055
All cancers	44,514	100.0	469.6	380.0	1 in 3	19,609	100.0	210.3	163.0	138,368
Females										
Breast	10,592	28.1	97.7	87.7	1 in 11	2,512	16.7	22.0	18.9	29,685
Colorectal	5,449	14.5	47.0	38.0	1 in 26	2,092	13.9	17.1	13.4	12,230
Melanoma	3,616	9.6	34.2	30.8	1 in 35	364	2.4	3.2	2.7	4,370
Lung	2,551	6.8	22.6	18.4	1 in 48	2,123	14.1	18.6	14.8	14,295
Unknown site	1,505	4.0	12.4	9.8	1 in 110	1,298	8.6	10.3	8.0	7,065
NHL	1,487	3.9	13.1	10.9	1 in 92	710	4.7	6.0	4.7	4,973
Uterus	1,432	3.8	13.0	11.2	1 in 81	262	1.7	2.2	1.7	1,508
Ovary	1,173	3.1	10.6	9.3	1 in 107	731	4.8	6.3	5.1	5,948
Kidney	912	2.4	8.2	7.0	1 in 140	348	2.3	2.9	2.2	1,635
Pancreas	872	2.3	7.3	5.6	1 in 179	840	5.6	7.0	5.3	3,905
All cancers	37,671	100.0	339.2	291.1	1 in 4	15,086	100.0	127.4	102.3	115,825
Persons										
Colorectal	11,637	14.2	55.3	44.6	1 in 22	4,575	13.2	21.3	16.7	28,683
Breast	10,667	13.0	51.0	45.3	1 in 22	2,533	7.3	11.8	10.0	29,953
Prostate	10,232	12.4	49.3	38.7	1 in 23	2,512	7.2	11.3	8.1	5,470
Melanoma	8,243	10.0	40.2	35.5	1 in 30	1,005	2.9	4.8	3.9	11,455
Lung	7,826	9.5	37.5	29.9	1 in 30	6,768	19.5	32.3	25.4	43,343
NHL	3,262	4.0	15.6	13.1	1 in 78	1,503	4.3	7.1	5.6	12,020
Unknown site	3,090	3.8	14.4	11.3	1 in 94	2,546	7.3	11.7	9.0	14,810
Bladder	2,805	3.4	13.2	10.3	1 in 95	859	2.5	3.9	2.9	2,970
Kidney	2,372	2.9	11.4	9.6	1 in 97	876	2.5	4.1	3.2	6,100
Stomach	1,962	2.4	9.3	7.3	1 in 133	1,205	3.5	5.6	4.4	7,798
All cancers	82,185	100.0	394.5	328.8	1 in 3	34,695	100.0	162.6	128.4	254,193

Table 1: Most frequently occurring cancers in Australia, 1999^{(a), (b)}

(a) Rates are expressed per 100,000 population and age standardised to the Australian 1991 Standard Population (ASR (A)) and to the World Standard Population (ASR (W)). The rates age standardised to the two populations (World and Australia 1991) differ due to the age distributions of these populations. For example, the World population gives more weight to younger age groups where there are fewer cancers, and consequently the rate is lower compared with the Australian 1991 population. A greater weight is given to the older age groups in the Australian 1991 population where there are more cancers, and consequently these rates tend to be higher.

(b) Non-melanocytic skin cancer, known to be the most common cancer type, is excluded from this list as it is not a registrable cancer.

(c) These measures are calculated for ages 0–74 years; PYLL refers to person-years of life lost. Methods for the calculation of these measures are presented in Appendix B.

Note: NHL refers to non-Hodgkin's lymphoma.

Source: Cancer in Australia 1999, AIHW & AACR, 2002.



Most frequently occurring cancers



Most frequently occurring cancers by age group

Age and sex differences

Cancer occurs more commonly in males than females. The age-standardised incidence rate in 1999 for all cancers combined (excluding non-melanocytic skin cancers) was 469.6 new cases per 100,000 for males and 339.2 per 100,000 for females, resulting in an age-adjusted sex ratio of 1.4. Males have a higher incidence rate for every cancer site, except breast and for cancers of the anus, gallbladder, thyroid and adrenal gland.

Of people diagnosed with cancer, 0.7% of all cancers (excluding non-melanocytic skin cancers) occur in those aged less than 15 years, 9.9% in the 15–44 age group, 31.8% in the 45–64 age group, and 57.5% in those aged 65 and over. While the pattern of deaths across age groups is similar to that of incidence, a larger proportion (72.2%) of cancer deaths occurs in those aged 65 and over. Cervical and testicular cancers are exceptions to the age pattern, with the number of cases in the 15–44 age group exceeding that in the 45–64 and 65 and over age groups.

The risk of cancer increases with age. The age-specific incidence rate in 1999 for all cancers combined (excluding non-melanocytic skin cancers) was 14.9 per 100,000 population for people aged less than 15 years; 94.5 per 100,000 population for 15–44 year olds; 677.8 per 100,000 population for 45–64 year olds; and 2,142.9 per 100,000 population for people aged 65 years and over.

Age-specific incidence and mortality rates vary depending upon the cancer site (Figures 4–7). For example, lung cancer incidence and mortality rates parallel each other closely from age group 30–34, rising from ages 20–24 through to 75–79 (men) and from ages 20–24 through to 70–74 (women) before falling slightly in the oldest age groups. The age-specific incidence rates for melanoma of the skin, on the other hand, rise much more steadily across the whole age range. Some cancers, however, have their highest rates in early or middle life and remain fairly constant in the higher age groups (for example, cancers of the breast and cervix) or even decline with age (for example, cancer of the testis).



Age-specific incidence and mortality rates – males

Note: Data for cancer of the testis have been averaged over 1995–1999 to provide more stable estimates.

Source: Cancer in Australia 1999, AIHW & AACR, 2002.

Figure 4: Age-specific incidence and mortality rates for melanoma and cancers of the lung, prostate and testis in males, Australia, 1999



Age-specific incidence and mortality rates – females



Age-specific incidence and mortality rates – males



Age-specific incidence and mortality rates – females

Alcohol- and smoking-related cancers

Alcohol and smoking are risk factors for many cancers. In 1999, alcohol-related cancers accounted for 3.2% of all new cases of cancer, while smoking-related cases accounted for 12.9% of all new cases of cancer. Smoking-related cases also accounted for a large proportion of deaths from cancer in 1999 (21.8% of all cancer deaths). These data and those in Tables 36 and 37 are derived from a series of age- and sex-specific aetiological fractions developed by Ridolfo and Stevenson (2001) and from cancer incidence estimates for specific cancer sites for 1999. These fractions are based on an analysis of international and Australian studies and estimate the probability that a specific agent (alcohol or tobacco) causes a specific disease (cancer). The cancers thought to be directly attributable to smoking (excluding passive smoking) and alcohol are listed in Table 2.

Cancer site	Males (%)	Females (%)
Alcohol-related cancers		
Oropharynx	38	28
Oesophagus	45	36
Liver	37	30
Larynx	50	43
Female breast cancer	—	11
Smoking-related cancers		
Oropharynx	52	41
Oesophagus	51	41
Stomach	12	9
Anus	39	30
Pancreas	23	17
Larynx	68	59
Lung	89	71
Vulva	—	32
Penis	21	—
Bladder	37	28
Renal parenchyma	17	11
Renal pelvis	51	42

Table 2: Cancer site and	percentage of cancers attributable to alcohol and	smoking

Note: In previous editions of Cancer in Australia, cancers of the uterus and cervix were included among smoking related cancers. However, more recent research has shown that this is not the case.

Source: Ridolfo & Stevenson 2001.

It is estimated that 2,602 new cases of cancer were directly attributable to alcohol consumption in 1999 at a rate of 13.7 cases per 100,000 population, as were 1,199 deaths at a rate of 6.3 per 100,000 population. While other cancers may be indirectly caused by alcohol consumption in combination with other risk factors, alcohol is believed to be the primary causative agent for differing proportions of specific cancers. The mechanism by which alcohol causes cancer has not been fully determined, but the major metabolite of ethanol has been shown to be carcinogenic in animal experiments (English et al. 1995). The lifetime risk of an alcohol-related cancer is 1 in 93 for males and 1 in 78 for females. Between 1990 and

1999, the incidence rate for alcohol-related cancers in males fell by an average of 0.3% per annum, while the rate in females increased by 1.6% per annum.

Smoking-related cancers account for 17.3% of all new cases of cancer in males and 7.8% of all new cases of cancer in females. This large difference is attributable to the higher rates of smoking among men than women in the past 30 years. Twenty-five years ago smoking rates in men were almost double those in women. This is no longer the case. In 1998, 25% of men and 20% of women aged over 14 years were current smokers (AIHW 1999). Organs associated with the respiratory system are the ones most affected by cigarette smoke, as a result of the known carcinogens in cigarette smoke such as polycyclic aromatic hydrocarbons (Table 2). Epidemiological evidence indicates that other cancers, including cancers of the upper digestive tract, bladder, renal pelvis (kidneys) and pancreas are also associated with cigarette smoking (English et al. 1995).

Cigarette smoking is estimated to have directly caused 10,619 new cases of cancer (55.9 new cases per 100,000 population) and 7,554 deaths (39.8 per 100,000 population) in 1999. Between 1990 and 1999, the male incidence rate for smoking-related cancers fell by an average of 1.4% per year, while the rate for females rose by 0.8% per year. Over the same period, mortality rates fell by 1.7% per annum for males and by 0.8% per annum for females (Figure 11).

To illustrate the improvements in the male mortality rate for smoking-related cancers: if the 1989 age-specific rates were applied to the 1999 male population there would be an additional 1,502 male deaths due to smoking in 1999. In contrast, the female mortality rate for smoking-related cancers has increased since 1989. There would be 73 fewer female deaths in 1999 if the 1989 rates were applied to the 1999 female population.

Cancer rates in the States and Territories, 1995–1999

Cancer incidence and mortality are reported here for the combined period 1995–1999 for all States and Territories. Cancer registration is based on State and Territory of residency of the patient at the time of diagnosis.

Melanoma rates

Cancer incidence is generally similar among States and Territories. However, variation in the incidence of melanoma among States creates some differences in the overall incidence rates. An analysis of all cancers combined (excluding non-melanocytic skin cancers) showed that Queensland had the highest incidence in both males (508.9 per 100,000 population) and females (360.9 per 100,000 population), while the Northern Territory reported the lowest incidence with 429.5 cases per 100,000 for males and 313.9 per 100,000 for females (Figure 8, Table 23).

Melanoma risk is generally highest in the northern areas and lower in the more southerly areas, showing a correlation to exposure to ultraviolet radiation (Jelfs et al. 1994). Agestandardised mortality ranges from 2.9 deaths per 100,000 population for the Northern Territory to 5.8 deaths per 100,000 population for Queensland (Table 23).

Incidence rates excluding melanoma

When the impact of melanoma was removed from the comparison, the order of States and Territories with the highest and lowest cancer incidence rate for males changed with Tasmania reporting the highest incidence rate for all cancers combined (excluding non-melanocytic skin cancers and melanoma) among males (458.9 per 100,000 population), and the Northern Territory reporting the lowest, with 397.0 cases per 100,000 population. The remaining States and Territories reported the following rates for males: South Australia 449.6 per 100,000 population, Australian Capital Territory 449.1, Victoria 448.0, Queensland 443.2, New South Wales 433.2 and Western Australia 418.6. For females, Victoria reported the highest rate (316.9 per 100,000 population) and the Northern Territory reported the lowest (292.9 per 100,000 population). The remaining States and Territories reported 313.8, South Australia 308.9, New South Wales 303.1, Western Australia 296.3, and the Australian Capital Territory 295.1 per 100,000 population.

Mortality rates

The 1995–1999 cancer mortality rates reported for males across the States and Territories range from 213.6 per 100,000 population in New South Wales to 235.2 per 100,000 population in Tasmania. For females, the mortality rates vary from 129.4 per 100,000 population in New South Wales to 173.6 in the Northern Territory (Table 18).

Lung cancer and smoking-related cancers

Lung cancer incidence rates are highest in the Northern Territory (for males 77.0 cases per 100,000 population, for females 38.3) (Table 22). The lowest lung cancer incidence rates are reported for males in the Australian Capital Territory (39.9 per 100,000 population) and for females in South Australia (21.8).

State and Territory variations in smoking-related cancers generally reflect those observed for lung cancer (Table 37). The Northern Territory reported the highest incidence rates for males and females (108.2 and 38.8 per 100,000 population respectively). The Australian Capital Territory reported the lowest smoking-related cancer incidence rates for males (61.5 per 100,000 population) and South Australia had the lowest rate for females (24.2). Death rates from smoking-related cancers were highest in the Northern Territory for both males and females.

These patterns of incidence probably reflect smoking behaviour approximately 10–20 years ago, due to the time lag between exposure to carcinogens in the tobacco smoke and the diagnosis of cancer. Differentials in smoking rates between the States and Territories reported in the 1995 National Health Survey (ABS 1997) are likely to affect smoking-related cancer incidence rates in the future. Tasmania (57.3%) reported the highest proportion of current and ex-smokers, followed by the Northern Territory with 56.0%. The lowest smoking and ex-smoking rates were found in New South Wales at 49.2%. In the other States and the Australian Capital Territory the proportions of smokers and ex-smokers ranged from 50% to 53%.
Breast cancer and prostate cancer

Victoria reported the highest incidence rates for female breast cancer (101.2 per 100,000), closely followed by South Australia, the Australian Capital Territory and Western Australia (ranging from 100.9 to 100.4 cases per 100,000 population). The Northern Territory reported the lowest incidence rate (72.7 cases per 100,000 population) (Table 24).

The Australian Capital Territory reported high rates of prostate cancer (163.7 per 100,000 population), while significantly lower rates were reported in the Northern Territory (84.5 per 100,000 population) (Table 28), a rate influenced by the low Indigenous population incidence rates (d'Espaignet et al. 1996). These interstate variations in prostate cancer incidence might also be explained by differences in the time and rate of uptake of prostate-specific antigen (PSA) testing in the States and Territories (Smith, Armstrong & Saunders 1998; Threlfall, English & Rouse 1998).

Cervical cancer

There were differences in cervical cancer incidence among the States and Territories. This probably reflects in part the relative impact of the screening programs in each jurisdiction. Most of the large States show consistent rates of approximately 8–10 new cases per 100,000 population; however, South Australia shows a substantially lower rate of 6.7 per 100,000 population (Table 25). The Northern Territory has a very high incidence rate of 16.1 per 100,000 population. A major contributor to this incidence rate is the high rate of cervical cancer among the Indigenous population, which d'Espaignet et al. (1996) indicated was up to three times the rate of the non-Indigenous population. This situation is also reflected in a high mortality rate (8.1 deaths per 100,000 population). This high mortality rate may be an indicator of late-stage detection of these cancers.

Explanations for variations

Differences in State and Territory cancer incidence rates may be explained by variations in underlying cancer risk, the availability and utilisation of diagnostic procedures, reporting and coding inconsistencies, and normal incidence rate fluctuations. A case in point is bladder cancer (Table 30), where State and Territory comparisons vary by more than 100%. This is largely due to differences in local coding practices, particularly in regard to the inclusion or exclusion of tumours of uncertain behaviour. One of the main functions of the AACR is to identify such differences in coding practice and agree on strategies to standardise coding and produce comparable State and Territory data that are also comparable to published international statistics.

Incidence rates for several types of cancer published in this report are considerably lower for the Northern Territory than for other States. These differences are predominantly due to low incidence of these cancers in Indigenous Australians, who comprise 29% of the Northern Territory population (Condon J 2001). Incomplete case ascertainment also contributed to these lower rates to a small extent. A review of data quality in the Northern Territory Cancer Register undertaken during 2001 concluded that, compared to other Australian States, cancer notification to the Northern Territory Cancer Registry in the period 1991–1999 was approximately 6% incomplete (unpublished, J Condon). Under-ascertainment appeared to be due to incomplete notification from one notification source and was not restricted to any particular type of cancer.

Care should be taken when interpreting incidence rates, especially for less common cancers and for States and Territories with small populations. To reduce the problems of statistical variation due to a small number of cases, the numbers and rates presented for the States and Territories in Tables 18 to 37 in this publication are annual averages of the 5-year period 1995–1999. For annual sex- and cancer-specific data, or data cross-classified by other variables (for example age, geographic area), the State and Territory cancer registries should be contacted directly.



All cancers and melanoma incidence rates by sex, States and Territories

Figure 8: Age-standardised incidence rates (95% confidence intervals) for all cancers (excluding non-melanocytic skin cancers) and for melanoma, States and Territories, 1995–1999

3 Cancer trends

National trends in cancer incidence and mortality

National cancer incidence and mortality rates for the most common cancer sites are presented in Figures 9–15. Incidence data are presented for the period 1983–1999 while mortality data are presented for the period 1983–2000.

The trends in incidence and mortality rates vary with cancer site. Some rates have shown an increase since 1983 while others have remained relatively stable or decreased. In assessing these trends it is important to recognise that small changes in the trend in the most common cancers (for example breast, prostate) can mean a substantial shift in the numbers of new cases or deaths, whereas the same shift in less common cancers can have a relatively small impact. For example, a 1% increase in the breast cancer incidence rate results in an increase of approximately 106 new cases, whereas the same percentage increase in cervical cancer incidence would result in approximately eight new cases.

Between 1990 and 1999, age-standardised incidence rates for all cancers combined (excluding non-melanocytic skin cancers) rose for both males and females by an average of 0.3% and 0.8% respectively per year (Figure 9). These incidence rates have been strongly influenced by the steady rise in breast cancer incidence and the rise and fall of prostate cancer incidence during this period. Mortality rates declined for both males and females by an average of 1.1% and 1.0% respectively per year. The decline in male lung cancer and prostate cancer deaths is the main contributor to the falling mortality rate for males.



Prostate cancer

Prostate cancer incidence rates were relatively stable up until 1989 but between 1990 and 1994 there was a dramatic rise in the number of new cases of prostate cancer registered (Figure 10). This upward trend has been attributed to increased detection of the disease through increased investigations, particularly the introduction of PSA testing (introduced around 1990). However, from 1994 to 1997 the age-standardised prostate cancer incidence rate fell by 30%. There was virtually no change between the 1998 and 1999 rate. PSA tests are specifically designed to identify cancers before the onset of clinical symptoms. Many of these prevalent cancers may not show any symptoms, and therefore would not be detected except for PSA testing. Much of the rise in the incidence rate of prostate cancer can be attributed to detection of these prevalent cancers. The recent decline in the incidence rate indicates a return towards the underlying rate, removing the effect of these previously undetected cases. The incidence rate is also declining as the number of PSA tests conducted falls, reducing the number of prevalent cases detected (Smith, Armstrong & Saunders 1998; Threlfall, English & Rouse 1998). The death rate from prostate cancer, which is significantly lower than the incidence rate, decreased by 1.4% per annum between 1990 and 1999.

Breast cancer

Among females, breast cancer is the most frequently diagnosed cancer and it is the most common cause of cancer-related death. The incidence of breast cancer in females rose from 83.5 cases per 100,000 population in 1990 to 97.7 cases per 100,000 population in 1999. The breast cancer incidence rate increased on average 1.8% per annum between 1990 and 1999 (Figure 10). The increase in incidence in female breast cancer in the 50–69 year old age group in 1993 and 1994 was most likely the result of the introduction of the national breast cancer screening program, given that the 50–69 year olds were the main target age group. From 1990 to 1999 the breast cancer mortality rates declined by an average of 1.9% per year.

Colorectal cancer

For colorectal cancer, both the male and female incidence rates have increased since 1990 by an average of 0.2 and 0.1% respectively per year while mortality rates have fallen steadily: the male rate decreased 1.0% per annum between 1990 and 1999, the female rate decreased 1.4% (Figure 10).

Lung cancer

Between 1990 and 1999, the incidence and mortality of lung cancer among males fell by an average of 1.9% and 1.8% respectively per year (Figure 11). These declining rates are attributed to decreased tobacco smoking among men, and represent the lowest incidence rate (56.0 new cases per 100,000 population) recorded since national data collection began in 1982. In contrast, lung cancer incidence among females increased by 1.0% per annum between 1990 and 1999. However, the increase in lung cancer incidence is predominantly in women aged 65 years and over, while rates in younger women have generally remained stable or fallen. The death rate from lung cancer among females increased on average by 0.9% per annum between 1990 and 1999.

Melanoma

The incidence rate for melanoma among males and females increased between 1990 and 1999 on average by 2.5% and 1.6% per year respectively, some of this increase due to improved registration of this cancer. Mortality rates for males increased by 0.2% per annum between

1990 and 1999 while the female rates decreased by 0.7% per annum over the same period (Figure 11).

Non-Hodgkin's lymphoma

The incidence of non-Hodgkin's lymphoma increased by an average of 0.6% per year in males and 1.6% in females between 1990 and 1990 (Figure 12). The mortality rate in males with non-Hodgkin's lymphoma declined by 0.3% annually between 1990 and 1999. The female mortality rate increased on average 1.2% per annum between 1990 and 1999.

Cancer of the bladder

The incidence of bladder cancer for males increased between 1990 and 1999 by an average of 0.3% per annum (Figure 12). It is likely that part of an increase in male incidence is a result of the increased use of screening for prostate cancer leading to a diagnosis of bladder cancer as part of the diagnostic work-up. The female incidence rate increased by an average of 1.1% per annum over the same period. Mortality rates decreased for both males and females between 1990 and 1999–0.5% per annum and 1.3% per annum respectively.

Cancer of the stomach

Stomach cancer incidence fell by an average of 2.1% and 1.6% per year for males and females respectively over the period 1990–1999 (Figure 12). Mortality rates decreased substantially for both sexes over the 1990 to 1999 period by 3.2% in males and 3.4% in females on average per annum.

Leukaemias

The incidence rate for leukaemias in males decreased between 1990 and 1999 by an average of 1.1% per year (Figure 13). The incidence for females remained stable over the same period. During the same time the mortality rates decreased by 0.2% per annum for males and by 0.7% per annum for females.

Brain cancer

Incidence of brain cancer between 1990 and 1999 increased in males by an average of 0.2% per annum and decreased in females by an average of 1.0% per annum (Figure 13). The mortality rate over the same period decreased on average for both males and females by 0.3% and 1.1% respectively per year.

Cancer of the pancreas

Between 1990 and 1999, the male incidence and mortality rates for cancer of the pancreas fell annually by an average of 0.8% and 0.5% respectively. In contrast, over the same period, the female incidence rate increased by an average of 0.6% per year and the female mortality rate increased by an average of 0.3% per year (Figure 13).

Cervical cancer

The age-standardised incidence rate for cervical cancer declined by an average of 5.4% per annum between 1990 and 1999 (Figure 14). This decline was achieved despite a sharp rise in new cases between 1993 and 1994 and between 1997 and 1998. Mortality rates have fallen by an average of 5.5% per year since 1990. These gains are due, in part, to the success of the National Cervical Screening Program.

Cancer of the uterus

The incidence rates for cancer of the uterus increased on average by 0.5% between 1990 and 1999. Mortality rates decreased 1.0% per annum in the same period (Figure 14).

Cancer of the ovary

The incidence and mortality rates for cancer of the ovary declined on average by 0.3% and 1.7% per year between 1990 and 1999 respectively (Figure 14).

Cancer of the kidney

Between 1990 and 1999, male and female incidence rates for cancer of the kidney increased by an average of 1.7% and 1.2% per annum respectively. Male mortality rates increased marginally by 0.2% while female rates declined by 1.0% per annum (Figure 15).

Cancer of the testis

The incidence rates for testicular cancer increased on average by 2.5% per annum between 1990 and 1999. The mortality rates declined on average by 1.2% per annum over the same period (Figure 15).

Cancers of unknown primary site

'Cancers of unknown primary site' is a category that captures cancer diagnoses which cannot be attributed to a particular body site. While some of these cancers have common features, at least in terms of aetiology, behaviour and outcome, others are a mixed collection. This makes it difficult to interpret with certainty the patterns of these cancers, particularly for mortality where often little histological evidence is available to identify a cancer site. Although there are many cancers in this category, it is important to know the current trends, given that this cancer group represents about 4% of new cases and 7% of deaths. Between 1990 and 1999 mortality rates declined for both males and females on average by 1.6% and 1.1% per annum respectively (Figure 15). This may reflect a tendency for clinicians to investigate cancer cases more extensively, or for patients to present earlier with symptoms, before further investigation becomes unfruitful, resulting in fewer cases being classified as cancers of unknown primary site.



Cancers of the prostate and breast, and colorectal cancer



Cancer of the lung, smoking-related cancers and melanoma



Non-Hodgkin's lymphoma, and cancers of the bladder and stomach



Leukaemias, and cancers of the brain and pancreas

Cancers of the cervix, uterus and ovary





Cancers of the kidney and testis, and cancers of unknown primary site

4 Incidence and mortality tables

Guide to interpreting incidence and mortality tables

This section provides information to assist in the interpretation of the tables in this report. More detailed information on methods is given in Appendix B.

Table features

- Tables are ordered according to the International Classification of Diseases, 10th Revision.
- All rates are presented per 100,000 population.
- Age-standardised rates are calculated by the 'direct method' (see definition in Appendix B). Age-standardised rates for Australia use both the total 1991 Australian population and the new WHO World Standard Population as the standard populations. Age-standardised rates for the States and Territories use only the total 1991 Australian population as the standard population. Therefore, particular care should be taken not to compare these State and Territory rates with previous Cancer Series publications *Cancer in Australia 1989–1990 (with Projections to 1995), Cancer in Australia 1986–1988* or *Cancer in Australia 1983–1985* where age standardisation used the old World Standard Population.
- The person-years of life lost (PYLL) and lifetime risk estimates are for the ages 0–74 years.
- The confidence intervals used for crude and age-standardised rates are at the 95% level.
- The 'all cancers' incidence and mortality estimates exclude non-melanocytic skin cancers.
- In this publication the term 'cancer site' is used to represent cancers located in specific organs or tissues as well as systemic cancers such as leukaemia and lymphoma.
- In this publication the term 'melanoma' refers to melanoma of the skin only. Melanomas generally occur on the skin, but may also occur on the eye and mucous membranes (such as the vaginal and nasal cavities).

Comparison of rates

Care should be exercised when interpreting a comparison between incidence or mortality rates – for example, when comparing different cancers or when comparing the same cancer in different years. The confidence intervals indicate the likely range of fluctuation of each rate. Some fluctuations may be within expectations, while others may indicate a change in the patterns of cancer incidence or mortality. Where small annual numbers of cancer cases or deaths are presented in a table, a direct comparison may produce a false perception of

dramatic changes over time and, in these instances, averages over a period of time should be used. In general, cancer incidence and mortality rates change relatively slowly over time, although from year to year there may be marked fluctuations due to significant changes in diagnostic procedures. Changes over the longer term may also reflect changing exposures to risk factors.

Combining rates

- Age-specific rates may be summed over cancer sites for a particular age and sex.
- Age-specific rates may not be summed across different ages or sexes, but should be recalculated from the raw data. However, if populations are similar, the crude rates for a 10-year age group will be approximated by the average of the two 5-year age-specific rates. For comparison within broader age groups, summary rates should be age standardised.

State and Territory data

In August 2002 cancer incidence data were available to 1999 for all States and Territories, and to 2000 for New South Wales, the Australian Capital Territory, South Australia, Western Australia, the Northern Territory and Queensland.

The Australian data are presented as annual numbers and rates, while the data for each State and Territory are presented as average annual rates and numbers of cases and deaths based on the 5-year average 1995–1999. By presenting the data in this manner, natural statistical variation due to small numbers of cases or deaths within each State and Territory and cancer site are averaged across the period and provide a more stable and representative rate of incidence or mortality. Nonetheless, care should be taken in the interpretation of these rates, especially for less common cancers or for States and Territories with small populations.

All average numbers of cases or deaths per year in the State and Territory tables are rounded to the nearest integer. Occasionally, the number of cases or deaths will be zero but a small corresponding rate will appear. This indicates that there were, on average, fewer than 0.5 cases or deaths per year over the 5-year period and, although the rounding process has made the entry zero, a rate can still be presented at one decimal point.

The data in this report will not correspond exactly to data published by the individual State and Territory cancer registries due to the 5-year annual averaging, the use of different standard populations for age standardisation and the continual updating of data sets by the cancer registries.

In this report, State and Territory incidence and mortality rates have been directly age standardised to the total estimated resident population of Australia at 30 June 1991. Care should be taken not to compare these State and Territory age-standardised rates with previous Cancer Series publications – *Cancer in Australia 1989–1990 (with Projections to 1995), Cancer in Australia 1986–1988* or *Cancer in Australia 1983–1985* – where age standardisation was done using the old World Standard Population. However, the NCSCH is able to provide State and Territory rates that have been age standardised to the new WHO World Standard Population on request or the registries can be contacted directly.

Cancer incidence estimates provided in this publication were made at August 2002. These estimates may be updated at any time as case details are added, modified or deleted in the national database. These modifications may occur several years after the initial diagnosis as

additional case details are received by the State and Territory cancer registries from data suppliers and then passed to the NCSCH. This may have the impact of making incidence estimates for the same year incompatible between publications, but for the most part these changes are very small.

5 Other sources of cancer data

Cancer mortality—multiple causes of death

The mortality data reported in the summary tables in this report relate to deaths where cancer was recorded as the underlying cause of death. However, a diagnosis of cancer can raise a person's risk of death from a number of associated causes and these deaths may not be coded as having cancer as their underlying cause. Since 1997, national deaths data in Australia have been compiled with multiple causes of deaths. Multiple causes of death include all causes and conditions recorded on the death certificate (that is, both underlying and associated). The following table lists the National Health Priority Area cancers and shows the number of underlying and associated causes appearing on death certificates for deaths registered in 1999. For example, in Australia in 1999 there were 35,053 deaths where the underlying cause was malignant cancer and 11,714 additional deaths where cancer was the associated cause reported on the death certificate.

Cancer	Underlying cause	died with this cancer	Total
All malignant cancers (C00–C97)	35,053	11,714	46,767
Colorectal cancer (C18–C21)	4,576	556	5,132
Lung (C33–C34)	6,803	466	7,269
Melanoma (C43)	990	131	1,121
Non-melanocytic skin cancer (C44)	381	152	533
Breast (C50)	2,527	504	3,031
Cervix (C53)	220	48	268
Prostate cancer (C61)	2,499	1,150	3,649
Non-Hodgkin's lymphoma (C82–C85, C96)	1,496	259	1,755

Table 3: Number of persons dying with cancer from another cause of death, Australia, 1999 (year of registration)

Sources: ABS 2000b; AIHW Mortality Database.

Survival following cancer diagnosis

Survival after a diagnosis of cancer is an important measure in assessing the broad impacts of prevention, of early detection methods such as screening, and of treatment. Relative survival is the method commonly used by population-based cancer registries to measure and assess survival. It is the ratio between what actually happened to a group of people with cancer and what would normally have occurred to them in the absence of cancer. This discussion will focus on the 5-year relative survival proportion. This is the relative survival over the first 5-years following a diagnosis of cancer. A relative survival of 100% indicates that the disease has made no difference to survival of the group over this period. A survival rate of less than 100% indicates that fewer members of the group survived for 5-years than would have been expected for similar people in the general population.

The average 5-year relative survival proportion for all registrable cancers diagnosed in Australia between 1992 and 1997 was 56.8% for males and 63.4% for females (Tables 4 and 5).

1 , ,			
	Diagnosis period		
Cancer site	1982–1986	1987–1991	1992–1997
Males		(Per cent)	
Testis	91.1	95.2	95.4 *
Melanoma	83.0	87.2	90.0 *
Thyroid	81.0	82.6	87.9
Prostate	59.3	64.3	82.7 *
Hodgkin's lymphoma	74.1	79.1	82.6 *
Bladder	71.2	71.6	70.8
Kidney	50.8	53.7	59.9 *
Colon	50.2	54.7	58.3 *
Rectum	48.7	51.2	56.6 *
Non-Hodgkin's lymphoma	49.6	51.1	54.6 *
Leukaemia	39.4	43.3	41.2
Brain	24.8	24.3	23.8
Stomach	19.2	21.6	22.6 *
Unknown primary	11.7	13.0	13.4
Lung	9.3	10.7	11.0 *
Pancreas	4.2	4.4	5.4
All registrable cancers	43.8	48.1	56.8 *

Table 4: Five-year relative survival ratios for all registrable cancers and selected individual cancer sites, diagnosis period, males, Australia

* Change between 1982–1986 and 1992–1997 is statistically significant at the 95% level.

Source: AIHW & AACR 2001.

The cancers with the highest relative survival in males were cancer of the testis (95.4%) and melanoma (90.0%) and in females were cancer of the thyroid (95.6%) and melanoma (94.6%). Cancers with the lowest relative survival in males were cancer of the pancreas (5.4%), and

cancer of the lung (11.0%) and in females were cancer of the pancreas (5.2%) and cancers of unknown primary site (11.5%).

	Diagnosis period		
Cancer site	1982–1986	1987–1991	1992–1997
Females		(Per cent)	
Thyroid	87.8	91.9	95.6 *
Melanoma	90.9	93.5	94.6 *
Hodgkin's lymphoma	73.8	79.9	84.4 *
Breast	72.3	77.8	84.0 *
Uterus	76.1	78.5	81.4 *
Cervix	69.6	72.0	74.6 *
Bladder	67.2	65.2	64.7
Rectum	52.3	56.0	60.6 *
Colon	51.3	54.7	58.7 *
Kidney	49.4	52.7	57.5 *
Non-Hodgkin's lymphoma	49.9	54.6	55.8 *
Leukaemia	39.4	44.2	43.2 *
Ovary	34.4	37.7	42.0 *
Stomach	21.1	21.8	24.8 *
Brain	24.1	25.3	23.8
Lung	11.8	11.9	14.0 *
Unknown primary	10.4	10.9	11.5
Pancreas	4.1	5.4	5.2
All registrable cancers	55.3	59.1	63.4 *

Table 5: Five-year relative survival proportions for all registrable cancers and selected individual cancer sites and diagnosis period, females, Australia

* Change between 1982–1986 and 1992–1997 is statistically significant at the 95% level. *Source:* AIHW & AACR 2001.

Five-year relative survival for all registrable cancers increased between 1982–1986 and 1992–1997 on average from 43.8% to 56.8% for males and from 55.3% to 63.4% for females. Most individual cancer sites showed an increase in relative survival over this period. The largest increases for males were in cancer of the prostate (59.3% to 82.7%) and cancer of the kidney (50.8% to 59.9%) and for females were in cancer of the breast (72.3% to 84.0%) and Hodgkin's lymphoma (73.8% to 84.4%). Cancers of the brain and bladder showed small decreases in relative survival over this period for both males and females, but these decreases were not statistically significant.

For registrable cancers diagnosed in males during the period 1992–1997, relative survival in capital cities, other metropolitan areas and large rural centres was close to 57.5%. This was significantly above the proportions in other areas, which ranged from 55.2% for small rural centres to 51.9% for 'other remote' areas (Table 6).

There were no statistically significant differences in relative survival for females between metropolitan, rural and remote areas. Five-year relative survival was highest in large rural centres (64.2%) and lowest in 'other remote' areas (61.9%).

Table 6: All cancers 5-year relative survival proportions, geographic location and sex, Australia, 1992–1997

Location	Males	Females
	(Per ce	nt)
Capital cities	57.5	63.6
Other metropolitan	57.4	62.6
Large rural centres	57.6	64.2
Small rural centres	55.2	63.0
Other rural areas	54.7	62.2
Remote centres	52.7	63.0
Other remote areas	51.9	61.9

Source: AIHW & AACR 2001.

Better off Australians tend to have better cancer survival. Five-year relative survival for both males and females, according to their socioeconomic status as measured by the ABS Index of Relative Socioeconomic Disadvantage, increased from the lowest quintile (most disadvantaged) through to the highest (least disadvantaged). For males diagnosed during the period 1992–1997, relative survival was 51.9% for persons resident in the most disadvantaged areas of Australia, and 61.4% for residents of the most advantaged areas. For females, there was a lesser disparity, with a relative survival of 61.9% in the bottom quintile and 63.4% in the highest. This may be partly attributed to higher rates of breast cancer in women living in higher socioeconomic status areas (Table 7).

Table 7: All cancers 5-year relative survival proportions, socioeconomic status and sex, 1992–1997

Quintile of socioeconomic status	Males	Females
	(Per ce	ent)
1 (highest)	61.4	63.4
2	57.0	62.3
3	55.6	61.0
4	55.2	60.9
5 (lowest)	54.3	60.4

Source: AIHW & AACR 2001.

Risk factors

In the cancer context, a risk factor is any feature or exposure that represents a greater risk of developing cancer. Risk factors can be categorised as person-related, individual and physiological risk factors (for example, genetic predisposition, sex, age, high blood pressure, raised cholesterol levels), behavioural risk factors (for example, smoking, physical inactivity, high fat diet), environmental, socioeconomic factors, and community capacity factors. Some risk factors are modifiable through lifestyle changes. This chapter focuses on key modifiable risk factors for which data are available. These are discussed, and where data are available, trends in prevalence are shown.

Significant modifiable behavioural risk factors that have been shown to cause cancers are tobacco smoking, poor diet, excessive sun exposure, alcohol abuse, physical inactivity and obesity. While these risk factors are the most significant, there are a range of other factors that are related to specific cancers but only contribute a small proportion of the overall explanation of cancer, for example, asbestos and mesothelioma. Some of these risk factors act independently to cause cancers but they can also work together to increase risk.

Not all cancers are the same and are affected by these risk factors in different ways. For example, tobacco smoking has been shown to have a very strong association with cancers of the respiratory system (for example, lung); however, it plays a smaller role in other cancers such as cancer of the cervix.

Tobacco smoking

Tobacco smoking is the single most preventable cause of cancer and cancer deaths. Direct smoking alone is estimated to be responsible for one-fifth of all cancer deaths in Australia and kills almost 7,000 Australians per year (AIHW 2002a). It is considered to be responsible for 90% of lung cancer deaths (Peto et al. 2000). As well as being the leading cause of lung cancer death in both men and women, smoking is linked to cancers of the larynx, oropharynx, renal (kidney) pelvis, oesophagus, anus, bladder, vulva, penis, renal parenchyma, pancreas and cervix (Cancer Council of Australia 2001; Ridolfo & Stevenson 2001; English et al. 1995).

In Australia, smoking rates have been declining since the 1950s, when it was estimated that around 70% of males and 30% of females smoked. Since 1985, smoking rates have continued to decline and, in 2001, fell below 20% for the first time (Figure 16).



Nutrition

Evidence is building that a diet rich in fruit and vegetables, wholegrain cereals, starch and calcium while at the same time limiting the intake of fats, salt and sugar, may reduce the risk of developing cancers (AIHW 2002a). Cancers that have been linked to diet are those of the nasopharynx, stomach, liver, colon, rectum and breast (Cancer Council of Australia 2001). The decrease in deaths associated with colorectal cancer is largely attributed to improvements in diet such as consuming less fat, more cereals and vegetables and reduced alcohol consumption (AIHW 2000a).

Alcohol consumption

Alcohol consumption is known to be a contributing cause of cancers of the liver, laryngeal, oropharyngeal, oesophagus, and the female breast (Ridolfo & Stevenson 2001). It is estimated that 2,602 new cases of cancer and 1,199 deaths from cancer were directly attributable to alcohol consumption in 1999.

Australia's drinking pattern has remained largely unchanged over the last decade (Figure 17). In 2001, around 48% of the population aged 14 years and over consumed alcohol on at least one day per week. A further 35% consumed alcohol less than once per week, and the remaining 17% either no longer drank alcohol or had never consumed a full glass of alcohol.



Screening

Breast, cervical and bowel cancers are three of a small group of cancers where there is evidence that illness and death can be reduced through population-based screening and effective follow-up treatment. National screening programs for breast cancer (via mammography) and cervical cancer (via Pap smears) have been implemented in Australia with the aim of achieving this reduction. These programs are called BreastScreen Australia and the National Cervical Screening Program. Pilot tests for a population-based screening program for bowel cancer are currently being developed, with pilot test screening expected to commence in late 2002.

BreastScreen Australia

The BreastScreen Australia program is jointly funded by the Commonwealth and State and Territory governments. It consists of a network of dedicated screening and assessment services throughout metropolitan, rural and remote areas of all Australian States and Territories. These services can be fixed or mobile and provide free biennial mammographic screening and follow-up of any suspicious lesions identified at screening to the point of diagnosis of breast cancer. The program is aimed specifically at women aged 50–69 years of age without symptoms, although women aged 40–49 years and 70 years and older may attend for screening. Women may attend without a doctor's referral.

Recruitment and reminder systems are used to promote screening and re-screening among women in the target group once every 2 years.

A comprehensive system of accreditation is used to ensure that all BreastScreen Australia services operate under a common set of standards. Each service is assessed on a regular basis by an independent team to ensure that the service provided complies with national standards.

The proportion of women in the target age group who were screened under the BreastScreen Australia program in a 2-year period rose from 51.4% in the period 1996–1997 to 55.9% in the period 1998–1999 (Table 8).

	1996–1997	1997–1998	1998–1999
BreastScreen Australia			
Ages 40 years and over	1,240,885	1,367,759	1,452,263
Target population (ages 50–69 years)	844,607	921,283	975,258
Participation rate for target population (%)	51.4	54.3	55.9

Table 8: Number of women screened by BreastScreen Australia in each 2-year period, 1996-1999

Note: Participation rates are age-standardised to the 1991 total Australian population.

Source: AIHW analysis of BreastScreen Australia data.





Figure 19: Participation of women aged 50–69 years in BreastScreen Australia by socioeconomic status, 1998–1999

Participation rates in 1998–1999 in non-capital city metropolitan areas, large and small rural centres, other rural areas and remote centres were all statistically significantly higher than the rates for capital cities and other remote areas (Figure 18). These higher rates reflect policies aimed at encouraging participation in country areas, for example, through the use of mobile mammography units. There was no consistent pattern in participation rates by relative socioeconomic disadvantage, with no statistically significant difference in participation between the most and the least disadvantaged groups (AIHW 2002a).

National Cervical Screening Program

Screening to detect abnormalities of the cervix has been available for Australian women since the 1960s. Until the early 1990s this screening was largely unstructured, with no agreement on the screening target group or the best interval between screens. Since then it has become progressively more organised and in 1995 the program became known as the National Cervical Screening Program.

Unlike breast screening, cervical screening in Australia does not operate through a separate dedicated screening and assessment service. Instead, screening services are provided as part of mainstream health services, with approximately 80% of Pap smears performed by general practitioners. Cervical screening is funded mainly by Medicare (61%) with the remainder funded by Commonwealth government contributions through special purpose payments to State and Territory governments (23%) and these governments' own revenue sources (16%).

The National Cervical Screening Program has both national and State and Territory components. Although policy is usually decided at a national level, coordination of screening activity mainly happens at a State and Territory level.

Cervical cytology registries operate in all States and Territories. The major functions of the registries are to:

- remind women to attend for screening
- ensure the follow-up of women with abnormal Pap smears
- provide cervical screening histories to laboratories and clinicians to aid reporting and management
- monitor the effects of initiatives to improve participation by women in screening.

The current Australian recommendation is for all women who have been sexually active at any stage in their lives to have a Pap smear every 2 years until they reach the age of 70 years. Screening may cease at the age of 70 for women who have had two normal Pap smears within the last 5 years. Women over 70 years who have never had a Pap smear or who request a Pap smear are also screened. However, for reporting purposes the target group is taken to be all women aged between 20 and 69 years who have not had a hysterectomy.

The proportion of women in the target age group who were screened under the National Cervical Cancer Screening Program in a 2-year period rose from 62.3% in the period 1996–1997 to 64.8% in the period 1998–1999 (Table 9).

Table 9: Number of women screened by the National Cervical Screening Program in each 2-year period, 1996–1999

	1996–1997	1997–1998	1998–1999
National Cervical Screening Program			
Ages 20 years and over	2,630,235	2,721,650	2,777,324
Target population (ages 20–69 years)	2,563,108	2,653,504	2,716,364
Participation rate for target population (%)	62.3	63.9	64.8

Notes

1. Participation rates are age standardised to the 1991 total Australian population.

2. The Queensland Health Pap Smear registry only commenced in February 1999. Hence the data presented here for cervical screening exclude screening in Queensland.

Source: AIHW analysis of State and Territory Cervical Cytology Registry data.

Hospital inpatients with cancer

The Australian Institute of Health and Welfare (AIHW) National Hospital Morbidity Database (NHMD) contains diagnosis and treatment information for inpatients in almost all public and private hospitals in Australia from 1993–94 to 2000–01. AIHW publishes detailed statistics on these in June each year for inpatient separations for the previous financial year. The most recent report is for 2000–01 (AIHW 2002).

The NHMD contains a wealth of data and many variables, with many interrelationships. This chapter presents summary data for admitted patients for whom one of the National Health Priority Area cancers was their principal diagnosis in 2000–01.

Principal diagnosis

The principal diagnosis is defined as the diagnosis established, after study, to be chiefly responsible for occasioning the admitted patient's episode of care in hospital. Principal diagnoses for 2000–01 were classified, coded and reported to the National Hospital Morbidity database by all States and Territories using the second edition of the *International Statistical Classification of Diseases and Related Health Problems, 10th Revision, Australian Modification (ICD-10-AM)* (NCCH 2000).

Same-day patients

In 2000–01, 85% of separations where the patient underwent chemotherapy administration were on a same-day basis. Reporting average length of stay (ALOS) based upon all patient separations may be biased if same-day patients are included; therefore the ALOS has been reported excluding same-day stays.

In the financial year 2000–01 there were 306,536 hospital separations where cancer was recorded as the principal diagnosis. This represents 5.0% of all separations in that year.

Interrelationships for diagnoses of National Health Priority Area cancers

Colorectal cancer – ICD-10-AM C18-C21

Figure 20 presents the interrelationships with various data elements where the principal diagnosis was colorectal cancer. Colorectal cancer includes *Malignant neoplasm of colon* (C18), *Malignant neoplasm of rectosigmoid junction* (C19), *Malignant neoplasm of rectum* (C20) and *Malignant neoplasm of anus and anal canal* (C21).

There were 25,238 separations where colorectal cancer was recorded as the principal diagnosis. Of these, 7,360 (29%) were same-day patients. For non-same-day patients, the average length of stay was 11.7 days. Other key points from the figure are:

- 53% of separations were in the public sector.
- 46% of separations were for public patients.
- 55% of separations were for males.
- The 65–74 years age group had the largest number of separations (30%).
- The majority of patients (93%) had acute care and 6% had palliative care.
- A large proportion of patients (83%) had a separation mode of *Other*, indicating that these patients went home after separation from hospital, whereas 8% had a separation mode of *Died*.
- The most common diagnosis in addition to a principal diagnosis of colorectal cancer was *Secondary and unspecified malignant neoplasm of intra-abdominal lymph nodes* (C77.2).
- The most common surgical procedure performed was *Fibreoptic Colonoscopy with excision* (Block 911).
- The most commonly reported AR-DRG was Other Colonoscopy, Sameday (AR-DRG G44C).



Note: Main abbreviations: ALOS—average length of stay, W—with, W/O—without, Cat—catastrophic, CC—complication or comorbidity. ALOS excludes same-day patients.

Figure 20: Inpatients with a principal diagnosis of colorectal cancer, all hospitals, Australia, 2000–2001

Lung cancer – ICD-10-AM C33 & C34

Figure 21 presents the interrelationships with various data elements where the principal diagnosis was lung cancer. Lung cancer includes *Malignant neoplasm of trachea* (C33) and *Malignant neoplasm of bronchus and lung* (C34).

There were 17,085 separations where lung cancer was recorded as the principal diagnosis. Of these, 3,475 (20%) were same-day patients. For non-same-day patients, the average length of stay was 9.5 days. Other key points from the figure are:

- 73% of separations were in the public sector.
- 64% of separations were for public patients.
- 66% of separations were for males.
- The 65–74 years age group had the largest number of separations (37%).
- The majority of patients (84%) had acute care and 16% had palliative care.
- A large proportion of patients (70%) had a separation mode of *Other*, indicating that these patients went home after separation from hospital, whereas 19% had a separation mode of *Died*.
- The most common diagnosis in addition to a principal diagnosis of lung cancer was *Personal history of tobacco use disorder* (Z86.43).
- The most common surgical procedure performed was *Bronchoscopy with biopsy or removal of foreign body* (Block 544).
- The most commonly reported AR-DRG was *Respiratory neoplasms with complication or comorbidity* (AR-DRG E71A).



Melanoma skin cancer – ICD-10-AM C43

Figure 22 presents the interrelationships with various data elements where the principal diagnosis was melanoma. Melanoma skin cancer includes *Malignant melanoma of skin* (C43).

There were 7,698 separations where melanoma was recorded as the principal diagnosis. Of these, 4,935 (64%) were same-day patients. For non-same-day patients, the average length of stay was 5.7 days. Other key points from the figure are:

- 46% of separations were in the public sector.
- 39% of separations were for public patients.
- 56% of separations were for males.
- The 65–74 years age group had the largest number of separations (21%).
- The majority of patients (96%) had acute care and 3% had palliative care.
- A large proportion of patients (95%) had a separation mode of *Other*, indicating that these patients went home after separation from hospital, whereas 3% had a separation mode of *Died*.
- The most common diagnosis in addition to a principal diagnosis of melanoma was *Essential (primary) hypertension* (I10).
- The most common surgical procedures performed were excisions (Blocks 1624 and 1623).
- The most commonly reported AR-DRG was *Other Skin, Subcutaneous Tissue and Breast Procedures* (AR-DRG J11Z).



Figure 22: Inpatients with a principal diagnosis of melanoma, all hospitals, Australia, 2000-2001

Non-melanocytic skin cancer – ICD-10-AM C44

Figure 23 presents the interrelationships with various data elements where the principal diagnosis was non-melanocytic skin cancer (NMSC). NMSC includes *Other malignant neoplasms of skin* (C44).

There were 65,616 separations where non-melanocytic skin cancer was recorded as the principal diagnosis. Of these, 51,395 (78%) were same-day patients. For non-same-day patients, the average length of stay was 4.2 days. Other key points from the figure are:

- 37% of separations were in the public sector.
- 32% of separations were for public patients.
- 61% of separations were for males.
- The 75–84 years age group had the largest number of separations (34%).
- The majority of patients (99%) had acute care and less than 1% had palliative care.
- A large proportion of patients (98%) had a separation mode of *Other*, indicating that these patients went home after separation from hospital, whereas less than 1% had a separation mode of *Died*.
- The most common diagnosis in addition to a principal diagnosis of NMSC was *Actinic keratosis* (L57.0).
- The most common procedure performed was *Excision of basal cell or squamous cell carcinoma of skin* (Block 1622).
- The most commonly reported AR-DRG was *Other Skin, Subcutaneous Tissue and Breast Procedures* (AR-DRG J11Z).



Figure 23: Inpatients with a principal diagnosis of non-melanocytic skin cancer, all hospitals, Australia, 2000-2001

Breast cancer – ICD-10-AM C50

Figure 24 presents the interrelationships with various data elements where the principal diagnosis was breast cancer. Breast cancer includes *Malignant neoplasm of breast* (C50). The analysis of breast cancer was restricted to females only.

There were 20,382 separations where breast cancer was recorded as the principal diagnosis. Of these, 4,804 (24%) were same-day patients. For non-same-day patients, the average length of stay was 5.2 days. Other key points from the figure are:

- 50% of separations were in the public sector.
- 46% of separations were for public patients.
- The 45–54 years age group had the largest number of separations (27%).
- The majority of patients (95%) had acute care and 4% had palliative care.
- A large proportion of patients (93%) had a separation mode of *Other*, indicating that these patients went home after separation from hospital, whereas 3% had a separation mode of *Died*.
- The most common diagnosis in addition to a principal diagnosis of breast cancer was *Secondary and unspecified malignant neoplasm of axillary and upper limb lymph nodes* (C77.3).
- The most common surgical procedure performed was *Local excision of breast* (Block 1744).
- The most commonly reported AR-DRG was *Major Procedures for Malignant Breast Conditions* (AR-DRG J06A).


Cancer of the cervix – ICD-10-AM C53

Figure 25 presents the interrelationships with various data elements where the principal diagnosis was cancer of the cervix. Cervical cancer includes *Malignant neoplasm of cervix uteri* (C53).

There were 1,920 separations where cervical cancer was recorded as the principal diagnosis. Of these, 516 (27%) were same-day patients. For non-same-day patients, the average length of stay was 7.6 days. Other key points from the figure are:

- 76% of separations were in the public sector.
- 67% of separations were for public patients.
- The 45–54 years age group had the largest number of separations (23%).
- The majority of patients (94%) had acute care and 5% had palliative care.
- A large proportion of patients (88%) had a separation mode of *Other*, indicating that these patients went home after separation from hospital, whereas 5% had a separation mode of *Died*.
- The most common diagnosis in addition to a principal diagnosis of cancer of the cervix was *Tobacco use, current* (Z72.0).
- The most common surgical procedure performed was *Excision procedures on cervix* (Block 1276).
- The most commonly reported AR-DRG was *Conisation, Vagina, Cervix and Vulva Procedures* (AR-DRG N09Z).



OR—operating room. ALOS excludes same-day patients.

Figure 25: Inpatients with a principal diagnosis of cervical cancer, all hospitals, Australia, 2000–2001

Prostate cancer – ICD-10-AM C61

Figure 26 presents the interrelationships with various data elements where the principal diagnosis was prostate cancer. Prostate cancer includes *Malignant neoplasm of prostate* (C61).

There were 13,693 separations where prostate cancer was recorded as the principal diagnosis. Of these, 3,203 (23%) were same-day patients. For non-same-day patients, the average length of stay was 7.4 days. Other key points from the figure are:

- 43% of separations were in the public sector.
- 34% of separations were for public patients.
- The 75–84 years age group had the largest number of separations (34%).
- The majority of patients (91%) had acute care and 7% had palliative care.
- A large proportion of patients (87%) had a separation mode of *Other*, indicating that these patients went home after separation from hospital, whereas 7% had a separation mode of *Died*.
- The most common diagnosis in addition to a principal diagnosis of prostate cancer was *Secondary malignant neoplasm of bone and bone marrow* (C79.5).
- The most common surgical procedure performed was *Transurethral prostatectomy* (Block 1165).
- The most commonly reported AR-DRG was *Malignancy*, *Male Reproductive System Without Catastrophic or Severe Complication or Comorbidity* (AR-DRG M60B).



Non-Hodgkin's lymphoma – ICD-10-AM C82-C85 & C96

Figure 27 presents the interrelationships with various data elements where the principal diagnosis is non-Hodgkin's lymphoma. Non-Hodgkin's lymphoma includes *Follicular* (*nodular*) *non-Hodgkin's lymphoma* (C82), *Diffuse non-Hodgkin's lymphoma* (C83), *Peripheral and cutaneous T-cell lymphomas* (C84), *Other and unspecified types of non-Hodgkin's lymphoma* (C85) and *Other and unspecified malignant neoplasms of lymphoid, haematopoietic and related tissue* (C96).

There were 16,061 separations where non-Hodgkin's lymphoma was recorded as the principal diagnosis. Of these, 6,507 (41%) were same-day patients. For non-same-day patients, the average length of stay was 8.3 days. Other key points from the figure are:

- 62% of separations were in the public sector.
- 52% of separations were for public patients.
- 56% of separations were for males.
- The 65–74 years age group had the largest number of separations (24%).
- The majority of patients (96%) had acute care and 3% had palliative care.
- A large proportion of patients (88%) had a separation mode of *Other*, indicating that these patients went home after separation from hospital, whereas 6% had a separation mode of *Died*.
- The most common diagnosis in addition to a principal diagnosis of non-Hodgkin's lymphoma was *Chemotherapy session for neoplasm* (Z51.1).
- The most common procedures performed were *Chemotherapy administration* (Block 1780), *Transfusion of blood and gamma globulin* (Block 1893) and *Biopsy of bone marrow* (Block 800).
- The most commonly reported AR-DRG was Lymphoma and Non-Acute Leukaemia without Catastrophic Complication or Comorbidity (AR-DRG R61B).



All priority cancers

Each of the eight priority cancers analysed included the following in their top ten additional diagnoses:

- I10-Essential (primary) hypertension
- Z72.0 Tobacco use, current
- Z86.43 Personal history of tobacco use disorder

All priority cancers with the exception of lung cancer included E11.9 – Type 2 diabetes mellitus without complication amongst the top ten additional diagnoses, and all with the exception of non-melanocytic skin cancer included Z51.5 – Palliative care.

Each of the priority cancers analysed included 1910—General anaesthesia amongst the top ten procedures. All priority cancers with the exception of non-melanocytic skin cancer included 1916—Generalised allied health interventions amongst the top ten procedures.

Non-melanocytic skin cancer was the principal diagnosis associated with the greatest number of separations. This cancer had the largest proportion of same-day patients.

Colorectal cancer was the principal diagnosis associated with the longest average length of stay for non-same-day patients.

Cancer workforce

The Australian Institute of Health and Welfare publishes health workforce statistics from three main sources:

- national collections in conjunction with State and Territory health authorities for the registered health occupations;
- Medicare provider statistics tabulated by the Commonwealth Department of Health and Ageing; and
- the 5-yearly population census conducted by the Australian Bureau of Statistics.

Health workforce statistics are also collected in surveys and censuses by professional bodies, and in a number of other private regular and ad hoc data collections.

The cancer workforce comprises:

- a diagnostic workforce, including members of the workforce for the national screening programs;
- a medical treatment workforce of medical and nursing professionals;
- a palliative and hospice care workforce;
- a paid and voluntary patient support workforce including counsellors and cancer support organisations; and
- a public health workforce including cancer registries, the State and Territory cancer councils, other health promotion groups, Commonwealth, State and local government cancer control units, and research bodies.

Data on these are limited, incomplete and generally not up to date. They include the following.

Medical workforce

Almost all medical practitioners in Australia treat some persons with cancer. Several medical specialties have a high proportion of patients with cancer. The 1995 and 1998 national figures for these are seen in Table 10.

In its 2001 review of the specialist medical and haematological oncology workforce in Australia, the Australian Medical Workforce Advisory Committee (AMWAC) reported that there were 337 medical and haematological oncologists in 2000, and there was both a shortage of these oncologists and a maldistribution of the existing workforce (AMWAC 2001a).

In its 2001 review of the specialist radiology workforce, AMWAC reported that there were 1,148 specialist radiologists in 2000, and that this workforce was also undersupplied (AMWAC 2001b).

AMWAC also reviewed the specialist radiation oncology workforce in 1998 and found shortages in that workforce (AMWAC 1998). In each case AMWAC recommended increases in training numbers to address the shortage and ongoing annual growth in demand for cancer services.

Medical specialty	1995	1998
	Number of practising specialists	5
Medical oncology	154	167
Radiation oncology	127	152
Clinical haematology	133	135
Haematology	66	61
Nuclear medicine	129	141
Total	609	656

Table 10: Medical specialties with a high proportion of patients with cancer, 1995 and 1998

Source: AIHW: Medical Labour Force 1995, Medical Labour Force 1998.

Nursing workforce

In 1997, there were 2,412 registered nurses and 273 enrolled nurses working in oncology as their main field of nursing practice. There were also 813 registered nurses and 244 enrolled nurses employed in hospices (AIHW: *Nursing Labour Force 1999*).

Medical imaging workforce

At the 1996 census there were 4,719 medical diagnostic radiographers, 701 radiation therapists, 400 nuclear medicine technologists and 704 sonographers employed in Australia (Australian Bureau of Statistics).

General practice and cancer patients

The continuous national study of general practice activity in Australia, known as the BEACH (Bettering the Evaluation and Care of Health) program, provides insight into the patients and problems managed in general practice and the ways in which GPs manage the problems. In BEACH, a random sample of about 1,000 GPs provides details of around 100,000 GP-patient encounters each year. The study is conducted by the General Practice Statistics and Classification Unit (GPSCU – an AIHW collaborating unit within the Family Medicine Research Centre, University of Sydney). The data tables in this section have been prepared by the GPSCU and there are further detailed GPSCU analyses of BEACH data in reports on both the AIHW web site and the GPSCU web site www.fmrc.org.au/beach.htm.

This section represents a summary of the data collected in the first four years of the study, between April 1998 and March 2002. It provides information about those problems that the GP labelled as any type of cancer. These data are drawn from 4,013 GPs and represent a database of 401,300 encounters. The participating GPs were randomly selected from the Health Insurance Commission list of active GPs (those who provided more than 375 GP services in the previous quarter). Each GP completed a paper encounter record for each of 100 encounters. Data elements included:

- date of encounter
- service item number/form of payment/indirect encounters (for example, telephone consultations)
- patient age and sex and other socio-demographics
- patient's reasons for encounter (up to three)
- diagnoses/problems managed (up to four)
- status of each problem to the patient (new/old)
- medications prescribed (up to four per problem)
- other treatments provided (up to two per problem)
- referral, pathology tests and imaging ordered.

Cancers were managed at a rate of 18.8 per 1,000 GP-patient encounters. Extrapolated to the total GP-patient encounters in any one year across the country, these data suggest there are about two million encounters in general practice in which a cancer is managed. Table 11 presents the top ten types of cancer reported by GPs in these encounters. These ten types of cancer together accounted for around 78% of the GP-patient contacts with a cancer. The top three types – basal and squamous cell carcinoma and prostate cancer – accounted for around 51% of cancers managed. All skin cancers (both melanoma and non-melanocytic skin cancers) together accounted for around 46% of cancers managed at these encounters.

Table 12 summarises details of the GPs' management of cancer. GPs prescribed, advised or supplied medications at a rate of 31 medications per 100 problems. The majority of these were prescribed (29.0 per 100 cancer contacts), with the remainder being medication supplied by the GP (1.4 per 100) or over-the-counter medication advised by the GP (0.6 per 100).

GPs provided other treatments at a rate of 40.0 per 100 contacts with a cancer. These comprised both clinical treatments (at a rate of 16.9 per 100 contacts) and procedural treatments (23.8 per 100 contacts).

The GP referred the patient to another health professional or treatment service at a rate of 20.0 per 100 contacts with cancer. The majority of these referrals were to a specialist (18.5 per 100 cancer contacts). Other referrals were to an allied health service (2.6 per 100) or to a hospital or emergency department (1.0 per 100).

Pathology tests were ordered at a rate of 26.5 tests (or groups of tests) per 100 contacts with cancer and imaging tests were ordered at a rate of 4.5 per 100 contacts.

Table 13 summarises the types of medication prescribed for problems involving a cancer. The most common medication type (opioids) accounted for nearly a quarter (24.8%) of these prescriptions. The top ten types of medication together accounted for around 70% of these prescriptions.

Table 14 summarises the types of other treatments provided by GPs for problems involving a malignancy. Treatments involving removal of tissue comprised 40.6% of treatments performed by GPs for cancer. The top ten treatments together accounted for 97.8% of treatments performed by GPs for cancer.

Table 15 summarises referrals by GPs to another health professional or treatment service for problems involving a cancer. More than half (58.9%) of these referrals were to a dermatologist, surgeon or plastic surgeon. The top ten referral types accounted for 86.0% of all referrals for cancers.

Type of cancer	Number	Estimated national number of contacts per year	Rate per 1,000 encounters	Percentage of total cancer contacts
Basal cell carcinoma	1,956	511,800	4.9	25.9
Squamous cell carcinoma	1,002	262,200	2.5	13.3
Prostate cancer	916	239,700	2.3	12.1
Breast cancer (female)	650	170,100	1.6	8.6
Lung cancer	347	90,800	0.9	4.6
Melanoma	293	76,700	0.7	3.9
Other skin cancer	233	61,000	0.6	3.1
Large bowel cancer	218	57,000	0.5	2.9
Colon cancer	176	46,100	0.4	2.3
Lymphoma	133	34,800	0.3	1.8
All cancers	7,560	1,978,800	18.8	100.0

Table 11: Top 10 types of cancer managed at GP-patient encounters

Table 12: GPs' management of cancer

		Rate per 1	00 cancer contacts
	Number	Rate	95% confidence interval
Medications			
All medications	2,345	31.0	29.3–32.8
Prescribed medications	2,191	29.0	27.3–30.7
Advised over-the-counter medications	45	0.6	0.4–0.7
Medications supplied by GP	109	1.4	1.2–1.6
Other treatments given			
All treatments	3,081	40.8	38.7–42.8
Clinical treatments	1,280	16.9	15.8–18.0
Procedural treatments	1,801	23.8	22.4–25.3
Referrals			
All referrals	1,515	20.0	13.6–26.5
Referrals to a hospital	78	1.0	0.0–23.5
Referrals to a specialist	1,396	18.5	11.6–25.3
Referrals to allied health services	196	2.6	0.0–11.7
Referrals to an emergency department	2	0.0	n/a
Pathology tests ordered	2,000	26.5	23.1–29.8
Imaging tests ordered	338	4.5	0.5–8.5

Table 13: Top ten medications prescribed by GPs for management of cancer

			Per cent of all prescriptions	Rate	per 100 cancer contacts
ATC ^(a) class of medication	Number	Per cent	95% confidence interval	Rate	95% confidence interval
Opioids	543	24.8	21.3–28.3	7.2	3.1–11.2
Hormones and related agents	250	11.4	6.3–16.5	3.3	0.0–6.6
Other analgesics and antipyretics	200	9.1	4.1–14.1	2.7	0.0–7.0
Hormone antagonists and related agents	177	8.1	2.7–13.5	2.3	0.0–6.8
Corticosteroids for systemic use, plain	86	3.9	0.0–9.7	1.1	0.0–6.6
Propulsives	84	3.8	0.0–10.1	1.1	0.0–8.0
Hypnotics and sedatives	63	2.9	0.0–10.1	0.8	0.0–6.8
Antipsychotics	42	1.9	0.0–8.1	0.6	0.0–7.1
Antiandrogens	40	1.8	0.0–11.8	0.5	0.0–8.3
Anxiolytics	37	1.7	0.0–11.0	0.5	0.0–8.9
All classes	2,191	100.0	n/a	29.0	25.3–32.7

(a) Anatomical Therapeutic Chemical classification index, WHO Collaborating Centre for Drug Statistics Methodology.

Table 14: Top ten treatments used by GPs for management of cancer

		Per ce tre	nt of all other eatments	Rate per 100 cancer contacts		
Treatment	Number	Rate	95% confidence interval	Rate	95% confidence interval	
Excision/removal tissue/Biopsy/Destruction/Debridement/Cauterisation	1,313	42.6	39.4–45.8	17.4	14.1–20.6	
Therapeutic counselling/Listening	595	19.3	14.8–23.8	7.9	4.1–11.6	
Observation/Health education/advice	550	17.9	14–21.7	7.3	4.6–10	
Repair/Fixation-suture/Cast/Prosthetic device (Apply/remove)	252	8.2	3.1–13.3	3.3	0.0–7.0	
Administrative procedure	83	2.7	0–11.5	1.1	0.0–6.7	
Local injection/Infiltration	71	2.3	0–12.1	0.9	0.0–8.4	
Dressing/Pressure/Compression/Tamponade	58	1.9	0–12.4	0.8	0.0–7.9	
Clarification/Discussion of patient's reason(s) for encounter(s)/demand	42	1.4	0–9.9	0.6	0.0–6.3	
Other therapeutic procedures/Surgery not elsewhere specified	28	0.9	0–22.7	0.4	0.0–12.6	
Physical medicine/Rehabilitation	21	0.7	0–23.7	0.3	0.0–13.1	
All treatments	3,081	100.0	n/a	40.8	38.2–43.3	

Table 15: Top ten referrals made by GPs in management of cancer

		Per cent o	of total referrals	Rate per 10	0 cancer contacts
Service or specialist type referred to	Number	Rate	95% confidence interval	Rate	95% confidence interval
Dermatologist	366	24.0	17.6–30.4	4.8	0.5–9.1
Surgeon	334	21.9	15.8–28.0	4.4	1.5–7.3
Plastic surgeon	193	12.7	2.7–22.6	2.6	0.0–7.0
Oncologist	96	6.3	0.0–17.3	1.3	0.0–5.9
Urologist	80	5.3	0.0–19.4	1.1	0.0–7.5
Hospital	78	5.1	0.0–18.3	1.0	0.0–7.6
Specialist	64	4.2	0.0–17.9	0.9	0.0–6.2
Health professional not elsewhere specified	33	2.2	0.0–27.0	0.4	0.0–10.1
Gastroenterologist	30	2.0	0.0–21.3	0.4	0.0–12.7
Palliative care	29	1.9	0.0–25.1	0.4	0.0–8.8
All referrals	1,515	100.0	n/a	20.0	18.3–21.8

Summary tables 1999

Table 16: Incidence summary table, Australia, 1999

			Mal	es			Females			
ICD10/ICDO2	- Cancer site/type	Number	AS rate (Aust 1991)	AS rate (World)	Cum. rate per cent	- Sex ratio M:F	Number	AS rate (Aust 1991)	AS rate (World)	Cum. rate per cent
C00-C96	All cancers (excluding NMSC)	44,514	469.6	380.0	39.2	1.4	37,671	339.2	291.1	29.4
C00	Lip	633	6.5	5.6	0.5	2.9	270	2.3	1.9	0.2
C01-C02	Tongue	282	2.9	2.5	0.3	2.1	148	1.3	1.2	0.1
	Mouth Salivary gland	280	2.8	2.5	0.3	2.0	104	1.4	1.2	0.1
C09	Tonsil	174	1.4	1.1	0.1	3.3	53	0.5	0.7	0.1
C10	Other or opharynx	65	0.7	0.6	0.1	4.7	14	0.1	0.0	0.0
C11	Nasopharynx	89	0.9	0.8	0.1	2.6	37	0.4	0.3	0.0
C12-C13	Hypopharynx	132	1.3	1.1	0.1	5.3	27	0.3	0.2	0.0
C14	Pharynx unspecified	48	0.5	0.4	0.1	3.2	18	0.2	0.1	0.0
C15	Oesophagus	712	7.5	5.9	0.6	2.4	370	3.1	2.4	0.2
C16	Stomach	1,301	13.8	10.9	1.1	2.5	661	5.5	4.3	0.4
C17 C18	Small Intestine	146 3 721	1.5 30.4	1.3	0.1	1./	97 3 770	0.9	0.8 25.0	0.1
C18 C19–C20	Rectum	2 360	24.6	20.0	2.3	1.2	1 537	13.4	25.9	2.7
C21	Anus	107	1.1	0.9	0.1	0.9	142	1.3	1.1	0.1
C18-C20	Colorectal (excluding anus)	6,081	64.0	51.2	5.5	1.4	5,307	45.8	36.9	3.8
C18-C21	Colorectal (including anus)	6,188	65.1	52.1	5.6	1.4	5,449	47.0	38.0	3.9
C22	Liver	483	5.1	4.1	0.4	3.1	192	1.7	1.3	0.1
C23-C24	Gallbladder	262	2.8	2.2	0.2	0.9	361	3.0	2.4	0.2
C25	Pancreas	916	9.7	7.7	0.8	1.3	872	7.3	5.6	0.6
C30-C31	Nasal cavity	83	0.9	0.7	0.1	2.6	38	0.3	0.3	0.0
C32	Larynx	490	5.0	4.2	0.5	/.1 2.5	76	0.7	0.6	0.1
	Other therasis organs	5,275	56.0	43.8	4.8	2.5	2,551	22.0	18.4	2.1
C40-C41	Bone	84	0.0	0.5	0.0	1.0	86	0.3	0.3	0.0
C43	Skin—melanoma	4.627	47.8	41.2	4.1	1.4	3.616	34.2	30.8	2.9
C44	Skin—non-melanocytic (NMSC)*									
C45	Mesothelioma	387	4.1	3.2	0.3	6.2	77	0.7	0.6	0.1
C46	Kaposi's sarcoma	57	0.6	0.5	0.0	4.4	16	0.1	0.1	0.0
C47-C49	Connective & soft tissue	351	3.8	3.2	0.3	1.3	312	2.8	2.5	0.2
C50	Breast	75	0.8	0.6	0.1	<0.01	10,592	97.7	87.7	9.2
C51	Vulva						195	1.7	1.4	0.1
C 53	vagina Cenvix uteri						787	0.6	0.5	0.0
C 54	Corpus uteri						1 378	12.6	10.8	12
C55	Uterus unspecified						54	0.5	0.4	0.0
C 56	Ovary						1,173	10.6	0.5	0.9
C57	Other female genital organs						62	0.6	0.5	0.1
C58	Placenta						4	0.0	0.0	0.0
C60	Penis	58	0.6	0.5	0.0					
C61	Prostate	10,232	109.5	84.8	9.2					
C62		564	6.1	5.8	0.4					
C63	Kidney	1 2 2 1	0.2	10.2	1.0	10	710	6.6	57	0.6
C65	Renal pelvis	119	1.3	1.0	0.1	1.5	134	1.2	0.9	0.0
C66	Ureter	74	0.8	0.6	0.1	2.0	50	0.4	0.3	0.0
C67	Bladder	2,076	22.2	17.2	1.7	3.6	729	6.1	4.8	0.5
C68	Other urinary organs	36	0.4	0.3	0.0	5.5	9	0.1	0.1	0.0
C69	Eye	127	1.3	1.2	0.1	1.5	90	0.9	0.8	0.1
C71	Brain	749	7.8	7.0	0.7	1.6	529	5.0	4.4	0.4
C70, C72	Meninges & other CNS	35	0.4	0.3	0.0	1.0	35	0.4	0.4	0.0
C70-C72	Brain & CNS Thyroid	784	8.I 2.6	7.4	0.7	1.5	504 750	5.4 7.4	4.8	0.5
C73	Adrenal gland	252	2.0	2.4	0.2	0.3	34	0.4	0.9	0.0
C75	Other endocrine	20	0.2	0.2	0.0	3.2	7	0.1	0.1	0.0
C81	Hodgkin' s disease	232	2.5	2.4	0.2	1.3	185	2.0	1.9	0.1
C82–C85, C96	Non-Hodgkin's lymphoma	1,775	18.5	15.5	1.5	1.4	1,487	13.1	10.9	1.1
M9590/3	Lymphoma NOS	172	1.8	1.5	0.1	1.4	160	1.3	1.0	0.1
C81-C85, C96	All lymphomas	2,007	21.0	17.8	1.7	1.4	1,672	15.0	12.8	1.2
C88	Immunoproliferative neoplasms	43	0.5	0.4	0.0	1.7	33	0.3	0.2	0.0
090	Multiple myeloma	570	6.0	4.8	0.5	1.6	442	3.8	3.1	0.3
C02_C04	Lymphola leukaemia	641 667	0.8 71	5.9	0.5	1./ 1.F	424 507	3.9	3.5	0.3
C92-C94 C95	l eukaemia unspecified	56	7. I 0. 6	0.8 0.5	0.5	1.0 1.8	527 45	4.0	5.9 0.3	0.3
C76-C80. C26. C39	Unknown primary site	1.585	17.0	13.2	1.2	1.4	1.505	12.4	9.8	0.9
#	Alcohol related	1,117	11.5	9.6	1.1	0.8	1,485	13.6	12.2	1.3
#	Smoking related	7,681	81.2	64.0	7.0	3.2	2,937	25.8	20.6	2.4

Note: Rates are expressed per 100,000 population and age standardised (AS rate) to both the Australian 1991 Standard Population and the new WHO World Standard Population.

* Non-melanocytic skin cancer (NMSC) incidence data are not routinely collected by State and Territory cancer registries.

See Appendix A for ICD-10 codes.

Source: Cancer in Australia 1999, AIHW & AACR, 2002.

Table 17: Mortality summary table, Australia, 1999

			Mal	es			Females			
ICD10	- Cancer site	Number	AS Rate (Aust 1991)	AS Rate (World)	PYLL (<75 yrs)	- Sex ratio M:F	Number	AS Rate (Aust 1991)	AS Rate (World)	PYLL (<75 yrs)
C00-C96	All cancers (excluding NMSC)	19,609	210.3	163.0	138,368	1.7	15,086	127.4	102.3	115,825
C00	Lip	9	0.1	0.1	93	3.7	4	0.0	0.0	3
C01-C02	l ongue Mouth	110	1.1	1.0	1,195	2.2	60 60	0.5	0.4	515
C03-C08	Saliyary dand	73	0.8	0.0	178	1.5	00 18	0.5	0.4	323
C09	Tonsil	35	0.4	0.3	368	3.3	10	0.1	0.1	153
C10	Other oropharynx	52	0.5	0.4	485	3.9	16	0.1	0.1	130
C11	Nasopharynx	39	0.4	0.4	738	4.5	11	0.1	0.1	48
C12-C13	Hypopharynx	66	0.7	0.6	600	8.8	9	0.1	0.1	38
C14	Pharynx unspecified	40	0.4	0.3	338	3.1	15	0.1	0.1	100
C15	Oesophagus	645	6.8	5.4	4,690	2.9	294	2.4	1.8	1,205
C16	Stomach	/54	8.1	6.3	5,288	2.2	451	3.6	2.8	2,510
C17	Small Intestine	1 759	U.0 10.0	0.5	11 225	1.9	1 565	0.3	0.3	313
C18 C19–C20	Rectum	705	7.5	59	5 013	1.5	499	4.2	3.3	3 4 8 5
C21	Anus	20	0.2	0.2	205	0.9	28	0.2	0.2	265
C18-C20	Colorectal (excluding Anus)	2,463	26.3	20.5	16,248	1.6	2,064	16.9	13.2	11,965
C18-C21	Colorectal (including Anus)	2,483	26.5	20.7	16,453	1.6	2,092	17.1	13.4	12,230
C22	Liver	449	4.8	3.8	3,623	2.3	241	2.0	1.6	1,485
C23-C24	Gallbladder	127	1.4	1.0	635	0.9	201	1.6	1.2	740
C25	Pancreas	868	9.3	7.2	6,055	1.3	840	7.0	5.3	3,905
C30-C31	Nasal cavity	22	0.2	0.2	265	2.6	12	0.1	0.1	28
C32	Larynx	210	2.2	1.8	1,633	7.8	33	0.3	0.2	183
	Other therease organs	4,045	49.5	38.3	29,048	2.7	2,123	18.0	14.8	14,295
C40_C41	Bone	20 53	0.3	0.2	1 373	1.5	23 42	0.2	0.2	788
C43	Skin—melanoma	641	6.7	5.5	7.085	2.1	364	3.2	2.7	4.370
C44	Skin—non-melanocytic (NMSC)	270	3.0	2.2	1,250	3.7	113	0.8	0.6	305
C45	Mesothelioma	333	3.5	2.8	2,545	6.9	57	0.5	0.4	528
C46	Kaposi's sarcoma	0	0.0	0.0	0		0	0.0	0.0	0
C47-C49	Connective & soft tissue	127	1.3	1.1	1,955	1.1	144	1.3	1.1	1,593
C 50	Breast	21	0.2	0.2	268	< 0.01	2,512	22.0	18.9	29,685
C51	Vulva						44	0.4	0.3	173
C52	Vagina						26	0.2	0.2	125
053	Cervix uteri						226	2.0	1.7	3,115
C 54	Literus unspecified						237	2.0	1.0	1,410 QA
C 56	Ovary						731	6.3	5.1	5 948
C57	Other female genital organs						14	0.1	0.1	90
C58	Placenta						1	0.0	0.0	53
C60	Penis	15	0.2	0.1	108					
C61	Prostate	2,512	28.1	20.0	5,470					
C62	Testis	31	0.3	0.3	965					
C63	Other male genital organs	0	0.0	0.0	0					
C64	Kidney	486	5.1	4.1	4,240	2.0	314	2.6	2.0	1,503
065	Renal pelvis	13	0.1	0.1	6U 00	1.4	14	0.1	0.1	18
C 67	Bladder	602	6.7	0.1 21 Q	2 180	33	257	2.0	1.5	790
C68	Other urinary organs	17	0.7	-4.5 0.1	2,100	27	201	0.1	0.1	68
C 69	Eye	13	0.1	0.1	150	0.9	17	0.1	0.1	180
C71	Brain	587	6.0	5.3	10,365	1.6	420	3.8	3.3	5,543
C70, C72	Meninges & other CNS	11	0.1	0.1	95	1.1	12	0.1	0.1	158
C70-C72	Brain & CNS	598	6.1	5.4	10,460	1.6	432	3.9	3.4	5,700
C73	Thyroid	36	0.4	0.3	308	1.0	45	0.4	0.3	243
C74	Adrenal gland	17	0.2	0.2	588	0.9	19	0.2	0.2	555
C75	Other endocrine	4	0.0	0.0	8	1.0	5	0.0	0.0	115
	Non Hodakin's lymphoma	32	0.4	0.3	7 049	1.0	23 710	0.2	0.2	4/3
		825	8.4	0.0	7,040	1.4	710	6.2	4.7	4,973
C88	Immunoproliferative neoplasms	27	0.3	0.2	100	2.6	14	0.1	0.1	35
C90	Multiple myeloma	354	3.8	2.9	1.978	1.8	269	2.1	1.6	993
C91	Lymphoid leukaemia	260	2.8	2.3	4,320	2.1	173	1.4	1.1	1,638
C92-C94	Myeloid leukaemia	465	5.0	3.9	4,240	1.6	375	3.2	2.6	4,258
C95	Leukaemia unspecified	40	0.4	0.3	345	1.3	44	0.3	0.2	190
C97	Independent (primary) multiple	113	1.2	0.9	560	1.9	80	0.6	0.5	363
C76–C80, C26, C39	Unknown primary site	1,248	13.5	10.3	7,745	1.3	1,298	10.3	8.0	7,065
#	Alcohol related	703	7.4	5.9	5,799	1.7	496	4.3	3.6	4,782
#	Smoking related	5,488	58.6	45.2	32,493	3.3	2,066	17.8	14.0	11,333

Note: Rates are expressed per 100,000 population and age standardised (AS rate) to both the Australian 1991 Standard Population and the new WHO World Standard Population.

See Appendix A for ICD-10 codes.

Source: Cancer in Australia 1999, AIHW & AACR, 2002.

Tables for selected cancers 1999

- Tables of new cases, deaths, incidence and mortality rates for Australia and the States and Territories for selected cancers.
- Tables for other cancer sites can be found on the AIHW's web site at www.aihw.gov.au or can be requested in hard copy from the AIHW.

			Incide	nce					Morta	lity		
	Male	es	Femal	es	Perso	ns	Male	s	Fema	les	Perso	ns
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Age group												
0–4	153	23.1	134	21.4	287	22.3	19	2.9	20	3.2	39	3.0
5–9	82	11.9	57	8.7	139	10.3	30	4.4	15	2.3	45	3.3
10–14	78	11.4	83	12.8	161	12.1	22	3.2	12	1.8	34	2.6
15–19	191	28.4	139	21.7	330	25.1	46	6.8	21	3.3	67	5.1
20–24	240	36.4	246	38.3	486	37.3	44	6.7	27	4.2	71	5.5
25–29	403	55.0	465	63.2	868	59.1	66	9.0	56	7.6	122	8.3
30–34	552	78.4	780	109.0	1,332	93.8	77	10.9	98	13.7	175	12.3
35–39	825	109.7	1,259	165.4	2,084	137.7	152	20.2	186	24.4	338	22.3
40-44	1,121	158.4	1,933	269.2	3,054	214.2	252	35.6	371	51.7	623	43.7
45–49	1,655	249.0	2,627	393.5	4,282	321.4	476	71.6	592	88.7	1,068	80.2
50–54	2,788	453.5	3,383	564.4	6,171	508.3	919	149.5	793	132.3	1,712	141.0
55–59	3,790	808.1	3,398	744.9	7,188	777.0	1,344	286.6	979	214.6	2,323	251.1
60–64	4,904	1,275.2	3,609	934.4	8,513	1,104.4	1,791	465.7	1,240	321.0	3,031	393.2
65–69	6,501	1,942.7	3,976	1,147.1	10,477	1,537.9	2,624	784.1	1,571	453.2	4,195	615.8
70–74	7,687	2,595.7	4,625	1,385.4	12,312	1,954.3	3,593	1,213.3	2,237	670.1	5,830	925.4
75–79	6,871	3,235.9	4,553	1,617.4	11,424	2,313.3	3,551	1,672.3	2,408	855.4	5,959	1,206.7
80–84	3,912	3,468.5	3,248	1,767.2	7,160	2,414.2	2,430	2,154.5	2,044	1,112.1	4,474	1,508.5
85 and over	2,761	3,831.6	3,156	1,911.6	5,917	2,495.0	2,173	3,015.6	2,416	1,463.4	4,589	1,935.0
Total	44,514		37,671		82,185		19,609		15,086		34,695	
Rates per 100,	000 with 9	5% confider	nce interva	ls (95% Cl)								
Crude rate		472.5		393.9		432.9		208.1		157.7		182.8
95% CI	40	68.1 – 476.9	38	9.9 – 397.9	43	0.0 - 435.9	20	05.2 – 211.1		155.2 – 160.3	18	0.8 – 184.7
AS rate (Aust. 19	91)	469.6		339.2		394.5		210.3		127.4		162.6
95% CI	4	65.2 – 474.0	33	5.7 – 342.7	39	1.8 – 397.2	20	07.3 – 213.2		125.3 – 129.5	16	0.9 – 164.3
AS rate (new WH	IO World)	380.0		291.1		328.8		163.0		102.3		128.4
95% CI	3	76.5 – 383.6	28	8.1 – 294.2	32	6.5 – 331.1	16	60.7 – 165.3		100.5 – 104.0	12	7.0 – 129.8
Lifetime risk (0-7	4)	1 in 3		1 in 4		1 in 3		1 in 7		1 in 11		1 in 8
PYLL (0-74)								138,368		115,825		254,193
Per cent of all cancers		100.0		100.0		100.0		100.0		100.0		100.0

Average annual numbers and rates by State and Territory, 1995–1999

			Incider	nce			Mortality						
	Male	s	Females		Perso	Persons		Males		es	Persons		
	Number	AS rate	Number	AS rate	Number	AS rate	Number	AS rate	Number	AS rate	Number	AS rate	
NSW	15,091	481.5	12,338	334.2	27,429	396.3	6,578	213.6	5,104	129.4	11,683	164.4	
Vic	10,958	484.1	9,468	347.8	20,425	404.2	5,031	224.9	4,016	137.9	9,048	174.4	
Qld	8,131	508.9	6,584	360.9	14,715	425.8	3,455	221.7	2,482	130.0	5,937	170.1	
WA	3,751	469.7	3,108	331.9	6,859	391.1	1,694	220.2	1,294	133.4	2,988	170.5	
SA	3,878	489.2	3,220	342.6	7,098	403.8	1,713	216.0	1,357	132.6	3,070	167.2	
Tas	1,191	495.8	989	352.5	2,180	412.3	558	235.2	447	148.3	1,006	184.5	
ACT	537	494.8	458	327.2	995	398.4	228	229.6	214	162.9	442	190.3	
NT	218	429.5	158	313.9	376	376.1	91	215.7	66	173.6	157	196.3	

			Incide	nce					Mortali	ty		
	Ma	es	Fema	les	Perso	ons	Male	es	Female	es	Perso	ns
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Age group												
0–4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
5–9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
10–14	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
15–19	1	0.1	1	0.2	2	0.2	0	0.0	0	0.0	0	0.0
20–24	1	0.2	1	0.2	2	0.2	0	0.0	0	0.0	0	0.0
25–29	2	0.3	1	0.1	3	0.2	2	0.3	3	0.4	5	0.3
30–34	1	0.1	3	0.4	4	0.3	2	0.3	4	0.6	6	0.4
35–39	16	2.1	7	0.9	23	1.5	9	1.2	1	0.1	10	0.7
40–44	27	3.8	12	1.7	39	2.7	4	0.6	6	0.8	10	0.7
45–49	52	7.8	22	3.3	74	5.6	28	4.2	18	2.7	46	3.5
50–54	69	11.2	31	5.2	100	8.2	36	5.9	14	2.3	50	4.1
55–59	96	20.5	24	5.3	120	13.0	54	11.5	18	3.9	72	7.8
60–64	133	34.6	48	12.4	181	23.5	74	19.2	28	7.2	102	13.2
65–69	198	59.2	76	21.9	274	40.2	115	34.4	43	12.4	158	23.2
70–74	243	82.1	104	31.2	347	55.1	131	44.2	67	20.1	198	31.4
75–79	210	98.9	111	39.4	321	65.0	124	58.4	69	24.5	193	39.1
80–84	144	127.7	97	52.8	241	81.3	97	86.0	77	41.9	174	58.7
85 and over	108	149.9	123	74.5	231	97.4	78	108.2	103	62.4	181	76.3
Total	1,301		661		1,962		754		451		1,205	
Rates per 100	,000 with 9	5% confide	nce interva	lls (95% CI)								
Crude rate		13.8		6.9		10.3		8.0		4.7		6.3
95% CI		13.1 – 14.6		6.4 – 7.4		9.9 – 10.8		7.4 – 8.6		4.3 – 5.2		6.0 - 6.7
AS rate (Aust. 1	991)	13.8		5.5		9.3		8.1		3.6		5.6
95% CI		13.1 – 14.6		5.1 – 5.9		8.8 – 9.7		7.5 – 8.7		3.3 – 4.0		5.3 – 5.9
AS rate (new WI	HO World)	10.9		4.3		7.3		6.3		2.8		4.4
95% CI		10.3 – 11.5		3.9 – 4.6		7.0 – 7.6		5.8 – 6.7		2.5 – 3.1		4.1 – 4.6
Lifetime risk (0-	74)	1 in 91		1 in 242		1 in 133		1 in 165		1 in 395		1 in 235
PYLL (0-74)								5,288		2,510		7,798
Per cent of all cancers		2.9		1.8		2.4		3.8		3.0		3.5

Average annual numbers and rates by State and Territory, 1995–1999

			Incider	nce			Mortality					
	Male	s	Females		Perso	Persons		Males		es	Perso	ns
	Number	AS rate	Number	AS rate	Number	AS rate	Number	AS rate	Number	AS rate	Number	AS rate
NSW	426	13.6	230	5.8	656	9.3	242	7.9	137	3.3	379	5.3
Vic	341	15.1	189	6.5	530	10.3	219	9.8	129	4.3	348	6.7
Qld	209	13.4	110	5.7	319	9.2	127	8.3	69	3.5	196	5.6
WA	106	13.4	62	6.4	168	9.7	71	9.2	45	4.6	116	6.7
SA	109	13.7	62	5.9	170	9.4	75	9.5	50	4.7	125	6.8
Tas	32	13.6	18	5.8	50	9.3	24	10.1	15	4.7	39	7.0
ACT	14	13.3	8	6.6	23	9.6	9	9.8	8	5.9	17	7.7
NT	4	11.4	1	2.6	5	6.9	2	5.1	1	3.0	3	4.1

			Incide	nce					Morta	lity		
	Ма	les	Fema	lles	Perso	ons	Mal	es	Fema	les	Pers	ons
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Age group												
0–4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
5–9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
10–14	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
15–19	1	0.1	3	0.5	4	0.3	0	0.0	0	0.0	0	0.0
20–24	2	0.3	5	0.8	7	0.5	3	0.5	1	0.2	4	0.3
25–29	21	2.9	14	1.9	35	2.4	4	0.5	0	0.0	4	0.3
30–34	26	3.7	39	5.4	65	4.6	4	0.6	9	1.3	13	0.9
35–39	62	8.2	66	8.7	128	8.5	11	1.5	20	2.6	31	2.0
40-44	97	13.7	122	17.0	219	15.4	19	2.7	32	4.5	51	3.6
45–49	212	31.9	214	32.1	426	32.0	47	7.1	57	8.5	104	7.8
50–54	400	65.1	291	48.6	691	56.9	119	19.4	81	13.5	200	16.5
55–59	560	119.4	432	94.7	992	107.2	206	43.9	135	29.6	341	36.9
60–64	780	202.8	503	130.2	1,283	166.5	273	71.0	160	41.4	433	56.2
65–69	959	286.6	674	194.5	1,633	239.7	357	106.7	201	58.0	558	81.9
70–74	1,160	391.7	833	249.5	1,993	316.4	496	167.5	298	89.3	794	126.0
75-79	991	466.7	877	311.5	1,868	3/8.3	405	190.7	338	120.1	/43	150.5
80–84	531	4/0.8	685	3/2./	1,216	410.0	2/2	241.2	332	180.6	604	203.7
85 and over	380	535.7	691	418.5	1,077	454.1	267	370.5	428	259.2	695	293.1
Total	6,188		5,449		11,637		2,483		2,092		4,575	
Rates per 100),000 with 9	95% confide	nce interva	als (95% CI)								
Crude rate		65.7		57.0		61.3		26.4		21.9		24.1
95% CI		64.0 - 67.3		55.5 - 58.5		60.2 - 62.4		25.3 – 27.4		20.9 – 22.8		23.4 – 24.8
AS rate (Aust. 1	991)	65.1		47.0		55.3		26.5		17.1		21.3
95% CI		63.5 – 66.7		45.7 – 48.3		54.3 – 56.3		25.5 – 27.6		16.4 – 17.9		20.7 – 22.0
AS rate (new W	HO World)	52.1		38.0		44.6		20.7		13.4		16.7
95% CI		50.8 - 53.4		36.9 – 39.1		43.7 – 45.4		19.8 – 21.5		12.8 – 14.0		16.2 – 17.2
Lifetime risk (0-	74)	1 in 18		1 in 26		1 in 22		1 in 48		1 in 81		1 in 61
PYLL (0-74)								16,453		12,230		28,683
Per cent of all cancers		13.9		14.5		14.2		12.7		13.9		13.2

Average annual numbers and rates by State and Territory, 1995–1999

			Incider	nce					Mortali	ty		
	Male	s	Femal	es	Perso	ns	Male	s	Female	es	Perso	ns
	Number	AS rate	Number	AS rate	Number	AS rate	Number	AS rate	Number	AS rate	Number	AS rate
NSW	2,067	65.7	1,721	44.5	3,788	54.1	815	26.8	683	17.1	1,498	21.3
Vic	1,544	68.0	1,326	46.5	2,871	56.2	666	30.0	577	19.4	1,243	24.2
Qld	1,080	67.5	904	48.5	1,984	57.5	426	27.7	349	18.4	775	22.6
WA	506	63.9	411	43.3	917	52.6	219	28.6	180	18.5	399	23.0
SA	538	67.4	483	47.7	1,021	56.7	214	27.3	197	18.9	411	22.6
Tas	155	64.3	151	50.7	306	57.0	73	31.0	73	23.8	145	27.0
ACT	70	63.7	51	38.5	121	50.1	31	30.2	29	22.0	59	26.1
NT	23	48.7	14	38.6	37	44.5	7	18.1	7	19.9	14	19.3

			Incide	nce					Mortali	ty		
	Mal	es	Fema	les	Perso	ns	Male	es	Female	es	Perso	ons
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Age group												
0–4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
5–9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
10–14	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
15–19	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
20–24	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
25–29	1	0.1	0	0.0	1	0.1	0	0.0	1	0.1	1	0.1
30–34	3	0.4	2	0.3	5	0.4	2	0.3	2	0.3	4	0.3
35–39	6	0.8	6	0.8	12	0.8	8	1.1	4	0.5	12	0.8
40-44	18	2.5	10	1.4	28	2.0	11	1.6	6	0.8	17	1.2
45–49	26	3.9	13	1.9	39	2.9	27	4.1	10	1.5	37	2.8
50–54	56	9.1	27	4.5	83	6.8	50	8.1	26	4.3	76	6.3
55–59	86	18.3	38	8.3	124	13.4	61	13.0	32	7.0	93	10.1
60–64	104	27.0	74	19.2	178	23.1	87	22.6	78	20.2	165	21.4
65–69	127	38.0	93	26.8	220	32.3	116	34.7	88	25.4	204	29.9
70–74	165	55.7	163	48.8	328	52.1	168	56.7	149	44.6	317	50.3
75–79	144	67.8	171	60.7	315	63.8	143	67.3	156	55.4	299	60.5
80–84	104	92.2	134	72.9	238	80.2	94	83.3	143	77.8	237	79.9
85 and over	76	105.5	141	85.4	217	91.5	101	140.2	145	87.8	246	103.7
Total	916		872		1,788		868		840		1,708	
Rates per 100	,000 with 9	5% confide	nce interva	ls (95% CI)								
Crude rate		9.7		9.1		9.4		9.2		8.8		9.0
95% CI		9.1 – 10.4		8.5 – 9.7		9.0 – 9.9		8.6 – 9.8		8.2 – 9.4		8.6 – 9.4
AS rate (Aust. 19	991)	9.7		7.3		8.4		9.3		7.0		8.0
95% CI		9.1 – 10.3		6.8 – 7.8		8.0 - 8.8		8.6 – 9.9		6.5 – 7.4		7.6 – 8.4
AS rate (new WI	HO World)	7.7		5.6		6.6		7.2		5.3		6.2
95% CI		7.2 – 8.2		5.2 - 6.0		6.3 – 6.9		6.7 – 7.7		4.9 – 5.7		5.9 – 6.5
Lifetime risk (0-	74)	1 in 129		1 in 179		1 in 150		1 in 141		1 in 191		1 in 163
PYLL (0-74)								6,055		3,905		9,960
Per cent of all cancers		2.1		2.3		2.2		4.4		5.6		4.9

Average annual numbers and rates by State and Territory, 1995–1999

			Incider	nce					Mortali	ty		
	Male	s	Femal	es	Perso	ns	Male	s	Female	es	Perso	ns
	Number	AS rate	Number	AS rate	Number	AS rate	Number	AS rate	Number	AS rate	Number	AS rate
NSW	292	9.4	301	7.5	593	8.3	268	8.7	287	7.1	555	7.8
Vic	222	9.9	220	7.3	442	8.5	214	9.6	215	7.2	429	8.3
Qld	151	9.5	142	7.4	292	8.4	142	9.1	132	6.8	274	7.9
WA	75	9.5	75	7.8	150	8.6	70	9.0	65	6.6	135	7.7
SA	74	9.3	75	7.0	149	8.1	69	8.7	70	6.6	139	7.6
Tas	23	9.9	26	8.3	49	9.0	22	9.1	26	8.3	47	8.7
ACT	8	8.5	11	8.2	19	8.2	10	9.5	10	7.8	19	8.5
NT	6	9.7	3	9.2	9	10.0	5	7.8	3	10.3	7	9.7

			Incide	ence					Morta	lity		
	Ma	es	Fema	ales	Perso	ons	Mal	es	Fema	les	Pers	ons
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Age group												
0–4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
5–9	0	0.0	0	0.0	0	0.0	0	0.0	1	0.2	1	0.1
10–14	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
15–19	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
20–24	1	0.2	1	0.2	2	0.2	0	0.0	0	0.0	0	0.0
25–29	4	0.5	2	0.3	6	0.4	0	0.0	1	0.1	1	0.1
30–34	11	1.6	4	0.6	15	1.1	3	0.4	2	0.3	5	0.4
35–39	25	3.3	18	2.4	43	2.8	15	2.0	10	1.3	25	1.7
40-44	52	7.3	49	6.8	101	7.1	35	4.9	33	4.6	68	4.8
45–49	122	18.4	82	12.3	204	15.3	93	14.0	49	7.3	142	10.7
50–54	239	38.9	175	29.2	414	34.1	200	32.5	121	20.2	321	26.4
55–59	402	85.7	207	45.4	609	65.8	336	71.6	158	34.6	494	53.4
60–64	609	158.4	263	68.1	872	113.1	493	128.2	202	52.3	695	90.2
65–69	907	271.0	360	103.9	1,267	186.0	757	226.2	305	88.0	1,062	155.9
70–74	1,100	371.4	504	151.0	1,604	254.6	977	329.9	400	119.8	1,377	218.6
75–79	985	463.9	462	164.1	1,447	293.0	906	426.7	405	143.9	1,311	265.5
80–84	492	436.2	255	138.7	747	251.9	486	430.9	247	134.4	733	247.2
85 and over	326	452.4	169	102.4	495	208.7	344	477.4	189	114.5	533	224.7
Total	5,275		2,551		7,826		4,645		2,123		6,768	
Rates per 100	,000 with 9	5% confide	nce interva	als (95% CI)								
Crude rate		56.0		26.7		41.2		49.3		22.2		35.7
95% CI		54.5 – 57.5		25.6 – 27.7		40.3 – 42.1		47.9 – 50.7		21.3 – 23.1		34.8 – 36.5
AS rate (Aust. 1	991)	56.0		22.6		37.5		49.5		18.6		32.3
95% CI		54.5 – 57.5		21.8 – 23.5		36.7 – 38.4		48.0 - 50.9		17.8 – 19.4		31.5 – 33.0
AS rate (new WI	HO World)	43.8		18.4		29.9		38.3		14.8		25.4
95% CI		42.6 - 45.0		17.6 – 19.1		29.2 – 30.5		37.2 – 39.4		14.2 – 15.5		24.8 – 26.0
Lifetime risk (0-	74)	1 in 21		1 in 48		1 in 30		1 in 25		1 in 61		1 in 36
PYLL (0-74)								29,048		14,295		43,343
Per cent of all cancers		11.9		6.8		9.5		23.7		14.1		19.5

Average annual numbers and rates by State and Territory, 1995–1999

			Incider	nce					Mortali	ty		
	Male	s	Femal	es	Perso	ns	Male	s	Female	es	Perso	ns
	Number	AS rate	Number	AS rate	Number	AS rate	Number	AS rate	Number	AS rate	Number	AS rate
NSW	1,814	58.0	855	22.8	2,669	38.4	1,568	50.9	704	18.5	2,271	32.7
Vic	1,338	59.2	655	23.6	1,993	39.3	1,179	52.9	545	19.5	1,724	34.1
Qld	990	62.6	403	22.1	1,393	40.7	861	55.2	334	18.4	1,195	35.2
WA	475	61.5	235	25.5	710	41.6	408	53.8	189	20.3	597	35.2
SA	475	59.3	212	21.8	686	38.3	401	50.6	168	17.2	569	31.7
Tas	155	64.0	72	25.5	228	42.7	140	58.5	59	20.5	199	37.5
ACT	41	39.9	29	22.6	70	30.1	45	45.1	27	21.2	72	31.7
NT	36	77.0	14	38.3	50	59.8	29	73.0	11	28.2	40	51.6

			Incide	nce					Mortali	ty		
	Ma	les	Fema	les	Perso	ns	Male	s	Female	es	Perso	ons
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Age group												
0–4	0	0.0	1	0.2	1	0.1	0	0.0	0	0.0	0	0.0
5–9	2	0.3	3	0.5	5	0.4	0	0.0	0	0.0	0	0.0
10–14	2	0.3	7	1.1	9	0.7	0	0.0	0	0.0	0	0.0
15–19	43	6.4	35	5.5	78	5.9	0	0.0	1	0.2	1	0.1
20–24	69	10.5	117	18.2	186	14.3	3	0.5	3	0.5	6	0.5
25–29	122	16.7	144	19.6	266	18.1	7	1.0	5	0.7	12	0.8
30–34	167	23.7	201	28.1	368	25.9	10	1.4	10	1.4	20	1.4
35–39	242	32.2	278	36.5	520	34.4	17	2.3	15	2.0	32	2.1
40-44	294	41.5	298	41.5	592	41.5	27	3.8	16	2.2	43	3.0
45–49	390	58.7	384	57.5	774	58.1	37	5.6	23	3.4	60	4.5
50–54	443	72.1	373	62.2	816	67.2	45	7.3	26	4.3	71	5.8
55–59	435	92.8	294	64.5	729	78.8	69	14.7	22	4.8	91	9.8
60–64	461	119.9	253	65.5	714	92.6	51	13.3	32	8.3	83	10.8
65–69	487	145.5	282	81.4	769	112.9	73	21.8	38	11.0	111	16.3
70–74	566	191.1	300	89.9	866	137.5	93	31.4	49	14.7	142	22.5
75–79	453	213.3	269	95.6	722	146.2	83	39.1	39	13.9	122	24.7
80–84	285	252.7	205	111.5	490	165.2	71	63.0	29	15.8	100	33.7
85 and over	166	230.4	172	104.2	338	142.5	55	76.3	56	33.9	111	46.8
Total	4,627		3,616		8,243		641		364		1,005	
Rates per 100),000 with 9	5% confider	nce interva	ls (95% CI)								
Crude rate		49.1		37.8		43.4		6.8		3.8		5.3
95% CI		47.7 – 50.5		36.6 – 39.0		42.5 – 44.4		6.3 – 7.3		3.4 - 4.2		5.0 – 5.6
AS rate (Aust. 1	991)	47.8		34.2		40.2		6.7		3.2		4.8
95% CI		46.4 - 49.2		33.0 - 35.3	:	39.4 – 41.1		6.2 – 7.3		2.9 – 3.5		4.5 – 5.1
AS rate (new W	HO World)	41.2		30.8		35.5		5.5		2.7		3.9
95% CI		40.0 - 42.4		29.8 – 31.9	:	34.7 – 36.3		5.1 – 5.9		2.4 – 3.0		3.7 – 4.2
Lifetime risk (0-	74)	1 in 25		1 in 35		1 in 30		1 in 195		1 in 375		1 in 258
PYLL (0-74)								7,085		4,370		11,455
Per cent of all cancers		10.4		9.6		10.0		3.3		2.4		2.9

Average annual numbers and rates by State and Territory, 1995–1999

			Incider	nce					Mortali	ty		
	Male	S	Femal	es	Perso	ns	Male	s	Female	es	Perso	ns
	Number	AS rate	Number	AS rate	Number	AS rate	Number	AS rate	Number	AS rate	Number	AS rate
NSW	1,541	48.3	1,093	31.1	2,634	38.8	231	7.5	117	3.1	348	5.0
Vic	836	36.1	798	31.0	1,634	33.0	127	5.6	79	2.8	206	4.1
Qld	1,098	65.8	833	47.2	1,931	55.7	131	8.2	71	3.8	202	5.8
WA	436	51.1	328	35.6	764	42.7	52	6.5	31	3.2	83	4.7
SA	312	39.6	289	33.7	601	36.1	40	5.0	26	2.9	66	3.8
Tas	89	36.9	93	35.6	182	35.9	11	4.5	7	2.4	17	3.3
ACT	60	45.7	47	32.0	107	38.5	6	5.3	4	3.1	10	4.0
NT	24	32.5	15	21.0	39	27.3	3	4.2	1	1.3	3	2.9

			Incide	nce					Morta	lity		
	Male	s	Fema	les	Perso	ons	Male	s	Fema	les	Pers	ons
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Age group												
0–4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
5–9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
10–14	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
15–19	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
20–24	0	0.0	11	1.7	11	0.8	0	0.0	2	0.3	2	0.2
25–29	1	0.1	49	6.7	50	3.4	0	0.0	4	0.5	4	0.3
30–34	1	0.1	185	25.8	186	13.1	0	0.0	20	2.8	20	1.4
35–39	0	0.0	439	57.7	439	29.0	1	0.1	63	8.3	64	4.2
40–44	4	0.6	819	114.1	823	57.7	4	0.6	138	19.2	142	10.0
45–49	4	0.6	1,148	172.0	1,152	86.5	0	0.0	209	31.3	209	15.7
50–54	4	0.7	1,492	248.9	1,496	123.2	1	0.2	253	42.2	254	20.9
55–59	9	1.9	1,294	283.7	1,303	140.8	0	0.0	263	57.7	263	28.4
60–64	7	1.8	1,239	320.8	1,246	161.7	3	0.8	266	68.9	269	34.9
65–69	15	4.5	1,085	313.0	1,100	161.5	5	1.5	215	62.0	220	32.3
70–74	11	3.7	984	294.7	995	157.9	1	0.3	285	85.4	286	45.4
75–79	11	5.2	835	296.6	846	171.3	4	1.9	276	98.0	280	56.7
80–84	3	2.7	542	294.9	545	183.8	2	1.8	227	123.5	229	77.2
85 and over	5	6.9	470	284.7	475	200.3	0	0.0	291	176.3	291	122.7
Total	75		10,592		10,667		21		2,512		2,533	
Rates per 100	,000 with 95	% confider	nce interva	uls (95% CI)								
Crude rate		0.8		110.8		56.2		0.2		26.3		13.3
95% CI		0.6 - 1.0	10	08.6 – 112.9		55.1 – 57.3		0.1 – 0.3		25.2 – 27.3		12.8 – 13.9
AS rate (Aust. 19	991)	0.8		97.7		51.0		0.2		22.0		11.8
95% CI		0.6 - 1.0		95.9 – 99.6		50.0 - 51.9		0.1 – 0.3		21.1 – 22.9		11.4 – 12.3
AS rate (new WI	HO World)	0.6		87.7		45.3		0.2		18.9		10.0
95% CI		0.5 - 0.8		86.0 - 89.4		44.4 - 46.2		0.1 – 0.3		18.1 – 19.7		9.6 - 10.4
Lifetime risk (0-7	74)	1 in 1,426		1 in 11		1 in 22		1 in 5,760		1 in 53		1 in 104
PYLL (0-74)								268		29,685		29,953
Per cent of all cancers		0.2		28.1		13.0		0.1		16.7		7.3

Average annual numbers and rates by State and Territory, 1995–1999

			Incider	nce					Mortali	ty		
	Male	s	Femal	es	Perso	ns	Male	s	Female	es	Perso	ns
	Number	AS rate	Number	AS rate	Number	AS rate	Number	AS rate	Number	AS rate	Number	AS rate
NSW	27	0.8	3,516	98.1	3,543	51.3	8	0.2	855	22.9	862	12.4
Vic	17	0.7	2,672	101.2	2,689	53.4	6	0.3	698	25.4	704	13.8
Qld	15	0.9	1,770	97.8	1,785	50.6	3	0.2	427	22.9	431	12.2
WA	6	0.8	936	100.4	942	52.0	1	0.1	227	23.6	228	12.6
SA	6	0.8	908	100.9	914	53.2	1	0.2	231	24.0	232	13.1
Tas	3	1.1	246	89.9	248	47.2	0	0.2	68	23.4	68	12.7
ACT	1	1.2	148	100.8	149	53.2	0	0.4	43	31.8	43	17.5
NT	1	1.1	44	72.7	44	34.4	0	0.0	13	27.9	13	13.3

			Incidence						Mortality			
-	Males		Females		Persons		Males		Females		Persons	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Age group												
0–4			0	0.0					0	0.0		
5–9			0	0.0					0	0.0		
10–14			0	0.0					0	0.0		
15–19			0	0.0					0	0.0		
20–24			7	1.1					1	0.2		
25–29			55	7.5					2	0.3		
30–34			74	10.3					7	1.0		
35–39			100	13.1					8	1.1		
40-44			104	14.5					18	2.5		
45-49			76	11.4					27	4.0		
50-54			65	10.8					16	2.7		
55-59			40	16.3					15	3.3		
65-69			54	15.6					21	6.1		
70-74			44	13.2					30	9.0		
75–79			41	14.6					27	9.6		
80–84			35	19.0					19	10.3		
85 and over			21	12.7					20	12.1		
Total			787						226			
Rates per 100,0	000 with 95% o	confider	nce intervals (S	95% CI)								
Crude rate				8.2						2.4		
95% CI			7.	7 – 8.8					2	2.1 – 2.7		
AS rate (Aust. 199	1)			7.7						2.0		
95% CI			7.	1 – 8.2					1	.8 – 2.3		
AS rate (new WHO) World)			6.9						1.7		
95% CI			6.	5 – 7.4					1	.5 – 2.0		
Lifetime risk (0-74)		1	in 161						1 in 591		
PYLL (0-74)										3,115		
Per cent of all cancers				2.1						1.5		

Average annual numbers and rates by State and Territory, 1995–1999

			Incider	ce					Mortali	ty		
	Male	s	Femal	es	Perso	ns	Male	s	Female	es	Perso	ns
	Number	AS rate	Number	AS rate	Number	AS rate	Number	AS rate	Number	AS rate	Number	AS rate
NSW			301	8.8					100	2.7		
Vic			210	8.3					63	2.3		
Qld			172	9.8					48	2.7		
WA			81	8.7					28	2.9		
SA			55	6.7					19	2.0		
Tas			24	10.0					11	3.9		
ACT			12	7.9					5	3.6		
NT			11	16.1					4	8.1		

			Incidence						Mortality			
-	Males		Females		Persons		Males		Females		Persons	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Age group												
0–4			0	0.0					0	0.0		
5–9			0	0.0					0	0.0		
10–14			0	0.0					0	0.0		
15–19			0	0.0					0	0.0		
20–24			0	0.0					0	0.0		
25–29			3	0.4					0	0.0		
30–34			12	1.7					0	0.0		
35–39			19	2.5					2	0.3		
40-44			53	7.4					4	0.6		
45-49			84	12.6					6	0.9		
50-54			148	24.7					16	1.2		
55-59			207	53.6					10	5.5		
65-69			181	52.2					36	10.4		
70-74			188	56.3					42	12.6		
75–79			164	58.3					34	12.1		
80–84			104	56.6					43	23.4		
85 and over			93	56.3					46	27.9		
Total			1,432						262			
Rates per 100,0	000 with 95% o	confide	nce intervals (95% CI)								
Crude rate				15.0						2.7		
95% CI			14.:	2 – 15.7					2	.4 – 3.1		
AS rate (Aust. 199	91)			13.0						2.2		
95% CI			12.	3 – 13.7					1	.9 – 2.5		
AS rate (new WH	O World)			11.2						1.7		
95% CI			10.	6 – 11.8					1	.5 – 2.0		
Lifetime risk (0-74	4)			1 in 81					1	1 in 555		
PYLL (0-74)										1,508		
Per cent of all cancers				3.8						1.7		

Average annual numbers and rates by State and Territory, 1995–1999

			Incider	ice					Mortali	ty		
	Male	s	Femal	es	Perso	ns	Male	s	Female	es	Perso	ns
	Number	AS rate	Number	AS rate	Number	AS rate	Number	AS rate	Number	AS rate	Number	AS rate
NSW			440	12.0					94	2.3		
Vic			395	14.8					71	2.4		
Qld			238	13.1					46	2.3		
WA			104	11.3					23	2.4		
SA			140	15.1					27	2.5		
Tas			32	11.5					7	2.4		
ACT			19	14.2					3	2.8		
NT			6	12.0					1	5.3		

			Incider	nce					Mortality			
	Males		Femal	es	Persons		Males		Females		Persons	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Age group												
0–4			1	0.2					0	0.0		
5–9			3	0.5					0	0.0		
10–14			5	0.8					0	0.0		
15–19			6	0.9					0	0.0		
20–24			15	2.3					0	0.0		
25–29			23	3.1					5	0.7		
30–34			24	3.4					3	0.4		
35–39			27	3.5					11	1.4		
40-44			54	7.5					13	1.8		
45-49			93	13.9					31	4.6		
50-54			122	20.4					51	8.5 12.7		
55-59			122	20.1					56	12.7		
65_69			104	34.4					91	26.3		
70-74			138	41.3					100	30.0		
75-79			131	46.5					130	46.2		
80-84			81	44.1					87	47.3		
85 and over			94	56.9					87	52.7		
Total			1,173						731			
Rates per 100,	000 with 95% (confider	nce interva	s (95% CI)								
Crude rate				12.3						7.6		
95% CI				11.6 – 13.0					7	7.1 – 8.2		
AS rate (Aust. 19	91)			10.6						6.3		
95% CI				10.0 – 11.3					5	5.8 – 6.8		
AS rate (new WH	O World)			9.3						5.1		
95% CI				8.7 – 9.9					4	1.7 – 5.5		
Lifetime risk (0-7-	4)			1 in 107						1 in 195		
PYLL (0-74)										5,948		
Per cent of all cancers				3.1						4.8		

Average annual numbers and rates by State and Territory, 1995–1999

			Incider	ice					Mortali	ty		
	Male	s	Femal	es	Perso	ns	Male	5	Female	es	Perso	ns
	Number	AS rate	Number	AS rate	Number	AS rate	Number	AS rate	Number	AS rate	Number	AS rate
NSW			368	10.1					250	6.6		
Vic			371	14.0					209	7.4		
Qld			193	10.6					116	6.3		
WA			88	9.4					62	6.6		
SA			91	9.8					63	6.6		
Tas			32	11.8					22	7.7		
ACT			13	8.7					11	8.3		
NT			3	6.0					2	5.1		

	Malaa		Incidenc	e					Mortality			
	Mal	es	Females	5	Persons		Males		Females		Persons	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Age group												
0–4	1	0.2					0	0.0				
5–9	0	0.0					0	0.0				
10–14	0	0.0					0	0.0				
15–19	0	0.0					0	0.0				
20–24	0	0.0					0	0.0				
25–29	0	0.0					0	0.0				
30–34	0	0.0					0	0.0				
35–39	1	0.1					1	0.1				
40-44	9	1.3					4	0.6				
45–49	73	11.0					6	0.9				
50–54	403	65.6					18	2.9				
55–59	808	172.3					46	9.8				
60–64	1,301	338.3					102	26.5				
65–69	1,815	542.4					215	64.2				
70–74	2,087	704.7					416	140.5				
75–79	1,928	908.0					603	284.0				
80–84	1,053	933.6					538	477.0				
85 and over	753	1,045.0					563	781.3				
Total	10,232						2,512					
Rates per 100	,000 with 9	5% confider	ice intervals	(95% CI)								
Crude rate		108.6						26.7				
95% CI	1	06.5 – 110.7					2	5.6 – 27.7				
AS rate (Aust. 19	91)	109.5						28.1				
95% CI	1	07.3 – 111.6					2	7.0 – 29.2				
AS rate (new WH	O World)	84.8						20.0				
95% CI		83.2 - 86.5					1	9.2 – 20.7				
Lifetime risk (0-7	(4)	1 in 11						1 in 82				
PYLL (0-74)								5,470				
Per cent of all												
cancers		23.0						12.8				

Average annual numbers and rates by State and Territory, 1995–1999

			Incider	nce					Mortali	ty		
	Male	s	Femal	es	Perso	ns	Male	s	Female	es	Perso	ns
	Number	AS rate	Number	AS rate	Number	AS rate	Number	AS rate	Number	AS rate	Number	AS rate
NSW	3,715	119.9					848	29.2				
Vic	2,682	120.2					684	32.1				
Qld	1,625	105.5					457	31.5				
WA	905	116.7					204	28.8				
SA	1,057	133.0					230	29.9				
Tas	311	130.4					82	36.3				
ACT	163	163.7					27	30.9				
NT	31	84.5					5	18.9				

			Incidence)					Mortality			
	Males		Females		Persons		Males		Females		Persons	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Age group												
0–4	7	1.1					0	0.0				
5–9	0	0.0					0	0.0				
10–14	1	0.1					0	0.0				
15–19	21	3.1					1	0.1				
20–24	57	8.6					2	0.3				
25–29	79	10.8					4	0.5				
30–34	106	15.0					4	0.6				
35–39	109	14.5					6	0.8				
40-44	81	11.4					3	0.4				
45–49	35	5.3					2	0.3				
50–54	23	3.7					1	0.2				
55–59	17	3.6					2	0.4				
60–64	9	2.3					0	0.0				
65–69	3	0.9					0	0.0				
70–74	8	2.7					3	1.0				
75–79	4	1.9					1	0.5				
80–84	3	2.7					1	0.9				
85 and over	1	1.4					1	1.4				
Total	564						31					
Rates per 100	,000 with 95%	confider	nce intervals	(95% CI)								
Crude rate		6.0						0.3				
95% CI		5.5 – 6.5					(0.2 – 0.4				
AS rate (Aust. 19	91)	6.1						0.3				
95% CI		5.6 – 6.6					(0.2 – 0.4				
AS rate (new WH	O World)	5.8						0.3				
95% CI		5.3 – 6.3					(0.2 – 0.4				
Lifetime risk (0-7	(4)	1 in 241					1	in 4,264				
PYLL (0-74)								965				
Per cent of all cancers		1.3						0.2				

Average annual numbers and rates by State and Territory, 1995–1999

			Incider	ice					Mortali	ty		
	Male	S	Femal	es	Perso	ns	Male	s	Female	es	Perso	ns
	Number	AS rate	Number	AS rate	Number	AS rate	Number	AS rate	Number	AS rate	Number	AS rate
NSW	186	6.0					10	0.3				
Vic	136	6.1					8	0.3				
Qld	100	6.0					6	0.4				
WA	51	5.6					2	0.2				
SA	46	6.4					2	0.3				
Tas	14	5.9					0	0.2				
ACT	13	7.6					0	0.2				
NT	4	4.1					0	0.0				

			Incide	nce					Mortali	ty		
	Ma	es	Fema	les	Perso	ons	Male	es	Female	s	Perso	ons
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Age group												
0–4	1	0.2	1	0.2	2	0.2	0	0.0	0	0.0	0	0.0
5–9	1	0.1	0	0.0	1	0.1	0	0.0	0	0.0	0	0.0
10–14	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
15–19	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
20–24	1	0.2	0	0.0	1	0.1	0	0.0	0	0.0	0	0.0
25–29	6	0.8	4	0.5	10	0.7	0	0.0	0	0.0	0	0.0
30–34	10	1.4	4	0.6	14	1.0	1	0.1	0	0.0	1	0.1
35–39	11	1.5	6	0.8	17	1.1	1	0.1	1	0.1	2	0.1
40–44	29	4.1	12	1.7	41	2.9	3	0.4	1	0.1	4	0.3
45–49	46	6.9	11	1.6	57	4.3	10	1.5	2	0.3	12	0.9
50–54	88	14.3	29	4.8	117	9.6	9	1.5	4	0.7	13	1.1
55–59	152	32.4	41	9.0	193	20.9	15	3.2	7	1.5	22	2.4
60–64	177	46.0	66	17.1	243	31.5	38	9.9	10	2.6	48	6.2
65–69	297	88.8	74	21.3	371	54.5	71	21.2	29	8.4	100	14.7
70–74	408	137.8	127	38.0	535	84.9	102	34.4	44	13.2	146	23.2
75–79	386	181.8	136	48.3	522	105.7	123	57.9	45	16.0	168	34.0
80–84	270	239.4	110	59.8	380	128.1	100	88.7	50	27.2	150	50.6
85 and over	193	267.8	108	65.4	301	126.9	129	179.0	64	38.8	193	81.4
Total	2,076		729		2,805		602		257		859	
Rates per 100	,000 with 9	5% confide	nce interva	ls (95% CI)								
Crude rate		22.0		7.6		14.8		6.4		2.7		4.5
95% CI		21.1 – 23.0		7.1 – 8.2		14.2 – 15.3		5.9 – 6.9		2.4 – 3.0		4.2 - 4.8
AS rate (Aust. 19	991)	22.2		6.1		13.2		6.7		2.0		3.9
95% CI		21.2 – 23.2		5.7 – 6.6		12.7 – 13.7		6.1 – 7.2		1.8 – 2.3		3.7 – 4.2
AS rate (new WI	HO World)	17.2		4.8		10.3		4.9		1.5		2.9
95% CI		16.4 – 17.9		4.4 – 5.2		9.9 – 10.7		4.5 - 5.3		1.3 – 1.7		2.7 – 3.1
Lifetime risk (0-	74)	1 in 60		1 in 210		1 in 95		1 in 277		1 in 744		1 in 409
PYLL (0-74)								2,180		790		2,970
Per cent of all cancers		4.7		1.9		3.4		3.1		1.7		2.5

Average annual numbers and rates by State and Territory, 1995–1999

			Incider	nce					Mortali	ty		
	Male	s	Femal	es	Perso	ns	Male	s	Female	es	Perso	ns
	Number	AS rate	Number	AS rate	Number	AS rate	Number	AS rate	Number	AS rate	Number	AS rate
NSW	573	18.6	212	5.3	786	11.1	195	6.7	86	2.0	281	3.9
Vic	666	29.6	215	7.5	882	17.2	140	6.6	60	1.9	199	3.8
Qld	452	28.9	151	8.1	603	17.5	98	6.7	43	2.1	141	4.1
WA	103	13.7	33	3.4	136	7.9	42	5.9	19	1.9	60	3.5
SA	127	16.1	43	4.0	170	9.2	53	7.0	23	2.0	75	4.0
Tas	69	29.2	23	7.5	92	17.0	15	6.9	7	2.1	22	4.0
ACT	17	18.0	4	2.9	21	9.3	9	11.3	2	2.0	12	5.7
NT	4	11.0	1	1.4	5	6.3	2	6.8	0	1.6	3	4.0

			Incide	nce					Mortalit	y		
	Ma	es	Fema	les	Perso	ns	Male	s	Female	s	Perso	ons
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Age group												
0–4	12	1.8	26	4.1	38	2.9	2	0.3	2	0.3	4	0.3
5–9	6	0.9	4	0.6	10	0.7	2	0.3	0	0.0	2	0.1
10–14	1	0.1	1	0.2	2	0.2	1	0.1	0	0.0	1	0.1
15–19	1	0.1	1	0.2	2	0.2	1	0.1	0	0.0	1	0.1
20–24	4	0.6	2	0.3	6	0.5	0	0.0	1	0.2	1	0.1
25–29	4	0.5	6	0.8	10	0.7	1	0.1	0	0.0	1	0.1
30–34	8	1.1	12	1.7	20	1.4	2	0.3	0	0.0	2	0.1
35–39	32	4.3	13	1.7	45	3.0	7	0.9	1	0.1	8	0.5
40-44	44	6.2	28	3.9	72	5.0	8	1.1	1	0.1	9	0.6
45–49	97	14.6	49	7.3	146	11.0	20	3.0	5	0.7	25	1.9
50–54	134	21.8	62	10.3	196	16.1	31	5.0	5	0.8	36	3.0
55–59	146	31.1	78	17.1	224	24.2	41	8.7	19	4.2	60	6.5
60–64	167	43.4	84	21.7	251	32.6	54	14.0	27	7.0	81	10.5
65–69	218	65.1	114	32.9	332	48.7	69	20.6	42	12.1	111	16.3
70–74	236	79.7	136	40.7	372	59.0	101	34.1	53	15.9	154	24.4
75–79	176	82.9	157	55.8	333	67.4	86	40.5	76	27.0	162	32.8
80–84	112	99.3	82	44.6	194	65.4	53	47.0	55	29.9	108	36.4
85 and over	62	86.0	57	34.5	119	50.2	49	68.0	61	36.9	110	46.4
Total	1,460		912		2,372		528		348		876	
Rates per 100	0,000 with 9	5% confide	nce interva	als (95% CI)								
Crude rate		15.5		9.5		12.5		5.6		3.6		4.6
95% CI		14.7 – 16.3		8.9 – 10.2		12.0 – 13.0		5.1 – 6.1		3.3 – 4.0		4.3 – 4.9
AS rate (Aust. 1	991)	15.1		8.2		11.4		5.6		2.9		4.1
95% CI		14.3 – 15.9		7.7 – 8.8		11.0 – 11.9		5.1 – 6.1		2.6 – 3.2		3.8 – 4.4
AS rate (new W	HO World)	12.6		7.0		9.6		4.4		2.2		3.2
95% CI		12.0 – 13.3		6.5 – 7.4		9.2 - 10.0		4.1 – 4.8		2.0 – 2.5		3.0 - 3.5
Lifetime risk (0-	-74)	1 in 74		1 in 140		1 in 97		1 in 225		1 in 483		1 in 310
PYLL (0-74)								4,465		1,635		6,100
Per cent of all cancers		3.3		2.4		2.9		2.7		2.3		2.5

Average annual numbers and rates by State and Territory, 1995–1999

			Incider	nce					Mortali	ty		
	Male	s	Femal	es	Perso	ns	Male	s	Female	s	Perso	ns
	Number	AS rate	Number	AS rate	Number	AS rate	Number	AS rate	Number	AS rate	Number	AS rate
NSW	449	14.1	307	8.2	756	10.9	159	5.2	130	3.3	288	4.1
Vic	328	14.2	203	7.4	531	10.5	126	5.6	78	2.7	204	4.0
Qld	246	15.0	163	8.9	409	11.8	87	5.6	66	3.5	153	4.5
WA	89	11.0	61	6.5	151	8.6	34	4.5	27	2.8	61	3.6
SA	120	15.1	66	7.0	186	10.7	44	5.6	26	2.5	70	3.9
Tas	39	16.1	21	7.2	60	11.3	17	7.1	8	2.5	25	4.6
ACT	15	13.3	11	8.3	26	10.8	7	7.3	5	4.1	11	5.4
NT	7	12.5	2	5.1	9	9.1	1	1.9	1	4.2	2	3.3

			Incide	nce			Mortality						
	Male	S	Females		Person	IS	Males	6	Female	es	Persons		
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	
Age group													
0–4	30	4.5	17	2.7	47	3.6	8	1.2	2	0.3	10	0.8	
5–9	13	1.9	12	1.8	25	1.9	9	1.3	3	0.5	12	0.9	
10–14	13	1.9	14	2.2	27	2.0	6	0.9	5	0.8	11	0.8	
15–19	19	2.8	11	1.7	30	2.3	6	0.9	5	0.8	11	0.8	
20–24	14	2.1	8	1.2	22	1.7	2	0.3	1	0.2	3	0.2	
25–29	24	3.3	14	1.9	38	2.6	12	1.6	5	0.7	17	1.2	
30–34	33	4.7	16	2.2	49	3.5	12	1.7	8	1.1	20	1.4	
35–39	27	3.6	17	2.2	44	2.9	18	2.4	12	1.6	30	2.0	
40-44	48	6.8	26	3.6	74	5.2	34	4.8	16	2.2	50	3.5	
45–49	56	8.4	26	3.9	82	6.2	47	7.1	25	3.7	72	5.4	
50–54	72	11.7	27	4.5	99	8.2	62	10.1	28	4.7	90	7.4	
55–59	65	13.9	35	7.7	100	10.8	75	16.0	36	7.9	111	12.0	
60–64	67	17.4	44	11.4	111	14.4	66	17.2	38	9.8	104	13.5	
65–69	89	26.6	60	17.3	149	21.9	67	20.0	52	15.0	119	17.5	
70–74	64	21.6	69	20.7	133	21.1	66	22.3	73	21.9	139	22.1	
75–79	70	33.0	65	23.1	135	27.3	59	27.8	53	18.8	112	22.7	
80–84	26	23.1	39	21.2	65	21.9	19	16.8	29	15.8	48	16.2	
85 and over	19	26.4	29	17.6	48	20.2	19	26.4	29	17.6	48	20.2	
Total	749		529		1,278		587		420		1,007		
Rates per 100),000 with 95	% confide	nce interva	ls (95% Cl)									
Crude rate		8.0		5.5		6.7		6.2		4.4		5.3	
95% CI		7.4 – 8.5		5.1 – 6.0		6.4 – 7.1		5.7 – 6.7		4.0 - 4.8		5.0 – 5.6	
AS rate (Aust. 1	991)	7.8		5.0		6.4		6.0		3.8		4.9	
95% CI		7.2 – 8.3		4.6 - 5.4		6.0 - 6.7		5.5 – 6.5		3.5 - 4.2		4.6 – 5.2	
AS rate (new W	HO World)	7.0		4.4		5.7		5.3		3.3		4.3	
95% CI		6.5 – 7.5		4.0 - 4.8		5.4 - 6.0		4.9 – 5.7		3.0 – 3.6		4.0 - 4.5	
Lifetime risk (0-	74)	1 in 153		1 in 236		1 in 185		1 in 186		1 in 282		1 in 224	
PYLL (0-74)								10,365		5,543		15,908	
Per cent of all													
cancers		1.7		1.4		1.6		3.0		2.8		2.9	

Average annual numbers and rates by State and Territory, 1995–1999

			Incider	nce			Mortality						
	Male	s	Females		Persons		Males		Females		Persons		
	Number	AS rate	Number	AS rate	Number	AS rate	Number	AS rate	Number	AS rate	Number	AS rate	
NSW	241	7.6	171	4.9	412	6.2	190	6.0	139	3.9	328	4.9	
Vic	191	8.3	149	5.7	340	7.0	145	6.3	113	4.3	258	5.2	
Qld	129	7.7	93	5.2	222	6.4	106	6.4	73	4.1	179	5.2	
WA	62	7.3	44	4.8	106	6.0	53	6.4	36	3.9	89	5.1	
SA	62	7.9	44	5.1	106	6.4	51	6.6	35	4.0	87	5.2	
Tas	20	8.3	12	5.0	33	6.5	15	6.2	10	4.0	25	5.0	
ACT	11	9.1	7	4.8	18	6.7	9	7.3	8	5.6	16	6.4	
NT	3	4.1	3	4.7	6	4.3	2	2.5	2	4.7	4	3.7	

			Incide	ence					Morta	lity			
	Ma	les	Fema	ales	Perso	ons	Mal	es	Fema	les	Pers	ons	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	
Age group													
0–4	2	0.3	0	0.0	2	0.2	0	0.0	0	0.0	0	0.0	
5–9	0	0.0	0	0.0	0	0.0	0	0.0	1	0.2	1	0.1	
10–14	0	0.0	0	0.0	0	0.0	1	0.1	0	0.0	1	0.1	
15–19	3	0.4	0	0.0	3	0.2	0	0.0	0	0.0	0	0.0	
20–24	2	0.3	2	0.3	4	0.3	1	0.2	1	0.2	2	0.2	
25–29	6	0.8	7	1.0	13	0.9	5	0.7	4	0.5	9	0.6	
30–34	11	1.6	7	1.0	18	1.3	6	0.9	7	1.0	13	0.9	
35–39	16	2.1	23	3.0	39	2.6	7	0.9	9	1.2	16	1.1	
40-44	35	4.9	32	4.5	67	4.7	16	2.3	32	4.5	48	3.4	
45–49	43	6.5	46	6.9	89	6.7	25	3.8	36	5.4	61	4.6	
50–54	75	12.2	78	13.0	153	12.6	55	8.9	44	7.3	99	8.2	
55–59	115	24.5	89	19.5	204	22.1	80	17.1	52	11.4	132	14.3	
60–64	142	36.9	102	26.4	244	31.7	102	26.5	72	18.6	174	22.6	
65–69	217	64.8	138	39.8	355	52.1	157	46.9	111	32.0	268	39.3	
70–74	277	93.5	222	66.5	499	79.2	231	78.0	183	54.8	414	65.7	
75–79	281	132.3	244	86.7	525	106.3	218	102.7	196	69.6	414	83.8	
80–84	189	167.6	218	118.6	407	137.2	172	152.5	232	126.2	404	136.2	
85 and over	171	237.3	297	179.9	468	197.3	172	238.7	318	192.6	490	206.6	
Total	1,585		1,505		3,090		1,248		1,298		2,546		
Rates per 100	,000 with 9	5% confide	nce interva	als (95% CI)									
Crude rate		16.8		15.7		16.3		13.2		13.6		13.4	
95% CI		16.0 – 17.7		14.9 – 16.5		15.7 – 16.9		12.5 – 14.0		12.8 – 14.3		12.9 – 13.9	
AS rate (Aust. 19	91)	17.0		12.4		14.4		13.5		10.3		11.7	
95% CI		16.1 – 17.8		11.7 – 13.0		13.9 – 14.9		12.7 – 14.2		9.8 – 10.9		11.2 – 12.2	
AS rate (new WH	O World)	13.2		9.8		11.3		10.3		8.0		9.0	
95% CI		12.6 – 13.9		9.3 – 10.3		10.9 – 11.7		9.7 – 10.9		7.5 – 8.4		8.6 – 9.4	
Lifetime risk (0-7	'4)	1 in 81		1 in 110		1 in 94		1 in 108		1 in 146		1 in 125	
PYLL (0-74)								7,745		7,065		14,810	
Per cent of all cancers		3.6		4.0		3.8		6.4		8.6		7.3	

Average annual numbers and rates by State and Territory, 1995–1999

			Incider	nce			Mortality						
	Male	s	Females		Persons		Males		Females		Persons		
	Number	AS rate	Number	AS rate	Number	AS rate	Number	AS rate	Number	AS rate	Number	AS rate	
NSW	595	19.3	552	13.6	1,147	16.1	483	14.7	464	10.3	947	12.2	
Vic	368	16.5	374	12.4	742	14.2	325	13.6	345	10.4	670	11.8	
Qld	292	18.7	252	13.1	544	15.7	252	15.0	222	10.5	474	12.6	
WA	138	17.9	115	11.6	254	14.5	113	13.7	111	10.3	224	11.8	
SA	141	17.8	144	13.6	285	15.4	135	15.8	127	10.6	262	12.8	
Tas	42	18.0	50	16.2	92	16.8	39	15.6	46	13.6	85	14.3	
ACT	22	21.9	19	13.9	41	17.5	16	16.0	15	10.7	32	13.0	
NT	12	24.0	8	20.6	20	22.7	10	22.4	6	16.9	16	19.9	

			Incide	nce			Mortality							
	Ma	es	Females		Perso	ons	Male	s	Female	es	Perso	ons		
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate		
Age group														
0–4	2	0.3	1	0.2	3	0.2	0	0.0	0	0.0	0	0.0		
5–9	12	1.7	5	0.8	17	1.3	1	0.1	1	0.2	2	0.1		
10–14	10	1.5	6	0.9	16	1.2	2	0.3	1	0.2	3	0.2		
15–19	18	2.7	8	1.2	26	2.0	4	0.6	1	0.2	5	0.4		
20–24	16	2.4	7	1.1	23	1.8	5	0.8	4	0.6	9	0.7		
25–29	22	3.0	16	2.2	38	2.6	5	0.7	2	0.3	7	0.5		
30–34	33	4.7	20	2.8	53	3.7	4	0.6	8	1.1	12	0.8		
35–39	52	6.9	31	4.1	83	5.5	13	1.7	10	1.3	23	1.5		
4044	74	10.5	56	7.8	130	9.1	22	3.1	7	1.0	29	2.0		
45-49	108	16.2	74	11.1	182	13.7	24	3.6	27	4.0	51	3.8		
50–54	152	24.7	99	16.5	251	20.7	53	8.6	24	4.0	77	6.3		
55–59	161	34.3	138	30.3	299	32.3	55	11.7	40	8.8	95	10.3		
60–64	167	43.4	120	31.1	287	37.2	68	17.7	64	16.6	132	17.1		
65–69	212	63.4	164	47.3	376	55.2	98	29.3	70	20.2	168	24.7		
70–74	246	83.1	203	60.8	449	71.3	141	47.6	92	27.6	233	37.0		
75–79	242	114.0	226	80.3	468	94.8	143	67.3	135	48.0	278	56.3		
80–84	155	137.4	154	83.8	309	104.2	91	80.7	107	58.2	198	66.8		
85 and over	93	129.1	159	96.3	252	106.3	64	88.8	117	70.9	181	76.3		
Total	1,775		1,487		3,262		793		710		1,503			
Rates per 100	0,000 with 9	5% confider	nce interva	als (95% CI)										
Crude rate		18.8		15.5		17.2		8.4		7.4		7.9		
95% CI		18.0 – 19.7		14.8 – 16.3		16.6 – 17.8		7.8 – 9.0		6.9 - 8.0		7.5 – 8.3		
AS rate (Aust. 1	991)	18.5		13.1		15.6		8.4		6.0		7.1		
95% CI		17.6 – 19.4		12.4 – 13.8		15.0 – 16.1		7.8 – 9.0		5.5 - 6.4		6.7 – 7.4		
AS rate (new W	HO World)	15.5		10.9		13.1		6.6		4.7		5.6		
95% CI		14.7 – 16.2		10.4 – 11.5		12.6 – 13.5		6.2 – 7.1		4.3 – 5.1		5.3 – 5.9		
Lifetime risk (0-	-74)	1 in 67		1 in 92		1 in 78		1 in 159		1 in 233		1 in 190		
PYLL (0-74)								7,048		4,973		12,020		
Per cent of all cancers		4.0		3.9		4.0		4.0		4.7		4.3		

Average annual numbers and rates by State and Territory, 1995–1999

			Incider	nce			Mortality						
	Male	s	Females		Persons		Males		Females		Persons		
	Number	AS rate	Number	AS rate	Number	AS rate	Number	AS rate	Number	AS rate	Number	AS rate	
NSW	585	18.5	496	13.1	1,081	15.6	257	8.3	250	6.3	507	7.2	
Vic	451	19.7	384	13.9	835	16.5	210	9.4	188	6.5	398	7.8	
Qld	277	17.2	227	12.3	505	14.6	124	7.9	108	5.7	232	6.7	
WA	140	16.9	108	11.6	248	14.0	62	8.0	56	5.9	118	6.8	
SA	148	18.7	151	16.0	299	17.2	64	8.2	69	6.7	133	7.3	
Tas	43	17.8	40	14.3	83	15.8	21	9.0	23	7.6	44	8.2	
ACT	22	19.9	20	15.1	43	17.2	12	11.5	13	10.1	24	10.8	
NT	8	12.1	6	13.0	14	12.7	1	2.4	2	3.7	3	3.1	
Australia 1999

			Incide	nce					Mortalit	у		
	Mal	es	Fema	lles	Persor	ns	Male	s	Female	s	Perso	ons
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Age group												
0–4	59	8.9	46	7.3	105	8.2	3	0.5	10	1.6	13	1.0
5–9	26	3.8	18	2.8	44	3.3	14	2.0	5	0.8	19	1.4
10–14	14	2.1	23	3.5	37	2.8	7	1.0	4	0.6	11	0.8
15–19	27	4.0	20	3.1	47	3.6	19	2.8	7	1.1	26	2.0
20–24	14	2.1	7	1.1	21	1.6	15	2.3	5	0.8	20	1.5
25–29	21	2.9	14	1.9	35	2.4	9	1.2	12	1.6	21	1.4
30–34	19	2.7	24	3.4	43	3.0	11	1.6	8	1.1	19	1.3
35–39	37	4.9	28	3.7	65	4.3	14	1.9	8	1.1	22	1.5
40-44	37	5.2	28	3.9	65	4.6	8	1.1	18	2.5	26	1.8
45–49	51	7.7	37	5.5	88	6.6	21	3.2	15	2.2	36	2.7
50–54	84	13.7	49	8.2	133	11.0	37	6.0	26	4.3	63	5.2
55–59	102	21.7	57	12.5	159	17.2	46	9.8	25	5.5	71	7.7
60–64	109	28.3	57	14.8	166	21.5	53	13.8	32	8.3	85	11.0
65–69	143	42.7	90	26.0	233	34.2	81	24.2	42	12.1	123	18.1
70–74	214	72.3	127	38.0	341	54.1	104	35.1	65	19.5	169	26.8
75–79	197	92.8	135	48.0	332	67.2	147	69.2	97	34.5	244	49.4
80–84	114	101.1	111	60.4	225	75.9	103	91.3	85	46.2	188	63.4
85 and over	96	133.2	125	75.7	221	93.2	73	101.3	128	77.5	201	84.8
Total	1,364		996		2,360		765		592		1,357	
Rates per 100	,000 with 9	5% confide	nce interva	als (95% CI)								
Crude rate		14.5		10.4		12.4		8.1		6.2		7.1
95% CI		13.7 – 15.2		9.8 – 11.1		11.9 – 12.9		7.5 – 8.7		5.7 – 6.7		6.8 – 7.5
AS rate (Aust. 1	991)	14.4		8.9		11.4		8.2		4.9		6.4
95% CI		13.7 – 15.2		8.3 – 9.5		10.9 – 11.9		7.7 – 8.8		4.5 – 5.3		6.0 - 6.7
AS rate (new W	HO World)	12.2		7.7		9.7		6.6		4.0		5.2
95% CI		11.5 – 12.8		7.2 – 8.2		9.3 – 10.2		6.1 – 7.1		3.6 – 4.3		4.9 – 5.5
Lifetime risk (0-	74)	1 in 90		1 in 148		1 in 113		1 in 188		1 in 317		1 in 238
PYLL (0-74)								8,905		6,085		14,990
Per cent of all cancers		3.1		2.6		2.9		3.9		3.9		3.9

Average annual numbers and rates by State and Territory, 1995–1999

			Incide	nce					Mortali	ty		
	Male	s	Femal	es	Perso	ns	Male	s	Female	s	Perso	ns
	Number	AS rate	Number	AS rate	Number	AS rate						
NSW	441	14.1	317	8.5	758	11.0	249	8.3	184	4.8	434	6.3
Vic	291	13.0	235	8.5	525	10.5	177	8.1	143	4.9	320	6.3
Qld	258	16.1	183	9.9	440	12.8	137	9.0	95	5.0	231	6.8
WA	99	12.3	73	7.7	173	9.8	63	8.3	40	4.1	103	6.0
SA	138	17.7	98	10.2	237	13.5	75	9.8	55	5.5	130	7.3
Tas	26	10.9	23	8.5	49	9.5	15	6.7	14	4.6	29	5.4
ACT	14	12.6	11	8.3	26	10.1	11	10.6	9	7.0	20	8.6
NT	4	6.9	5	9.5	9	8.2	2	3.6	3	9.0	5	6.4

Note: AS rates use Australian 1991 Standard Population unless new WHO World Standard Population is indicated. All rates are expressed per 100,000 population. Source: Cancer in Australia 1999, AIHW & AACR, 2002.

Australia 1999

			Incide	ence					Mortal	ity		
	Ma	les	Fema	ales	Perso	ons	Male	es	Female	es	Perso	ons
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Age group												
0–4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
5–9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
10–14	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
15–19	0	0.0	0	0.0	0	0.0	0	0.0	1	0.1	1	0.1
20–24	2	0.2	2	0.3	4	0.3	0	0.0	0	0.0	0	0.0
25–29	3	0.4	7	1.0	10	0.7	1	0.2	2	0.3	3	0.2
30–34	7	1.0	25	3.5	32	2.3	4	0.5	3	0.4	7	0.5
35–39	7	1.0	56	7.4	64	4.2	3	0.4	9	1.1	11	0.8
40–44	32	4.5	102	14.2	134	9.4	11	1.6	20	2.7	31	2.2
45–49	59	8.9	138	20.7	197	14.8	23	3.4	29	4.3	52	3.9
50–54	114	18.5	206	34.4	320	26.4	54	8.8	38	6.3	92	7.6
55–59	131	28.0	181	39.6	312	33.7	60	12.8	40	8.9	101	10.9
60–64	154	40.0	173	44.8	327	42.4	88	22.9	48	12.5	136	17.7
65–69	166	49.5	172	49.7	338	49.6	105	31.5	54	15.6	160	23.4
70–74	188	63.4	142	42.4	329	52.3	132	44.6	67	20.2	200	31.7
75–79	150	70.5	102	36.3	252	51.0	110	51.9	58	20.4	168	34.0
80–84	63	55.6	91	49.7	154	51.9	64	56.9	55	29.7	119	40.0
85 and over	43	59.0	86	52.3	129	54.3	47	64.9	72	43.9	119	50.3
Total	1,117		1,485		2,602		703		496		1,199	
Rates per 100	,000 with 9	5% confide	nce interva	als (95% CI)								
Crude rate		11.9		15.5		13.7		7.5		5.2		6.3
95% CI		11.2 – 12.6		14.7 – 16.3		13.2 – 14.2		6.9 – 8.0		4.7 – 5.6		6.0 – 6.7
AS rate (Aust. 19	991)	11.5		13.6		12.5		7.4		4.3		5.7
95% CI		10.8 – 12.2		12.9 – 14.3		12.0 - 13.0		6.8 – 7.9		3.9 – 4.7		5.4 – 6.0
AS rate (new WI	HO World)	9.6		12.2		10.8		5.9		3.6		4.6
95% CI		9.0 – 10.2		11.5 – 12.8		10.4 – 11.2		5.5 – 6.3		3.2 – 3.9		4.4 – 4.9
Lifetime risk (0-	74)	1 in 93		1 in 78		1 in 85		1 in 158		1 in 276		1 in 203
PYLL (0-74)								5,799		4,782		10,581
Per cent of all cancers		2.5		3.9		3.2		3.6		3.3		3.5

Average annual numbers and rates by State and Territory, 1995–1999

		Incidence							Mortality					
	Male	s	Femal	es	Perso	ns	Males	Females	es	Persons				
	Number	AS rate	Number	AS rate	Number	AS rate	Number	AS rate	Number	AS rate	Number	AS rate		
NSW	372	11.6	489	13.5	862	12.5	238	7.5	166	4.3	403	5.8		
Vic	268	11.6	374	14.1	642	12.8	183	8.1	137	4.8	320	6.3		
Qld	200	12.2	244	13.5	445	12.8	120	7.5	79	4.2	199	5.7		
WA	97	11.8	129	13.9	226	12.7	61	7.6	43	4.5	104	5.9		
SA	78	9.7	122	13.5	200	11.5	51	6.5	41	4.2	93	5.2		
Tas	28	11.6	36	13.3	65	12.3	18	7.4	13	4.5	31	5.8		
ACT	11	10.1	20	13.5	31	11.7	7	7.3	7	5.7	15	6.3		
NT	13	23.1	7	12.2	20	18.0	6	14.4	2	5.7	9	10.2		

Notes

1. AS rates use Australian 1991 Standard Population unless new WHO World Standard Population is indicated. All rates are expressed per 100,000 population.

2. Cancers attributable to alcohol are oropharynx, oesophagus, liver, larynx and female brest cancer.

Source: Cancer in Australia 1999, AIHW & AACR, 2002.

Australia 1999

			Incide	nce					Morta	lity		
	Ma	es	Fema	les	Perso	ons	Male	es	Fema	les	Pers	ons
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Age group												
0–4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
5–9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
10–14	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
15–19	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
20–24	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
25–29	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
30–34	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
35–39	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
40-44	76	10.8	30	4.2	107	7.5	25	3.5	11	1.5	36	2.5
45–49	227	34.1	67	10.1	294	22.1	98	14.7	32	4.8	130	9.7
50–54	405	65.8	179	29.9	584	48.1	235	38.3	91	15.2	326	26.9
55–59	648	138.2	232	51.0	880	95.2	379	80.7	136	29.9	515	55.7
60–64	914	237.7	295	76.3	1,209	156.8	595	154.6	188	48.6	782	101.5
65–69	1,292	386.0	419	120.8	1,711	251.1	897	268.1	299	86.4	1,197	175.7
70–74	1,575	531.9	614	184.0	2,189	347.5	1,164	393.0	431	129.2	1,595	253.2
75–79	1,341	631.3	538	191.3	1,879	380.5	1,045	492.0	402	142.7	1,446	292.9
80-84	/19	637.6	311	168.9	1,030	347.2	592	525.1	244	132.6	836	281.9
85 and over	485	672.8	252	152.4	736	310.5	459	636.6	232	140.6	691	291.3
Total	7,681		2,937		10,619		5,488		2,066		7,554	
Rates per 100),000 with 9	5% confider	nce interva	lls (95% CI)								
Crude rate		81.5		30.7		55.9		58.3		21.6		39.8
95% CI		79.7 – 83.4		29.6 – 31.8		54.9 - 57.0		56.7 – 59.8		20.7 – 22.5		38.9 - 40.7
AS rate (Aust. 1	991)	81.2		25.8		50.8		58.6		17.8		35.9
95% CI		79.4 – 83.1		24.8 – 26.7		49.8 – 51.8		57.1 – 60.2		17.0 – 18.6		35.1 – 36.7
AS rate (new W	HO World)	64.0		20.6		40.5		45.2		14.0		28.0
95% CI		62.5 - 65.4		19.9 – 21.4		39.7 – 41.3		44.0 - 46.4		13.4 – 14.6		27.4 – 28.7
Lifetime risk (0-	74)	1 in 15		1 in 42		1 in 22		1 in 21		1 in 64		1 in 32
PYLL (0-74)								32,493		11,333		43,827
Per cent of all cancers		17.3		7.8		12.9		28.0		13.7		21.8

Average annual numbers and rates by State and Territory, 1995–1999

			Incider	nce					Mortali	ty		
	Male	s	Femal	es	Perso	ns	Male	s	Female	s	Person	
	Number	AS rate	Number	AS rate	Number	AS rate	Number	AS rate	Number	AS rate	Number	AS rate
NSW	2,576	82.2	984	25.7	3,560	51.0	1,857	60.0	693	17.8	2,550	36.3
Vic	1,982	87.5	762	27.1	2,744	54.0	1,401	62.4	539	18.8	1,940	37.9
Qld	1,482	93.5	489	26.6	1,971	57.6	1,004	64.2	290	16.0	1,294	37.8
WA	650	83.5	249	27.0	899	52.5	479	62.7	181	19.3	660	38.6
SA	654	81.8	241	24.2	894	49.7	473	59.3	167	16.5	640	35.2
Tas	230	95.0	85	29.3	315	59.0	163	68.0	58	19.6	221	41.2
ACT	62	61.5	31	24.3	93	40.6	56	57.4	25	20.4	81	36.3
NT	52	108.2	14	38.8	65	76.6	34	83.5	9	25.9	43	56.0

Notes

1. AS rates use Australian 1991 Standard Population unless new WHO World Standard Population is indicated. All rates are expressed per 100,000 population.

2. Cancers attributable to smoking are oropharynx, oesophagus, stomach, anus, pancreas, larynx, lung, vulva, penis, bladder, renal parenchyma

and renal pelvis

Source: Cancer in Australia 1999, AIHW & AACR, 2002.

Appendixes

Appendix A: International Classification of Diseases, 10th Revision—cancer site—codes and combinations

Buccal cavity	
Lip	C00
Tongue	C01–C02
Salivary glands	C07–C08
Gum	C03
Floor of mouth	C04
Other and unspecified parts of mouth	C05–C06
Pharynx	
Oropharynx	C09–C10
Nasopharynx	C11
Hypopharynx	C12–C13
Other sites within the lip, oral cavity	C14
and pharynx	
Head and neck	C01–C14
Digestive organs and peritoneum	
Oesophagus	C15
Stomach	C16
Small intestine	C17
Colon	C18
Rectum & anus	C19–C21
Colorectal	C18–C21
Liver and intrahepatic bile ducts	C22
Gallbladder and extrahepatic bile	C23–C24
ducts	
Pancreas	C25
Retroperitoneum and peritoneum	C48
Respiratory system	
Nasal cavities, middle ear and	C30–C31
accessory sinuses	
Larynx	C32
Trachea, bronchus and lung	C33–C34
Thymus, heart, mediastinum & pleura	C37–C38
Bone, connective tissue, skin and	
breast	
Bone and articular cartilage	C40–C41
Connective and other soft tissue	C47, C49
Melanoma	C43
Non-melanocytic skin cancer (NMSC)	C44
Breast	C50
Genitourinary organs	
Vulva	C51
Vagina	C52
Cervix	C53
Corpus uteri	C54–C55
Ovary	C56
Other & unspecified female genital	C57
organs	
Placenta	C58

Prostate	C61
Testis	C62
Penis and other male genital organs	C60, C63
Bladder	C67
Kidney, ureter and urethra	C64–C66, C68
Other and unspecified organs	
Eye	C69
Brain	C71
Other and unspecified parts of the	C70, C72
nervous system (NS)	
Thyroid gland	C73
Other endocrine glands	C74–C75
Unknown primary site	C76–C80, C26,
	C39
Lymphatic and haematopoietic	
tissue	
Non-Hodgkin's lymphomas (NHL)	C82–C85, C96
Hodgkin's disease	C81
All lymphomas	C81–C85, C96
Multiple myeloma	C90
Immunoproliferative neoplasms	C88
Lymphoid leukaemia	C91
Acute lymphoblastic leukaemia	C91.0
Chronic lymphocytic leukaemia	C91.1
Myeloid leukaemia	C92
Acute myeloid leukaemia	C92.0
Chronic myeloid leukaemia	C92.1
Monocytic leukaemia	C93
Other leukaemias of specified cell type	C94
Leukaemia of unspecified cell type	C95
All leukaemias	C91–C95
Smoking-related cancers (aetiological	C00–C06,
fractions are applied to the following	C09–C16,
codes)	C21.0, C21.2,
	C21.8, C25,
	C32–C34, 51.9,
	C60, C67,
	C64–C65
Alcohol-related cancers (aetiological	C01–C06,
tractions are applied to the following	C09-C10,
codes)	C12-C15, C22,
	(sev-fomelo)
	(sex= ieinale)

Source: World Health Organization 1992.

Appendix B: Methods

This section describes the methods used to calculate the estimates presented in the tables in this report. The calculations in the example below are applicable to both incidence and mortality.

Example table

Trachea, bronchus and lung cancer incidence (ICD-10 C33-34) – males

	No. of cases	Australian 1999 male population*	Age-specific rate per 100,000 population	Australian 1991 Population Standard**	Expected number of cases
Age group	(column 1)	(column 2)	(column 3)	(column 4)	(column 5)
0-4	0	660,983	0.0	1,271,703	0.0
5–9	0	689,409	0.0	1,272,208	0.0
10–14	0	681,235	0.0	1,241,619	0.0
15–19	0	671,839	0.0	1,364,074	0.0
20–24	1	660,137	0.2	1,396,764	2.1
25–29	4	732,082	0.5	1,399,663	7.6
30–34	11	704,518	1.6	1,425,735	22.3
35–39	25	751,975	3.3	1,328,387	44.2
40–44	52	707,868	7.3	1,294,271	95.1
45–49	122	664,622	18.4	1,029,145	188.9
50–54	239	614,757	38.9	846,934	329.3
55–59	402	468,982	85.7	725,950	620.7
60–64	609	384,553	158.4	736,868	1,165.0
65–69	907	334,644	271.0	671,390	1,819.7
70–74	1,100	296,140	371.4	510,755	1,897.2
75–79	985	212,337	463.9	384,495	1,783.6
80–84	492	112,785	436.2	229,828	1,002.6
85+	326	72,058	452.4	154,247	695.7
Total	5,275	9,420,924	56.0	17,284,036	56.0

* Australian Bureau of Statistics 2000a.

** Australian Bureau of Statistics 1993.

Crude rates—all age groups

A crude incidence rate is defined as the number of new cases of cancer divided by the population at risk in a specified time period. A crude mortality rate substitutes deaths for new cases in this calculation. Both are conventionally expressed as annual rates per 100,000 population and may be calculated for males, females or persons, or for subsets of the population (for example, see age-specific rates). The total rate calculated in this way without adjustment for age or other factors is known as the 'crude rate'.

The crude rate is calculated by dividing the total number of cases across all age groups by the total population, for example:

Crude incidence rate for lung cancer = $\frac{\text{Column 1 total}}{\text{Column 2 total}} \times 100,000$ $= \frac{5,275}{9,420,924} \times 100,000$ = 56.0 per 100,000

Age-specific rates

Age-specific rates are calculated by dividing the number of cases occurring in each specified age group by the corresponding population in the same age group expressed as a rate per 100,000 population. This rate may be calculated for particular age and sex groupings, for example:

Age-specific lung cancer incidence rates in males aged 75-79	 <u>Column 1 for this age</u> Column 2 for this age 	× 100,000
	$= \frac{985}{212,337} \times 100,000$	
	= 463.9 per 100,000	

Age-standardised rates (AS rate)

Rates are adjusted for age to facilitate comparisons between populations which have different age structures, for example, between youthful and ageing communities. There are two different methods commonly used to adjust for age. In this publication direct standardisation is used, in which age-specific rates are multiplied against a constant population (the Australian 1991 Population Standard or the new WHO World Standard Population). This effectively removes the influence of age structure on the summary rate which is described as the age-standardised rate. The method may be used for both incidence and mortality calculations. The method used for this calculation comprises three steps which can be followed by reference to the example table on the previous page.

- Step 1 Calculate the age-specific rate (as shown above) for each age group (column 3).
- *Step 2* Calculate the expected number of cases in each 5-year age group by multiplying the age-specific rates (column 3) by the corresponding standard population (column 4) and dividing by 100,000, giving you the expected number of cases (column 5).

Step 3 To give the age-standardised rate, sum the expected number of cases in each age group (total column 5). Divide this sum by the total of the standard population used in the calculation and multiply by 100,000.

Confidence intervals (CI)

The age-standardised and crude incidence and mortality rates presented in the body of this report also show 95% confidence intervals. These confidence intervals indicate the variation that might be expected in such estimates purely by chance. The confidence intervals are calculated using the methods presented in Holman et al. (1987).

A relatively simple approximation of the confidence limits that readers might use when examining State and Territory age-standardised rates is as set out below.

95% CI approximation = AS rate \pm 1.96 x $\frac{\text{AS rate}}{\sqrt{\text{Number of cases}}}$

Lifetime risk and cumulative rate

Lifetime risk is a measure which approximates the risk of contracting a particular cancer in a lifetime if the risks at the time of estimation remained throughout life. It is based on a mathematical relationship with the cumulative rate and is calculated in this publication for ages 0–74.

Cumulative rate is a directly standardised rate calculated by summing age-specific rates from equal age groups, for example, 5–9, 10–14 years. An example is provided below.

Cumulative rate
$$= \frac{5 \times (\text{Sum of the age-specific rates}) \times 100}{100,000}$$
$$= \frac{5 \times 956.3 \times 100}{100,000}$$
$$= 4.78\%$$

The factor of 5 is used to indicate the 5 years of life in each age group and the factor of 100 is used to present the result as a percentage. As age-specific rates are presented per 100,000 population (column 3), the result is divided by 100,000 to return the age-specific rates to a division of cases by population. Cumulative risk is related to cumulative rate by the expression:

Cumulative risk =
$$(1 - e^{-rate/100})$$

where rate is expressed as a percentage.

Lifetime risk is expressed as a '1 in n' proportion by taking the inverse of the above formula:

$$n = \frac{1}{\left(1 - e^{-rate/100}\right)}$$

For lung cancer in men, the cumulative rate was 4.78%, therefore:

n =
$$\frac{1}{(1 - e^{-4.78/100})}$$

= 21.42

That is, for men, the lifetime risk (0–74 years) of developing lung cancer is 1 in 21, providing they remain at risk for the whole period and the 1999 age-specific rates apply throughout their lives. Note that no account has been taken of specific cancer risk factors, for example, the risk for men who smoke would be higher than that for those who have never smoked.

Per cent of all cancers

The 'per cent of all cancers' measure is the proportion of all causes accounted for by a particular cancer. The measure may be computed for cancer incidence or mortality. Using an incidence example, the measure is calculated by taking the number of new cases of a particular cancer, for example, lung cancer, and dividing that by the total number of all new cancer cases and multiplying by 100 to express it as a percentage. This is undertaken for each sex and for total persons. Note that for this publication the incidence and mortality of non-melanocytic skin cancers is not included in total new cancer cases.

Sex ratio

This measure indicates the relative incidence or mortality between the sexes. It can be calculated on the basis of observed numbers, crude rates, age-standardised rates or cumulative rates per cent. In this publication it is calculated using the age-standardised rates where the male rate is divided by the female rate for each cancer. Ratios greater than 1 indicate an excess in males while ratios less than 1 indicate an excess in females.

It is preferable to use either the age-standardised rates or the cumulative rate as these both adjust for age variations between male and female populations. In addition, the use of cumulative rate per cent discounts the occurrence of cancer in people aged over 75. This gives more emphasis, therefore, to early cancer diagnosis or death, and diminishes the impact of variable diagnostic investigation of the elderly.

Person-years of life lost

Person-years of life lost is a concept which attempts to measure the number of years of life lost per annum due to death as a result of a specific cause, for example, lung cancer, given life expectancies at specific ages. Age groups 0–4 up to 70–74 were used for the calculations, as deaths before age 75 are regarded as premature for both men and women. The method used in this publication for the calculation of person-years of life lost is an aggregation of years between age at death and 75 for each person for each cancer, for example, a person dying at age 50 contributes 25 years to the measure of person-years of life lost.

Average annual rates of change

To indicate the extent of change in age-standardised rates over time, a linear line of best fit is calculated for the time frame in question. Average annual rates of change are then calculated using the geometric formula:

Average rate of change = $((P_n / P_o)^{1/N} - 1) \ge 100$ where P_n = rate at later year n P_o = rate at earlier year oN = n - o.

This process averages out variations in the actual annual changes that may have occurred between the two points in time.

Appendix C: Population data

	1999					
Age	Males	Females	Total			
0–4	660,983	627,210	1,288,193			
5–9	689,409	654,412	1,343,821			
10–14	681,235	648,964	1,330,199			
15–19	671,839	640,411	1,312,250			
20–24	660,137	641,561	1,301,698			
25–29	732,082	735,739	1,467,821			
30–34	704,518	715,723	1,420,241			
35–39	751,975	761,005	1,512,980			
40–44	707,868	717,967	1,425,835			
45–49	664,622	667,606	1,332,228			
50–54	614,757	599,375	1,214,132			
55–59	468,982	456,165	925,147			
60–64	384,553	386,244	770,797			
65–69	334,644	346,612	681,256			
70–74	296,140	333,844	629,984			
75–79	212,337	281,501	493,838			
80–84	112,785	183,795	296,580			
85+	72,058	165,099	237,157			
Total	9,420,924	9,563,233	18,984,157			

Australian resident population, 1999

Source: Australian Bureau of Statistics 2000a.

Australian Standard Population and World Standard Population

	Australian Standard Po	opulation* (1991)	New WHO World Standar	d Population**(2002)
Age		% of total		% of total
0-4	1,271,703	7.4	8,800	8.8
5–9	1,272,208	7.4	8,700	8.7
10–14	1,241,619	7.2	8,600	8.6
15–19	1,364,074	7.9	8,500	8.5
20–24	1,396,764	8.1	8,200	8.2
25–29	1,399,663	8.1	7,900	7.9
30–34	1,425,735	8.2	7,600	7.6
35–39	1,328,387	7.7	7,200	7.2
40–44	1,294,271	7.5	6,600	6.6
45–49	1,029,145	6.0	6,000	6.0
50–54	846,934	4.9	5,400	5.4
55–59	725,950	4.2	4,600	4.6
60–64	736,868	4.3	3,700	3.7
65–69	671,390	3.9	3,000	3.0
70–74	510,755	3.0	2,200	2.2
75–79	384,495	2.2	1,500	1.5
80–84	229,828	1.3	900	0.9
85+	154,247	0.9	600	0.6
Total	17,284,036	100.0	100,000	100.0

* Australian Bureau of Statistics 1993.

**WHO at http://www3.who.int/whosis/whsa/whsa_table4_asdr_discussion.cfm

Appendix D: Cancer registration in Australia

The table below provides information about cancer registration in Australia. Each State and Territory operates its own registry. Generally, operational guidelines for each of the registries are similar and coincide with the objectives of the International Association of Cancer Registries. Although some registries operate under different coding systems for site, morphology and other variables, the bulk of information is directly comparable and has been reconciled for this publication. The reporting sources of the registries vary according to the local conditions and those bodies named in the legislation. Every attempt is made to report all cancer cases, although not every case will be identified. Cancer registries are dependent upon their reporting sources. Variation in reporting of cancers by age, sex, type, geographical location, country of birth or other variables does occur and may have effects on the final statistics. Occasionally, delays in reporting some case information may extend over several years but this has a minimal effect on the final reported data. In order to minimise the effects on the final reported registration, multiple reporting sources are used to compile case information where possible. Case information is exchanged between registries where there is cause for suspicion of duplicate registration. Further information regarding registry coding practices may be obtained by contacting the Registrar in each State or Territory.

States and Territories	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
Total population (1999)	6,438,641	4,700,702	3,508,571	1,854,413	1,499,204	472,020	313,762	194,155
Per cent of Australian population	33.9	24.8	18.5	9.8	7.9	2.5	1.7	1.0
Per cent of population older than age 65	12.9	12.8	11.4	10.7	14.3	13.3	8.1	3.4
No. new cancers (1995–1999)*	27,429	20,425	14,715	6,859	7,098	2,180	995	376
First year of population registration	1972	1982	1982	1982	1977	1978	1972	1981
Year of legislation	1972	1982	1982	1981	1977	1992	1994	1991
Funding source	Pvte-Govt	Pvte-Govt	Govt	Govt	Govt	Pvte-Govt	Govt	Govt
ICD site coding	ICD-O-2	ICD-O-2	ICD-O-2	ICD-O-2	ICD-O-2	ICD-O-2	ICD-O-2	ICD-O-2
Morphology coding	ICD-O-2	ICD-O-2	ICD-O-2	ICD-O-2	ICD-O-2	ICD-O-2	ICD-O-2	ICD-O-2
Reporting sources								
Public hospitals	Yes	Yes	Yes	No**	Yes	Yes	Yes	Yes
Private hospitals	Yes	Yes	Yes	No**	Yes	Yes	Yes	No
Repatriation hospitals	Yes	Yes	Yes	No**	Yes	Yes	Yes	No
Pathology laboratories	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Radiotherapy units	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Nursing homes	Yes	No	Yes	No	No	No**	Yes	No
Registrar of Births, Deaths and Marriages	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Doctors	No**	No**	No**	No**	No**	No**	No**	No**

* Refers to the average number of new cases over the 5-year period 1995–1999.

** Data are provided on special request only.

Appendix E: Cancer registries contact list

New South Wales Central Cancer Registry

New South Wales Cancer Council LMB 1 KINGS CROSS NSW 1340

Phone: +61 2 9334 1902 Fax: +61 2 9368 0843 E-mail: ccr@nswcc.org.au Home page: www.nswcc.org.au

Registry Manager: Ms Elizabeth Tracey E-mail: etracey@nswcc.org.au Phone: +61 2 9334 1974

Victorian Cancer Registry

The Cancer Council Victoria 1 Rathdowne Street CARLTON SOUTH VIC 3053

Phone: +61 3 9635 5000 Fax: +61 3 9635 5210 Home page: www.cancervic.org.au

Director: Professor Graham Giles Director Cancer Epidemiology Centre, Deputy Director Cancer Control Research Institute 1 Rathdowne Street CARLTON SOUTH VIC 3053

E-mail: ggg@cancervic.org.au Phone: +61 3 9635 5155

Director Information Systems: Ms Helen Farrugia E-mail: helenf@ cancervic.org.au Phone: +61 3 9635 5318

Information Manager: Mrs Vicky Thursfield E-mail: vickyt@ cancervic.org.au Phone: +61 3 9635 5162

Northern Territory Cancer Registry

Health Gains Planning Unit Northern Territory Department of Health and Community Services PO Box 40596 CASUARINA NT 0811

Phone: +61 8 8999 2977 Fax: +61 8999 2618

Director & Registrar: Dr John Condon E-mail: john.condon@nt.gov.au Phone: +61 8 8999 2977 Fax: +61 8 8999 2600

Western Australian Cancer Registry

Health Information Centre Health Department of Western Australia PO Box 8172 Stirling Street PERTH WA 6849

Phone: +61 8 9222 4022/4249 Fax: +61 8 9222 4236 E-mail: wacanreg@health.wa.gov.au Home page: www.health.wa.gov.au

Director & Registrar: Dr Tim Threlfall E-mail: tim.threlfall@health.wa.gov.au

Tasmanian Cancer Registry

Menzies Centre for Population Health Research GPO Box 252-23 HOBART TAS 7001

Phone: +61 3 6226 7706 Fax: +61 3 6226 7704 Home page: www.menzies.utas.edu.au/

Director: Dr Alison Venn E-mail: Alison.Venn@utas.edu.au Phone: +61 3 6226 7706

Registrar: Shevaun Pavlides E-mail: shevaun.pavlides@utas.edu.au Phone: +61 3 6226 7714 Fax: +61 3 6226 7704

Queensland Cancer Registry

Queensland Cancer Fund Locked Bag 1450 SPRING HILL POST OFFICE QLD 4004

Phone: +61 7 3258 2331 Fax: +61 7 3258 2345 Home page: www.qldcancer.com.au/

Director: Dr Joanne Aitken Queensland Cancer Fund 553 Gregory Terrace, Fortitude Valley Locked Bag 1450 SPRING HILL POST OFFICE QLD 4004

E-mail: joannea@qcfepi.org.au Phone: +61 7 3258 2309 Fax: +61 7 3258 2345

Registrar: Ms Di Skilton E-mail: diana_skilton@health.qld.gov.au Phone: +61 7 3258 2333 Fax: +61 7 3258 2345

South Australian Cancer Registry

Epidemiology Branch, Dept of Human Services PO Box 6 RUNDLE MALL SA 5000

Phone: +61 8 8226 6372 Fax: +61 8 8226 6291 Home page: www.dhs.sa.gov.au/pehs/ disease-control-status.htm

Director: Dr Colin Luke E-mail: Colin.Luke@dhs.sa.gov.au Phone: +61 8 8226 6360

Specialist Medical Officer (Public Health Physician), Medical Director/Manager: Dr Wayne Clapton E-mail: Wayne.Clapton@dhs.sa.gov.au Phone: +61 8 8226 6362

Registrar: Lesley Milliken E-mail: Lesley.Milliken@dhs.sa.gov.au Phone: +61 8 8226 6372

Australian Capital Territory Cancer Registry

Australian Capital Territory Cancer Registry Population Health Research Centre ACT Health Level 1, Building 5, The Canberra Hospital PO Box 11 WODEN ACT 2606

Manager: Sally Rubenach E-mail: sally.rubenach@act.gov.au Phone: +61 2 6244 2174 Fax: +61 2 6244 4138

Registrar: Dr Berrin Kose E-mail: berrin.kose@act.gov.au Phone: +61 2 6244 4285

New Zealand Cancer Registry

Clinical Coding Services New Zealand Health Information Service Level 6, WestpacTrust House 119-125 Willis Street PO Box 5013 Wellington New Zealand

Phone: +64 4 922 1800 Fax: +64 4 922 1897

Team Leader: Christine Fowler E-mail: christine.fowler@nzhis.govt.nz Phone: +64 4 922 1864

Chief Analyst: Jim Fraser E-mail: jim.fraser@nzhis.govt.nz Phone: +64 4 922 1862

Appendix F: Tables published on the Internet

- Table 1: All cancers (ICD-10 C00-97 except non-melanocytic skin cancers C44)
- Table 2: Cancer of the lip (ICD-10 C00)
- Table 3:Cancer of the tongue (ICD-10 C01-C02)
- Table 4: Cancer of the salivary gland (ICD-10 C07-C08)
- Table 5:Cancer of the mouth (ICD-10 C03-C06)
- Table 6: Cancer of the gum (ICD-10 C03)
- Table 7: Cancer of the floor of mouth (ICD-10 C04)
- Table 8: Cancer of palate and other and unspecified parts of mouth (ICD-10 C05-C06)
- Table 9: Cancer of the tonsil (ICD-10 C09)
- Table 10: Cancer of the oropharynx (ICD-10 C10)
- Table 11: Cancer of the tonsil and oropharynx (ICD10 C09-C10)
- Table 12: Cancer of the nasopharynx (ICD-10 C11)
- Table 13: Cancer of the hypopharynx (ICD-10 C12-C13)
- Table 14:Cancer of other and ill-defined sites within the lip, oral cavity and pharynx
(ICD-10 C14)
- Table 15: Cancer of the head and neck (ICD-10 C01-C14)
- Table 16: Cancer of the oesophagus (ICD-10 C15)
- Table 17: Cancer of the stomach (ICD-10 C16)
- Table 18: Cancer of the small intestine (ICD-10 C17)
- Table 19: Cancer of the colon (ICD-10 C18)
- Table 20: Cancer of the rectum (ICD-10 C19-C20)
- Table 21: Cancer of the anus (ICD-10 C21)
- Table 22: Cancer of the colon and rectum (including anus) (ICD-10 C18-C21)
- Table 23: Cancer of the colon and rectum (excluding anus) (ICD-10 C18-C20)
- Table 24: Cancer of the liver and intrahepatic bile ducts (ICD-10 C22)
- Table 25: Cancer of the gallbladder and extrahepatic bile ducts (ICD-10 C23-C24)
- Table 26: Cancer of the pancreas (ICD-10 C25)
- Table 27: Cancer of the nasal cavities, middle ear and accessory sinuses (ICD-10 C30-C31)
- Table 28: Cancer of the larynx (ICD-10 C32)
- Table 29: Cancer of the trachea, bronchus and lung (ICD-10 C33-C34)
- Table 30: Cancer of the thymus, heart, mediastinum and pleura (ICD-10 C37-C38)
- Table 31: Cancer of the bone and articular cartilage (ICD-10 C40-C41)
- Table 32: Cancer of the skin melanoma (ICD-10 C43)

- Table 33: Cancer of the skin non-melanocytic (ICD-10 C44)
- Table 34: Mesothelioma (ICD-10 C45)
- Table 35: Kaposi's sarcoma (ICD-10 C46)
- Table 36: Cancer of the peripheral nerves and autonomic nervous system (ICD-10 C47)
- Table 37: Cancer of the retroperitoneum and peritoneum (ICD-10 C48)
- Table 38: Cancer of other connective and soft tissue (ICD-10 C49)
- Table 39:
 Cancer of other connective and soft tissue and autonomic nervous system (ICD-10 C47-C49)
- Table 40: Cancer of the breast (ICD-10 C50)
- Table 41: Cancer of the vulva (ICD-10 C51)
- Table 42: Cancer of the vagina (ICD-10 C52)
- Table 43:Cancer of the cervix uteri (ICD-10 C53)
- Table 44: Cancer of the corpus uteri (ICD-10 C54)
- Table 45: Cancer of the uterus unspecified (ICD-10 C55)
- Table 46: Cancer of the corpus uteri and uterus unspecified (ICD-10 C54-C55)
- Table 47: Cancer of the ovary (ICD-10 C56)
- Table 48:
 Cancer of the other and unspecified female genital organs (ICD-10 C57)
- Table 49: Cancer of the placenta (ICD-10 C58)
- Table 50: Cancer of the penis (ICD-10 C60)
- Table 51: Cancer of the prostate (ICD-10 C61)
- Table 52: Cancer of the testis (ICD-10 C62)
- Table 53: Cancer of the other and unspecified male genital organs (ICD-10 C63)
- Table 54:Cancer of the penis and other and unspecified male genital organs
(ICD10 C60, C63)
- Table 55: Cancer of the kidney (ICD-10 C64)
- Table 56: Cancer of the renal pelvis (ICD-10 C65)
- Table 57: Cancer of the ureter (ICD-10 C66)
- Table 58: Cancer of the bladder (ICD-10 C67)
- Table 59: Cancer of the other urinary organs (ICD-10 C68)
- Table 60: Cancer of the kidney and other urinary organs (ICD-10 C64–C66, C68)
- Table 61: Cancer of the eye (ICD-10 C69)
- Table 62: Cancer of the brain (ICD-10 C71)
- Table 63: Cancer of the meninges and other central nervous system (ICD-10 C70, C72)
- Table 64: Cancer of the brain and nervous system (ICD-10 C70-C72)
- Table 65:Cancer of the thyroid gland (ICD-10 C73)

- Table 66:Cancers of the adrenal glands (ICD-10 C74)
- Table 67: Cancers of other endocrine glands (ICD-10 C75)
- Table 68: Cancer of the adrenal glands and other endocrine glands (ICD10 C74, C75)
- Table 69: Cancers of unknown primary site (ICD-10 C76-C80, C26, C39)
- Table 70: Hodgkin's disease (ICD-10 C81)
- Table 71: Non-Hodgkin's lymphoma (ICD-10 C82-C85, C96)
- Table 72: Lymphoma NOS (ICD-O-2 M9590/3)
- Table 73: All lymphomas (ICD-10 C81-C85, C96)
- Table 74: Immunoproliferative neoplasms (ICD-10 C88)
- Table 75: Multiple myeloma (ICD-10 C90)
- Table 76: Lymphoid leukaemia (ICD-10 C91)
- Table 77:
 Acute lymphoblastic leukaemia (ICD-10 C91.0)
- Table 78: Chronic lymphocytic leukaemia (ICD-10 C91.1)
- Table 79: Myeloid leukaemia (ICD-10 C92)
- Table 80:Acute myeloid leukaemia (ICD-10 C92.0)
- Table 81:Chronic myeloid leukaemia (ICD-10 C92.1)
- Table 82: Monocytic leukaemia (ICD-10 C93)
- Table 83: Other leukaemias of specified cell type (ICD-10 C94)
- Table 84: Leukaemia of unspecified cell type (ICD-10 C95)
- Table 85:Other and unspecified malignant neoplasms of lymphoid, haematopoietic and
related tissues (ICD-10 C96)
- Table 86: All leukaemias (ICD-10 C91–95)
- Table 87: Malignant neoplasms of independent (primary) multiple sites (ICD-10 C97)
- Table 88:Alcohol-related cancers
- Table 89: Smoking-related cancers

Glossary

AACR: Australasian Association of Cancer Registries

ABS: Australian Bureau of Statistics

ACT: Australian Capital Territory – a land-locked Territory of Australia situated within the State of New South Wales on the eastern seaboard, with a population of 313,762 (1999). Its capital city is Canberra, which is also Australia's capital city.

Additional diagnosis: conditions or complaints either co-existing with the principal diagnosis or arising during the episode of care. Additional diagnoses give information on factors that result in increased length of stay, more intensive treatment or the use of greater resources.

Admitted patient: a patient who undergoes a hospital's formal admission process to receive treatment and/or care. This treatment and/or care is provided over a period of time and can occur in hospital and/or in the person's home.

AIHW: Australian Institute of Health and Welfare

AMWAC: Australian Medical Workforce Advisory Committee

AS rate (ASR): age-standardised rate. See Appendix B for definition.

Australian Refined Diagnosis Related Groups (AR-DRGs): an Australian system of Diagnosis Related Groups (DRGs). DRGs provide a clinically meaningful way of relating the number and type of patients treated in a hospital to the resources required by the hospital. Each AR-DRG represents a class of patients with similar clinical conditions requiring similar hospital services.

Average length of stay (ALOS): the average length of stay is the ratio of the number of patient days to the number of separations. This is calculated excluding same-day patients.

Cancer (malignant neoplasm): a term used to describe one of several diseases which result when the process of cell division, by which tissues normally grow and renew themselves, becomes uncontrolled and leads to the development of malignant cells. These cancer cells multiply in an uncoordinated way, independently of normal growth control mechanisms, to form a tumour. This tumour may expand locally by invasion or systemically by metastasis via the lymphatic or vascular systems. If left untreated most malignant tumours will eventually result in death. (See 'What is cancer?' on page 1.)

Cancer death: a death for which the underlying cause is indicated as cancer. Persons with cancer who die of other causes are not counted in the death statistics in this publication.

Care type: the care type defines the overall nature of a clinical service provided to an admitted patient during an episode of care

CI: confidence interval

CNS: central nervous system

Epidemiology: the quantitative study of the distribution and determinants of health-related states and events in populations, and the application of this study to the control of health problems

Establishment sector: a section of the health care industry, that is, public hospitals, private hospitals

Funding source: expected principal source of funds for an admitted patient episode or non-admitted patient service event

GP: general practitioner

GPSCU: General Practice Statistics and Classification Unit

ICD-10: International Classification of Diseases – a coding system used to identify the primary site of the malignancy. This publication uses the tenth revision of the ICD classification.

Incidence: see new cancer case

Medicare eligibility status: the patient's eligibility for Medicare as specified under the *Commonwealth Health Insurance Act* 1973

ML: myeloid leukaemia

Mortality: see cancer death

NCSCH: National Cancer Statistics Clearing House

New cancer case: a person who has a new cancer diagnosed for the first time. One person may have more than one cancer and therefore may be counted twice in incidence statistics if it is decided that the two cancers are not of the same origin. This decision is based on a series of principles set out in more detail in a publication by Jensen et al. (1991).

NHL: non-Hodgkin's lymphoma

NMSC: non-melanocytic skin cancer

NOS: not otherwise specified

NS: nervous system

NSW: New South Wales – a State of Australia on the eastern seaboard which has the largest capital city in Australia, Sydney, and a population of 6,438,641 (1999)

NT: Northern Territory – a Territory in the north of Australia, with a population of 194,155 (1999) and Darwin as its capital city

Principal diagnosis: the principal diagnosis is defined as the diagnosis established, after study, to be chiefly responsible for occasioning the admitted patient's episode of care in hospital

Procedure block: the block number is a means of numerically ordering groups of related procedure codes

PSA: prostate-specific antigen

PYLL: person-years of life lost

Qld: Queensland – a State in the north-east of Australia, with a population of 3,508,571 (1999) and Brisbane as its capital city

SA: South Australia – a State in the southern part of Australia, with a population of 1,499,204 (1999) and Adelaide as its capital city

Separation mode: status at separation of person (discharge/transfer/death) and place to which person is released (where applicable)

SNOMED: Systematised Nomenclature of Medicine.

Tas: Tasmania – an island State in the south-east of Australia, with a population of 472,020 (1999) and Hobart as its capital city

Vic: Victoria – a State in the south-east of Australia, with a population of 4,700,702 (1999) and Melbourne as its capital city

WA: Western Australia – the western-most State of Australia, with a population of 1,854,413 (1999) and Perth as its capital cityWHO: World Health Organization

Data sources

National Cancer Statistics Clearing House database

Cancer is a notifiable disease in all States and Territories. The data are collected by cancer registries and include clinical and demographic information about people with newly diagnosed cancer. This information is obtained from hospitals, pathologists, radiation oncologists, cancer treatment centres and nursing homes.

The AIHW is responsible for the national collection of cancer incidence statistics through the National Cancer Statistics Clearing House. National statistics are available for all years from 1982 to 1999.

National mortality database

Registration of deaths in Australia is the responsibility of the State and Territory Registrars of Births, Deaths and Marriages. Information on the cause of death is supplied by the medical practitioner certifying the death or by a coroner. Other information about the deceased is supplied by a relative or other person acquainted with the deceased or by an official institution where the death occurred. Registration of death is a legal requirement in Australia, and compliance is virtually complete.

The Registrars provide deaths data to the ABS for coding and compilation into national statistics. The AIHW also holds these data without unique identifiers in a national mortality database.

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