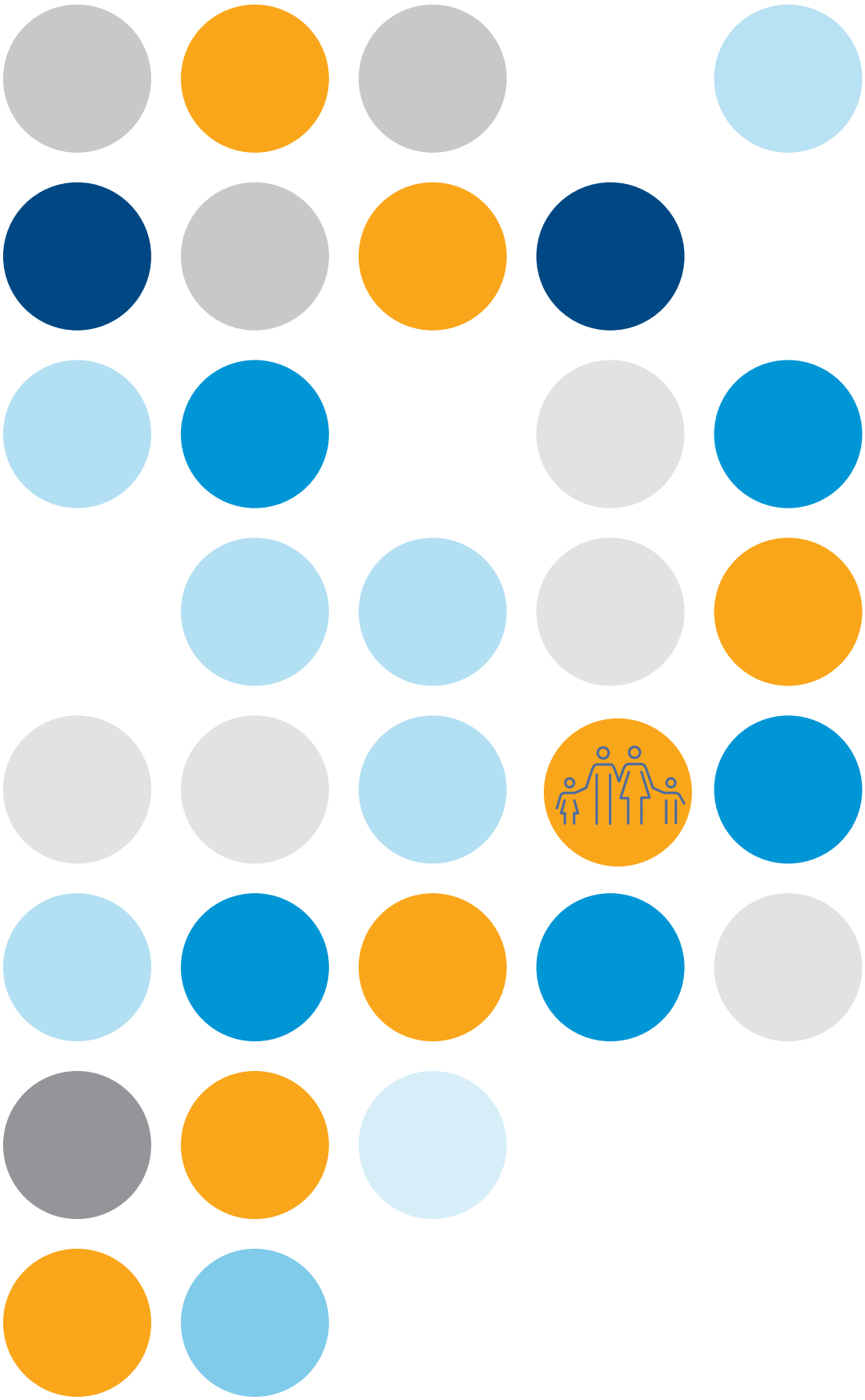
# CANCER IN VICTORIA
# STATISTICS & TRENDS 2016



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# Cancer in Victoria
# Statistics & Trends 2016

This report is a compilation of the latest available Victorian cancer statistics.

Included in the report are detailed tables on cancer incidence, mortality and survival, and projections of incidence and mortality to 2031.

The early pages of the report include a brief overview of cancer in Victoria in 2016, and a selection of easily interpretable graphs which may be reproduced in your own reports and presentations.

This information is published in electronic and hard copy form every 12 months.

The Victorian Cancer Registry (VCR) plays a vital role in providing cancer data, trends and analysis to stakeholders and the Victorian community.

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## Tables

The Cancer Council Victoria acknowledges the support of the Victorian Government

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# Message from the Director

I am delighted to present Cancer In Victoria: Statistics & Trends 2016, a report of statewide cancer statistics for 2016, compiled by the Victorian Cancer Registry.

This report includes cancer incidence and mortality data for 1982-2016, along with survival estimates for 2015 and projections to 2031. It also includes updated cancer statistics for Aboriginal and Torres Strait Islander Victorians for the period 2011-2015, and a more detailed analysis of lung cancer.

The Victorian Cancer Registry has once again been able to publish its incidence data within 12 months of the diagnosis year, making our data among the most current in the world.

Our ability to make current and high quality data available for cancer control efforts in Victoria is a result of ongoing changes, including greater engagement between the registry and its stakeholders, to support quality and technological improvements such as the implementation of an E-Path Reporter in Victorian pathology laboratories. These changes have supported our efforts to continuously improve on the accuracy and completeness of our data.

Victorian Cancer Registry staff are also to be praised for their patience, hard work and diligence in ensuring the quality of the data upon which these reports are based.

I would also like to thank the Department of Health and Human Services for the support they have shown in ensuring the Victorian Cancer Registry remains a world-leader in providing data to contribute to improvements in cancer outcomes.

The work of collecting and collating cancer registry notifications would not be possible without the ongoing effort and support of a number of people. I would like to thank each notifying hospital, pathology laboratory and radiotherapy service for their contributions, without which the registry would not exist. I am also grateful to the Registrar of Births, Deaths and Marriages for continued and valuable assistance. I also acknowledge the valuable contribution given by a wide variety of clinical experts who have been willing to make their time and expertise available to the registry.

I would also like to acknowledge my appreciation of the support given by other Australian State and Territory cancer registries. The surveillance of cancer extends beyond State boundaries and we rely on their cooperation to resolve duplication issues and value their contribution to enable standardised cancer classification.

More than thirty years of cancer incidence and mortality data are held by the Victorian Cancer Registry. This is a valuable resource to support those working to achieve improved cancer outcomes.

Helen Farrugia,

Director, Victorian Cancer Registry

# Key messages

## Incidence

Cancer is a leading burden of disease in Victoria with 90 new diagnoses each day.

In 2016, 33,037 Victorians were diagnosed with cancer.

Since 1982, cancer incidence has steadily increased (with annual rate increases of 0.6% for both men and women).

Whilst the increase in cancer rates is small, the growth and ageing of the Victorian population result in a much larger (3%) annual increase in numbers diagnosed.

Nearly half (45%) of cancers diagnosed are in Victorians aged over 70 years.

## Mortality

An average of 30 Victorians die from cancer every day in Victoria, with 11,111 deaths from cancer in 2016.

Death rates have declined steadily since 1982 (falling by 1.6% per year for males and 1.2% for females). This reflects earlier detection of cancers through screening, reductions in tobacco use, especially in males, and improvements in treatment.

In 2016, cancer deaths in Victoria resulted in the premature loss of nearly 63,000 years of life. This is more than four times the number of years lost from other major causes of death.

## Most common cancers

The five most common cancers in Victoria are prostate, breast, bowel, lung and melanoma, collectively accounting for 57% of all new cancers and half of all cancer deaths.

## Survival

Between 1986 and 2015, five-year survival increased from 48% to 68%.

## Projections

It is estimated that by 2027-2031 the average annual incidence of cancer will have climbed to over 43,000, an increase of 38% from 2012-2016. Over the same period, deaths from cancer are projected to increase to over 13,000 per year. This is largely due to the growth and ageing of the Victorian population.

## Cancer mortality in Victorian Aboriginal and Torres Strait Islander peoples

Aboriginal Victorians had higher incidence rates than non-Aboriginal Victorians for cancers of the lung, liver, head and neck and unknown primary (men and women) and cervix and bladder (women), with rates at least twice those for Victorians of other descent.

Mortality rates were also significantly higher for Aboriginal than for non-Aboriginal Victorians, for both men and women. Aboriginal mortality rates were more than twice those for Victorians of other descent.

## Low survival cancers

Research into some of the less common cancers, and in particular those with poor survival, is the focus of the Commonwealth Senate in establishing the Select Committee into Funding for Research into Cancers with Low Survival Rates.

Low survival cancers include a wide range of common and less common cancers with challenges relating to prevention, earlier detection and treatment options.

Cancers with five-year relative survival less than 30% include those of the pancreas, liver, lung, oesophagus, gallbladder, brain and unknown primary, and mesothelioma and acute myeloid leukaemia. These cancers account for nearly 20% of all cancer diagnoses and more than 40% of cancer deaths each year.

Trends in the incidence and mortality for some of the low survival cancers may be seen on page 21. For many, these are stable. Trends in lung cancer are discussed in the special feature. Decreasing incidence of cancers of unknown primary (CUP) are attributable to advances in diagnostic techniques enabling more accurate determination of the true primary sites and resulting decrease in CUP.

Liver cancer incidence continues to rise steeply, largely as a result of chronic infection with viral hepatitis C or B. The Victorian Government has released strategies for eliminating the burden of viral hepatitis in Victoria (2016-2030) through prevention, testing, treatment and reducing stigma. The Cancer Council Victoria's Screening, Early Detection Program and Immunisation Program is also working to increase diagnosis of viral hepatitis, and access to medical motoring and treatment.

## Special feature: Lung Cancer

Long-term trends in lung cancer reflect tobacco-use patterns from around 40 years earlier. Male lung cancer incidence has been decreasing rapidly since the early 1980s, while rates in women appear to have reached their peak, consistent with the peak of female smoking in the mid-1970s.

Whilst most types of lung cancer show declining incidence, rates of adenocarcinoma are increasing in both men and women - this has been largely attributed to the changing composition of modern cigarettes.

Lung cancer mortality rates in women have now overtaken those for breast cancer making this currently the leading cancer cause of death in both men and women.

# Demography

This section describes the people of Victoria - where they live, where they were born, and selected vital statistics. This provides some background context to the information about the cancer experience of Victorians which is covered in the rest of this report.

## Population

In 2016, the population of Victoria was 6,179,249 persons, making it the second most populous state of Australia. One in four Australians live in Victoria, with 70% of these resident in metropolitan Melbourne. Most of the remainder live in small provincial cities with only 0.1% in remote areas.

The estimated Aboriginal and/or Torres Strait Islander population of Victoria in 2016 was 47,788 persons, making up 0.8% of the Victorian population, and 7% of the national Aboriginal and Torres Strait Islander population.

Victoria has an area of 227,420 $km^2$ and makes up less than 3% of the Australian continent (Figure 1). The Victorian average population density at 2016 census was 26 persons per $km^2$, the the second most densely populated State or Territory (after Australian Capital Territory), compared with Australian density of 3 persons per $km^2$). Melbourne has a population density of over 450 persons per $km^2$, the highest of any Australian capital city.

## Age and sex

The age-sex distribution of the Victorian population is illustrated in Figure 2. The state's population distribution is as expected for a community in late demographic transition, having a declining birth rate and a steadily ageing population.

In 2016, 18% of Victorians were aged under 15 years and 15% over 65 years. By 2021, these proportions are expected to be 16% aged less than 15 years and 19% over 65 years.

## Ethnicity

At the 2011 census, 24% of the Victorian population (1,304,701 persons) was described as overseas born. Of these, 41% were from Asia (India 9%, China 7%, Vietnam 5%, Sri Lanka 3%, Malaysia 3%), 18% from Southern Europe (Italy 6%, Greece 4%), 17% from Great Britain, 10% from the rest of Europe and the former USSR, 7% from the Middle East and smaller proportions from South and North America, Africa and Oceania.

## Vital statistics*

The birth rate steadily declined in Victoria from the early 1970s to early 2000s. Since that time, rates have been stable with the crude rate in 2015 of 12.4 births per 1,000.

In 2015, life expectancy at birth was 81.1 years for males and 84.7 years for females. Over the last decade, life expectancy has increased by nearly 3 years for males and 2 years for females.

There were 39,904 deaths of Victorian residents in 2016. The number of male deaths (20,034) was slightly higher than female deaths (19,870).

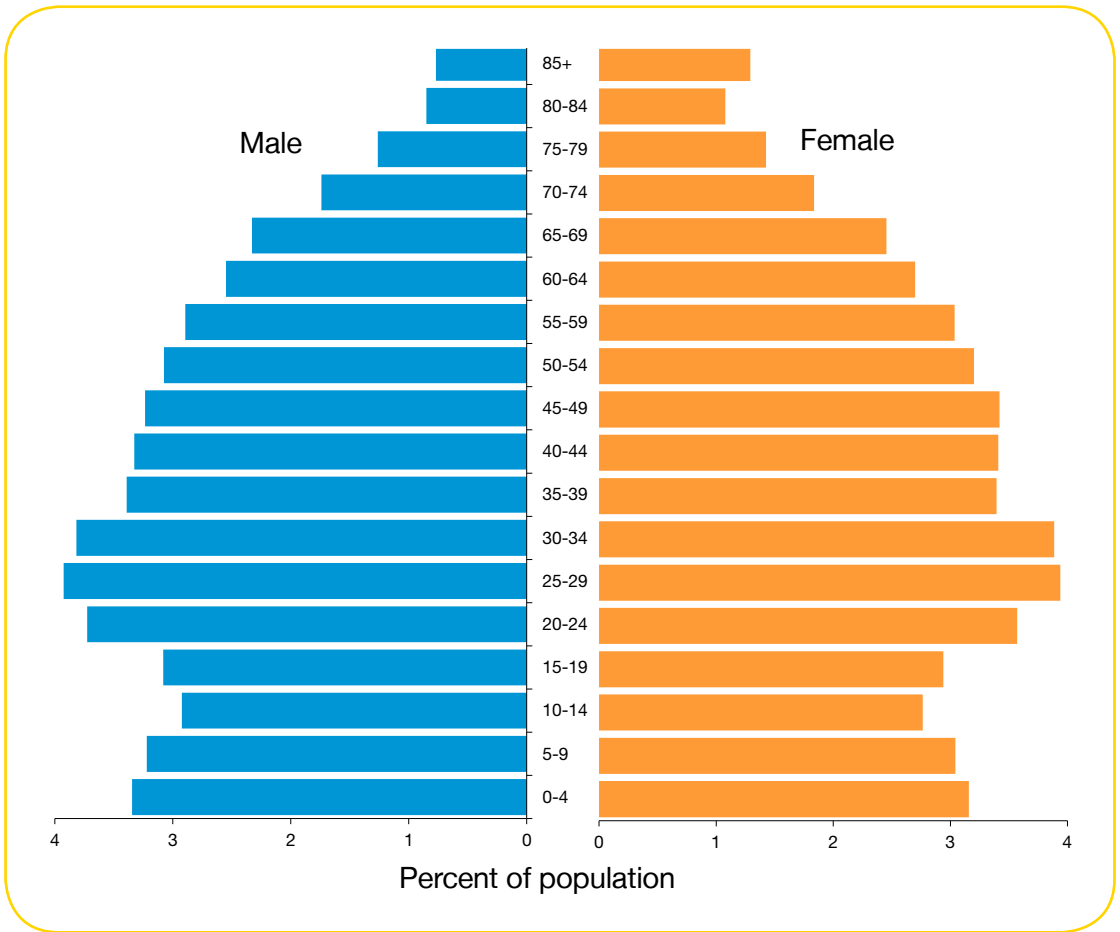
Between 2004 and 2015, the median age at death for Victorian males increased from 77.3 to 79.8 years, and for Victorian females from 82.9 to 85.5 years.

Cancer caused, in 2015, 28% of all deaths; ischaemic heart disease 12%, cerebrovascular disease 7%, chronic lower respiratory disease 5%, diabetes 3%, suicide 2% and transport accidents 1%.

*Statistics are the latest available data from the Australian Bureau of Statistics.

**Figure 1** Map of Victoria


**Figure 2** Percent of population (and numbers of persons) by sex and age, Victoria 2016




Source: Australian Bureau of Statistics. Population by age and sex: Australian States and Territories. (Cat. No. 3201.0)

# Incidence and mortality overview

In 2016, 33,027 Victorians were diagnosed with cancer, and 11,111 died from cancer.

Updated cancer statistics for Aboriginal and Torres Strait Islander Victorians are presented on pages 26-27.

During 2011-2016, nearly 140 Aboriginal and/or Torres Strait Islander Victorians were diagnosed with cancer, and 73 died from cancer, each year.

## Incidence

Each year, over 33,000 Victorians develop cancer[1], and there are over 11,000 cancer related deaths.

In 2016, 17,858 men and 15,179 women were diagnosed with new cancers and 6,115 men and 4,996 women died from cancer.

The standardised incidence rates (per 100,000 persons) were 346.7 for males and 287.4 for females. The cumulative percentage rates, to 75 years of age, were 41% for males and 32% for females. At least one in three Victorians will develop a cancer by the age of 75, with risks of over 1 in 3 for men and 1 in 4 for women.

See Table 1 (pages 16-17) for a summary of incidence rates, and Appendix 7 (pages 47-60) for age-specific incidence rates, by sex and cancer type.

## Age and sex

Cancer was strongly related to age, with less than 1% of tumours occurring before age 20 and almost 60% occurring in persons older than 65 years. More men than women developed cancer: 118 males for every 100 females. The predominance of males was associated with prostate and tobacco-related cancers.

## Mortality

Age-standardised mortality rates for cancer were 99.8 per 100,000 males and 73.0 per 100,000 females. Cancer death rates for men and women continue to decrease - 1.6% per year in men and 1.2% per year in women since 1982. The years of potential life lost (YPLL) to age 75 were 32,427 for men and 30,480 for women.

A comparison of deaths caused by cancer, and YPLL, with other leading causes is shown in Figure 3.

A summary of mortality rates by sex and cancer type is given in Table 2 (pages 18-19). In 2016, there were 34 deaths from the less common skin cancers, including Merkel cell tumours, dermatofibrosarcoma protuberans, malignant fibrous histiocytoma and skin appendage tumours (reported as “other skin” in Table 2).

Deaths from the common non-melanoma skin cancers (basal and squamous cell carcinomas) are not recorded by the Victorian Cancer Registry and therefore not included in this report.

See Appendix 5 (page 45) for an explanation of the coding of cancer mortality.

## Most common cancers

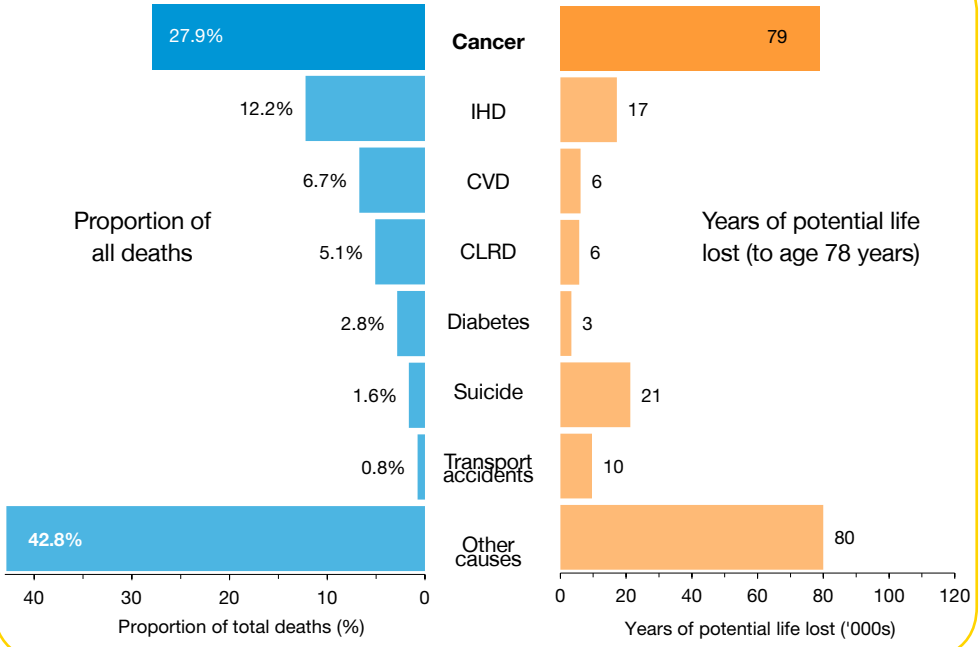
The most commonly occurring cancers in Victoria are shown in Figures 5 and 6 (pages 14 and 15).

Prostate cancer retains its position in 2016 as the most common cancer in Victoria, and leading cancer in men (4,784 cases, 15% of all cancers and 27% of all cancers for men). Incidence rates rose steeply between 1987 and 1995, largely due to the uptake of Prostate Specific Antigen (PSA) testing to detect early asymptomatic cancers. Rates increased rapidly again between 1999 and 2009, but then showed a steep decline. Incidence rates have shown small increases over the last three years but remain less than 70% of their 2009 peak (see Figure 7 - page 20). Prostate cancer was the second ranking cause of cancer death for men (781 deaths, 13% of total) in 2016 with rates continuing to decrease at 1.2% per year.

Breast cancer is the second most common new cancer in Victoria. Breast cancer accounts for 13.2% (4,369, of which 35 were in men) of all new cases and 29% of all cancers for women. It was the second ranking cause of cancer death for Victorian women (745 deaths, 15% of total). Incidence rates continue to increase slowly, after a decade of more rapid increase, largely due to mammographic screening. Breast cancer mortality rates have shown a downward trend since 1994 of almost 2% per year.

[1] “All malignant tumours” = all tumours with a behaviour code /3 in ICD-O-3[(Ref 1)] EXCEPT the common non-melanoma skin cancers (NMSC): basal and squamous cell carcinomas. This INCLUDES Myelodysplastic syndromes (MDS) and Myeloproliferative disorders (MPD) that are classified as malignant neoplasms in ICD-O-3 (the classification used by IARC - International Association for Research on Cancer) but not in ICD-10-AM[(Ref 2)] (as reported in Australian Bureau of Statistics publications).

**Figure 3** Proportions of all deaths and years of potential life lost (YPLL) for each of the leading causes of death, Victoria 2016




YPLL measures the extent of "premature" mortality, assumed to be any death between 1 and 78 years and is a measure of the relative significance of specific causes of premature death.

IHD=Ischaemic heart disease; CVD=Cerebro-vascular disease (stroke); CLRD=Chronic lower respiratory disease (asthma and emphysema).

Source: Causes of Death, Australia 2016. Australian Bureau of Statistics Cat. No. 3303.0)

Bowel or colorectal (colon and rectum) cancer was the third most common new cancer in Victoria in 2016, with 3,863 cases (12% of all cancers). It was the second ranking site of fatal cancer (1,372 deaths, 12% of total). The decline in rates observed over recent years continues in 2016, though it is too early to infer that this change is associated with the National Bowel Cancer Screening Program.

Lung cancer was the fourth most common new cancer (2,949 new cases) in 2016, and remains the leading cause of cancer death (2,086 deaths, 19% of all cancer deaths). Incidence and mortality rates continue to decline for males, and rates for females appear to have stabilised. A special report on lung cancer may be found on pages 22-25.

Melanoma is the fifth ranking new cancer in Victoria (2,837 cases, 9% of total) and was the fifteenth cause of cancer death (256 deaths, 2.3% of total). Mortality rates are stable, and incidence rates show a slight increase in both men and women after a period of decline from 2009. Rates continue to increase in older Victorians, but have decreased for younger age groups who have lived during the SunSmart era.

Cancers of unknown primary site (CUP) form a substantial, and very heterogeneous, group of new cancers with 447 (1%) diagnoses in 2016. These cancers do not rank amongst the top ten cancer sites for incidence but, because they are often advanced or widespread at the time of diagnosis, rank eleventh for mortality with 346 deaths (3% of all cancer deaths).

There are estimated to be over 40,000 new diagnoses in Victoria each year of the common types of non-melanoma skin cancers (basal and squamous cell carcinomas). These skin cancers are not reported to the registry, and therefore are not included in this report. However, incidence of the less common non-melanoma skin cancers (including Merkel cell tumours, dermatofibrosarcoma protuberans and malignant fibrous histiocytoma) is reported as "other skin cancer".

The difference in order of ranking between incidence and mortality reflects the differing survivorship of patients with different cancers. For example, lung cancer is both common and quickly fatal and, therefore, ranks highly in both new cancers and cancer deaths. Pancreatic cancer is not common but is usually rapidly lethal, so its mortality ranking is higher than its incidence ranking.

## Trends in cancer incidence and mortality

The trends in age-standardised rates of incidence and mortality for all cancers in Victoria by sex from 1982-2016 are shown in Figure 4 (page 14). Figures 7 and 8 (pages 20-21) show trends for selected cancer types.

Although cancer incidence rates increased, from 1982-2016, by an average of 0.6% for both men and women per year, rates in men very much reflect the fluctuating trends in prostate cancer incidence.

Death rates have declined steadily since 1982 with average decreases of 1.6% per year for males and 1.2% for females.

**Figure 4** Trends in cancer incidence and mortality rates by sex, Victoria 1982-2016

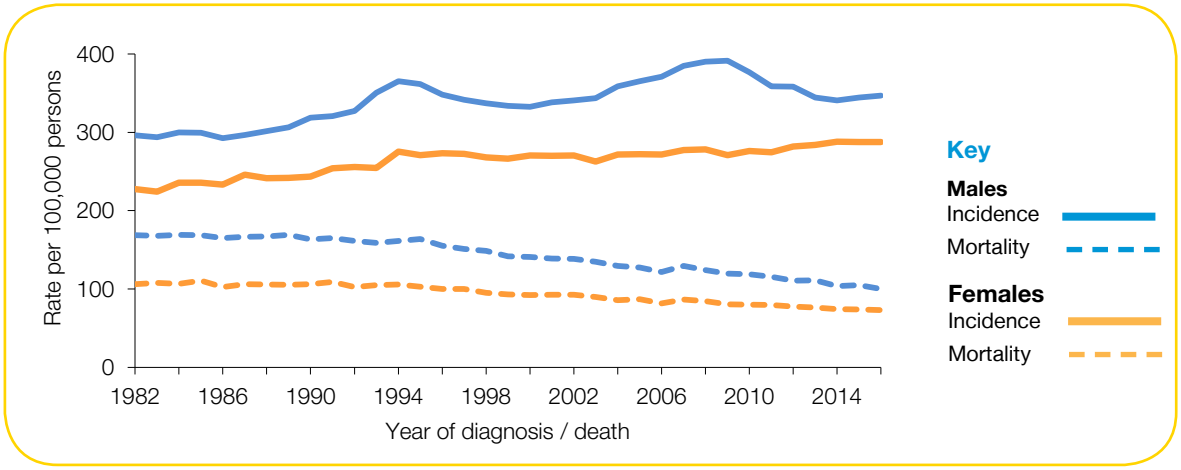



**Figure 5** Leading cancer types by sex, Victoria 2016. Percent of total, and number, of new cases (incidence) and deaths (mortality) for the ten most common cancers by cancer type and sex

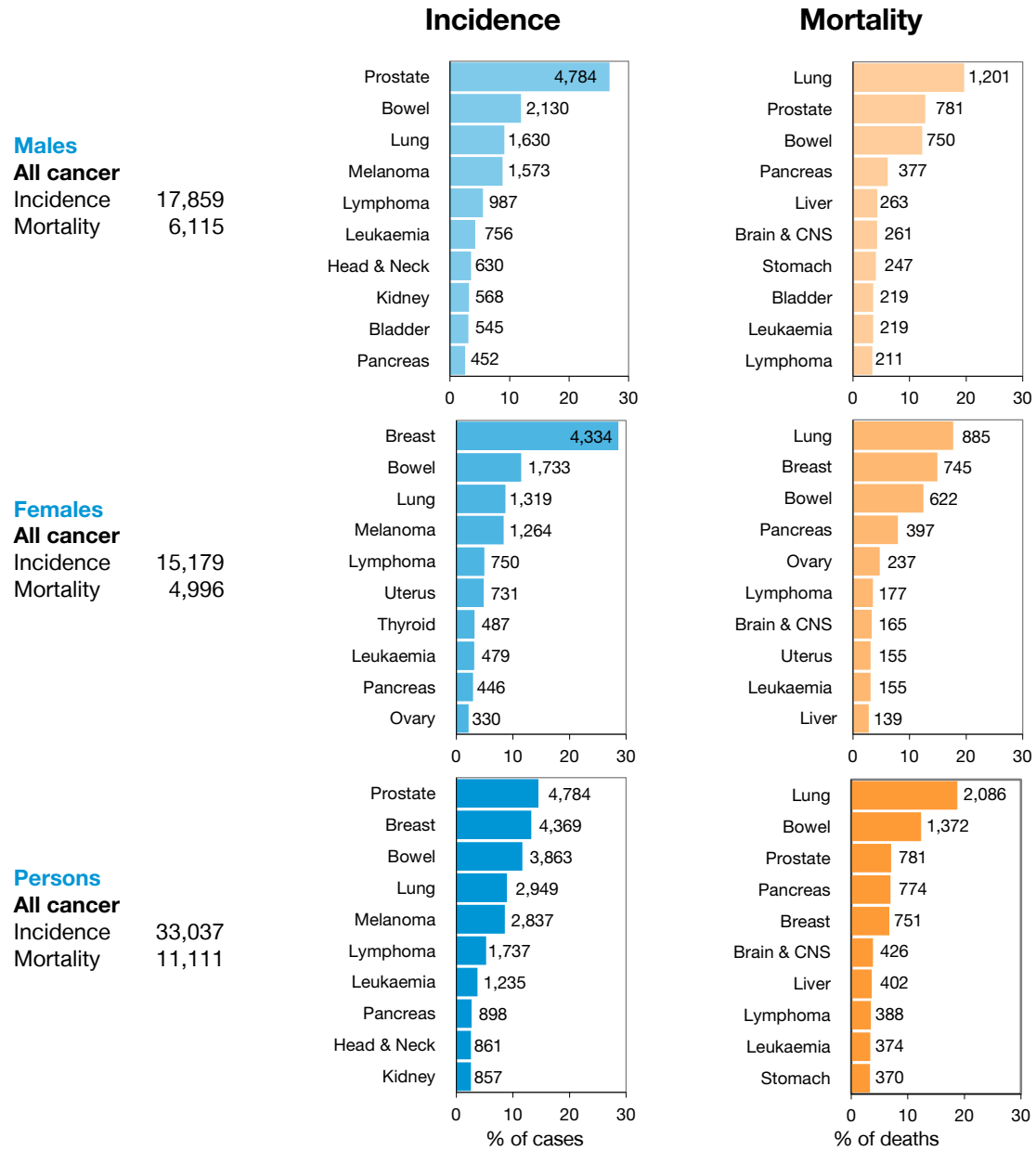
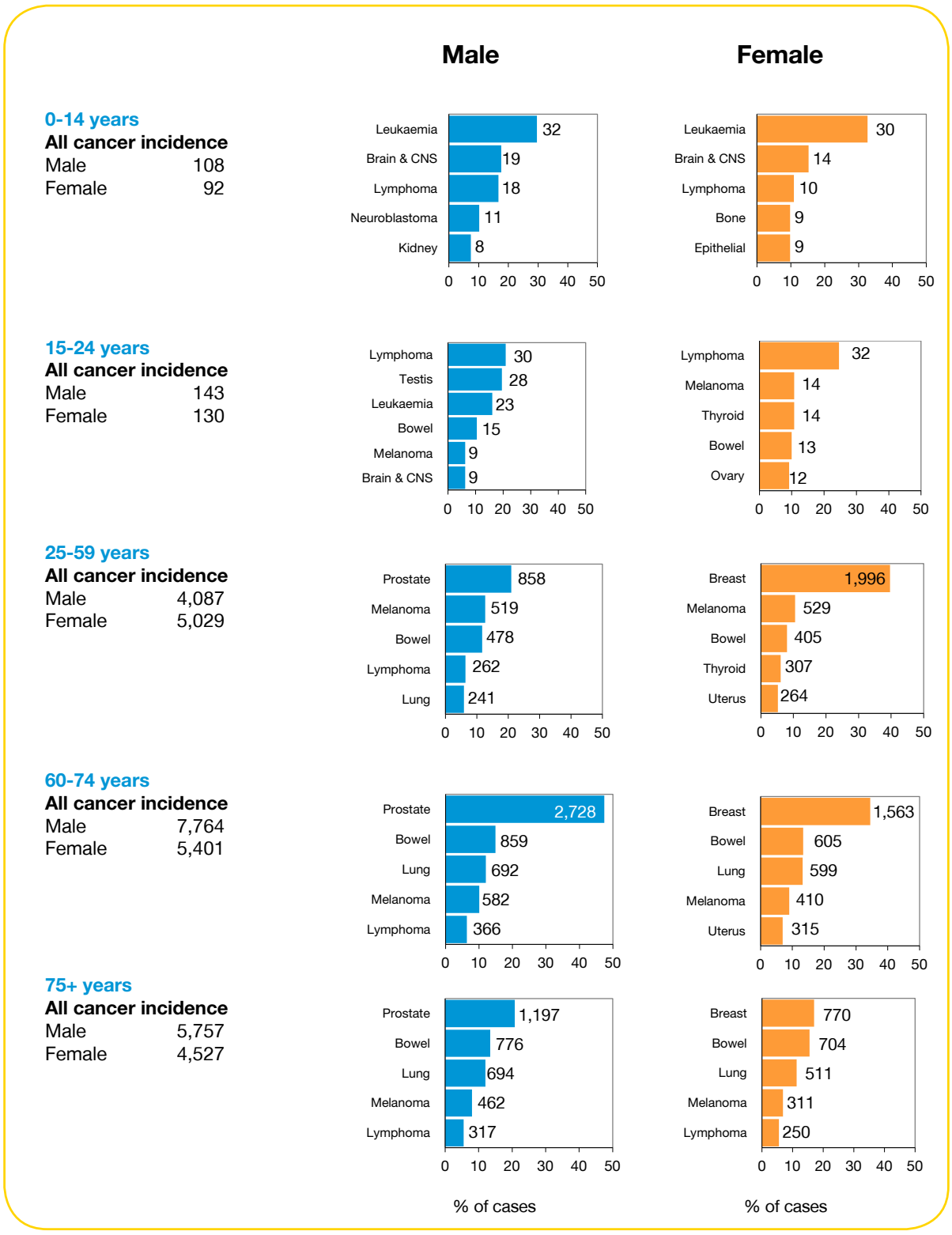


**Figure 6** Leading types of new cancer by age group and sex, Victoria 2016. Percentage of new cancers and number of cases for most common cancers by sex and age




Notes:

For cancers occurring in children aged under 15 years, the International Classification of Childhood Cancer, Third Edition(Ref 8) groups are used. All other age groups are grouped according to ICD10 codes as described in Appendix 3.

CUP = Cancer of unknown primary site

For the purpose of this report, **head and neck cancer** (See Figure 5 page 14) includes cancers of the oral cavity and pharynx (ICD10 C01-C14), nasal cavities, middle ear and accessory sinuses (C30,C31) and larynx (C32). Other groupings are available on request.

**Table 1** Cancer incidence, Victoria 2016

Number of new cases, crude rates (CR), cumulative rate to age 75 years (CR%) and age-standardised rate (ASR) per 100,000 (standardised to World Standard Population) by sex and cancer type (See Appendix 3)

| | | Male | | | | Female | | | |
|---|---|---|---|---|---|---|---|---|---|
| ICD-10 group | Site | Cases | CR | CR% | ASR | Cases | CR | CR% | ASR |
| C00 | Lip | 120 | 3.9 | 0.3 | 2.4 | 46 | 1.5 | 0.1 | 0.7 |
| C01,C02 | Tongue | 154 | 5.0 | 0.4 | 3.3 | 65 | 2.1 | 0.1 | 1.2 |
| C07,C08 | Salivary glands | 39 | 1.3 | 0.1 | 0.8 | 37 | 1.2 | 0.1 | 0.8 |
| C03 | Gum | 18 | 0.6 | 0.0 | 0.3 | 27 | 0.9 | 0.0 | 0.4 |
| C04 | Floor of mouth | 28 | 0.9 | 0.1 | 0.6 | 15 | 0.5 | 0.0 | 0.3 |
| C05, C06 | Other mouth | 34 | 1.1 | 0.1 | 0.7 | 24 | 0.8 | 0.1 | 0.4 |
| **C01-C06** | **Oral cavity** | **234** | **7.7** | **0.6** | **5.0** | **131** | **4.2** | **0.2** | **2.3** |
| C09, C10 | Oropharynx | 145 | 4.7 | 0.4 | 3.3 | 26 | 0.8 | 0.1 | 0.5 |
| C11 | Nasopharynx | 24 | 0.8 | 0.1 | 0.6 | 8 | 0.3 | 0.0 | 0.2 |
| C12, C13 | Hypopharynx | 35 | 1.1 | 0.1 | 0.7 | 6 | 0.2 | 0.0 | 0.1 |
| **C09-C13** | **Pharynx** | **204** | **6.7** | **0.5** | **4.6** | **40** | **1.3** | **0.1** | **0.9** |
| C14 | Other oral | 11 | 0.4 | 0.0 | 0.2 | 1 | 0.0 | 0.0 | 0.0 |
| C15 | Oesophagus | 266 | 8.7 | 0.6 | 4.8 | 105 | 3.4 | 0.2 | 1.5 |
| C16 | Stomach | 396 | 13.0 | 0.8 | 7.3 | 215 | 6.9 | 0.4 | 3.6 |
| C17 | Small Intestine | 86 | 2.8 | 0.2 | 1.7 | 72 | 2.3 | 0.2 | 1.3 |
| C18 | Colon | 1,319 | 43.2 | 2.7 | 24.0 | 1,241 | 39.7 | 2.3 | 20.4 |
| C19-C21 | Rectum | 811 | 26.5 | 1.9 | 15.9 | 492 | 15.8 | 1.0 | 8.7 |
| **C18-C20** | **Bowel** | **2,130** | **69.7** | **4.6** | **39.9** | **1,733** | **55.5** | **3.3** | **29.2** |
| C21 | Anus & anal canal | 40 | 1.3 | 0.1 | 0.8 | 59 | 1.9 | 0.1 | 1.1 |
| C22 | Liver | 412 | 13.5 | 1.0 | 8.2 | 177 | 5.7 | 0.3 | 2.7 |
| C23, C24 | Gallbladder | 90 | 2.9 | 0.2 | 1.5 | 110 | 3.5 | 0.2 | 1.7 |
| C25 | Pancreas | 452 | 14.8 | 1.0 | 8.2 | 446 | 14.3 | 0.7 | 6.5 |
| C30, C31 | Nasal Cavities | 28 | 0.9 | 0.1 | 0.6 | 10 | 0.3 | 0.0 | 0.2 |
| C32 | Larynx | 114 | 3.7 | 0.2 | 2.1 | 12 | 0.4 | 0.0 | 0.2 |
| C33, C34 | Lung | 1,630 | 53.3 | 3.4 | 28.2 | 1,319 | 42.2 | 2.7 | 21.4 |
| C37, C38 | Thymus etc | 17 | 0.6 | 0.0 | 0.5 | 12 | 0.4 | 0.0 | 0.2 |
| C40, C41 | Bone | 38 | 1.2 | 0.1 | 1.2 | 35 | 1.1 | 0.1 | 1.1 |
| C43 | Melanoma | 1,573 | 51.5 | 3.5 | 31.8 | 1,264 | 40.5 | 2.8 | 25.3 |
| C44 | Other skin | 95 | 3.1 | 0.1 | 1.4 | 47 | 1.5 | 0.1 | 0.7 |
| C45 | Mesothelioma | 124 | 4.1 | 0.2 | 1.9 | 34 | 1.1 | 0.1 | 0.6 |
| C46 | Kaposi sarcoma | 11 | 0.4 | 0.0 | 0.2 | 4 | 0.1 | 0.0 | 0.0 |
| C48 | Peritoneum | 11 | 0.4 | 0.0 | 0.2 | 27 | 0.9 | 0.1 | 0.5 |
| C47, C49 | Connective Tissue | 160 | 5.2 | 0.3 | 3.4 | 86 | 2.8 | 0.2 | 1.8 |
| C50 | Breast | 35 | 1.1 | 0.1 | 0.7 | 4,334 | 138.8 | 10.5 | 90.4 |
| C53 | Cervix | | | | | 208 | 6.7 | 0.5 | 5.2 |
| C54, C55 | Uterus | | | | | 731 | 23.4 | 1.8 | 14.4 |
| C56 | Ovary | | | | | 330 | 10.6 | 0.7 | 6.6 |
| C58 | Placenta | | | | | 5 | 0.2 | 0.0 | 0.2 |
| C51, C52, C57 | Vulva etc | | | | | 274 | 8.8 | 0.6 | 5.1 |
| C61 | Prostate | 4,784 | 156.5 | 12.5 | 93.2 | | | | |
| C62 | Testis | 217 | 7.1 | 0.5 | 6.4 | | | | |
| C60, C63 | Penis etc | 39 | 1.3 | 0.1 | 0.8 | | | | |
| C64 | Kidney | 568 | 18.6 | 1.4 | 12.4 | 289 | 9.3 | 0.6 | 5.5 |
| C67 | Bladder | 545 | 17.8 | 1.0 | 8.7 | 160 | 5.1 | 0.2 | 2.0 |
| C65, C66, C68 | Renal pelvis etc. | 68 | 2.2 | 0.1 | 1.0 | 41 | 1.3 | 0.1 | 0.6 |

**Table 1** Cancer incidence, Victoria 2016 - continued

| | | Male | | | | Female | | | |
|---|---|---|---|---|---|---|---|---|---|
| ICD-10 group | Site | Cases | CR | CR% | ASR | Cases | CR | CR% | ASR |
| C69 | Eye | 37 | 1.2 | 0.1 | 0.8 | 40 | 1.3 | 0.1 | 1.0 |
| C70 | Meninges | 1 | 0.0 | 0.0 | 0.0 | 4 | 0.1 | 0.0 | 0.1 |
| C71 | Brain | 289 | 9.5 | 0.7 | 6.8 | 180 | 5.8 | 0.4 | 4.0 |
| C72 | Other CNS | 6 | 0.2 | 0.0 | 0.2 | 8 | 0.3 | 0.0 | 0.2 |
| **C70-C72** | **Brain & CNS** | **296** | **9.7** | **0.7** | **7.0** | **192** | **6.1** | **0.4** | **4.3** |
| C73 | Thyroid | 158 | 5.2 | 0.4 | 3.8 | 487 | 15.6 | 1.2 | 11.9 |
| C74, C75 | Other endocrine | 22 | 0.7 | 0.1 | 0.8 | 13 | 0.4 | 0.0 | 0.3 |
| C26, C39, C76-C79 | Ill-defined site | 77 | 2.5 | 0.2 | 1.4 | 54 | 1.7 | 0.1 | 0.8 |
| C80 | Unknown primary site | 232 | 7.6 | 0.3 | 3.5 | 215 | 6.9 | 0.2 | 2.6 |
| C81 | Hodgkin lymphoma | 123 | 4.0 | 0.3 | 3.4 | 96 | 3.1 | 0.2 | 2.8 |
| C82 | Nodular NHL | 161 | 5.3 | 0.4 | 3.5 | 138 | 4.4 | 0.3 | 2.6 |
| C83 | Diffuse NHL | 455 | 14.9 | 1.0 | 8.5 | 329 | 10.5 | 0.7 | 5.5 |
| C84 | T-cell lymphoma | 77 | 2.5 | 0.2 | 1.6 | 56 | 1.8 | 0.2 | 1.3 |
| C85 | Other NHL | 171 | 5.6 | 0.3 | 3.0 | 131 | 4.2 | 0.2 | 1.9 |
| **C82-C85** | **Non-Hodgkin lymphoma** | **864** | **28.3** | **1.9** | **16.7** | **654** | **20.9** | **1.3** | **11.2** |
| C88 | Immunoproliferative | 27 | 0.9 | 0.1 | 0.5 | 25 | 0.8 | 0.0 | 0.4 |
| C90 | Multiple myeloma | 331 | 10.8 | 0.7 | 6.0 | 217 | 6.9 | 0.4 | 3.5 |
| C91 | Lymphoid leukaemia | 454 | 14.9 | 1.0 | 9.4 | 289 | 9.3 | 0.6 | 5.8 |
| C91.0 | Acute lymphoblastic leukaemia | 57 | 1.9 | 0.1 | 2.2 | 42 | 1.3 | 0.1 | 1.9 |
| C91.1 | Chronic lymphocytic leukaemia | 364 | 11.9 | 0.8 | 6.5 | 236 | 7.6 | 0.4 | 3.7 |
| C92 | Myeloid leukaemia | 211 | 6.9 | 0.4 | 4.5 | 159 | 5.1 | 0.3 | 3.0 |
| C92.0 | Acute myeloid leukaemia | 115 | 3.8 | 0.2 | 2.3 | 74 | 2.4 | 0.1 | 1.4 |
| C92.1 | Chronic myeloid leukaemia | 53 | 1.7 | 0.1 | 1.2 | 41 | 1.3 | 0.1 | 0.7 |
| C93 | Monocytic leukaemia | 74 | 2.4 | 0.1 | 1.2 | 26 | 0.8 | 0.0 | 0.4 |
| C94 | Other leukaemia | 6 | 0.2 | 0.0 | 0.1 | 2 | 0.1 | 0.0 | 0.1 |
| C95 | Unspecified leukaemia | 11 | 0.4 | 0.0 | 0.2 | 3 | 0.1 | 0.0 | 0.1 |
| **C91-C95** | **All leukaemia** | **756** | **24.7** | **1.6** | **15.5** | **479** | **15.3** | **0.9** | **9.3** |
| D45-D47 | Myeloproliferative | 375 | 12.3 | 0.7 | 6.4 | 301 | 9.6 | 0.5 | 4.6 |
| C96 | Other haematopoietic | 23 | 0.8 | 0.1 | 0.8 | 12 | 0.4 | 0.0 | 0.5 |
| C00-C96, D45-D47 | **All malignant tumours** | **17,858** | **584.3** | **40.7** | **346.7** | **15,179** | **486.1** | **32.3** | **287.4** |

## Haematological malignancies (See Appendix 3)

| | Male | | | | Female | | | |
|---|---|---|---|---|---|---|---|---|
| Group | Cases | CR | CR% | ASR | Cases | CR | CR% | ASR |
| **Lymphoid neoplasms** | | | | | | | | |
| Hodgkin lymphoma | 123 | 4.0 | 0.3 | 3.4 | 96 | 3.1 | 0.2 | 2.8 |
| Mature B-cell: | | | | | | | | |
| CLL/small lymphocytic leukaemia | 400 | 13.1 | 0.9 | 7.8 | 269 | 8.6 | 0.5 | 5.0 |
| Diffuse large B-cell lymphoma | 304 | 9.9 | 0.6 | 5.6 | 212 | 6.8 | 0.4 | 3.6 |
| Follicular lymphoma | 154 | 5.0 | 0.4 | 3.3 | 138 | 4.4 | 0.3 | 2.6 |
| Plasma cell disorders | 331 | 10.8 | 0.7 | 6.0 | 217 | 6.9 | 0.4 | 3.5 |
| Other | 208 | 6.8 | 0.5 | 4.2 | 145 | 4.6 | 0.3 | 2.5 |
| Mature T- and NK-cell neoplasms | 89 | 2.9 | 0.2 | 1.8 | 62 | 2.0 | 0.2 | 1.4 |
| Acute lymphoblastic leukaemia | 14 | 0.5 | 0.0 | 0.5 | 2 | 0.1 | 0.0 | 0.1 |
| **Myeloid neoplasms** | | | | | | | | |
| Acute myeloid leukaemia | 169 | 5.5 | 0.4 | 3.5 | 122 | 3.9 | 0.2 | 2.4 |
| Chronic myeloid leukaemia | 53 | 1.7 | 0.1 | 1.2 | 41 | 1.3 | 0.1 | 0.7 |
| Other chronic myeloproliferative diseases | 148 | 4.8 | 0.4 | 2.9 | 111 | 3.6 | 0.2 | 2.1 |
| Myelodysplastic syndromes | 199 | 6.5 | 0.3 | 3.0 | 155 | 5.0 | 0.2 | 2.0 |
| Myelodysplastic/myeloproliferative diseases | 91 | 3.0 | 0.1 | 1.4 | 56 | 1.8 | 0.1 | 0.7 |

**Table 2** Cancer mortality, Victoria 2016

Number of deaths, crude rate (CR), years of potential life lost to age 75 years (YPLL) and age-standardised rate (ASR) per 100,000 (standardised to World Standard Population) by sex and cancer type (See Appendix 3)

| | | Male | | | | Female | | | |
|---|---|---|---|---|---|---|---|---|---|
| ICD-10 group | Site | Deaths | CR | YPLL | ASR | Deaths | CR | YPLL | ASR |
| C00 | Lip | 3 | 0.1 | 16 | 0.0 | 1 | 0.0 | 7 | 0.0 |
| C01,C02 | Tongue | 27 | 0.9 | 177 | 0.5 | 23 | 0.7 | 47 | 0.3 |
| C07,C08 | Salivary glands | 13 | 0.4 | 61 | 0.2 | 6 | 0.2 | 7 | 0.1 |
| C03 | Gum | 7 | 0.2 | 46 | 0.1 | 10 | 0.3 | 40 | 0.1 |
| C04 | Floor of mouth | 13 | 0.4 | 41 | 0.2 | 9 | 0.3 | 21 | 0.1 |
| C05, C06 | Other mouth | 13 | 0.4 | 74 | 0.2 | 7 | 0.2 | 7 | 0.1 |
| **C01-C06** | **Oral cavity** | **53** | **1.7** | **321** | **0.9** | **47** | **1.5** | **116** | **0.6** |
| C09, C10 | Oropharynx | 25 | 0.8 | 202 | 0.5 | 4 | 0.1 | 21 | 0.1 |
| C11 | Nasopharynx | 7 | 0.2 | 115 | 0.2 | 4 | 0.1 | 72 | 0.1 |
| C12, C13 | Hypopharynx | 15 | 0.5 | 60 | 0.3 | 7 | 0.2 | 40 | 0.1 |
| **C09-C13** | **Pharynx** | **47** | **1.5** | **377** | **0.9** | **15** | **0.5** | **134** | **0.2** |
| C14 | Other oral | 9 | 0.3 | 73 | 0.2 | 2 | 0.1 | 24 | 0.0 |
| C15 | Oesophagus | 188 | 6.2 | 1,041 | 3.2 | 77 | 2.5 | 327 | 1.0 |
| C16 | Stomach | 247 | 8.1 | 1,453 | 4.3 | 123 | 3.9 | 702 | 1.7 |
| C17 | Small Intestine | 27 | 0.9 | 255 | 0.5 | 23 | 0.7 | 101 | 0.3 |
| C18 | Colon | 461 | 15.1 | 2,375 | 7.5 | 474 | 15.2 | 2,203 | 6.2 |
| C19-C21 | Rectum | 289 | 9.5 | 1,869 | 4.9 | 148 | 4.7 | 952 | 2.2 |
| **C18-C20** | **Bowel** | **749** | **24.5** | **4,231** | **12.3** | **622** | **19.9** | **3,159** | **8.3** |
| C21 | Anus & anal canal | 9 | 0.3 | 39 | 0.2 | 28 | 0.9 | 134 | 0.4 |
| C22 | Liver | 263 | 8.6 | 1,877 | 4.8 | 139 | 4.5 | 676 | 1.9 |
| C23, C24 | Gallbladder | 70 | 2.3 | 263 | 1.1 | 72 | 2.3 | 428 | 1.1 |
| C25 | Pancreas | 377 | 12.3 | 2,249 | 6.6 | 397 | 12.7 | 1,943 | 5.6 |
| C30, C31 | Nasal Cavities | 13 | 0.4 | 134 | 0.2 | 8 | 0.3 | 73 | 0.1 |
| C32 | Larynx | 41 | 1.3 | 200 | 0.7 | 3 | 0.1 | 28 | 0.1 |
| C33, C34 | Lung | 1,201 | 39.3 | 5,369 | 19.7 | 885 | 28.3 | 4,782 | 13.4 |
| C37, C38 | Thymus etc | 7 | 0.2 | 179 | 0.2 | 7 | 0.2 | 149 | 0.2 |
| C40, C41 | Bone | 9 | 0.3 | 220 | 0.2 | 9 | 0.3 | 153 | 0.2 |
| C43 | Melanoma | 172 | 5.6 | 1,208 | 2.9 | 84 | 2.7 | 684 | 1.3 |
| C44 | Other skin | 18 | 0.6 | 16 | 0.2 | 16 | 0.5 | 24 | 0.1 |
| C45 | Mesothelioma | 116 | 3.8 | 295 | 1.7 | 21 | 0.7 | 132 | 0.3 |
| C46 | Kaposi sarcoma | 0 | 0.0 | 0 | 0.0 | 1 | 0.0 | 0 | 0.0 |
| C48 | Peritoneum | 5 | 0.2 | 77 | 0.1 | 19 | 0.6 | 135 | 0.3 |
| C47, C49 | Connective Tissue | 37 | 1.2 | 515 | 0.8 | 26 | 0.8 | 251 | 0.4 |
| C50 | Breast | 6 | 0.2 | 35 | 0.1 | 745 | 23.9 | 6,631 | 12.6 |
| C53 | Cervix | | | | | 57 | 1.8 | 938 | 1.2 |
| C54, C55 | Uterus | | | | | 155 | 5.0 | 894 | 2.5 |
| C56 | Ovary | | | | | 237 | 7.6 | 1,326 | 3.5 |
| C58 | Placenta | | | | | 0 | 0.0 | 0 | 0.0 |
| C51, C52, C57 | Vulva etc | | | | | 82 | 2.6 | 554 | 1.3 |
| C61 | Prostate | 781 | 25.6 | 1,215 | 10.2 | | | | |
| C62 | Testis | 5 | 0.2 | 108 | 0.1 | | | | |
| C60, C63 | Penis etc | 7 | 0.2 | 62 | 0.1 | | | | |
| C64 | Kidney | 145 | 4.7 | 825 | 2.5 | 77 | 2.5 | 324 | 1.0 |
| C67 | Bladder | 219 | 7.2 | 498 | 3.0 | 78 | 2.5 | 164 | 0.8 |
| C65, C66, C68 | Renal pelvis etc. | 45 | 1.5 | 110 | 0.6 | 28 | 0.9 | 80 | 0.3 |

**Table 2** Cancer mortality, Victoria 2016 – continued

| | | Male | | | | Female | | | |
|---|---|---|---|---|---|---|---|---|---|
| ICD-10 group | Site | Deaths | CR | YPLL | ASR | Deaths | CR | YPLL | ASR |
| C69 | Eye | 16 | 0.5 | 142 | 0.3 | 12 | 0.4 | 197 | 0.3 |
| C70 | Meninges | 1 | 0.0 | 0 | 0.0 | 1 | 0.0 | 0 | 0.0 |
| C71 | Brain | 257 | 8.4 | 3,406 | 5.6 | 163 | 5.2 | 2,014 | 3.1 |
| C72 | Other CNS | 3 | 0.1 | 102 | 0.1 | 1 | 0.0 | 36 | 0.0 |
| **C70-C72** | **Brain & CNS** | **261** | **8.5** | **3,508** | **5.7** | **165** | **5.3** | **2,050** | **3.1** |
| C73 | Thyroid | 12 | 0.4 | 48 | 0.2 | 20 | 0.6 | 118 | 0.3 |
| C74, C75 | Other endocrine | 7 | 0.2 | 160 | 0.2 | 1 | 0.0 | 0 | 0.0 |
| C26, C39, C76-C79 | Ill-defined site | 51 | 1.7 | 193 | 0.8 | 34 | 1.1 | 297 | 0.5 |
| C80 | Unknown primary site | 184 | 6.0 | 638 | 2.7 | 162 | 5.2 | 414 | 1.7 |
| C81 | Hodgkin lymphoma | 5 | 0.2 | 33 | 0.1 | 5 | 0.2 | 14 | 0.1 |
| C82 | Nodular NHL | 13 | 0.4 | 69 | 0.2 | 22 | 0.7 | 45 | 0.3 |
| C83 | Diffuse NHL | 138 | 4.5 | 715 | 2.2 | 110 | 3.5 | 326 | 1.4 |
| C84 | T-cell lymphoma | 32 | 1.0 | 269 | 0.6 | 13 | 0.4 | 73 | 0.2 |
| C85 | Other NHL | 23 | 0.8 | 34 | 0.3 | 27 | 0.9 | 21 | 0.2 |
| **C82-C85** | **Non-Hodgkin lymphoma** | **206** | **6.7** | **1,088** | **3.3** | **172** | **5.5** | **466** | **2.1** |
| C88 | Immunoproliferative | 9 | 0.3 | 23 | 0.1 | 4 | 0.1 | 0 | 0.0 |
| C90 | Multiple myeloma | 137 | 4.5 | 678 | 2.2 | 84 | 2.7 | 300 | 1.1 |
| C91 | Lymphoid leukaemia | 61 | 2.0 | 365 | 1.0 | 49 | 1.6 | 74 | 0.5 |
| C91.0 | Acute lymphoblastic leukaemia | 10 | 0.3 | 194 | 0.2 | 5 | 0.2 | 38 | 0.1 |
| C91.1 | Chronic lymphocytic leukaemia | 45 | 1.5 | 162 | 0.7 | 42 | 1.3 | 33 | 0.4 |
| C92 | Myeloid leukaemia | 108 | 3.5 | 896 | 2.0 | 88 | 2.8 | 543 | 1.3 |
| C92.0 | Acute myeloid leukaemia | 65 | 2.1 | 446 | 1.2 | 51 | 1.6 | 432 | 0.8 |
| C92.1 | Chronic myeloid leukaemia | 11 | 0.4 | 89 | 0.2 | 10 | 0.3 | 26 | 0.1 |
| C93 | Monocytic leukaemia | 39 | 1.3 | 122 | 0.6 | 17 | 0.5 | 67 | 0.2 |
| C94 | Other leukaemia | 7 | 0.2 | 40 | 0.1 | 0 | 0.0 | 0 | 0.0 |
| C95 | Unspecified leukaemia | 4 | 0.1 | 2 | 0.1 | 1 | 0.0 | 0 | 0.0 |
| **C91-C95** | **All leukaemia** | **219** | **7.2** | **1,426** | **3.7** | **155** | **5.0** | **684** | **2.0** |
| D45-D47 | Myeloproliferative | 121 | 4.0 | 189 | 1.6 | 91 | 2.9 | 142 | 0.9 |
| C96 | Other haematopoietic | 4 | 0.1 | 14 | 0.1 | 1 | 0.0 | 7 | 0.0 |
| C00-C96, D45-D47 | **All malignant tumours** | **6,115** | **200.1** | **32,427** | **99.8** | **4,996** | **160.0** | **30,480** | **73.0** |

## Haematological malignancies (See Appendix 3)

| | | Male | | | | Female | | | |
|---|---|---|---|---|---|---|---|---|---|
| ICD-10 group | Site | Deaths | CR | YPLL | ASR | Deaths | CR | YPLL | ASR |
| **Lymphoid neoplasms** | | | | | | | | | |
| | Hodgkin lymphoma | 5 | 0.2 | 33 | 0.1 | 5 | 0.2 | 14 | 0.1 |
| | Mature B-cell: | | | | | | | | |
| | CLL/small lymphocytic leukaemia | 59 | 1.9 | 295 | 0.9 | 51 | 1.6 | 64 | 0.5 |
| | Diffuse large B-cell lymphoma | 95 | 3.1 | 548 | 1.5 | 89 | 2.8 | 264 | 1.1 |
| | Follicular lymphoma | 13 | 0.4 | 69 | 0.2 | 22 | 0.7 | 45 | 0.3 |
| | Plasma cell disorders | 137 | 4.5 | 678 | 2.2 | 84 | 2.7 | 300 | 1.1 |
| | Other | 54 | 1.8 | 215 | 0.8 | 20 | 0.6 | 47 | 0.2 |
| | Mature T- and NK-cell neoplasms | 33 | 1.1 | 282 | 0.7 | 14 | 0.4 | 76 | 0.2 |
| | Acute lymphoblastic leukaemia | 2 | 0.1 | 61 | 0.1 | 2 | 0.1 | 7 | 0.0 |
| **Myeloid neoplasms** | | | | | | | | | |
| | Acute myeloid leukaemia | 103 | 3.4 | 722 | 1.8 | 77 | 2.5 | 562 | 1.2 |
| | Chronic myeloid leukaemia | 11 | 0.4 | 89 | 0.2 | 10 | 0.3 | 26 | 0.1 |
| | Other chronic myeloproliferative diseases | 31 | 1.0 | 67 | 0.4 | 19 | 0.6 | 31 | 0.2 |
| | Myelodysplastic syndromes | 80 | 2.6 | 122 | 1.0 | 66 | 2.1 | 73 | 0.6 |
| | Myelodysplastic/myeloproliferative diseases | 47 | 1.5 | 117 | 0.6 | 22 | 0.7 | 57 | 0.3 |

**Figure 7** Trends in incidence and mortality (annual age-standardised rates per 100,000 persons) for the 5 most common cancers by sex, Victoria 1982-2016

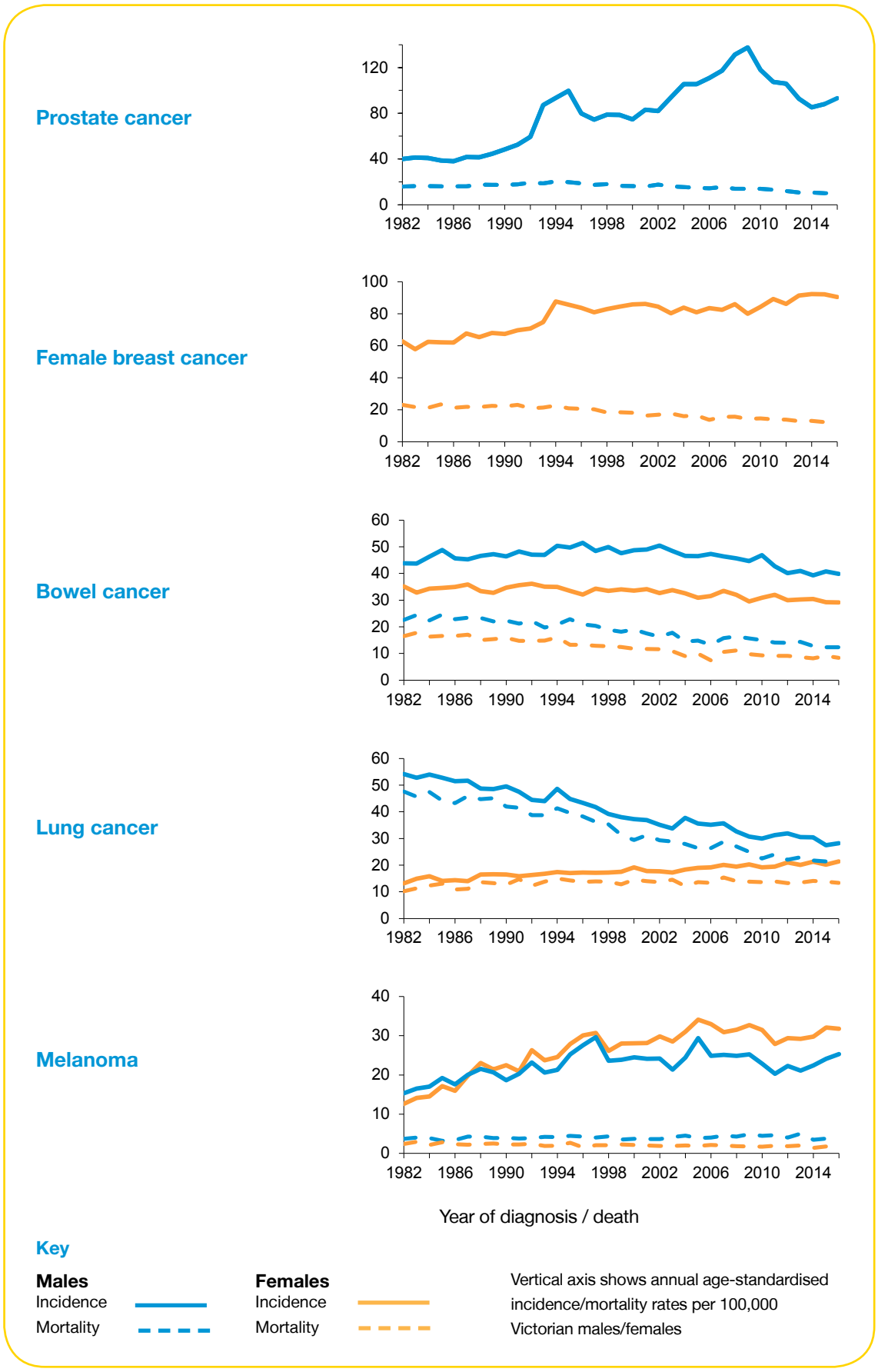
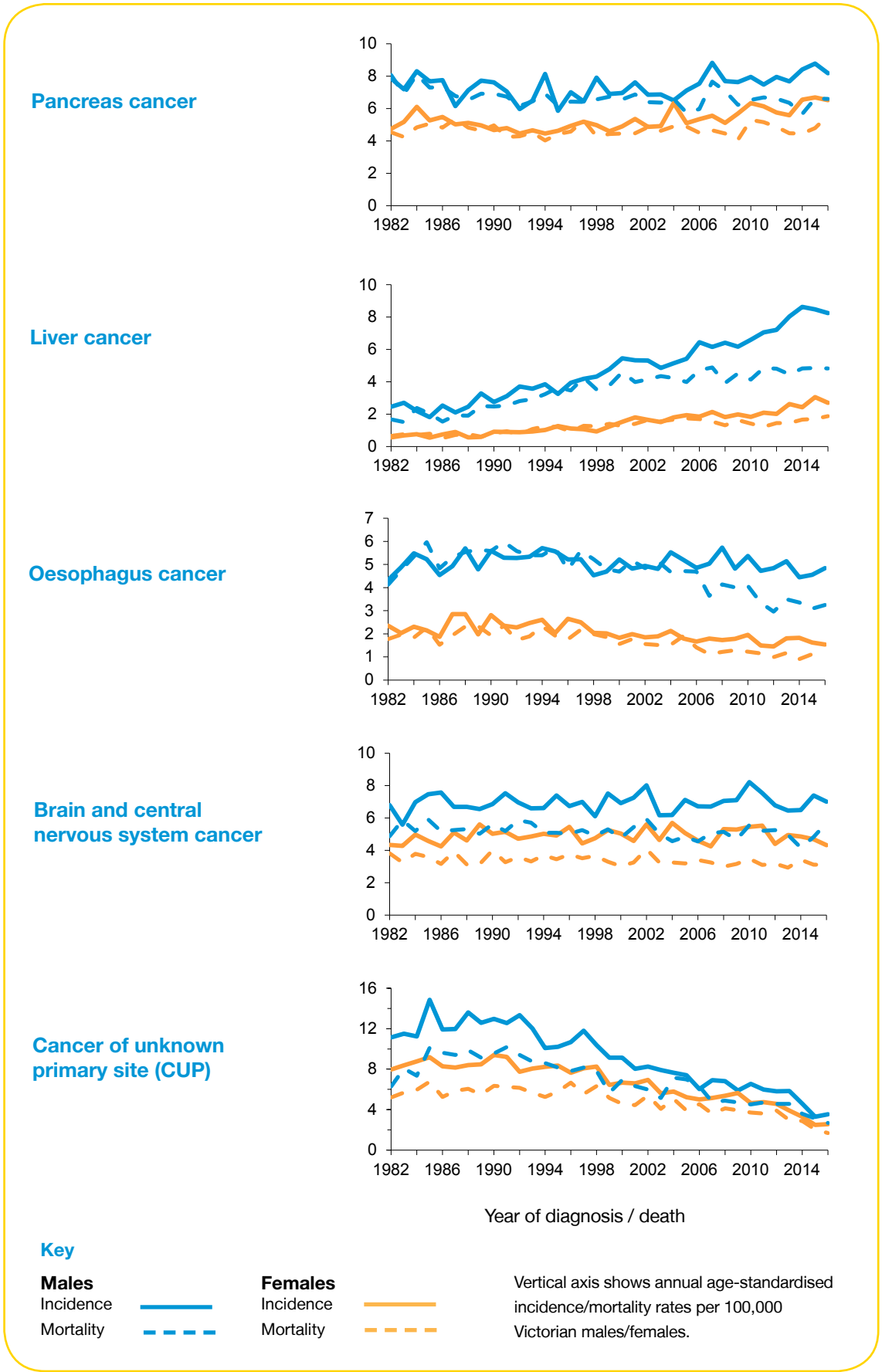


**Figure 8** Trends in incidence and mortality (annual age-standardised rates per 100,000 persons) for other selected cancers by sex, Victoria 1982-2016



# Lung cancer in Victoria

**OVERVIEW** In this section we present a selection of Victorian population-based descriptive statistics on lung cancer. These statistics demonstrate the range of data available from the Victorian Cancer Registry, and are presented with minimal interpretation. Note that the statistics in this section focus on data to 2015, as the 2016 data were not available at the time of analysis.

## Lung cancer in Victoria in 2015

In 2015, 2,680 Victorians were diagnosed with lung cancer, making it the fifth most common cancer and accounting for 8% of all cancer diagnoses. Lung cancer remains the leading cause of cancer death in Victorians with 2,103 deaths in 2015 (19% of all cancer deaths).

## Lung cancer trends

With very poor survival, lung cancer incidence and mortality rates are similar, as seen in the overall trends over time from 1982-2015 (Figure 7 Page 20).

Trends in overall lung cancer incidence reflect the maturity of the smoking epidemic - Figure 9 shows lung cancer mortality and adult smoking prevalence in Australian men and women since 1945[1]. It is clear that there is a time lag of around 40 years between the peak of smoking prevalence in men and the resulting peak in lung cancer mortality. Mortality rates in women appear to have reached a plateau which is consistent with the peak smoking prevalence in the mid-1970s - this suggests that we might expect to see decreasing rates soon.

## Lung cancer trends by type

Incidence trends in Victoria show different patterns between histological types and by sex (Figure 10). In men, the incidence of small cell lung cancer (SCLC) and non-small cell lung cancer (NSCLC) decreased over the 34 years of reporting. In women, with the later peak in smoking prevalence, incidence of NSCLC has increased whilst rates for SCLC have declined. The incidence of lung cancer without microscopic diagnosis (i.e. tumours diagnosed by imaging or clinical test alone) has decreased, more rapidly in the last few years.

NSCLC comprises squamous cell carcinoma (SCC - 28% of total NSCLC in men and 17% in women), adenocarcinoma (Adeno - 49% in men and 57% in women) and other/ unspecified NSCLC (23% in men and 26% in women). Adenocarcinoma is the only type of lung cancer that is increasing in incidence, with the increases greater in women than men (Figure 11) especially at younger ages (Figure 13). This has been largely attributed to the changing composition of modern cigarettes coupled with the differing smoking prevalence trends in men and women. The smoke of modern cigarettes contains higher concentrations of nitrosamines that primarily predispose to adenocarcinoma as opposed to cancers originating in other cell types[2].

## Lung cancer mortality in women

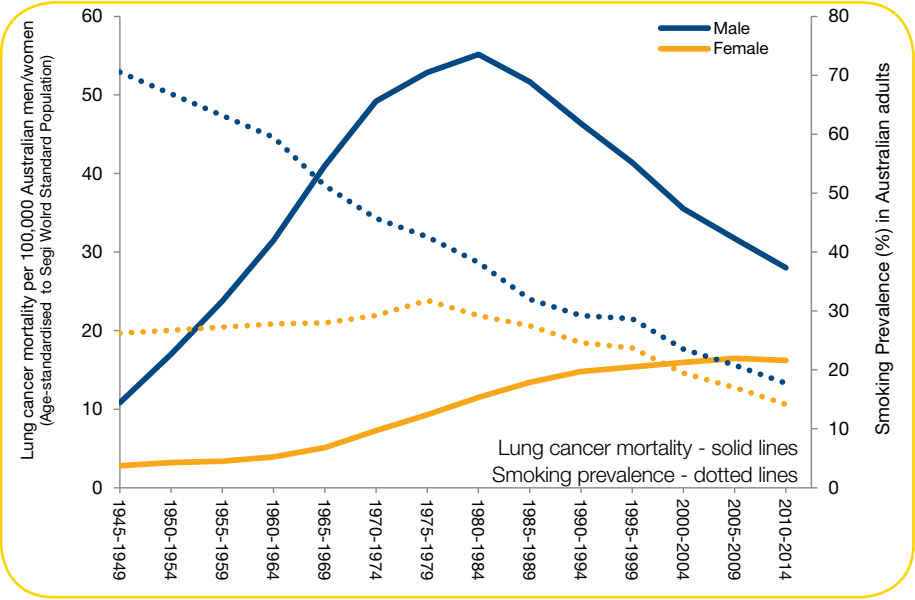
The much anticipated overtaking of breast cancer mortality rates by those for lung cancer occurred in Victoria in 2013 (Figure 12) though rates have been very close since 2006. There were 861 lung cancer deaths in Victorian women in 2015 compared with 722 breast cancer deaths, making lung cancer the leading cause of cancer death in both men and women.

## Lung cancer by registry-derived stage at diagnosis

Since 2014, the Victorian Cancer Registry (VCR) has routinely recorded evidence of distant metastatic disease at the time of diagnosis where this is indicated in coded metastatic site data from hospitals (often diagnosed on imaging or other clinical investigation) or from pathology reports for distant metastases. This allows us to determine Stage 4 tumours for those cancers, such as lung cancer, for which we do not routinely derive stage at diagnosis.

For lung cancer, Registry-derived stage (RD-Stage) was also derived as part of a national project to determine the

**Figure 9: Trends in lung cancer mortality and smoking prevalence in Australian men and women, 1945 to 2014**




1. Scollo, MM and Winstanley, MH. Tobacco in Australia: Facts and issues. Melbourne: Cancer Council Victoria; 2016. Available from www.TobaccoInAustralia.org.au

2. Ridge CA, McErlean AM, Ginsberg MS. Epidemiology of Lung Cancer. Seminars in Interventional Radiology. 2013;30(2):93-98.

Figure 10: Trends in lung cancer incidence by major types in Victorian men and women 1982-2015

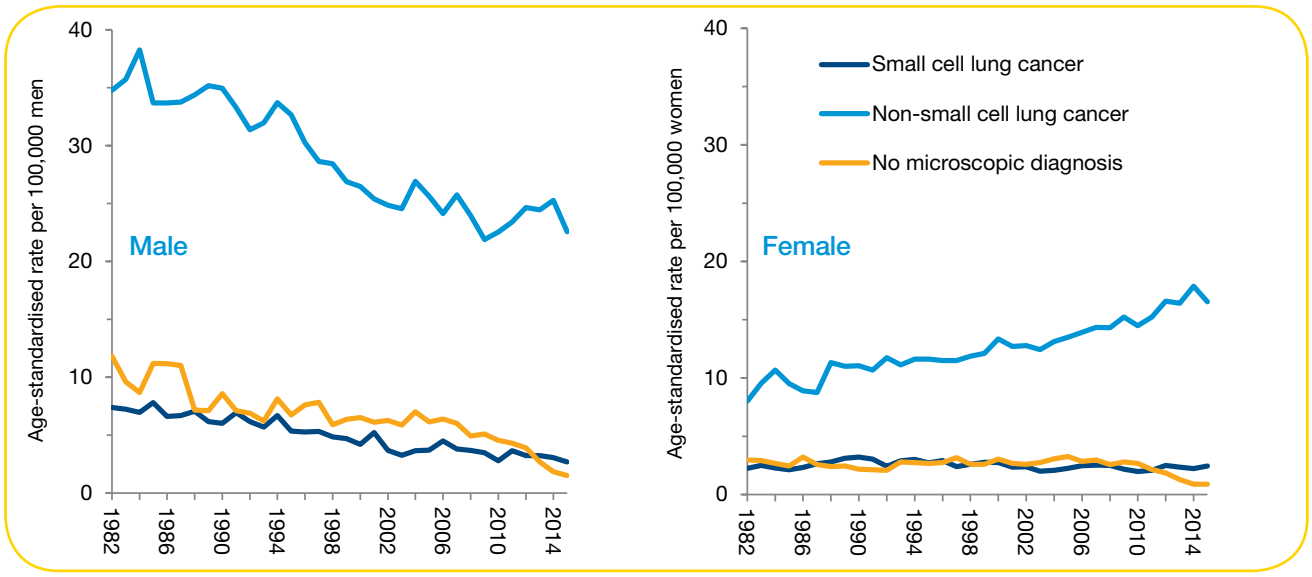



Figure 11: Trends in adenocarcinoma and squamous cell carcinoma incidence in Victorian men and women 1982-2015

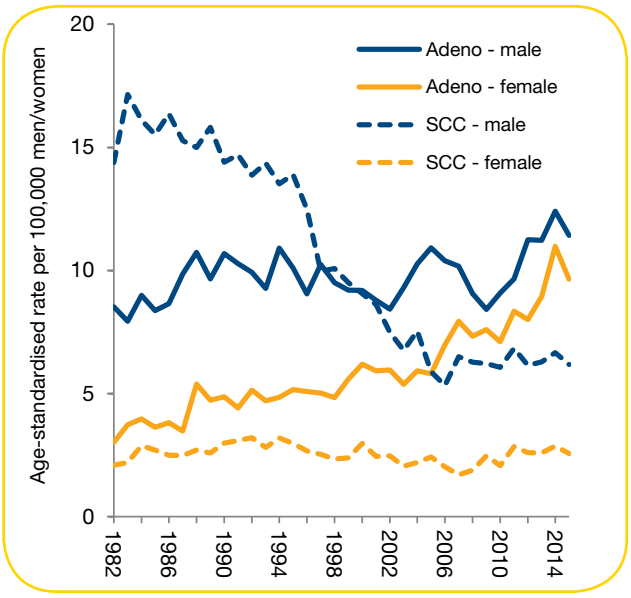



Figure 12: Trends in mortality from lung and breast cancer in Victorian women 1982-2015

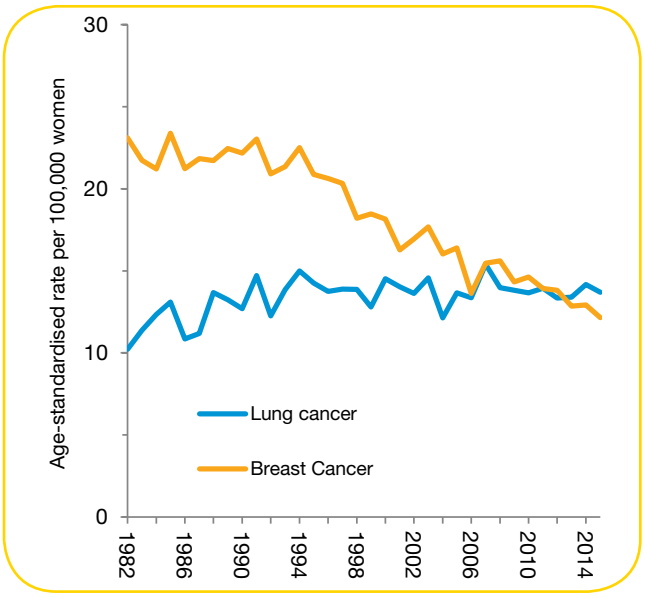
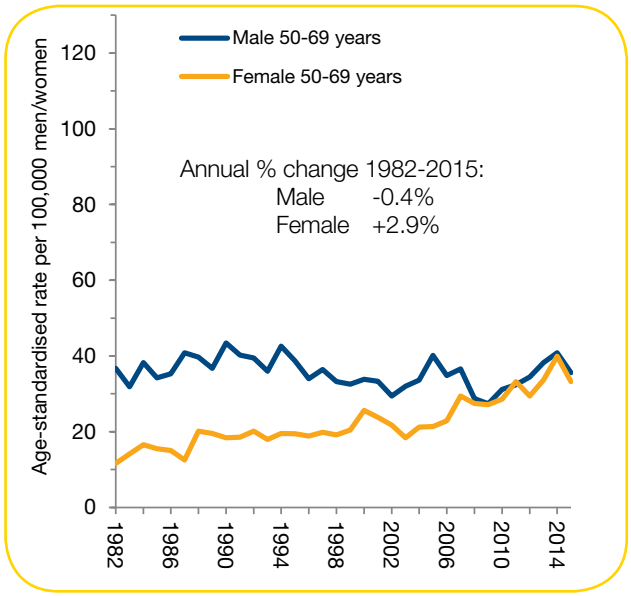
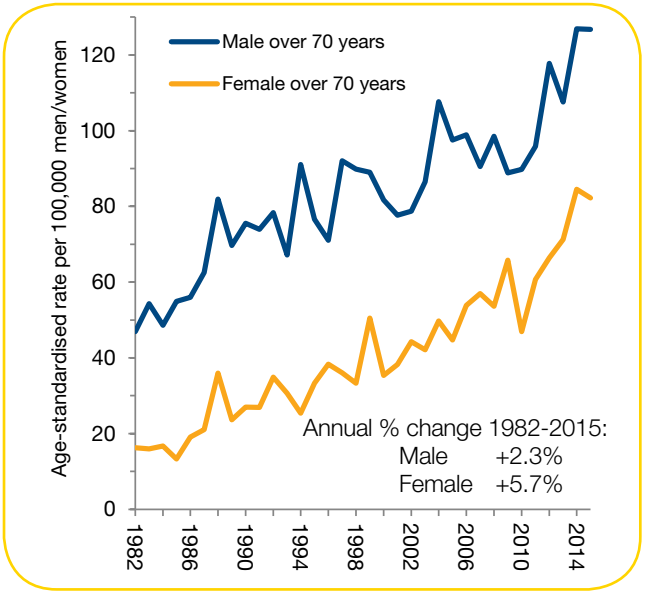



Figure 13: Trends in the incidence of adenocarcinoma by age at diagnosis in Victorian men and women 1982-2015

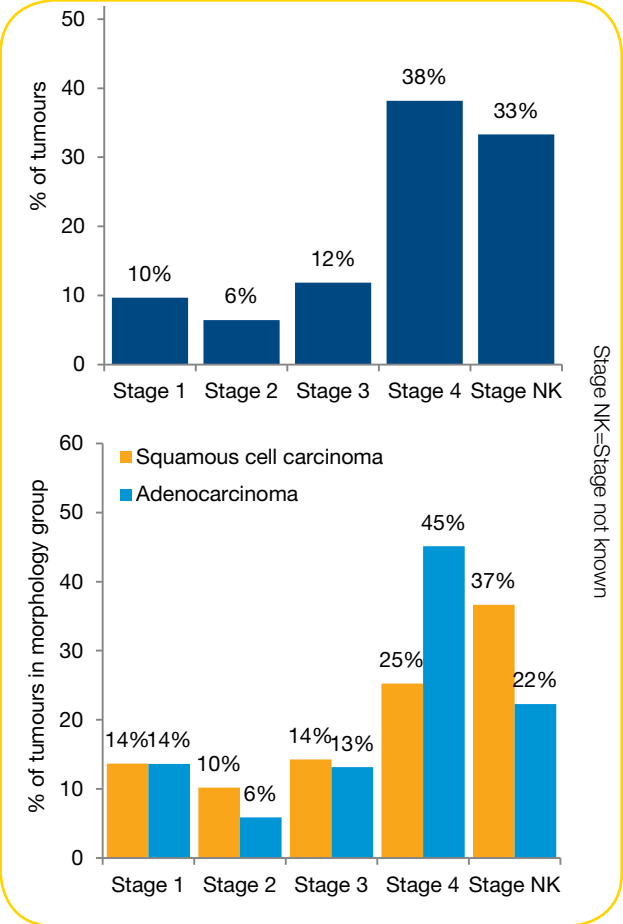


feasibility of capturing population-based stage for the leading five cancers in Australia. RD-Stage is defined as the "best estimate of summary TNM stage at time of diagnosis as derived by cancer registries from available data sources for use in population data analysis", and is collected according to established business rules using all available pathology reports and staging information, including information on metastatic sites, as notified by all Victorian Hospitals. The resulting RD-Stage for lung cancer was validated by clinical record review of a sample of 455 tumours (397 diagnosed in 2010 and 58 in 2013) and the results support the adequacy of RD-Stage for use in population analysis. For lung cancer, the main issue is lack of sufficient data available to the VCR to derive stage - for 2010, RD-Stage is available for 67% of lung cancers; the distribution of tumours by stage is shown in Figure 14.

Of tumours diagnosed in 2014 and 2015, 38% and 41% were determined to be Stage 4 at time of diagnosis.

**Figure 14: Distribution of lung cancers diagnosed in 2011 by RD-stage at diagnosis for (i) all cancers and (ii) NSCLC - squamous cell and adenocarcinomas**

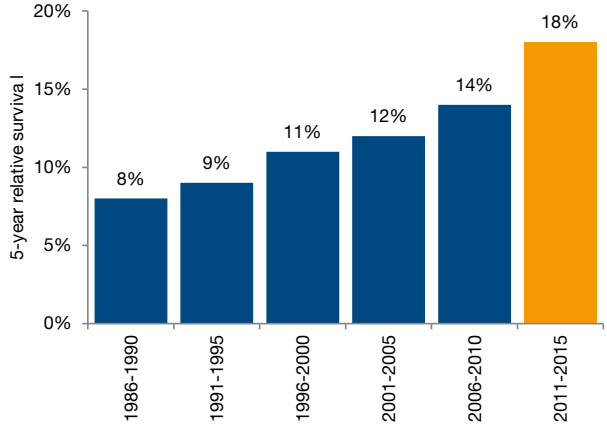



## Lung cancer survival trends

Lung cancer survival is amongst the lowest of all cancers, but has increased steadily, and significantly, over the last three decades, with five-year relative survival now 18% (Figure 15). Survival in 2011-2015 was higher in women (21%) than men (16%), in those with NSCLC (22%) rather than SCLC (6%) or cancers without microscopic diagnosis (3%), and decreased with increasing age at diagnosis, from 47% in those aged 44 years at diagnosis to just 12% in those aged over 75 years.

(See Page 29 for description of survival methodology).

**Figure 15: Trends in lung cancer survival, Victoria 1986-1990 to 2011-2015**




Lung cancer survival varied across regions of Victoria, being higher in Melbourne than the rest of Victoria, and with significant differences across Integrated Cancer Services regions and Primary Health Networks. The analysis in the following section shows disparities in survival by socio-economic quintiles and remoteness, both of which may contribute to regional differences.

## Lung cancer outcomes analysis

An analysis was undertaken, for Victorians diagnosed with lung cancer in 2008-2015, to examine the effects on mortality of sex, socio-economic status, remoteness of residential address, and Charlson comorbidity Index[1].

Regression analysis[2] of lung cancer-specific mortality showed significantly increased hazard ratios (HR with 95% confidence intervals) in

- men compared to women - HR 1.10 (1.06-1.14)
- residents of the rest of Victoria compared to major cities (using ABS remoteness categories based on residential address at diagnosis) - HR 1.08 (1.04-1.12)
- persons with greater socio-economic disadvantage (based on quintiles of the SEIFA Index of Relative Socio-economic Disadvantage (IRSD) compared to the more advantaged - HR of 1.02 (0.98-1.08), 1.09 (1.03-1.14), 1.14 (1.08-1.20) and 1.14 (1.08-1.20) for increasing quintiles of disadvantage.
- persons with higher comorbidity scores compared to those with no comorbid conditions - HR 1.14 (1.08-1.20), 1.33 (1.23-1.44), 1.39 (1.28-1.52) for Charlson comorbidity scores 1, 2 and 3 or more respectively.

Similar results were obtained for univariate analysis for each factor separately, and for the same analysis using all cause rather than lung cancer-specific mortality.

1. Charlson Comorbidity Index codes were determined from the VAED using the International Cancer Benchmarking Partnership protocol with Quan 2011 weighting, excluding cancer (detail available on request). Limitations of these data are recognised - in particular that these comorbidity scores will significantly underestimate true morbidity as the VAED only includes conditions for which treatment was administered during the admitted episode. However, as a crude measure of overall comorbidity, and with these limitations in mind, the results are still interesting.

2. Fine-Gray regression competing risk model including socio-economic quintile, sex, remoteness, Charlson comorbidity score, age group and year.

**Figure 16: Regional variation in lung cancer incidence in Victorian men and women - smoothed standardised incidence ratios (SIR) for 2011-2015 by SA3 regions[1].**

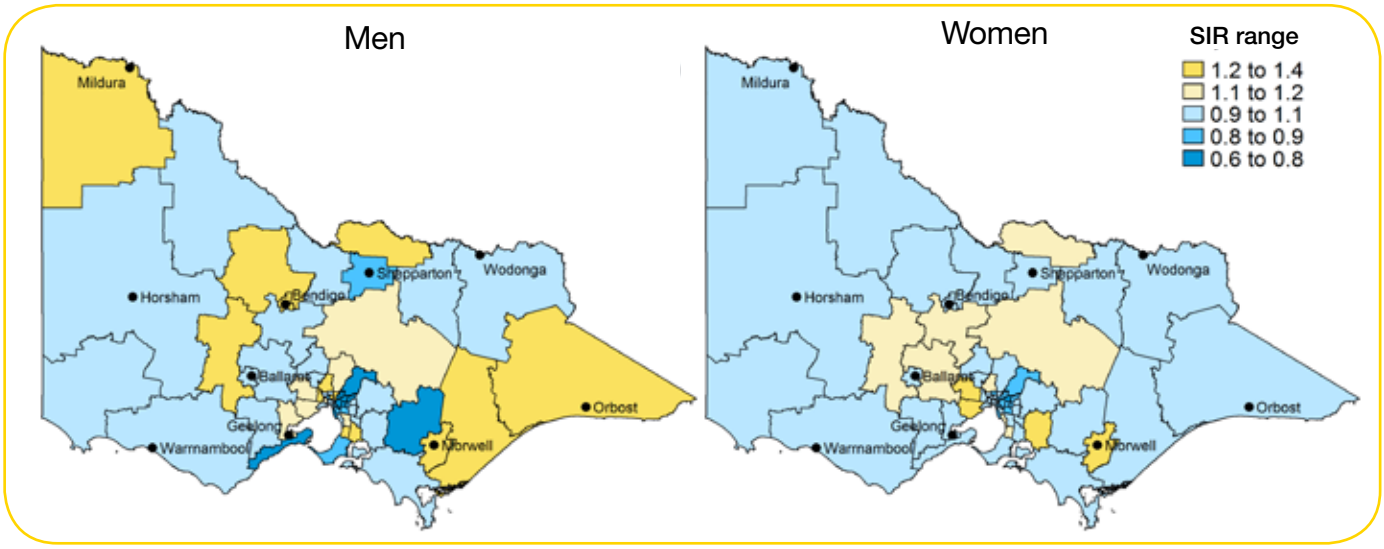
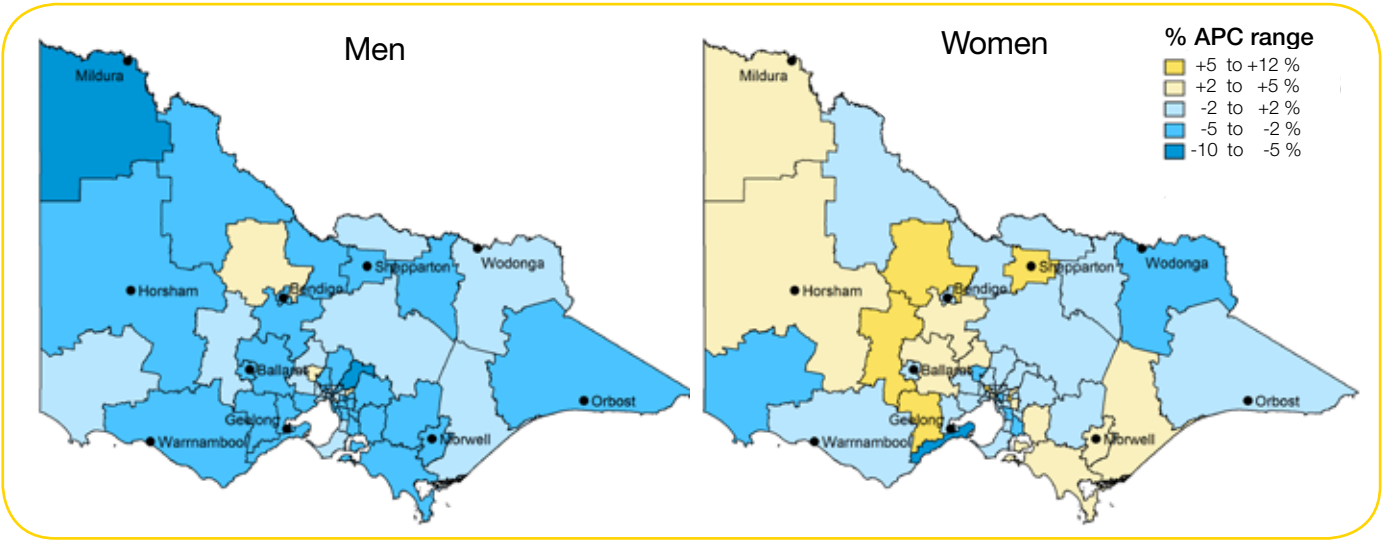



**Figure 17: Regional variation in lung cancer incidence trends in Victorian men and women - smoothed annual % change (APC) over five years 2011-2015 by SA3 regions[2].**




## Regional variation in lung cancer

Regional variation in incidence rates across Victoria reflects population demographics and smoking behaviours related to these characteristic (Figure 16).

Smoking prevalence figures for Australia 2013[3] show wide disparity in smoking prevalence across socio-economic quintiles (most advantaged 10% and most disadvantaged 23%), remoteness categories (major cities 14% and remote/very remote areas 25%), birthplace (Australian-born 16%, migrants from UK & Europe, Middle East and North Africa 14%-21% whilst migrants from all parts of Asia and Sub-Saharan Africa 7%-9%), and Aboriginal Australians have smoking prevalence of 42%.

The maps in Figure 17 show that, for men, there is generally a decreasing trend in lung cancer incidence, whilst for women, the pattern is more mixed across Victoria. Long term smoking prevalence trends for women, and the time lag between these and lung cancer incidence trends, suggest that incidence has plateaued nationally - local variation might result from some areas having yet to reach this plateau whilst others have, with rates starting to decline.

Changing demographics in terms of population growth, distribution and migration will also affect the rate of incidence decline between regions.

1 These maps show the variation in the standardised incidence ratio (SIR) for lung cancer averaged over the years 2011-2015 by geographic area using the Australian Bureau of Statistics Australian Statistical Geography Standard SA3 areas. For a particular SA3, a SIR greater than 1, or less than 1, indicates that the incidence is higher, or lower, than the average for Victoria after standardising using the age, year of diagnosis and sex distribution for the SA3. In this analysis we applied the conditional autoregressive Leroux Bayesian smoothing method to account for neighbouring SA3s which are likely to be spatially correlated. The smoothing removes some of the random variation in incidence and is designed to reveal the underlying geographic incidence patterns.

2. These maps show incidence trends, expressed as average annual % change, over the five years 2011 to 2015, using a trend fitted to the logarithm of the incidence data over the 5 years, by SA3, with the Bayesian smoothing applied.

3. Scollo, MM and Winstanley, MH. Tobacco in Australia: Facts and issues. Melbourne: Cancer Council Victoria; 2017. www.TobaccoInAustralia.org.au

# Cancer in Aboriginal and Torres Strait Islander Victorians

- There are nearly 140 new diagnoses of cancer and 73 cancer related deaths in Aboriginal and Torres Strait Islander Victorians each year.
- Both cancer incidence and mortality rates were significantly higher in both men and women than in non-Aboriginal Victorians.
- These figures show greater numbers of deaths and diagnoses than have been previously reported and provide more accurate data to support cancer control initiatives in the Victorian Aboriginal population.

**IMPORTANT NOTE:**

The Cancer Outcomes Act (2014) transferred custodianship of the Victorian Cancer Registry (VCR) to the Secretary of the Department of Health and Human Services, Victoria. This change has enabled VCR to augment the Aboriginal status data reported by hospitals for admissions relating to cancer (previously our only source of data for living Victorians) with additional information from other administrative health datasets. This has identified nearly 100 more Aboriginal or Torres Strait Islander Victorians amongst all persons diagnosed with cancers in 2011-2015 (150,000 tumours), representing a 16% increase in cancer incidence for this period relative to that previously reported. Mortality figures changed very little as Aboriginal status is notified to VCR on death certificates. Figures presented in this report replace all previously published figures for 2011-2015 (in Cancer in Victoria 2015).

These improved data highlight the difficulties in accurately collecting indigenous status through routine VCR reporting channels, and supports the use of multiple data sources - an individual may be identified in one or more health-related episodes or institutions, and business rules have been established to determine their status for analysis using these sources.

Throughout this report, we use the term Aboriginal Victorians to include people of either Aboriginal or Torres Strait Island descent. Non-Aboriginal Victorians is used to describe Victorians of other descent.

## Incidence

There were 697 cancer diagnoses (350 for men and 347 for women) reported for Aboriginal Victorians in the five-year period 2011-2015 inclusive; this is an average of 139 diagnoses each year.

Overall incidence rates were more than one-third higher for Aboriginal Victorians (453.6 and 377.5 new cases per 100,000 Aboriginal men and women respectively) than for non-Aboriginal Victorians (347.2 and 282.1 new cases per 100,000 non-Aboriginal men and women, respectively).

The most common cancers for Aboriginal Victorians were lung, breast, bowel and prostate cancer. Figure 18 shows the fifteen most common cancers for Aboriginal Victorians compared with Victorians of other descent as a percentage of total cancers.

Of these more common cancers, rates were significantly higher for both Aboriginal men and women for cancers of the lung, liver, head and neck and unknown primary; for Aboriginal women they were higher for cancers of the cervix and bladder. Incidence rates were significantly lower for melanoma. For cancers for which rates were higher in Aboriginal Victorians, the excess was consistently more than two-fold for both men and women. For example, the rate ratios of Aboriginal to non-Aboriginal were 2.3 and 3.4 for lung cancer in men and women, respectively; 3.1 and 3.5 for liver cancer; 3.9 and 4.0 for head and neck cancers, and 2.2 for cervix cancer. These significantly higher rates reflect the prevalence of known risk factors in the Aboriginal community, including tobacco use, alcohol consumption, and infection with human papilloma virus (HPV).

Figure 19 shows age-specific incidence curves for Victorian Aboriginal and non-Aboriginal men and women for the five year period 2011-2015. Cancer incidence rates were higher in Aboriginal Victorians from the fifth decade of life for women, and sixth decade for men, with the gap widening with increasing age. Rates for Aboriginal men and women aged over 70 years were one-third higher than those for non-Aboriginal Victorians.

## Mortality

There were 364 cancer deaths of Aboriginal Victorians in the five years 2011-2015 inclusive, an average of 73 deaths each year. Mortality was slightly higher for men (56%) than for women (44%).

Overall mortality rates were significantly higher for both Aboriginal men and women (200.2 and 133.0 deaths per 100,000, respectively) than for non-Aboriginal men and women (108.2 and 75.7 deaths per 100,000 men and women, respectively).

The greater mortality rates experienced by Aboriginal Victorians reflect those cancers for which incidence is higher, but may also be associated with diagnoses occurring at more advanced disease stage. This could reflect problems around timely access to treatment and lower participation in cancer screening programs.

**Figure 18** Most common types of cancer for Aboriginal and non-Aboriginal Victorians, 2011-2015

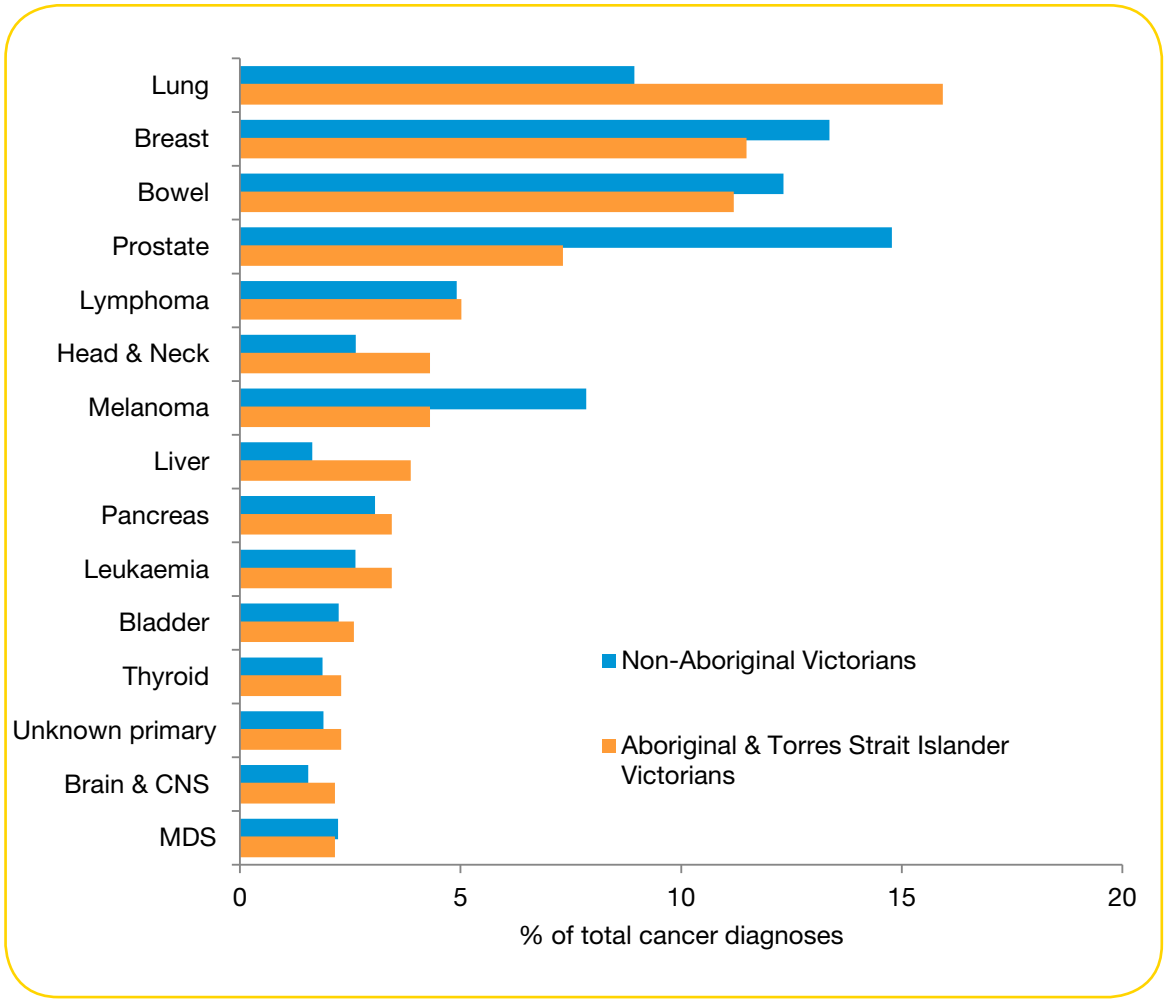
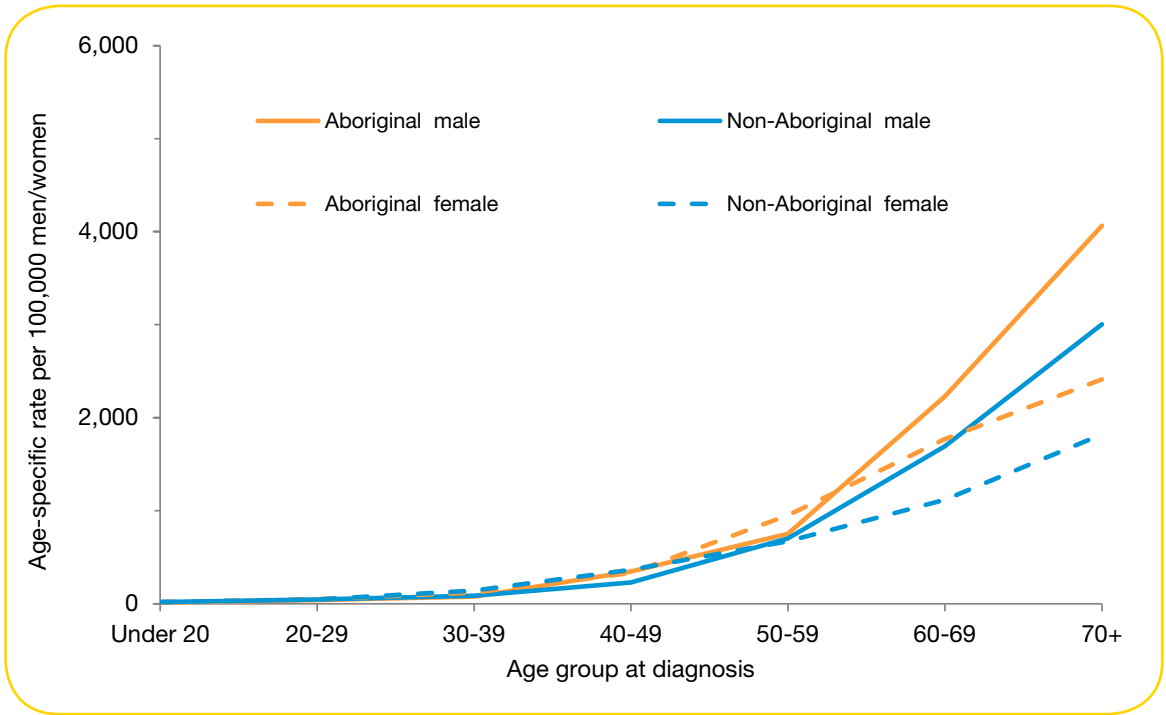



**Figure 19** Age-specific cancer incidence rates by sex for Aboriginal and non-Aboriginal Victorians, 2011-2015



# Cancer survival

Cancer survival is increasing in Victoria. In 2011-2015, 68% of Victorians with cancer survived 5 years after diagnosis, an increase from 65% in 2006-2010.

Cancer survival has been included in our annual statistics update since 2009. A comprehensive report, Cancer Survival in Victoria 2012 (Appendix 9 - Ref 3), was published in August 2012 which included survival statistics for Victorians with cancer in 2006-2010 and comparisons with earlier years from 1986-1990. This chapter provides some updated statistics for survival for Victorians with cancer in 2011-2015. More detailed tables are available from the VCR on request.

The figures reported here show relative survival estimates five years after diagnosis. Relative survival is net survival from cancer – the percentage who would have survived if cancer was the only cause of death (see page 29 for detailed explanation).

Overall five-year cancer survival was 68%, an increase from 65% from 2005-2009, and from 48% in 1986-1990. See Figure 22 (page 31).

Table 3 (pages 32-33) shows detailed survival by sex, age group, tumour morphology and region of usual residence for Victorians with all cancers in 2011-2015.

The following sections report on significant differences by sex, age group, and region of residence for individual cancer types.

## Cancer type

Cancers with the highest five-year survival were testis (98%), thyroid (95%), prostate (95%), follicular lymphoma (92%), female breast (91%), and melanoma (90%). Cancers with the lowest survival remain liver (19%), lung (18%), cancer of unknown primary (13%), pancreas (9%) and mesothelioma (6%) - of these, all but mesothelioma showed increased survival between 2006-2010 and 2011-2015.

Survival patterns vary considerably for the different types of cancer. Figure 20 (page 30) shows the five-year survival by cancer site for males and females separately and Figure 21 (page 31) the survival curves from diagnosis to five years for all cancers and the leading sites of new cancer.

## Sex

Overall, survival was similar for men (67%) and women (68%). There were some differences associated with type of cancer with women usually having the better prognosis for cancers of the thyroid gland and lung, melanoma, mesothelioma, oral cavity, and some haematological neoplasms. Survival was higher for men for bladder, renal pelvis, liver, gallbladder, stomach and unknown primary cancers.

## Age at diagnosis

All cancer types in this report showed decreasing five-year survival proportions with increasing age. However, the magnitude of the decline varied between cancer types. For example, ovary cancer survival declined from 76% for women aged <45 to 18% for those aged >75, whereas breast cancer survival showed a markedly smaller decrease from 91% to 82% between the same ages.

## Tumour morphology

For most cancers, there were differences in survival by tumour morphology. Table 3 (page 32) shows survival by morphology for all cancers. Survival varied from 12% for tumours without histological confirmation and 6% for mesothelioma to 78% for lymphoma, 77% for other specified cancers (mostly melanoma) and 76% for adenocarcinoma.

## Survival by tumour stage

For some cancers, the VCR is now able to provide five-year survival estimates by stage at diagnosis or other prognostic measure. For each of these, differences between survival at different stages is statistically significant.

**Colorectal cancer by TNM summary stage:**
Stage 1 - 98%, Stage 2 - 90%, Stage 3 - 71%, Stage 4 - 15%, Stage unknown - 55% and Stage not applicable (morphologies for which TNM stage is not applicable) - 30%.

**Breast cancer (female) by TNM summary stage:**
Stage 1 - 100%, Stage 2 - 95%, Stage 3 - 78%, Stage 4 - 28%, Stage unknown - 61% and Stage not applicable - 89%.

**Melanoma by Breslow thickness groups:**
Thickness ≤ 1.0 mm - 100%, thickness 1.1-2.0 mm - 88%, thickness 2.1-4.0 mm - 76%, thickness > 4.0 mm - 58%, thickness not known - 65%.

**Prostate cancer by TNM summary stage:**
Stage 1 - 100%, Stage 2 - 99%, Stage 3 - 100%, Stage 4 - 46%, Stage unknown - 75%.

Note: Relative survival >100% indicates that survival is better in the group of interest than it is in the age-matched Victorian population. The very high survival, for men with low Gleason prostate cancer and women with early breast cancer, is indicative that these people have a very good cancer prognosis, but also that those with cancers detected early, maybe through screening, may also represent a group that undergoes other regular health checks.

## Regional variation

Generally, survival from cancer for residents of metropolitan Melbourne (69%) is better than that for residents from the rest of Victoria (65%).

The reasons for this difference are not clear, and we currently lack sufficient data on cancer staging and treatment to assist interpretation. It is possible that Victorians who reside outside of Melbourne have poorer access to cancer services than their metropolitan counterparts and, as a consequence, may delay seeking medical attention and present with more advanced cancers.

It must also be kept in mind that cancer services are provided to non-metropolitan residents by a combination of local services, visiting oncologists and by referrals to other (usually metropolitan) providers. It is therefore not possible to accurately attribute differences in survival by region of residence to regional differences in the totality of cancer services provided.

## Trends in survival

Survival has increased significantly between 1986-1990 and 2011-2015 for almost all of the cancers in this report. The only cancers for which no gains have been made are cancers of the larynx, renal pelvis and mature T- and NK-cell lymphomas.

There have been a number of substantial gains for cancers having generally poor prognoses. For example, though survival from AML and cancers of the pancreas, lung, liver, gallbladder, oesophagus and unknown primary are all below 25% in 2011-2015, these are at least twice what they were in 1986-1990, and with significant ongoing survival gains between the two most recent periods for all but AML.

Significant increases have also been observed for overall cancer survival and for survival from the most common types of cancer - prostate, bowel, breast and lung. Survival improvements reflect advances in treatment as well as the successes of screening programs to increase earlier detection for cancers such as breast cancer.

## Methods

As with our previous reports, the tables report "period" survival analysis. Only the most recent interval survival estimate for cases diagnosed in different calendar years (cross-sectional estimate of survival) are used.

The estimate of period 5-year survival for persons in 2011-2015 uses the 1-year interval survival for patients diagnosed in 2015, the 2-year interval survival for patients diagnosed in 2014, and so on. Because the "period" method uses only the most recent survival experience, when there is an increasing trend in survival it provides a more up-to-date measure of recent survival.

The figures shown are relative survival (RS) i.e. net survival from cancer or the proportion (%) who would have survived if cancer was the only cause of death.

$$RS = \frac{\text{(Observed survival proportion in cancer cohort)}}{\text{(Expected survival in whole population)}}$$

Therefore, 56% 5-year survival does not mean that 56/100 cancer patients are alive 5 years later but 56% (about half) as many of this group would survive compared with a group the same age and sex without cancer. Thus the actual proportion surviving would differ between age groups even if relative survival were the same.

We show here an example of relative survival for two fictional groups of 100 cancer patients aged <30 and >85 years - based on life tables for the whole Victorian population, we would expect to have 95 and 35 persons, without cancer, surviving after 5 years. If the relative survival was 56% for each group, the number of cancer patients who survived would be (56% of 95)=53 persons for the younger group and (56% of 35)=20 persons for the older group. So the same relative survival proportion does not mean the same proportion of deaths in the cancer group, but means the same excess proportion of deaths.

## 1986-2015 survival analysis

Survival statistics for Victorians with cancer from 1986-2015 are presented on the following pages though the rest of the publication includes statistics to 2016.

In order to present accurate survival statistics, it is necessary to identify deaths occurring in all Australian States and Territories for persons included in the incidence data. Many persons resident in Victoria at time of diagnosis subsequently move interstate.

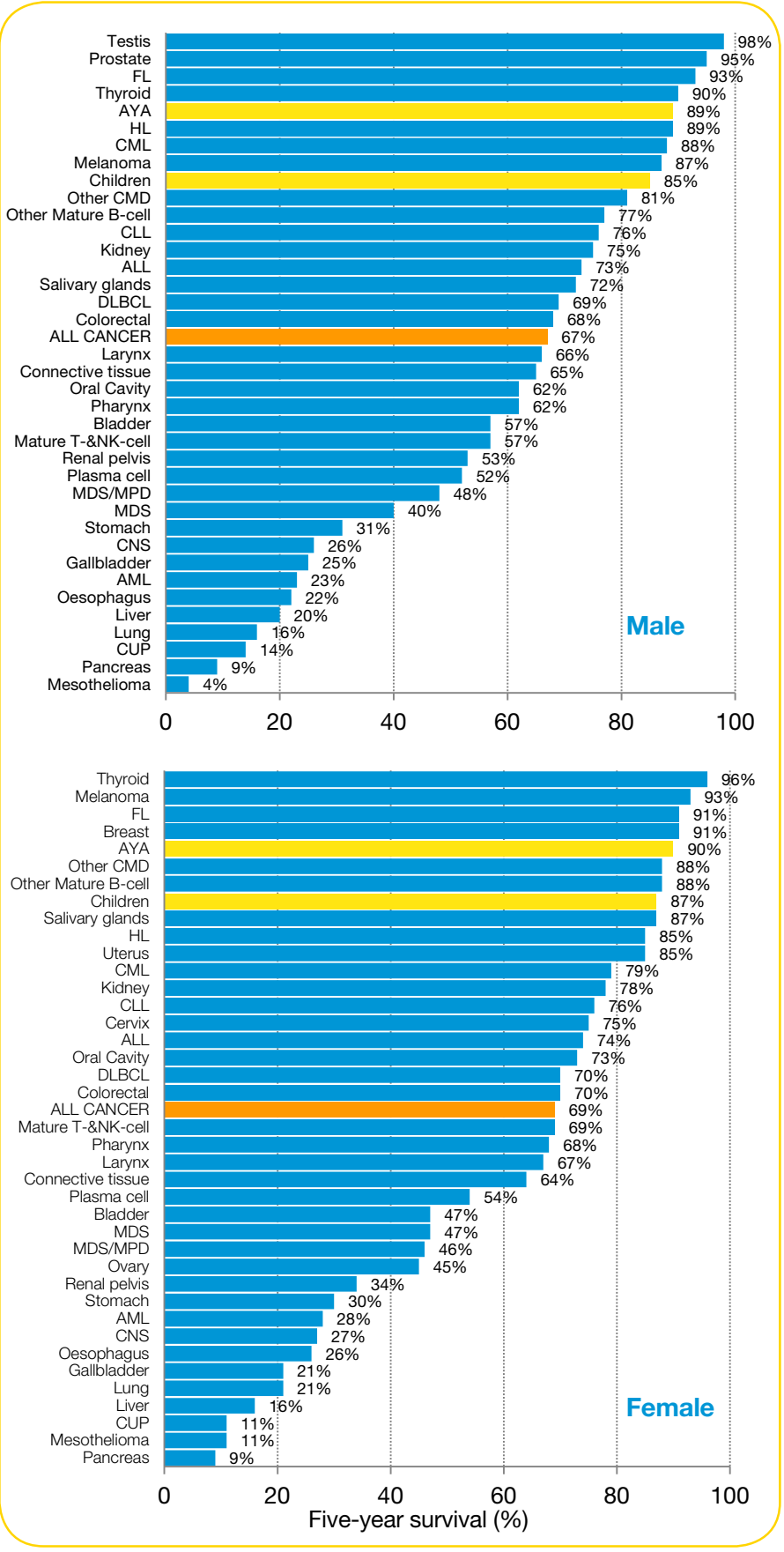
Notification of deaths occurring within Victoria are received monthly from the Victorian Registrar of Births, Deaths and Marriages, but for deaths in other states, it is necessary to link the annual incidence file to the National Death Index (at the Australian Institute of Health and Welfare). This linkage, and subsequent update of the registry database with interstate death details for survival analysis, was not achievable within the time frame of this report.

The first period included in survival analysis was chosen to be 1986-1990 providing thirty years of cases, divided into 5-year time intervals, for the comparison of time trends in survival to the most recent period 2011-2015.

Statistical analysis undertaken by Kara Martin of the Cancer Council Victoria's Cancer Epidemiology Centre

**Figure 20** Survival by cancer type for Victorian men and women with cancer in 2011-2015

Five-year relative survival (%) in descending order by cancer type.




Individual cancer type

Groups of cancers

## Abbreviations

**AYA** Cancer in adolescents and young adults (15-24 years)

**Children** Cancer in children aged under 15 years

**CUP** Cancer of unknown primary site

**CNS** Brain and central nervous system

Haematological malignancies (see page 41)

**HL** Hodgkin lymphoma

Mature B-cell neoplasms:

**CLL** Chronic lymphocytic leukaemia/ small lymphocytic lymphoma

**DLBCL** Diffuse large B-cell lymphoma

**FL** Follicular lymphoma

**Plasma cell** Plasma cell disorders

**Other mature B-cell** All other mature B-cell neoplasms

**Mature T- & NK-cell** Mature T-cell & NK-cell neoplasms

**ALL** Acute lymphoblastic leukaemia

**AML** Acute myeloid leukaemia

**CML** Chronic myeloid leukaemia

**Other CMD** Other chronic myelodysplastic diseases

**MDS** Myelodysplastic syndromes

**MDS/MPD** Other Myelodysplastic/ myeloproliferative diseases

**Figure 21** Survival in the five years following diagnosis for all cancers, and the most common cancers, Victoria 2011-2015

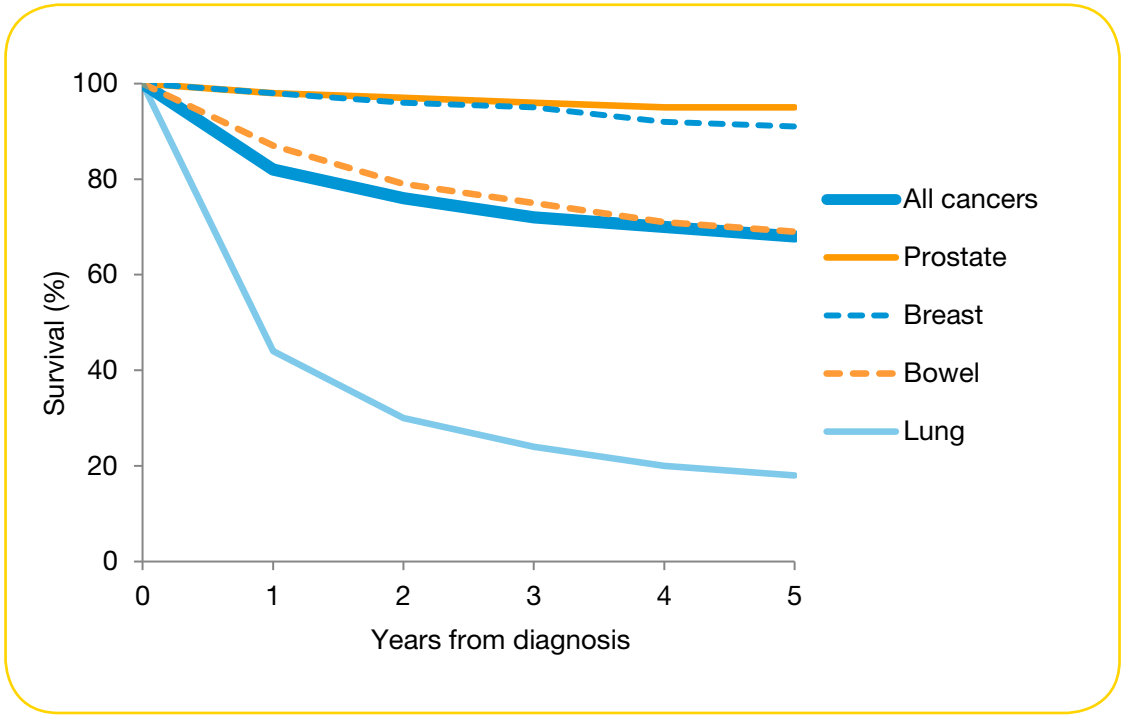



**Figure 22** Trends in survival for all cancers, Victoria 1986-2015 - five-year relative survival for each of the five-year periods from 1986-1990 to 2011-2015

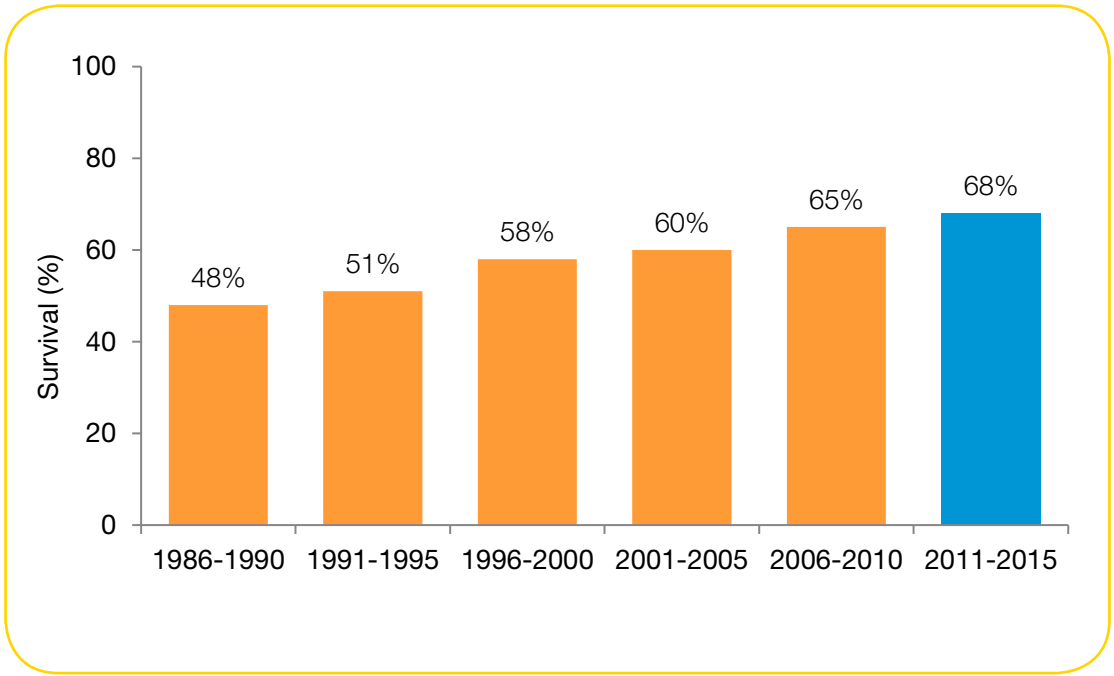


**Table 3** Survival by sex, age group, tumour morphology and region of usual residence for Victorians with cancer in 2011-2015

Survival = five-year survival proportion (expressed as %) with 95% CI = 95% confidence interval for survival
p-value = statistical significance between groups.

| Years after diagnosis | Number of deaths | Survival (%) | 95% confidence Interval |
|---|---|---|---|
| 1 | 28,449 | 82 | (82, 82) |
| 2 | 11,427 | 76 | (75, 76) |
| 3 | 6,799 | 72 | (72, 72) |
| 4 | 5,193 | 70 | (70, 70) |
| 5 | 4,184 | 68 | (68, 68) |

| By subgroup | Number of deaths | 5-year survival (%) | 95% confidence Interval | p-value[1] |
|---|---|---|---|---|
| All cases | 56,052 | 68 | (68, 68) | |
| **Sex** | | | | |
| Male | 32,654 | 67 | (66, 67) | <0.01 |
| Female | 23,398 | 69 | (69, 70) | |
| **Age at diagnosis** | | | | |
| 0-14 | 119 | 86 | (83, 88) | <0.01 |
| 15-29 | 243 | 90 | (88, 91) | |
| 30-44 | 1,314 | 86 | (85, 87) | |
| 45-54 | 3,529 | 81 | (80, 81) | |
| 55-64 | 8,490 | 75 | (75, 76) | |
| 65-74 | 13,945 | 69 | (68, 69) | |
| 75+ | 28,412 | 49 | (49, 50) | |
| **Region of residence** | | | | |
| Melbourne | 37,703 | 69 | (69, 69) | <0.01 |
| Rest of Victoria | 18,298 | 65 | (65, 66) | |
| **Integrated Cancer Services Region** | | | | |
| Southern Melbourne | 15,151 | 69 | (69, 70) | <0.01 |
| Western & Central Melbourne | 9,764 | 67 | (66, 68) | |
| North Eastern Melbourne | 12,788 | 70 | (70, 71) | |
| Barwon South Western Regional | 4,737 | 65 | (64, 66) | |
| Grampians Regional | 2,768 | 65 | (64, 67) | |
| Loddon Mallee Regional | 4,040 | 66 | (65, 67) | |
| Hume Regional | 3,198 | 67 | (66, 69) | |
| Gippsland Regional | 3,555 | 64 | (62, 65) | |
| **Primary Health Network** | | | | |
| North Western Melbourne | 11,727 | 66 | (66, 67) | <0.01 |
| Eastern Melbourne | 13,057 | 71 | (71, 72) | |
| South Eastern Melbourne | 13,390 | 69 | (69, 70) | |
| Gippsland | 3,543 | 64 | (62, 65) | |
| Murray | 6,640 | 67 | (66, 68) | |
| Western Victoria | 7,644 | 64 | (64, 65) | |

**Table 3** Survival by sex, age group, tumour morphology and region of usual residence for Victorians with cancer in 2011-2015 - continued

| By subgroup | Number of deaths | 5-year survival (%) | 95% confidence Interval | p-value[1] |
|---|---|---|---|---|
| **Tumour Morphology group** | | | | |
| Squamous and transitional cell | 6,486 | 55 | (54, 56) | <0.01 |
| Adenocarcinoma | 25,373 | 76 | (76, 77) | |
| Other specific carcinoma | 4,575 | 40 | (39, 41) | |
| Unspecified carcinoma | 2,154 | 17 | (15, 18) | |
| Sarcomas and soft tissue tumours | 602 | 66 | (63, 68) | |
| Kaposi sarcoma | 28 | 89 | (79, 97) | |
| Mesothelioma | 680 | 6 | (4, 8) | |
| Other specified types of cancer | 5,482 | 77 | (76, 78) | |
| Leukaemia | 3,350 | 60 | (58, 61) | |
| Lymphoma | 2,049 | 78 | (76, 79) | |
| No histological confirmation | 5,245 | 12 | (12, 13) | |

| By selected periods | Number of deaths | 5-year survival (%) | 95% confidence Interval | p-value[1] |
|---|---|---|---|---|
| 1986-1990 | 39,837 | 48 | (47, 48) | <0.01/<0.01 |
| 1991-1995 | 46,596 | 51 | (51, 52) | |
| 1996-2000 | 48,228 | 58 | (57, 58) | |
| 2001-2005 | 50,122 | 60 | (60, 61) | |
| 2006-2010 | 53,456 | 65 | (65, 65) | |
| 2011-2015 | 56,052 | 68 | (68, 68) | |

1 The p-value tests for differences in survival between the categories for each attribute (i.e. between male and female or between persons by age group at diagnosis).

2 The first p-value tests for differences between survival for the two most recent periods (i.e. the period from 2006-2010 with the period 2011 to 2015). The second p-value tests for a trend across all the periods shown.

# Cancer projections

By 2027-2031 it is estimated that:

- Each year, almost 43,000 Victorians will be diagnosed with cancer, and over 13,000 will die from cancer.
- Incidence rates will decrease to 301 per 100,000 men and increase to 308 per 100,000 women (from 347 and 285 for men and women respectively in 2012-2016 - see table 4).
- Victorian men will have a 15% decrease, and women will have a 8% increase in incidence rates.

Projections of cancer incidence and mortality indicate an increased burden of cancer in Victoria in 2027-2031. Much of this increase will be due to the growth and ageing of the Victorian population but historical trends in rates by cancer type, age group and sex are also used in estimating the projected numbers and rates.

These estimates should be used with due caution, as they are influenced by past fluctuations in specific cancer rates, most notably the rapid recent changes in prostate cancer incidence, and cannot anticipate fluctuations that may occur during the next 15 years. A brief summary of the method is given below.

The number of new diagnoses each year is predicted to increase 38% by 2027-2031 and deaths by 19%. This represents an additional 11,800 new diagnoses and over 2,000 deaths per year compared with 2012-2016.

Numbers of new cases are not predicted to fall for any of the cancers examined in either men or women.

Figure 23 shows cancer incidence (new cases and age-standardised rates) from 1982-2016 with projections for 2017-2021, 2022-2026 and 2027-2031.

## All cancer

By 2027-2031, the annual diagnoses of cancer are forecast to increase by 25% for males and by 52% for females. Over the same period, the number of deaths is predicted to increase by around 16% for males and 23% for females.

See Tables 4 & 5 (pages 36-39) for actual and projected incidence and mortality to 2027-2031 for selected common cancers by sex, Victoria.

Estimates of new diagnoses and deaths provide useful figures for service planning as they predict increases in the burden of cancer that will result from population growth and ageing. However, projections of the rates of incidence and mortality show a different predicted pattern, with between 2012-2016 and 2027-2031:

- male cancer incidence rates decreasing by 15% and female rates increasing by 8%
- male cancer mortality rates decreasing by 26% and females by 17%.

## Prostate cancer

Prostate cancer incidence rose steeply after the introduction of PSA testing in the early 1990s, peaking in 1995 and then decreasing from 1997 to 1999. This was followed by a period of overall increase until a peak in 2009. Between 2009 and 2014 incidence rates decreased by 40% with smaller increases since that time. The volatility of the rates make it difficult to project prostate cancer incidence rates with any confidence.

Victorian prostate cancer incidence decreased from 5,683 new cases in 2009 to 4,066 in 2014 (a 28% reduction in diagnoses), with decreasing numbers across almost all age groups. This decline in incidence is likely to reflect trends in PSA testing and is discussed in our Cancer in Victoria 2014 report. The projections for prostate cancer incidence should be treated with some caution.

## Breast cancer

From 2012-2016, a 12% increase is expected in incidence rate by 2027-2031 and a decline in mortality rate (approximately 24%) from 2012-2016 to 2027-2031. This increase in incidence rates, combined with population growth and ageing, will lead to an increase of 56% in the actual number of diagnoses.

Please see following Methods section for description of the approach to that was used in modelling breast and prostate cancer incidence rates.

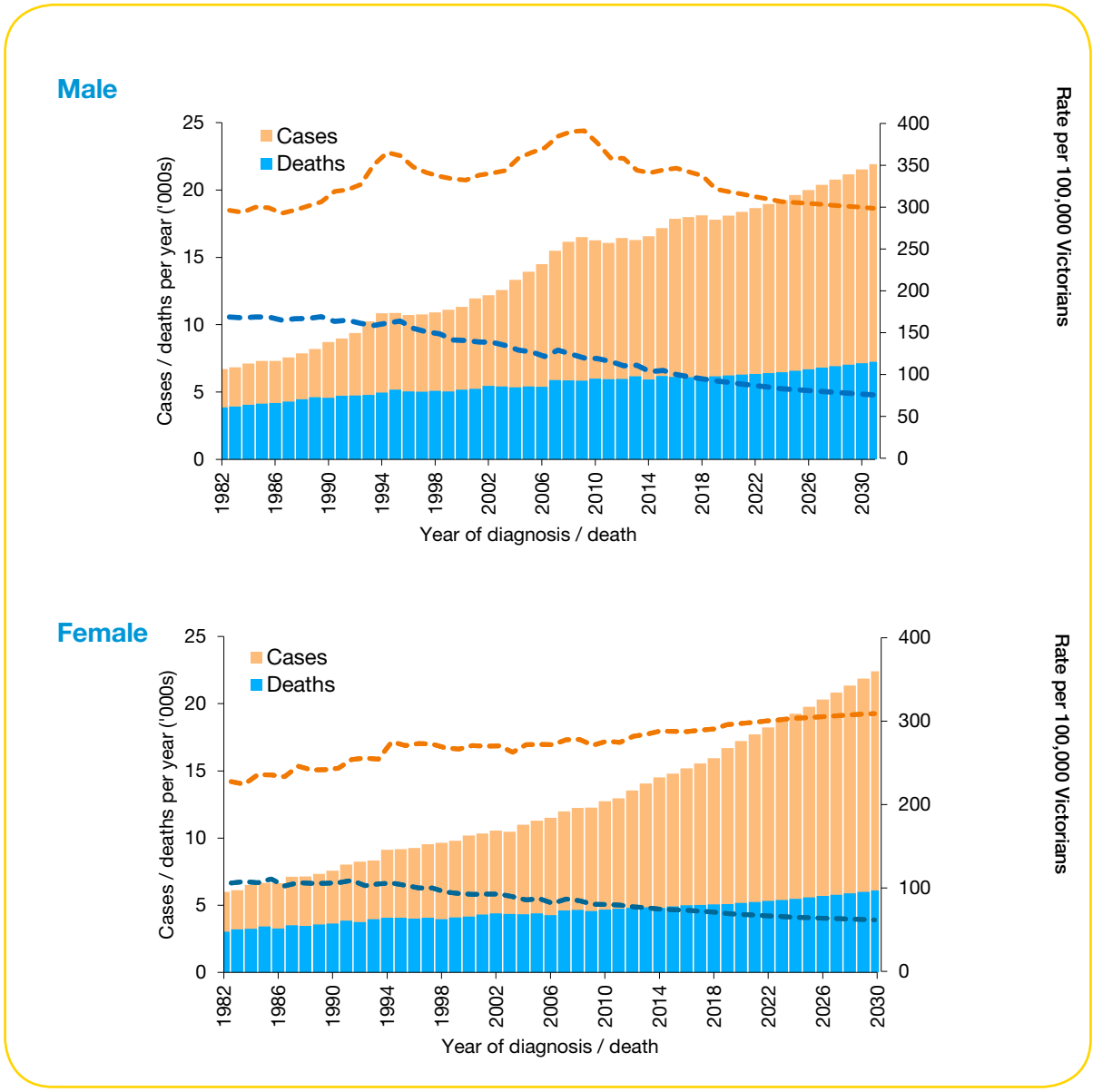
## Methods

An age-period-cohort (APC) model with a power link function was used to project cancer incidence and mortality by sex for the next 15 years. Statistical analysis was performed using Nordpred software package in R.

**Figure 23** All cancer incidence and mortality by sex, 1982-2016 with projections to 2027-2031, Victoria

Bars: Numbers of new cases and deaths

Lines: Age-standardised incidence (- - -) and mortality (- - -) rates per 100,000




For incidence projection, incidence and population data were aggregated into 5-year age groups and 5-year periods from 1985-2016 for all cancers except bladder, prostate and female breast cancers. Projection was based on the last 15, 20, 25 or 30 years depending on a goodness of fit test. For bladder, female breast and prostate cancers, incidence and population data were aggregated into 3-year age groups and 3-year periods from 1995 to 2016. Projection was based on the last 9, 12, 15 or 18 years depending on a goodness of fit test. This method was used to reduce the influence of mammographic screening for female breast cancer projections.

Mortality projection was similar to incidence projection except that all cancers, except bladder, were aggregated into 5-year age groups and 5-year periods instead.

Number of cases of female breast and bladder cancer, and number of deaths of bladder cancer were projected for five 3-year periods, 2016-2018, 2019-2021, 2022-2024, 2025-2027 and 2028-2031. Cases and deaths of all other cancers were projected for three 5-year periods 2016-2020, 2021-2026 and 2027-2031. For both 3-year and 5-year periods, observed and projected incidence and mortality given are the average for that period.

Only age groups with at least 10 cases or deaths in total were used in the APC model for projections. Age groups with less than 10 cases or deaths were projected as the average from the last 10 years.

Statistical analysis undertaken by Kara Martin of the Cancer Council Victoria's Cancer Epidemiology Centre

**Table 4** Actual and projected incidence and incidence rate (age-standardised rate per 100,000 males/females) for selected common cancers to 2027-2031 by sex, Victoria

Rate$^{A2001}$ is standardised to Australian 2001 population to allow comparison with other Australian cancer projections

Rate$^{WSpop}$ is standardised to Segi World Standard population to allow comparison with other rates in this report.

| | | Male | | | Female | | |
|---|---|---|---|---|---|---|---|
| Cancer | Year | Cases | Rate$^{A2001}$ | Rate$^{WSpop}$ | Cases | Rate$^{A2001}$ | Rate$^{WSpop}$ |
| **All malignant tumours** | | | | | | | |
| | 2012-2016 | 16,862 | 540.3 | 346.8 | 14,419 | 418.0 | 285.9 |
| | 2017-2021 | 17,805 | 498.5 | 321.5 | 16,699 | 432.1 | 295.6 |
| | 2022-2026 | 19,240 | 473.0 | 306.8 | 19,254 | 443.1 | 303.3 |
| | 2027-2031 | 21,155 | 461.8 | 301.1 | 21,879 | 449.5 | 308.1 |
| **Head & neck** | | | | | | | |
| | 2012-2016 | 588 | 18.8 | 13.0 | 239 | 7.0 | 4.8 |
| | 2017-2021 | 678 | 19.2 | 13.4 | 272 | 7.1 | 5.0 |
| | 2022-2026 | 774 | 19.6 | 13.8 | 315 | 7.4 | 5.2 |
| | 2027-2031 | 870 | 19.9 | 14.0 | 360 | 7.6 | 5.3 |
| **Stomach** | | | | | | | |
| | 2012-2016 | 391 | 12.6 | 7.6 | 205 | 5.7 | 3.5 |
| | 2017-2021 | 420 | 11.7 | 7.1 | 220 | 5.4 | 3.3 |
| | 2022-2026 | 462 | 11.3 | 6.9 | 244 | 5.3 | 3.3 |
| | 2027-2031 | 518 | 11.1 | 6.8 | 278 | 5.4 | 3.4 |
| **Bowel** | | | | | | | |
| | 2012-2016 | 2,042 | 65.9 | 40.2 | 1,726 | 48.3 | 29.8 |
| | 2017-2021 | 2,122 | 60.1 | 37.7 | 1,914 | 48.0 | 30.8 |
| | 2022-2026 | 2,262 | 57.0 | 37.6 | 2,144 | 48.7 | 32.8 |
| | 2027-2031 | 2,495 | 57.6 | 40.0 | 2,431 | 50.9 | 36.3 |
| **Pancreas** | | | | | | | |
| | 2012-2016 | 432 | 13.9 | 8.2 | 401 | 10.7 | 6.2 |
| | 2017-2021 | 515 | 14.4 | 8.5 | 475 | 11.3 | 6.6 |
| | 2022-2026 | 605 | 14.7 | 8.7 | 569 | 11.8 | 7.0 |
| | 2027-2031 | 700 | 14.9 | 8.9 | 671 | 12.3 | 7.2 |
| **Lung** | | | | | | | |
| | 2012-2016 | 1,611 | 51.8 | 29.6 | 1,204 | 33.7 | 20.8 |
| | 2017-2021 | 1,716 | 47.7 | 27.7 | 1,451 | 35.6 | 22.1 |
| | 2022-2026 | 1,871 | 45.1 | 26.7 | 1,701 | 36.6 | 22.8 |
| | 2027-2031 | 2,063 | 43.9 | 26.6 | 1,923 | 36.7 | 22.9 |
| **Melanoma** | | | | | | | |
| | 2012-2016 | 1,429 | 46.4 | 30.5 | 1,098 | 32.6 | 23.1 |
| | 2017-2021 | 1,616 | 46.0 | 29.3 | 1,205 | 31.8 | 22.1 |
| | 2022-2026 | 1,801 | 44.6 | 27.7 | 1,336 | 31.0 | 21.1 |
| | 2027-2031 | 1,966 | 42.4 | 25.8 | 1,481 | 30.0 | 19.9 |
| **Breast (Female)** | | | | | | | |
| | 2014-2016 | | | | 4,293 | 125.9 | |
| | 2017-2019 | | | | 4,803 | 132.6 | |
| | 2020-2022 | | | | 5,324 | 137.6 | |
| | 2023-2025 | | | | 5,811 | 140.5 | |
| | 2026-2028 | | | | 6,262 | 141.5 | |
| | 2029-2031 | | | | 6,686 | 141.5 | |

**Table 4** Actual and projected incidence and incidence rate - continued

| Cancer | Year | Male Cases | Male Rate$^{A2001}$ | Male Rate$^{WSpop}$ | Female Cases | Female Rate$^{A2001}$ | Female Rate$^{WSpop}$ |
|---|---|---|---|---|---|---|---|
| **Uterus** | | | | | | | |
| | 2012-2016 | | | | 719 | 20.9 | 14.9 |
| | 2017-2021 | | | | 864 | 22.6 | 16.0 |
| | 2022-2026 | | | | 1,029 | 24.2 | 17.1 |
| | 2027-2031 | | | | 1,196 | 25.5 | 18.2 |
| **Ovary** | | | | | | | |
| | 2012-2016 | | | | 343 | 10.1 | 7.1 |
| | 2017-2021 | | | | 361 | 9.4 | 6.6 |
| | 2022-2026 | | | | 385 | 9.0 | 6.4 |
| | 2027-2031 | | | | 411 | 8.7 | 6.2 |
| **Prostate** | | | | | | | |
| | 2014-2016 | 4,431 | 133.9 | | | | |
| | 2017-2019 | 4,162 | 116.7 | | | | |
| | 2020-2022 | 4,091 | 106.6 | | | | |
| | 2023-2025 | 4,162 | 101.5 | | | | |
| | 2026-2028 | 4,408 | 101.1 | | | | |
| | 2029-2031 | 4,693 | 101.7 | | | | |
| **Kidney** | | | | | | | |
| | 2012-2016 | 549 | 17.7 | 12.3 | 298 | 8.7 | 6.2 |
| | 2017-2021 | 691 | 19.8 | 13.8 | 373 | 9.7 | 6.9 |
| | 2022-2026 | 846 | 21.6 | 15.0 | 452 | 10.5 | 7.4 |
| | 2027-2031 | 1,004 | 23.0 | 16.0 | 529 | 10.9 | 7.7 |
| **Bladder** | | | | | | | |
| | 2014-2016 | 560 | 17.5 | | 166 | 4.3 | |
| | 2017-2019 | 632 | 18.1 | | 176 | 4.2 | |
| | 2020-2022 | 706 | 18.4 | | 185 | 4.0 | |
| | 2023-2025 | 812 | 19.1 | | 204 | 4.0 | |
| | 2026-2028 | 947 | 20.1 | | 217 | 3.9 | |
| | 2029-2031 | 1,058 | 20.3 | | 232 | 3.8 | |
| **Thyroid** | | | | | | | |
| | 2012-2016 | 152 | 5.0 | 3.9 | 450 | 14.5 | 11.5 |
| | 2017-2021 | 197 | 5.9 | 4.5 | 643 | 18.8 | 15.0 |
| | 2022-2026 | 243 | 6.5 | 4.9 | 850 | 22.5 | 17.9 |
| | 2027-2031 | 285 | 6.9 | 5.2 | 1,043 | 25.2 | 20.0 |
| **Lymphoma** | | | | | | | |
| | 2012-2016 | 887 | 28.9 | 19.5 | 689 | 20.1 | 13.9 |
| | 2017-2021 | 1,037 | 29.8 | 20.0 | 815 | 21.2 | 14.7 |
| | 2022-2026 | 1,201 | 30.3 | 20.1 | 947 | 21.9 | 15.1 |
| | 2027-2031 | 1,367 | 30.5 | 20.0 | 1,075 | 22.1 | 15.2 |
| **Leukaemia** | | | | | | | |
| | 2012-2016 | 614 | 20.1 | 13.8 | 401 | 11.5 | 8.5 |
| | 2017-2021 | 762 | 21.9 | 15.2 | 474 | 12.1 | 9.0 |
| | 2022-2026 | 935 | 23.5 | 16.4 | 556 | 12.6 | 9.3 |
| | 2027-2031 | 1,109 | 24.7 | 17.2 | 642 | 12.8 | 9.5 |

**Table 5** Actual and projected mortality and mortality rate (age-standardised rate per 100,000 males/females) for selected common cancers to 2027-2031 by sex, Victoria

Rate$^{A2001}$ is standardised to Australian 2001 population to allow comparison with other Australian cancer projections

Rate$^{WSpop}$ is standardised to Segi World Standard population to allow comparison with other rates in this report.

| | | Male | | | Female | | |
|---|---|---|---|---|---|---|---|
| Cancer | Year | Deaths | Rate$^{A2001}$ | Rate$^{WSpop}$ | Deaths | Rate$^{A2001}$ | Rate$^{WSpop}$ |
| **All malignant tumours** | | | | | | | |
| | 2012-2016 | 6,073 | 196.6 | 105.8 | 4,881 | 130.1 | 74.9 |
| | 2017-2021 | 6,163 | 171.3 | 92.3 | 5,098 | 120.1 | 69.1 |
| | 2022-2026 | 6,471 | 154.0 | 83.1 | 5,476 | 112.9 | 64.9 |
| | 2027-2031 | 7,028 | 143.8 | 77.8 | 6,003 | 108.0 | 62.2 |
| **Head & neck** | | | | | | | |
| | 2012-2016 | 184 | 5.9 | 3.6 | 69 | 1.8 | 1.0 |
| | 2017-2021 | 190 | 5.3 | 3.2 | 67 | 1.6 | 0.9 |
| | 2022-2026 | 198 | 4.8 | 3.0 | 70 | 1.4 | 0.8 |
| | 2027-2031 | 208 | 4.5 | 2.8 | 75 | 1.4 | 0.8 |
| **Stomach** | | | | | | | |
| | 2012-2016 | 252 | 8.2 | 4.6 | 135 | 3.6 | 2.0 |
| | 2017-2021 | 254 | 7.1 | 4.0 | 138 | 3.3 | 1.9 |
| | 2022-2026 | 273 | 6.6 | 3.8 | 148 | 3.1 | 1.8 |
| | 2027-2031 | 315 | 6.6 | 3.8 | 169 | 3.1 | 1.8 |
| **Bowel** | | | | | | | |
| | 2012-2016 | 748 | 24.2 | 13.1 | 633 | 16.2 | 8.7 |
| | 2017-2021 | 778 | 21.7 | 12.0 | 634 | 14.5 | 8.0 |
| | 2022-2026 | 836 | 20.2 | 11.4 | 670 | 13.6 | 7.7 |
| | 2027-2031 | 918 | 19.5 | 11.3 | 754 | 13.5 | 7.8 |
| **Pancreas** | | | | | | | |
| | 2012-2016 | 349 | 11.2 | 6.4 | 335 | 8.8 | 4.8 |
| | 2017-2021 | 395 | 11.0 | 6.2 | 374 | 8.7 | 4.8 |
| | 2022-2026 | 450 | 10.8 | 6.1 | 435 | 8.7 | 4.8 |
| | 2027-2031 | 516 | 10.7 | 6.0 | 499 | 8.7 | 4.7 |
| **Lung** | | | | | | | |
| | 2012-2016 | 1,224 | 39.5 | 21.5 | 846 | 23.1 | 13.6 |
| | 2017-2021 | 1,200 | 33.3 | 18.5 | 940 | 22.6 | 13.2 |
| | 2022-2026 | 1,259 | 30.0 | 17.0 | 1,043 | 21.8 | 12.8 |
| | 2027-2031 | 1,397 | 28.9 | 16.6 | 1,145 | 20.9 | 12.3 |
| **Melanoma** | | | | | | | |
| | 2012-2016 | 209 | 6.8 | 3.8 | 101 | 2.8 | 1.7 |
| | 2017-2021 | 228 | 6.4 | 3.5 | 102 | 2.5 | 1.5 |
| | 2022-2026 | 257 | 6.2 | 3.3 | 109 | 2.3 | 1.4 |
| | 2027-2031 | 289 | 5.9 | 3.1 | 123 | 2.2 | 1.3 |
| **Breast (Female)** | | | | | | | |
| | 2012-2016 | | | | 733 | 20.3 | 12.9 |
| | 2017-2021 | | | | 728 | 18.0 | 11.5 |
| | 2022-2026 | | | | 757 | 16.6 | 10.5 |
| | 2027-2031 | | | | 802 | 15.5 | 9.8 |

**Table 5** Actual and projected mortality and mortality rate - continued

| | | Male | | | Female | | |
|---|---|---|---|---|---|---|---|
| Cancer | Year | Deaths | Rate[A2001] | Rate[WSpop] | Deaths | Rate[A2001] | Rate[WSpop] |
| **Uterus** | | | | | | | |
| | 2012-2016 | | | | 134 | 3.6 | 2.1 |
| | 2017-2021 | | | | 177 | 4.2 | 2.5 |
| | 2022-2026 | | | | 226 | 4.7 | 2.8 |
| | 2027-2031 | | | | 276 | 5.0 | 3.0 |
| **Ovary** | | | | | | | |
| | 2012-2016 | | | | 231 | 6.3 | 3.8 |
| | 2017-2021 | | | | 232 | 5.6 | 3.4 |
| | 2022-2026 | | | | 242 | 5.2 | 3.1 |
| | 2027-2031 | | | | 257 | 4.8 | 2.9 |
| **Prostate** | | | | | | | |
| | 2012-2016 | 761 | 24.8 | 10.7 | | | |
| | 2017-2021 | 675 | 18.6 | 7.9 | | | |
| | 2022-2026 | 651 | 15.0 | 6.3 | | | |
| | 2027-2031 | 696 | 13.3 | 5.5 | | | |
| **Kidney** | | | | | | | |
| | 2012-2016 | 144 | 4.7 | 2.6 | 78 | 2.0 | 1.2 |
| | 2017-2021 | 152 | 4.3 | 2.5 | 81 | 1.9 | 1.1 |
| | 2022-2026 | 163 | 3.9 | 2.3 | 89 | 1.8 | 1.1 |
| | 2027-2031 | 179 | 3.8 | 2.2 | 98 | 1.8 | 1.0 |
| **Bladder** | | | | | | | |
| | 2014-2016 | 218 | 6.9 | | 76 | 1.8 | |
| | 2017-2019 | 230 | 6.6 | | 79 | 1.8 | |
| | 2020-2022 | 245 | 6.4 | | 78 | 1.6 | |
| | 2023-2025 | 274 | 6.4 | | 86 | 1.6 | |
| | 2026-2028 | 288 | 6.1 | | 91 | 1.6 | |
| | 2029-2031 | 322 | 6.2 | | 99 | 1.6 | |
| **Thyroid** | | | | | | | |
| | 2012-2016 | 14 | 0.4 | 0.3 | 21 | 0.5 | 0.3 |
| | 2017-2021 | 15 | 0.4 | 0.2 | 21 | 0.5 | 0.3 |
| | 2022-2026 | 15 | 0.4 | 0.2 | 22 | 0.4 | 0.2 |
| | 2027-2031 | 13 | 0.3 | 0.2 | 24 | 0.4 | 0.2 |
| **Lymphoma** | | | | | | | |
| | 2012-2016 | 224 | 7.3 | 3.9 | 167 | 4.3 | 2.2 |
| | 2017-2021 | 226 | 6.3 | 3.2 | 163 | 3.7 | 1.9 |
| | 2022-2026 | 239 | 5.7 | 2.8 | 162 | 3.2 | 1.6 |
| | 2027-2031 | 261 | 5.2 | 2.6 | 165 | 2.8 | 1.4 |
| **Leukaemia** | | | | | | | |
| | 2012-2016 | 238 | 7.8 | 4.2 | 176 | 4.5 | 2.5 |
| | 2017-2021 | 228 | 6.4 | 3.3 | 185 | 4.2 | 2.2 |
| | 2022-2026 | 231 | 5.5 | 2.7 | 197 | 3.9 | 2.0 |
| | 2027-2031 | 245 | 4.9 | 2.4 | 215 | 3.6 | 1.9 |

# Appendix 1

## The Victorian Cancer Registry

The Victorian Cancer Registry (VCR) has been a population-based registry since 1982 when amendments to the Cancer Act 1958 made it mandatory for all hospitals and pathology laboratories to notify the cancer registry of the presence of cancer in patients or human tissues.

In 2014, the Improving Cancer Outcomes Act 2014 (the Act) repealed the Cancer Act to support the government's overall strategy for cancer control and strengthen its ability to respond to scientific, technological and policy developments in cancer. The Act establishes a modern, flexible and principles-based legislative framework that provides for the collection, use and disclosure of cancer and cancer screening information.

All malignant and in situ neoplasms are registered, except for the common non-melanoma skin cancers (NMSC)[1]. Less common NMSC[2] are registered and reported as "other skin cancer". The VCR also registers uncertain behaviour tumours of the central nervous system (CNS), ovary, urinary tract and haematopoietic system, and benign CNS tumours - these are not routinely reported in our publications.

In preparing the 2016 data, around 120,000 notifications were processed from 230 hospitals, 25 pathology laboratories, 10 radiation oncology services and two screening registers (BreastScreen and Victorian Cervical Cytology Register), increasingly in electronic format. In addition, death certificates are obtained from the Registrar of Births, Deaths and Marriages in computerised format on a monthly basis.

E-Path reporter[3] was selected, following a pilot study, as the preferred method for the secure automated submission of pathology reports to VCR with demonstrated improvements in accuracy and completeness of reporting (100% sensitivity and 98% specificity) with minimal input required by pathology laboratory staff. E-Path is currently operational at 13 Victorian laboratories, with implementation at a further 3 laboratories, by late 2017, expected to result in 96% of pathology notifications being submitted to VCR in E-Path format.

The first task at the registry is to match incoming notifications against the register to see if the case has already been registered from another source. Demographic details and codes for tumour site and histology are entered on the system and data are checked for internal consistency and completeness. Further notifications for cancers already on the system are also processed, with any differences being resolved by follow-up, and a censoring date for survival analysis obtained.

Additional information is recorded for some cancer sites. This includes TNM stage and regional lymph node metastases for breast, bowel and prostate cancers, size and hormone receptor status for breast cancer, Clark's level and Breslow thickness for malignant melanoma, and Gleason scores for prostate cancer. The presence of distant metastases at diagnosis is collected for all solid tumours. Specially trained staff interpret pathology reports to extract and code these data elements.

The incidence tables in Appendix 7 (pages 47-60) give site, sex and age-specific numbers and rates for most 3-digit ICD-10 rubrics. Age standardised rates (ASR) with standard errors (SE) are given for each site. Confidence limits (95%) for each rate may be obtained by calculating (ASR ± 1.96 x SE).

A brief explanation of the statistical methods used may be found In Appendix 4 (page 44).

### The minimum data set for each cancer:

- Registry person and tumour identification numbers
- Name(s)
- Residential address at time of diagnosis
- Date of birth
- Indigenous status
- Country of birth
- Sex
- Vital status
- Date of last contact
- Date of diagnosis
- Site of cancer
- Cancer histology
- Tumour grade
- Method of diagnosis

1 No basal cell carcinomas (BCC) of the skin are registered, and squamous cell carcinomas (SCC) only for genital and perianal skin and the vermilion border of lip. These common skin cancers are not registered by the Victorian Cancer Registry as many are treated in doctors' surgeries using destructive techniques which preclude histological confirmation.

2 "Other skin cancers" include Merkel cell tumour, malignant fibrous histiocytoma (MFH), dermatofibrosarcoma protuberans (DFSP), sweat gland and skin appendage tumours.

3 http://www.cancervic.org.au/research/registry-statistics/e-path

# Appendix 2

# Cancer incidence reporting

## Incidence

Cancer incidence is defined as the occurrence of new cancers in a defined population in a specified time period. This report includes all cancers notified to the registry that were first diagnosed in Victorian residents between January 1st and December 31st 2016. Tumour morphology and topography are classified using the International Classification of Diseases for Oncology, Third Edition (ICD-O-3 including 2011 updates approved by the IARC/WHO Committee for ICD-O-3) (Ref 1).

In this report, cancers are grouped by ICD-10 (Ref 2) as described in Appendix 3 (pages 42-43). Figures include chronic myeloproliferative disorders and myelodysplastic syndromes which are classified as malignant in ICD-O-3 (though these conditions have uncertain behaviour codes in ICD-10).

## Multiple primary tumours

Incidence reflects the number of primary tumours rather than the number of individuals with cancer. The Victorian Cancer Registry database records multiple primary cancers in the same person, of which only some are counted for incidence purposes according to the rules of the International Agency for Research on Cancer (IARC) and the International Association of Cancer Registries (IACR)(Ref 5).

The rules, in brief, state that:

1. The recognition of the existence of two or more primary cancers does not depend on time.
2. A primary cancer is one that originates in a primary site or tissue and is not an extension, nor a recurrence, nor a metastasis.
3. Only one tumour is recognised as arising in an organ or pair of organs or tissue. Some groups of codes are considered to be a single organ for the purposes of defining multiple tumours - in this report we use the ICD-O-3 groups defined by IARC(Ref 5). Multifocal tumours - discrete masses apparently not in continuity with other primary cancers originating in the same primary site or tissue, for example urothelial tract tumours - are counted as a single cancer.
4. Rule 3 does not apply in two circumstances: Systemic (or multicentric) cancers potentially involving many different organs are only counted once in any individual. These are Kaposi sarcoma (group 15) and tumours of the haematopoietic system (groups 8-14 in IARC manual).

Neoplasms of different morphology should be regarded as multiple cancers (even if they are diagnosed simultaneously in the same site). If the morphological diagnoses fall into one category, and arise in the same primary site, they are considered to be the same morphology for the purpose of counting multiple primaries. If the morphological diagnoses fall into two or more of the categories, even if they concern the same site, the morphology is considered to be different, and two or more cases should be counted.

If, however, one morphology is not specific (i.e. falls in groups 5, 14 or 17) and a specific morphology is available, the case should be reported with the specific histology and the non-specific diagnosis ignored.

## Publication of incidence reports

There is usually about twelve months from year of diagnosis to publication of incidence data. This is due to the time delay between the date of cancer diagnosis and receipt of all relevant notifications to the Victorian Cancer Registry, and to the considerable time spent on matching, classifying and checking of cases at the registry.

It should also be noted that despite intensive efforts to ensure the completeness of incidence data before publication, the incidence rates for a given time period change by a small percentage over time. The registry will continue to receive notifications for cases already counted in incidence, and the tumour morphology (based on microscopic diagnosis) or date of diagnosis may be amended as a result of this later notification. Reports for previously uncounted cases diagnosed in a particular year will continue to arrive at the registry for some years after the incidence for that period has been published.

The database is therefore continually being updated and the quality of data improved across the entire period of cancer reporting.

The incidence data in this report are the 1982-2016 statistics as they stood on 22nd November 2017.

Future requests for data and publications may not exactly correspond to the figures in this report, as they will reflect subsequent additions to the dataset.

# Appendix 3

## Cancer types and groups used in report by ICD-10 codes[Ref 2]

For the purpose of reporting by the Victorian Cancer Registry, "All malignant tumours" includes ICD-10 C00-C96 plus the chronic myeloproliferative disorders and myelodysplastic syndromes which are classified as malignant in ICD-O-3 (though these conditions have uncertain behaviour codes in ICD-10). Squamous and basal cell carcinomas of skin are not included.

| ICD-10 description | ICD-10 | Label in tables |
|---|---|---|
| **Lip, oral cavity and pharynx (C00–C14)** | | |
| Lip | C00 | Lip |
| Tongue | C01,C02 | Tongue |
| Gum | C03 | Gum |
| Floor of mouth | C04 | Floor of mouth |
| Other and unspecified parts of mouth | C05,C06 | Other mouth |
| Oral cavity | C01–C06 | Oral Cavity |
| Major salivary glands | C07,C08 | Salivary glands |
| Oropharynx | C09,C10 | Oropharynx |
| Nasopharynx | C11 | Nasopharynx |
| Hypopharynx including pyriform sinus | C12,C13 | Hypopharynx |
| Pharynx | C09–C13 | Pharynx |
| Other and unspecified sites of lip, oral cavity and pharynx | C14 | Other oral |
| **Digestive organs (C15–C26)** | | |
| Oesophagus | C15 | Oesophagus |
| Stomach | C16 | Stomach |
| Small intestine including duodenum | C17 | Small intestine |
| Colon | C18 | Colon |
| Rectum including rectosigmoid | C19–C20 | Rectum |
| Bowel | C18–C20 | Bowel |
| Anus and anal canal | C21 | Anus |
| Liver and intrahepatic bile ducts | C22 | Liver |
| Gallbladder and other biliary tract | C23,C24 | Gallbladder |
| Pancreas | C25 | Pancreas |
| **Respiratory system and intrathoracic organs (C30–C39)** | | |
| Nose, nasal cavities, middle ear and accessory sinuses | C30,C31 | Nasal cavities |
| Larynx | C32 | Larynx |
| Trachea, bronchus and lung | C33,C34 | Lung |
| Thymus, heart, mediastinum and pleura | C37,C38 | Thymus etc |
| **Bones, joints and articular cartilage (C40–C41)** | | |
| Bone and articular cartilage | C40,C41 | Bone |
| **Melanoma (C43)** | | |
| Melanoma of skin | C43 | Melanoma |
| **Other malignant neoplasms of skin (C44)** | | |
| Other skin cancer[2] | C44 | Other skin |
| **Mesothelial and soft tissue (C45–C49)** | | |
| Mesothelioma | C45 | Mesothelioma |
| Kaposi sarcoma | C46 | Kaposi sarcoma |
| Retroperitoneum and peritoneum | C48 | Peritoneum |
| Other connective tissue (incl. peripheral nerves etc) | C47,C49 | Connective tissue |
| **Breast (C50) and female genital organs (C51–C58)** | | |
| Breast | C50 | Breast |
| Cervix uteri | C53 | Cervix |
| Body of uterus | C54, C55 | Uterus |
| Ovary | C56 | Ovary |
| Placenta | C58 | Placenta |
| Vulva and other/unspecified female genital organs | C51, C52, C57 | Vulva etc |
| **Male genital organs (C60–C63)** | | |
| Prostate | C61 | Prostate |
| Testis | C62 | Testis |
| Penis and other male genital organs | C60,C63 | Penis etc |

| ICD-10 description | ICD-10 | Label in tables |
|---|---|---|
| Urinary tract (C64–C68) | | |
| Kidney, except renal pelvis | C64 | Kidney |
| Bladder | C67 | Bladder |
| Renal pelvis and other/unspecified urinary organs | C65,C66,C68 | Renal pelvis etc |
| Eye, brain and other parts of central nervous system (C69–C72) | | |
| Eye | C69 | Eye |
| Meninges | C70 | Meninges |
| Brain | C71 | Brain |
| Cranial nerves, spinal cord and unspecified CNS | C72 | Other CNS |
| Brain and CNS | C70–C72 | Brain and CNS |
| Thyroid and other endocrine glands (C73–C75) | | |
| Thyroid gland | C73 | Thyroid |
| Other endocrine glands and related structures | C74,C75 | Other endocrine |
| Unknown primary site (C26, C39, C76–C80) | | |
| Other and ill-defined sites | C26, C39, C76–79 | Ill-defined sites |
| Unspecified site | C80 | Unspecified site |
| Malignant neoplasms of lymphoid, haematopoietic and related tissue (C81–96, D45–47) | | |
| Hodgkin lymphoma | C81 | Hodgkin lymphoma |
| Nodular non-Hodgkin lymphoma | C82 | Nodular NHL |
| Diffuse non-Hodgkin lymphoma | C83 | Diffuse NHL |
| Peripheral and cutaneous T-cell lymphoma | C84 | T-cell lymphoma |
| Other/unspecified non-Hodgkin lymphoma | C85 | Other NHL |
| Non-Hodgkin lymphoma | C82–86 | All NHL |
| All lymphoma | C81–86 | Lymphoma |
| Malignant immunoproliferative disease | C88 | Immunoproliferative |
| Multiple myeloma and malignant plasma cell neoplasms | C90 | Multiple myeloma |
| Lymphoid leukaemia | C91 | Lymphoid leukaemia |
| Acute lymphoblastic leukaemia | C91.0 | |
| Chronic lymphocytic leukaemia | C91.1 | |
| Myeloid leukaemia | C92 | Myeloid leukaemia |
| Acute myeloid leukaemia | C92.0 | |
| Chronic myeloid leukaemia | C92.1 | |
| Monocytic leukaemia | C93 | Monocytic leukaemia |
| Other specified leukaemia | C94 | Other leukaemia |
| Unspecified cell leukaemias | C95 | Unspecified leukaemia |
| All leukaemia | C91–C95 | All leukaemia |
| Other and unspecified haematopoietic neoplasms | C96 | Other haematopoietic |
| Chronic myeloproliferative and myelodysplastic syndromes | D45–D47 | Myeloproliferative |
| All malignant tumours | C00–C96, D45–D47 | All malignant tumours |

# Haematological malignancy groups used in this report

We also include incidence, mortality and survival for the following major groups of haematopoietic neoplasms based on the WHO classification and endorsed by Australasian Association of Cancer Registries and Australian Blood Cancer Register in November 2007 (Ref 7)

Lymphoid neoplasms
- Hodgkin lymphoma
- Mature B-cell:
  - CLL/small lymphocytic lymphoma
  - Diffuse large B-cell lymphoma
  - Follicular lymphoma
  - Plasma cell disorders
  - Other
- Mature T- and NK--cell neoplasms
- Acute lymphoblastic leukaemia

Myeloid neoplasms
- Acute Myeloid leukaemias
- Chronic Myeloid leukaemia
- Other chronic myeloproliferative diseases
- Myelodysplastic syndromes
- Myelodysplastic/myeloproliferative diseases

The following in situ tumours are also reported:
In situ melanoma (D03) and carcinoma in situ of breast (D05) and cervix (D06)

# Appendix 4

# Statistical glossary

## Incidence and mortality rates

Incidence and mortality rates were calculated using the estimated resident population for Victoria in 2016 (page 11) and expressed as diagnoses or deaths per 100,000 population per annum.

## Crude rates

The crude rate is defined as the number of new cases (or deaths) divided by the whole population at risk in the specified time period, expressed as an annual rate per 100,000 population.

## Age-specific rates

Age-specific rates are calculated in the same way as the crude rate by dividing the number of cases in each five-year age and sex stratum by the population estimate for that stratum and multiplying by 100,000 (to give rates per 100,000).

## Age-standardised rates

Rates are adjusted to enable comparisons between populations having different age structures. The Victorian age-standardised rates (ASR) in this publication were based on the World Standard Population (Cancer Incidence in Five Continents, Volume IV, 1982, IARC). These rates are calculated using the direct method by summation of the weighted age-specific rates. The standard error (SE) of each ASR is given in the tables; a 95% confidence interval for the rate can be estimated by (rate ± 1.96 SE).

## Cumulative rates (to age 75 years)

Five-year age–sex specific rates per person are multiplied by five and summed over age groups from 0–4 to 70–74. This rate is then expressed as a percentage. The rate is a good estimator of lifetime risk. It should be noted that it is the risk of being diagnosed with cancer before the age of 75 years assuming survival to that age.

## Risk to age 75 years

This risk is a measure of the risk of contracting a particular cancer by the age of 75 years if the risks at the time of calculation continued throughout life. It is calculated from the cumulative rate using the following formula and expressed as a “1 in x” proportion.

Risk to age 75 = 1/cumulative risk  where Cumulative risk = 1 - e - (cumulative rate)/100

## Years of Potential Life Lost (to age 75 years)

Years of potential life lost (YPLL) is a measure of the number of years of life lost per year due to premature death from a particular cause given population life expectancy. All deaths in age groups from 0–4 to 70–74 were used in calculations, as deaths before the age of 75 years are considered premature.

# Appendix 5

## Mortality coding

VCR staff coded cause of death for all Victorians dying in 2016 who ever had a diagnosis of cancer.

World Health Organisation (WHO) rules[Ref 6] were used to determine the underlying cause of death from information supplied by the certifying doctor on the death certificate. This information is augmented by details of a person's cancer known to the VCR which may assist in determining a more precise cancer site, or which of multiple cancers was responsible for the person's death (See 'Data quality and specificity' below).

Deaths are coded to the 4-digit ICD10 code if cancer was the underlying cause, otherwise they are recorded as non-cancer deaths.

Since 2007, the VCR has presented its own cancer mortality figures, having previously reported coded causes of death from the Australian Bureau of Statistics (ABS).

The reasons for this change include:

### Data quality and specificity

The registry has additional information, not available to the ABS, regarding each person's cancer diagnosis/diagnoses, including recent hospital admissions for recurrent or metastatic disease. This information may assist in deciding whether cancer was the underlying cause of death and in determining the most accurate cancer cause of death code.

### Haematological malignancies

There is rarely sufficient information on a death certificate to allow the detailed coding of haematological malignancies. Tumour morphology is required to classify accurately into ICD-10 4-digit rubrics or the WHO haematological groups which we use in reporting. By matching the cause of death to existing registry tumour records we can allocate a more precise code.

Inevitably, there were some small changes in reported cancer mortality resulting from this change of coding:

- The overall number of cancer deaths coded by VCR in 2013 was about 4% higher than was reported by ABS.
- Generally we are able to code more deaths to specific cancers and fewer to ill-defined and unknown sites compared with the ABS - in some cases, the differences are quite substantial. In 2013, ABS reported 320 deaths from cancers of 'ill-defined sites' and 574 deaths due to cancer of 'unknown primary site' - the respective figures from VCR coded mortality were 68 and 502 deaths.
- When comparing trends over time and mortality reported by the ABS and VCR, these changes and differences in methods should be taken into account.

# Appendix 6

## In situ cancers 2016

Incidence rates are reported for in situ melanomas and carcinoma in situ of female breast and cervix. In situ cancers are localised lesions that have not invaded beyond the epithelial layer. If untreated, some in situ neoplasms may progress to become invasive cancer and metastasise to other body sites through the lymphatics or bloodstream.

The reporting of incidence of these in situ cancers is of interest in monitoring the effects of interventions such as screening programs. In Victoria, women have access to regular screening for breast and cervix cancers through BreastScreen and PapScreen Victoria. We would expect to see in situ incidence increasing as cancers are detected earlier. This early detection would be expected to be accompanied eventually by decreasing numbers of invasive cancers.

Note: From 2015, all high grade squamous intraepithelial lesions (HGSIL) are included by the VCR in the reporting of carcinoma in situ of cervix. The term HGSIL was introduced by WHO in June 2014 (Kurman R.J. et al., WHO Classification of Tumours of Female Reproductive Organs, IARC: Lyon 2014) as part of the 2-tier system describing cervical squamous cell precursors. The definition of HGSIL includes lesions previously described as CIN (Cervical Intraepithelial Neoplasia) 1-2, CIN 2, CIN 2-3 and CIN 3 – please note that VCR only included CIN 2-3 and CIN 3 in reporting of in situ carcinoma until 2014, and so figures to 2014 and since 2015 are not strictly comparable.

| | Cervix Female | | Breast Female | | Melanoma Male | | Melanoma Female | |
|---|---|---|---|---|---|---|---|---|
| Age group | Cases | Rate | Cases | Rate | Cases | Rate | Cases | Rate |
| 0- 4 | 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 |
| 10-14 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| 15-19 | 19 | 10.5 | 0 | 0.0 | 3 | 1.6 | 4 | 2.2 |
| 20-24 | 274 | 124.2 | 1 | 0.5 | 5 | 2.2 | 9 | 4.1 |
| 25-29 | 656 | 269.6 | 3 | 1.2 | 15 | 6.2 | 29 | 11.9 |
| 30-34 | 588 | 244.9 | 3 | 1.3 | 30 | 12.7 | 46 | 19.2 |
| 35-39 | 434 | 207.0 | 13 | 6.2 | 38 | 18.1 | 55 | 26.2 |
| 40-44 | 300 | 142.4 | 37 | 17.6 | 83 | 40.4 | 117 | 55.5 |
| 45-49 | 200 | 94.7 | 56 | 26.5 | 106 | 53.0 | 149 | 70.5 |
| 50-54 | 99 | 50.0 | 116 | 58.6 | 160 | 84.2 | 157 | 79.4 |
| 55-59 | 67 | 35.7 | 82 | 43.7 | 242 | 135.4 | 184 | 98.1 |
| 60-64 | 36 | 21.6 | 94 | 56.4 | 262 | 166.3 | 236 | 141.5 |
| 65-69 | 24 | 15.8 | 119 | 78.5 | 322 | 223.7 | 254 | 167.5 |
| 70-74 | 13 | 11.5 | 64 | 56.4 | 298 | 277.0 | 238 | 209.7 |
| 75-79 | 7 | 8.0 | 18 | 20.5 | 238 | 305.1 | 150 | 170.4 |
| 80-84 | 2 | 3.0 | 9 | 13.5 | 166 | 315.5 | 86 | 129.2 |
| 85+ | 0 | 0.0 | 8 | 10.0 | 128 | 268.9 | 104 | 130.4 |
| Total cases | 2,719 | | 623 | | 2,096 | | 1,818 | |
| Cumulative rate (%) | | 6.1 | | 1.7 | | 5.1 | | 4.4 |
| Lifetime risk (to age 75) | | 1 in 17 | | 1 in 58 | | 1 in 20 | | 1 in 23 |
| Age-standardised rate | | 79.4 | | 14.0 | | 42.8 | | 37.5 |

# Appendix 7

## Detailed tables of cancer incidence in Victoria, 2016

Tables include diagnoses and age-specific rates by five-year age group and sex, as well as summary statistics - total cases, crude incidence rates and age-standardised incidence rates (with standard error).

These figures are presented for cancer types (ICD10 groups as included in summary tables page 16-17) and by haematological malignancy groups (See table at foot of page 43 for details).

## Appendix 7: Detailed tables of cancer incidence 2016 by age, sex and cancer type

| Age | 0-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30-34 | 35-39 | 40-44 | 45-49 | 50-54 | 55-59 | 60-64 | 65-69 | 70-74 | 75-79 | 80-84 | 85+ | Total | CR | ASR | SE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **C00 Lip** | | | | | | | | | | | | | | | | | | | | | | |
| Male | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 3 | 8 | 3 | 12 | 10 | 12 | 17 | 15 | 9 | 16 | 11 | 120 | | | |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.7 | 1.4 | 3.9 | 1.5 | 6.3 | 5.6 | 7.6 | 11.8 | 13.9 | 11.5 | 30.4 | 23.1 | | 3.9 | 2.4 | 0.2 |
| Female | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 3 | 5 | 3 | 5 | 4 | 5 | 3 | 15 | 46 | | | |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.8 | 0.0 | 0.0 | 0.5 | 1.5 | 2.7 | 1.8 | 3.3 | 3.5 | 5.7 | 4.5 | 18.8 | | 1.5 | 0.7 | 0.1 |
| **C01, C02 Tongue** | | | | | | | | | | | | | | | | | | | | | | |
| **Male** | **0** | **0** | **0** | **1** | **0** | **1** | **5** | **3** | **2** | **9** | **14** | **18** | **23** | **30** | **19** | **20** | **5** | **4** | **154** | | | |
| | 0.0 | 0.0 | 0.0 | 0.5 | 0.0 | 0.4 | 2.1 | 1.4 | 1.0 | 4.5 | 7.4 | 10.1 | 14.6 | 20.8 | 17.7 | 25.6 | 9.5 | 8.4 | | 5.0 | 3.3 | 0.2 |
| Female | 0 | 0 | 0 | 2 | 0 | 1 | 1 | 3 | 1 | 3 | 7 | 6 | 8 | 5 | 6 | 8 | 5 | 9 | 65 | | | |
| | 0.0 | 0.0 | 0.0 | 1.1 | 0.0 | 0.4 | 0.4 | 1.4 | 0.5 | 1.4 | 3.5 | 3.2 | 4.8 | 3.3 | 5.3 | 9.1 | 7.5 | 11.3 | | 2.1 | 1.2 | 0.1 |
| **C07, C08 Salivary glands** | | | | | | | | | | | | | | | | | | | | | | |
| Male | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 2 | 2 | 1 | 1 | 2 | 7 | 2 | 7 | 7 | 2 | 3 | 39 | | | |
| | 0.0 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.9 | 1.0 | 1.0 | 0.5 | 0.5 | 1.1 | 4.4 | 1.4 | 6.5 | 9.0 | 3.8 | 6.3 | | 1.3 | 0.8 | 0.1 |
| Female | 0 | 0 | 0 | 1 | 0 | 1 | 2 | 2 | 6 | 5 | 3 | 3 | 1 | 1 | 2 | 6 | 1 | 3 | 37 | | | |
| | 0.0 | 0.0 | 0.0 | 0.6 | 0.0 | 0.4 | 0.8 | 1.0 | 2.9 | 2.4 | 1.5 | 1.6 | 0.6 | 0.7 | 1.8 | 6.8 | 1.5 | 3.8 | | 1.2 | 0.8 | 0.1 |
| **C03 Gum** | | | | | | | | | | | | | | | | | | | | | | |
| Male | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 1 | 2 | 2 | 0 | 2 | 4 | 2 | 18 | | | |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.6 | 0.6 | 1.3 | 1.4 | 0.0 | 2.6 | 7.6 | 4.2 | | 0.6 | 0.3 | 0.1 |
| Female | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 3 | 0 | 3 | 6 | 3 | 9 | 27 | | | |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 1.0 | 0.0 | 1.8 | 0.0 | 2.6 | 6.8 | 4.5 | 11.3 | | 0.9 | 0.4 | 0.1 |
| **C04 Floor of mouth** | | | | | | | | | | | | | | | | | | | | | | |
| Male | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 2 | 7 | 8 | 2 | 1 | 0 | 2 | 3 | 28 | | | |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 1.0 | 1.1 | 3.9 | 5.1 | 1.4 | 0.9 | 0.0 | 3.8 | 6.3 | | 0.9 | 0.6 | 0.1 |
| Female | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 3 | 2 | 2 | 1 | 2 | 2 | 2 | 0 | 15 | | | |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 0.0 | 1.5 | 1.1 | 1.2 | 0.7 | 1.8 | 2.3 | 3.0 | 0.0 | | 0.5 | 0.3 | 0.1 |
| **C05, C06 Other mouth** | | | | | | | | | | | | | | | | | | | | | | |
| Male | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 3 | 2 | 2 | 4 | 5 | 4 | 6 | 3 | 0 | 4 | 34 | | | |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 1.5 | 1.0 | 1.1 | 2.2 | 3.2 | 2.8 | 5.6 | 3.9 | 0.0 | 8.4 | | 1.1 | 0.7 | 0.1 |
| Female | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 1 | 2 | 2 | 0 | 6 | 3 | 0 | 1 | 6 | 24 | | | |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.8 | 0.0 | 0.0 | 0.5 | 0.5 | 1.0 | 1.1 | 0.0 | 4.0 | 2.6 | 0.0 | 1.5 | 7.5 | | 0.8 | 0.4 | 0.1 |

Appendix 7 Numbers (Blue) and age-specific rates (Black)
– CR crude incidence rate – ASR Age-standardised rate (Age-standardised to World Standard Population) – SE Standard error of ASR – All rates are per 100,000

## Appendix 7: Detailed tables of cancer incidence 2016 by age, sex and cancer type

| Age | 0-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30-34 | 35-39 | 40-44 | 45-49 | 50-54 | 55-59 | 60-64 | 65-69 | 70-74 | 75-79 | 80-84 | 85+ | Total | CR | ASR | SE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **C01-C06 Oral cavity** | | | | | | | | | | | | | | | | | | | | | | |
| Male | 0 | 0 | 0 | 1 | 0 | 1 | 6 | 3 | 6 | 13 | 23 | 30 | 38 | 38 | 26 | 25 | 11 | 13 | 234 | | | |
| | 0.0 | 0.0 | 0.0 | 0.5 | 0.0 | 0.4 | 2.5 | 1.4 | 2.9 | 6.5 | 12.1 | 16.8 | 24.1 | 26.4 | 24.2 | 32.1 | 20.9 | 27.3 | | 7.7 | 5.0 | 0.3 |
| Female | 0 | 0 | 0 | 2 | 0 | 3 | 1 | 3 | 3 | 5 | 14 | 10 | 13 | 12 | 14 | 16 | 11 | 24 | 131 | | | |
| | 0.0 | 0.0 | 0.0 | 1.1 | 0.0 | 1.2 | 0.4 | 1.4 | 1.4 | 2.4 | 7.1 | 5.3 | 7.8 | 7.9 | 12.3 | 18.2 | 16.5 | 30.1 | | 4.2 | 2.3 | 0.2 |
| **C09, C10 Oropharynx** | | | | | | | | | | | | | | | | | | | | | | |
| Male | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 6 | 15 | 24 | 31 | 20 | 15 | 14 | 9 | 6 | 3 | 145 | | | |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.5 | 2.9 | 7.5 | 12.6 | 17.3 | 12.7 | 10.4 | 13.0 | 11.5 | 11.4 | 6.3 | | 4.7 | 3.3 | 0.3 |
| Female | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 3 | 0 | 7 | 5 | 6 | 0 | 0 | 2 | 26 | | | |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 1.0 | 1.5 | 0.0 | 4.2 | 3.3 | 5.3 | 0.0 | 0.0 | 2.5 | | 0.8 | 0.6 | 0.1 |
| **C11 Nasopharynx** | | | | | | | | | | | | | | | | | | | | | | |
| Male | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 5 | 8 | 3 | 1 | 2 | 0 | 1 | 0 | 1 | 24 | | | |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 1.0 | 0.0 | 2.5 | 4.2 | 1.7 | 0.6 | 1.4 | 0.0 | 1.3 | 0.0 | 2.1 | | 0.8 | 0.6 | 0.1 |
| Female | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 1 | 0 | 0 | 0 | 1 | 0 | 2 | 8 | | | |
| | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 0.0 | 1.0 | 0.5 | 0.0 | 0.0 | 0.0 | 1.1 | 0.0 | 2.5 | | 0.3 | 0.2 | 0.0 |
| **C12, C13 Hypopharynx** | | | | | | | | | | | | | | | | | | | | | | |
| Male | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 4 | 7 | 10 | 7 | 1 | 5 | 0 | 35 | | | |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 0.0 | 2.2 | 4.4 | 7.0 | 6.5 | 1.3 | 9.5 | 0.0 | | 1.2 | 0.7 | 0.1 |
| Female | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 6 | | | |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 0.0 | 1.0 | 0.0 | 0.6 | 0.7 | 0.0 | 0.0 | 1.5 | 0.0 | | 0.2 | 0.1 | 0.0 |
| **C09-C13 Pharynx** | | | | | | | | | | | | | | | | | | | | | | |
| Male | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 3 | 6 | 21 | 32 | 38 | 28 | 27 | 21 | 11 | 11 | 4 | 204 | | | |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.4 | 1.4 | 2.9 | 10.5 | 16.8 | 21.3 | 17.8 | 18.8 | 19.5 | 14.1 | 20.9 | 8.4 | | 6.7 | 4.6 | 0.3 |
| Female | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 2 | 7 | 1 | 8 | 6 | 6 | 1 | 1 | 4 | 40 | | | |
| | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.4 | 1.0 | 3.5 | 0.5 | 4.8 | 4.0 | 5.3 | 1.1 | 1.5 | 5.0 | | 1.3 | 0.9 | 0.1 |
| **C14 Other oral** | | | | | | | | | | | | | | | | | | | | | | |
| Male | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 0 | 1 | 1 | 0 | 2 | 3 | 11 | | | |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 1.7 | 0.0 | 0.7 | 0.9 | 0.0 | 3.8 | 6.3 | | 0.4 | 0.2 | 0.0 |
| Female | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | | | |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 |

Appendix 7 Numbers (Blue) and age-specific rates (Black)
– CR crude incidence rate – ASR Age-standardised rate (Age-standardised to World Standard Population) – SE Standard error of ASR – All rates are per 100,000

## Appendix 7: Detailed tables of cancer incidence 2016 by age, sex and cancer type

| Age | 0-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30-34 | 35-39 | 40-44 | 45-49 | 50-54 | 55-59 | 60-64 | 65-69 | 70-74 | 75-79 | 80-84 | 85+ | Total | CR | ASR | SE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **C15 Oesophagus** | | | | | | | | | | | | | | | | | | | | | | |
| Male | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 2 | 4 | 17 | 24 | 34 | 36 | 50 | 37 | 38 | 21 | 266 | | | |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.4 | 1.0 | 2.0 | 8.9 | 13.4 | 21.6 | 25.0 | 46.5 | 47.4 | 72.2 | 44.1 | | 8.7 | 4.9 | 0.3 |
| Female | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 5 | 6 | 13 | 12 | 15 | 12 | 18 | 22 | 105 | | | |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 2.5 | 3.2 | 7.8 | 7.9 | 13.2 | 13.6 | 27.0 | 27.6 | | 3.4 | 1.5 | 0.1 |
| **C16 Stomach** | | | | | | | | | | | | | | | | | | | | | | |
| Male | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 3 | 10 | 12 | 18 | 35 | 53 | 60 | 56 | 52 | 55 | 40 | 396 | | | |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.4 | 1.4 | 4.9 | 6.0 | 9.5 | 19.6 | 33.6 | 41.7 | 52.1 | 66.7 | 104.5 | 84.0 | | 13.0 | 7.3 | 0.4 |
| Female | 0 | 0 | 0 | 0 | 1 | 2 | 2 | 2 | 6 | 11 | 18 | 10 | 25 | 22 | 29 | 33 | 24 | 30 | 215 | | | |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 0.8 | 0.8 | 1.0 | 2.9 | 5.2 | 9.1 | 5.3 | 15.0 | 14.5 | 25.6 | 37.5 | 36.1 | 37.6 | | 6.9 | 3.7 | 0.2 |
| **C17 Small Intestine** | | | | | | | | | | | | | | | | | | | | | | |
| Male | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 3 | 11 | 8 | 13 | 13 | 8 | 13 | 9 | 4 | 86 | | | |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 1.5 | 5.8 | 4.5 | 8.3 | 9.0 | 7.4 | 16.7 | 17.1 | 8.4 | | 2.8 | 1.7 | 0.2 |
| Female | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 2 | 4 | 4 | 8 | 13 | 8 | 9 | 10 | 2 | 9 | 72 | | | |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 1.0 | 1.0 | 1.9 | 2.0 | 4.3 | 7.8 | 5.3 | 7.9 | 11.4 | 3.0 | 11.3 | | 2.3 | 1.3 | 0.1 |
| **C18 Colon** | | | | | | | | | | | | | | | | | | | | | | |
| Male | 0 | 0 | 2 | 8 | 5 | 3 | 12 | 11 | 22 | 40 | 60 | 102 | 135 | 173 | 212 | 211 | 163 | 160 | 1,319 | | | |
| | 0.0 | 0.0 | 1.1 | 4.2 | 2.2 | 1.2 | 5.1 | 5.3 | 10.7 | 20.0 | 31.6 | 57.1 | 85.7 | 120.2 | 197.0 | 270.5 | 309.8 | 336.1 | | 43.2 | 24.0 | 0.6 |
| Female | 0 | 0 | 6 | 8 | 5 | 11 | 15 | 18 | 32 | 52 | 61 | 71 | 93 | 137 | 190 | 186 | 160 | 196 | 1,241 | | | |
| | 0.0 | 0.0 | 3.5 | 4.4 | 2.3 | 4.5 | 6.3 | 8.6 | 15.2 | 24.6 | 30.8 | 37.9 | 55.8 | 90.4 | 167.4 | 211.3 | 240.4 | 245.8 | | 39.7 | 20.4 | 0.6 |
| **C19-C20 Rectum** | | | | | | | | | | | | | | | | | | | | | | |
| Male | 0 | 0 | 0 | 0 | 2 | 6 | 12 | 20 | 19 | 31 | 59 | 81 | 95 | 115 | 129 | 99 | 82 | 61 | 811 | | | |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.9 | 2.5 | 5.1 | 9.6 | 9.2 | 15.5 | 31.0 | 45.3 | 60.3 | 79.9 | 119.9 | 126.9 | 155.8 | 128.2 | | 26.5 | 15.9 | 0.5 |
| Female | 0 | 0 | 0 | 0 | 0 | 4 | 8 | 4 | 14 | 25 | 44 | 46 | 56 | 56 | 73 | 57 | 43 | 62 | 492 | | | |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.6 | 3.3 | 1.9 | 6.7 | 11.8 | 22.2 | 24.5 | 33.6 | 36.9 | 64.3 | 64.8 | 64.6 | 77.7 | | 15.8 | 8.7 | 0.4 |
| **C18-C20 Bowel** | | | | | | | | | | | | | | | | | | | | | | |
| Male | 0 | 0 | 2 | 8 | 7 | 9 | 24 | 31 | 41 | 71 | 119 | 183 | 230 | 288 | 341 | 310 | 245 | 221 | 2,130 | | | |
| | 0.0 | 0.0 | 1.1 | 4.2 | 3.0 | 3.7 | 10.2 | 14.8 | 19.9 | 35.5 | 62.6 | 102.4 | 146.0 | 200.1 | 316.9 | 397.4 | 465.6 | 464.3 | | 69.7 | 39.9 | 0.8 |
| Female | 0 | 0 | 6 | 8 | 5 | 15 | 23 | 22 | 46 | 77 | 105 | 117 | 149 | 193 | 263 | 243 | 203 | 258 | 1,733 | | | |
| | 0.0 | 0.0 | 3.5 | 4.4 | 2.3 | 6.2 | 9.6 | 10.5 | 21.8 | 36.5 | 53.1 | 62.4 | 89.3 | 127.3 | 231.7 | 276.0 | 305.0 | 323.5 | | 55.5 | 29.2 | 0.7 |

Appendix 7 Numbers (Blue) and age-specific rates (Black)
– CR crude incidence rate – ASR Age-standardised rate (Age-standardised to World Standard Population) – SE Standard error of ASR – All rates are per 100,000

## Appendix 7: Detailed tables of cancer incidence 2016 by age, sex and cancer type

| Age | 0-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30-34 | 35-39 | 40-44 | 45-49 | 50-54 | 55-59 | 60-64 | 65-69 | 70-74 | 75-79 | 80-84 | 85+ | Total | CR | ASR | SE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **C21 Anus & anal canal** | | | | | | | | | | | | | | | | | | | | | | |
| Male | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 2 | 4 | 12 | 4 | 2 | 7 | 3 | 2 | 40 | | | |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.0 | 1.1 | 2.2 | 7.6 | 2.8 | 1.9 | 9.0 | 5.7 | 4.2 | | 1.3 | 0.8 | 0.1 |
| Female | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 3 | 7 | 9 | 11 | 8 | 4 | 6 | 4 | 6 | 59 | | | |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 1.4 | 3.5 | 4.8 | 6.6 | 5.3 | 3.5 | 6.8 | 6.0 | 7.5 | | 1.9 | 1.1 | 0.1 |
| **C22 Liver** | | | | | | | | | | | | | | | | | | | | | | |
| Male | 2 | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 3 | 13 | 31 | 56 | 77 | 64 | 47 | 49 | 44 | 21 | 412 | | | |
| | 1.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.4 | 0.4 | 1.0 | 1.5 | 6.5 | 16.3 | 31.3 | 48.9 | 44.5 | 43.7 | 62.8 | 83.6 | 44.1 | | 13.5 | 8.2 | 0.4 |
| Female | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 7 | 3 | 17 | 22 | 20 | 16 | 25 | 28 | 35 | 177 | | | |
| | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.4 | 0.0 | 0.5 | 3.3 | 1.5 | 9.1 | 13.2 | 13.2 | 14.1 | 28.4 | 42.1 | 43.9 | | 5.7 | 2.7 | 0.2 |
| **C23, C24 Gallbladder** | | | | | | | | | | | | | | | | | | | | | | |
| Male | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 7 | 7 | 8 | 22 | 17 | 13 | 12 | 90 | | | |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 1.1 | 3.9 | 4.4 | 5.6 | 20.5 | 21.8 | 24.7 | 25.2 | | 2.9 | 1.5 | 0.1 |
| Female | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 4 | 4 | 2 | 6 | 11 | 11 | 15 | 20 | 18 | 18 | 110 | | | |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 1.9 | 1.9 | 1.0 | 3.2 | 6.6 | 7.3 | 13.2 | 22.7 | 27.0 | 22.6 | | 3.5 | 1.7 | 0.1 |
| **C25 Pancreas** | | | | | | | | | | | | | | | | | | | | | | |
| Male | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 6 | 12 | 32 | 31 | 50 | 74 | 70 | 64 | 53 | 57 | 452 | | | |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.9 | 0.5 | 2.9 | 6.0 | 16.8 | 17.3 | 31.7 | 51.4 | 65.1 | 82.0 | 100.7 | 119.7 | | 14.8 | 8.2 | 0.4 |
| Female | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 2 | 6 | 13 | 12 | 26 | 34 | 60 | 57 | 77 | 49 | 106 | 446 | | | |
| | 0.0 | 0.0 | 0.0 | 0.6 | 0.5 | 0.4 | 0.4 | 1.0 | 2.9 | 6.2 | 6.1 | 13.9 | 20.4 | 39.6 | 50.2 | 87.5 | 73.6 | 132.9 | | 14.3 | 6.5 | 0.3 |
| **C30, C31 Nasal Cavities** | | | | | | | | | | | | | | | | | | | | | | |
| Male | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 2 | 6 | 1 | 4 | 2 | 1 | 4 | 2 | 3 | 28 | | | |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 1.0 | 1.0 | 3.2 | 0.6 | 2.5 | 1.4 | 0.9 | 5.1 | 3.8 | 6.3 | | 0.9 | 0.6 | 0.1 |
| Female | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 2 | 3 | 0 | 0 | 2 | 10 | | | |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 0.5 | 0.5 | 0.0 | 1.3 | 2.6 | 0.0 | 0.0 | 2.5 | | 0.3 | 0.2 | 0.0 |
| **C32 Larynx** | | | | | | | | | | | | | | | | | | | | | | |
| Male | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 3 | 10 | 14 | 24 | 14 | 16 | 16 | 11 | 114 | | | |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.0 | 1.6 | 5.6 | 8.9 | 16.7 | 13.0 | 20.5 | 30.4 | 23.1 | | 3.7 | 2.1 | 0.2 |
| Female | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 1 | 1 | 0 | 1 | 2 | 2 | 2 | 0 | 12 | | | |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 1.0 | 0.0 | 0.5 | 0.5 | 0.0 | 0.7 | 1.8 | 2.3 | 3.0 | 0.0 | | 0.4 | 0.2 | 0.0 |

Appendix 7 Numbers (Blue) and age-specific rates (Black)
– CR crude incidence rate – ASR Age-standardised rate (Age-standardised to World Standard Population) – SE Standard error of ASR – All rates are per 100,000

## Appendix 7: Detailed tables of cancer incidence 2016 by age, sex and cancer type

| Age | 0-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30-34 | 35-39 | 40-44 | 45-49 | 50-54 | 55-59 | 60-64 | 65-69 | 70-74 | 75-79 | 80-84 | 85+ | Total | CR | ASR | SE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **C33, C34 Lung** | | | | | | | | | | | | | | | | | | | | | | |
| Male | 0 | 0 | 0 | 1 | 2 | 2 | 2 | 6 | 12 | 24 | 53 | 142 | 150 | 248 | 294 | 276 | 230 | 188 | 1,630 | | | |
| | 0.0 | 0.0 | 0.0 | 0.5 | 0.9 | 0.8 | 0.9 | 2.9 | 5.8 | 12.0 | 27.9 | 79.4 | 95.2 | 172.3 | 273.2 | 353.8 | 437.1 | 394.9 | | 53.3 | 28.2 | 0.7 |
| Female | 0 | 0 | 0 | 0 | 1 | 1 | 6 | 8 | 16 | 25 | 60 | 92 | 139 | 214 | 246 | 199 | 153 | 159 | 1,319 | | | |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 0.4 | 2.5 | 3.8 | 7.6 | 11.8 | 30.3 | 49.0 | 83.3 | 141.1 | 216.8 | 226.1 | 229.9 | 199.4 | | 42.2 | 21.4 | 0.6 |
| **C37, C38 Thymus etc** | | | | | | | | | | | | | | | | | | | | | | |
| Male | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 3 | 3 | 1 | 1 | 0 | 2 | 4 | 0 | 0 | 1 | 0 | 17 | | | |
| | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 1.4 | 1.5 | 0.5 | 0.5 | 0.0 | 1.3 | 2.8 | 0.0 | 0.0 | 1.9 | 0.0 | | 0.6 | 0.5 | 0.1 |
| Female | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 1 | 0 | 1 | 2 | 2 | 0 | 0 | 1 | 2 | 12 | | | |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 1.0 | 0.5 | 0.0 | 0.5 | 1.2 | 1.3 | 0.0 | 0.0 | 1.5 | 2.5 | | 0.4 | 0.2 | 0.1 |
| **C40, C41 Bone** | | | | | | | | | | | | | | | | | | | | | | |
| Male | 0 | 1 | 3 | 8 | 0 | 0 | 2 | 2 | 1 | 3 | 3 | 2 | 6 | 1 | 4 | 0 | 2 | 0 | 38 | | | |
| | 0.0 | 0.5 | 1.7 | 4.2 | 0.0 | 0.0 | 0.9 | 1.0 | 0.5 | 1.5 | 1.6 | 1.1 | 3.8 | 0.7 | 3.7 | 0.0 | 3.8 | 0.0 | | 1.2 | 1.2 | 0.2 |
| **Female** | 2 | 2 | 5 | 1 | 3 | 1 | 1 | 0 | 2 | 3 | 2 | 2 | 1 | 4 | 3 | 1 | 2 | 0 | 35 | | | |
| | 1.0 | 1.1 | 2.9 | 0.6 | 1.4 | 0.4 | 0.4 | 0.0 | 1.0 | 1.4 | 1.0 | 1.1 | 0.6 | 2.6 | 2.6 | 1.1 | 3.0 | 0.0 | | 1.1 | 1.1 | 0.2 |
| **C43 Melanoma** | | | | | | | | | | | | | | | | | | | | | | |
| **Male** | 0 | 0 | 1 | 1 | 8 | 13 | 29 | 47 | 58 | 112 | 93 | 167 | 184 | 206 | 192 | 174 | 144 | 144 | 1,573 | | | |
| | 0.0 | 0.0 | 0.6 | 0.5 | 3.5 | 5.4 | 12.3 | 22.4 | 28.2 | 56.0 | 48.9 | 93.4 | 116.8 | 143.1 | 178.4 | 223.1 | 273.7 | 302.5 | | 51.5 | 31.8 | 0.8 |
| Female | 0 | 0 | 0 | 5 | 9 | 27 | 51 | 60 | 65 | 106 | 100 | 120 | 115 | 172 | 123 | 107 | 93 | 111 | 1,264 | | | |
| | 0.0 | 0.0 | 0.0 | 2.8 | 4.1 | 11.1 | 21.2 | 28.6 | 30.9 | 50.2 | 50.5 | 64.0 | 69.0 | 113.4 | 108.4 | 121.6 | 139.7 | 139.2 | | 40.5 | 25.3 | 0.7 |
| **C44 Other skin** | | | | | | | | | | | | | | | | | | | | | | |
| Male | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 2 | 5 | 4 | 3 | 6 | 9 | 12 | 23 | 28 | 95 | | | |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.4 | 0.5 | 0.0 | 1.0 | 2.6 | 2.2 | 1.9 | 4.2 | 8.4 | 15.4 | 43.7 | 58.8 | | 3.1 | 1.4 | 0.1 |
| Female | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 3 | 2 | 2 | 5 | 3 | 3 | 5 | 9 | 12 | 47 | | | |
| | 0.0 | 0.0 | 0.6 | 0.0 | 0.0 | 0.8 | 0.0 | 0.0 | 0.0 | 1.4 | 1.0 | 1.1 | 3.0 | 2.0 | 2.6 | 5.7 | 13.5 | 15.1 | | 1.5 | 0.7 | 0.1 |
| **C45 Mesothelioma** | | | | | | | | | | | | | | | | | | | | | | |
| Male | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 2 | 11 | 19 | 24 | 17 | 27 | 22 | 124 | | | |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.5 | 1.1 | 7.0 | 13.2 | 22.3 | 21.8 | 51.3 | 46.2 | | 4.1 | 1.9 | 0.2 |
| Female | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 2 | 0 | 0 | 1 | 3 | 6 | 9 | 3 | 4 | 3 | 34 | | | |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.9 | 0.0 | 0.0 | 0.5 | 1.0 | 0.0 | 0.0 | 0.5 | 1.8 | 4.0 | 7.9 | 3.4 | 6.0 | 3.8 | | 1.1 | 0.6 | 0.1 |

Appendix 7 Numbers (Blue) and age-specific rates (Black)
– CR crude incidence rate – ASR Age-standardised rate (Age-standardised to World Standard Population) – SE Standard error of ASR – All rates are per 100,000

## Appendix 7: Detailed tables of cancer incidence 2016 by age, sex and cancer type

| Age | 0-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30-34 | 35-39 | 40-44 | 45-49 | 50-54 | 55-59 | 60-64 | 65-69 | 70-74 | 75-79 | 80-84 | 85+ | Total | CR | ASR | SE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **C46 Kaposi sarcoma** | | | | | | | | | | | | | | | | | | | | | | |
| Male | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 1 | 1 | 0 | 2 | 2 | 2 | 0 | 11 | | | |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 1.0 | 0.0 | 0.6 | 0.6 | 0.0 | 1.9 | 2.6 | 3.8 | 0.0 | | 0.4 | 0.2 | 0.1 |
| Female | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 4 | | | |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.1 | 1.5 | 2.5 | | 0.1 | 0.0 | 0.0 |
| **C48 Peritoneum** | | | | | | | | | | | | | | | | | | | | | | |
| Male | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 5 | 0 | 1 | 1 | 0 | 1 | 11 | | | |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.5 | 0.0 | 0.0 | 0.0 | 0.6 | 3.2 | 0.0 | 0.9 | 1.3 | 0.0 | 2.1 | | 0.4 | 0.3 | 0.1 |
| Female | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 3 | 1 | 2 | 7 | 5 | 4 | 2 | 1 | 27 | | | |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 1.5 | 0.5 | 1.2 | 4.6 | 4.4 | 4.5 | 3.0 | 1.3 | | 0.9 | 0.5 | 0.1 |
| **C47, C49 Connective Tissue** | | | | | | | | | | | | | | | | | | | | | | |
| Male | 5 | 2 | 1 | 1 | 2 | 3 | 1 | 4 | 5 | 8 | 6 | 16 | 18 | 12 | 15 | 27 | 13 | 21 | 160 | | | |
| | 2.4 | 1.0 | 0.6 | 0.5 | 0.9 | 1.2 | 0.4 | 1.9 | 2.4 | 4.0 | 3.2 | 9.0 | 11.4 | 8.3 | 13.9 | 34.6 | 24.7 | 44.1 | | 5.2 | 3.4 | 0.2 |
| Female | 0 | 2 | 1 | 2 | 4 | 1 | 8 | 1 | 5 | 3 | 3 | 9 | 10 | 5 | 4 | 10 | 8 | 10 | 86 | | | |
| | 0.0 | 1.1 | 0.6 | 1.1 | 1.8 | 0.4 | 3.3 | 0.5 | 2.4 | 1.4 | 1.5 | 4.8 | 6.0 | 3.3 | 3.5 | 11.4 | 12.0 | 12.5 | | 2.8 | 1.8 | 0.2 |
| **C50 Breast (Female)** | | | | | | | | | | | | | | | | | | | | | | |
| Female | 0 | 0 | 0 | 1 | 4 | 27 | 71 | 135 | 283 | 429 | 538 | 513 | 547 | 542 | 474 | 312 | 212 | 246 | 4,334 | | | |
| | 0.0 | 0.0 | 0.0 | 0.6 | 1.8 | 11.1 | 29.6 | 64.4 | 134.4 | 203.1 | 271.9 | 273.5 | 328.0 | 357.5 | 417.7 | 354.4 | 318.5 | 308.5 | | 138.8 | 90.4 | 1.4 |
| C53 Cervix | | | | | | | | | | | | | | | | | | | | | | |
| Female | 0 | 0 | 0 | 0 | 1 | 15 | 31 | 31 | 26 | 21 | 9 | 12 | 20 | 17 | 13 | 4 | 3 | 5 | 208 | | | |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 6.2 | 12.9 | 14.8 | 12.3 | 9.9 | 4.6 | 6.4 | 12.0 | 11.2 | 11.5 | 4.5 | 4.5 | 6.3 | | 6.7 | 5.2 | 0.3 |
| **C54, C55 Uterus** | | | | | | | | | | | | | | | | | | | | | | |
| Female | 0 | 0 | 0 | 0 | 0 | 3 | 9 | 15 | 25 | 49 | 61 | 102 | 105 | 114 | 96 | 57 | 58 | 37 | 731 | | | |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.2 | 3.8 | 7.2 | 11.9 | 23.2 | 30.8 | 54.4 | 63.0 | 75.2 | 84.6 | 64.8 | 87.1 | 46.4 | | 23.4 | 14.4 | 0.5 |
| **C56 Ovary** | | | | | | | | | | | | | | | | | | | | | | |
| Female | 0 | 0 | 1 | 7 | 5 | 6 | 6 | 10 | 18 | 18 | 28 | 35 | 30 | 46 | 31 | 35 | 26 | 28 | 330 | | | |
| | 0.0 | 0.0 | 0.6 | 3.9 | 2.3 | 2.5 | 2.5 | 4.8 | 8.6 | 8.5 | 14.2 | 18.7 | 18.0 | 30.3 | 27.3 | 39.8 | 39.1 | 35.1 | | 10.6 | 6.6 | 0.3 |

Appendix 7 Numbers (Blue) and age-specific rates (Black)
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| Age | 0-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30-34 | 35-39 | 40-44 | 45-49 | 50-54 | 55-59 | 60-64 | 65-69 | 70-74 | 75-79 | 80-84 | 85+ | Total | CR | ASR | SE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **C51, C52, C57 Vulva etc,** | | | | | | | | | | | | | | | | | | | | | | |
| Female | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 4 | 7 | 11 | 30 | 30 | 38 | 38 | 35 | 30 | 21 | 26 | 274 | | | |
| | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.3 | 1.9 | 3.3 | 5.2 | 15.2 | 16.0 | 22.8 | 25.1 | 30.8 | 34.1 | 31.6 | 32.6 | | 8.8 | 5.1 | 0.3 |
| **C61 Prostate** | | | | | | | | | | | | | | | | | | | | | | |
| Male | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 15 | 91 | 234 | 517 | 803 | 1,094 | 831 | 579 | 320 | 298 | 4,784 | | | |
| | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 7.3 | 45.5 | 123.1 | 289.2 | 509.7 | 760.1 | 772.3 | 742.2 | 608.2 | 626.0 | | 156.5 | 93.2 | 1.3 |
| **C62 Testis** | | | | | | | | | | | | | | | | | | | | | | |
| Male | 0 | 0 | 0 | 5 | 23 | 38 | 47 | 27 | 34 | 21 | 5 | 7 | 4 | 2 | 1 | 2 | 1 | 0 | 217 | | | |
| | 0.0 | 0.0 | 0.0 | 2.6 | 10.0 | 15.7 | 19.9 | 12.9 | 16.5 | 10.5 | 2.6 | 3.9 | 2.5 | 1.4 | 0.9 | 2.6 | 1.9 | 0.0 | | 7.1 | 6.4 | 0.4 |
| **C60, C63 Penis etc** | | | | | | | | | | | | | | | | | | | | | | |
| Male | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 1 | 5 | 4 | 3 | 5 | 4 | 6 | 3 | 4 | 39 | | | |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 1.0 | 0.5 | 2.6 | 2.2 | 1.9 | 3.5 | 3.7 | 7.7 | 5.7 | 8.4 | | 1.3 | 0.8 | 0.1 |
| **C64 Kidney** | | | | | | | | | | | | | | | | | | | | | | |
| Male | 6 | 2 | 0 | 1 | 0 | 3 | 5 | 11 | 29 | 36 | 63 | 67 | 69 | 89 | 73 | 49 | 37 | 28 | 568 | | | |
| | 2.9 | 1.0 | 0.0 | 0.5 | 0.0 | 1.2 | 2.1 | 5.3 | 14.1 | 18.0 | 33.1 | 37.5 | 43.8 | 61.8 | 67.9 | 62.8 | 70.3 | 58.8 | | 18.6 | 12.4 | 0.5 |
| Female | 4 | 2 | 0 | 0 | 1 | 2 | 2 | 10 | 6 | 13 | 22 | 24 | 33 | 44 | 43 | 28 | 21 | 34 | 289 | | | |
| | 2.1 | 1.1 | 0.0 | 0.0 | 0.5 | 0.8 | 0.8 | 4.8 | 2.9 | 6.2 | 11.1 | 12.8 | 19.8 | 29.0 | 37.9 | 31.8 | 31.6 | 42.6 | | 9.3 | 5.5 | 0.3 |
| **C67 Bladder** | | | | | | | | | | | | | | | | | | | | | | |
| Male | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 6 | 8 | 21 | 56 | 71 | 98 | 84 | 89 | 109 | 545 | | | |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.5 | 3.0 | 4.2 | 11.8 | 35.6 | 49.3 | 91.1 | 107.7 | 169.2 | 229.0 | | 17.8 | 8.7 | 0.4 |
| Female | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 1 | 2 | 5 | 12 | 12 | 19 | 27 | 25 | 54 | 160 | | | |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.8 | 0.5 | 0.0 | 0.5 | 1.0 | 2.7 | 7.2 | 7.9 | 16.7 | 30.7 | 37.6 | 67.7 | | 5.1 | 2.0 | 0.1 |
| **C65, C66, C68 Renal pelvis etc.** | | | | | | | | | | | | | | | | | | | | | | |
| Male | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 2 | 5 | 5 | 12 | 11 | 12 | 17 | 68 | | | |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 1.6 | 1.1 | 3.2 | 3.5 | 11.2 | 14.1 | 22.8 | 35.7 | | 2.2 | 1.0 | 0.1 |
| Female | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 4 | 7 | 6 | 10 | 4 | 9 | 41 | | | |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 2.4 | 4.6 | 5.3 | 11.4 | 6.0 | 11.3 | | 1.3 | 0.6 | 0.1 |

Appendix 7 Numbers (Blue) and age-specific rates (Black)
– CR crude incidence rate – ASR Age-standardised rate (Age-standardised to World Standard Population) – SE Standard error of ASR – All rates are per 100,000

## Appendix 7: Detailed tables of cancer incidence 2016 by age, sex and cancer type

| Age | 0-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30-34 | 35-39 | 40-44 | 45-49 | 50-54 | 55-59 | 60-64 | 65-69 | 70-74 | 75-79 | 80-84 | 85+ | Total | CR | ASR | SE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **C69 Eye** | | | | | | | | | | | | | | | | | | | | | | |
| Male | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 4 | 7 | 0 | 7 | 7 | 4 | 2 | 1 | 37 | | | |
| | 1.0 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 2.1 | 3.9 | 0.0 | 4.9 | 6.5 | 5.1 | 3.8 | 2.1 | | 1.2 | 0.8 | 0.1 |
| Female | 4 | 0 | 0 | 0 | 0 | 3 | 0 | 1 | 1 | 3 | 2 | 3 | 4 | 3 | 6 | 4 | 4 | 2 | 40 | | | |
| | 2.1 | 0.0 | 0.0 | 0.0 | 0.0 | 1.2 | 0.0 | 0.5 | 0.5 | 1.4 | 1.0 | 1.6 | 2.4 | 2.0 | 5.3 | 4.5 | 6.0 | 2.5 | | 1.3 | 1.0 | 0.1 |
| **C70-C72 Brain & CNS** | | | | | | | | | | | | | | | | | | | | | | |
| Male | 7 | 6 | 5 | 5 | 4 | 10 | 8 | 10 | 13 | 13 | 24 | 20 | 32 | 30 | 45 | 33 | 21 | 10 | 296 | | | |
| | 3.4 | 3.0 | 2.8 | 2.6 | 1.7 | 4.1 | 3.4 | 4.8 | 6.3 | 6.5 | 12.6 | 11.2 | 20.3 | 20.8 | 41.8 | 42.3 | 39.9 | 21.0 | | 9.7 | 7.0 | 0.4 |
| Female | 6 | 5 | 5 | 4 | 4 | 5 | 6 | 7 | 3 | 7 | 19 | 17 | 13 | 19 | 15 | 21 | 15 | 21 | 192 | | | |
| | 3.1 | 2.7 | 2.9 | 2.2 | 1.8 | 2.1 | 2.5 | 3.3 | 1.4 | 3.3 | 9.6 | 9.1 | 7.8 | 12.5 | 13.2 | 23.9 | 22.5 | 26.3 | | 6.2 | 4.3 | 0.3 |
| **C73 Thyroid** | | | | | | | | | | | | | | | | | | | | | | |
| Male | 0 | 0 | 2 | 1 | 4 | 2 | 13 | 12 | 16 | 10 | 18 | 20 | 13 | 21 | 8 | 9 | 5 | 4 | 158 | | | |
| | 0.0 | 0.0 | 1.1 | 0.5 | 1.7 | 0.8 | 5.5 | 5.7 | 7.8 | 5.0 | 9.5 | 11.2 | 8.3 | 14.6 | 7.4 | 11.5 | 9.5 | 8.4 | | 5.2 | 3.8 | 0.3 |
| Female | 0 | 1 | 1 | 5 | 9 | 19 | 37 | 31 | 43 | 64 | 57 | 56 | 68 | 44 | 18 | 18 | 8 | 8 | 487 | | | |
| | 0.0 | 0.5 | 0.6 | 2.8 | 4.1 | 7.8 | 15.4 | 14.8 | 20.4 | 30.3 | 28.8 | 29.9 | 40.8 | 29.0 | 15.9 | 20.5 | 12.0 | 10.0 | | 15.6 | 11.9 | 0.5 |
| **C74, C75 Other endocrine** | | | | | | | | | | | | | | | | | | | | | | |
| Male | 9 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 2 | 1 | 1 | 2 | 0 | 2 | 1 | 1 | 0 | 1 | 22 | | | |
| | 4.4 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.4 | 0.0 | 1.0 | 0.5 | 0.5 | 1.1 | 0.0 | 1.4 | 0.9 | 1.3 | 0.0 | 2.1 | | 0.7 | 0.8 | 0.1 |
| Female | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 3 | 13 | | | |
| | 0.0 | 0.5 | 0.0 | 0.6 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.5 | 0.0 | 0.5 | 0.6 | 0.7 | 0.0 | 1.1 | 1.5 | 3.8 | | 0.4 | 0.3 | 0.1 |
| **C26, C39, C76-C79 Ill-defined sites** | | | | | | | | | | | | | | | | | | | | | | |
| Male | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 2 | 8 | 9 | 9 | 17 | 11 | 8 | 8 | 77 | | | |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.5 | 1.0 | 1.1 | 4.5 | 5.7 | 6.3 | 15.8 | 14.1 | 15.2 | 16.8 | | 2.5 | 1.4 | 0.1 |
| Female | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 3 | 1 | 0 | 4 | 6 | 6 | 4 | 8 | 7 | 13 | 54 | | | |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.4 | 0.0 | 1.4 | 0.5 | 0.0 | 2.1 | 3.6 | 4.0 | 3.5 | 9.1 | 10.5 | 16.3 | | 1.7 | 0.8 | 0.1 |
| **C80 Unspecified site** | | | | | | | | | | | | | | | | | | | | | | |
| Male | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 5 | 7 | 10 | 17 | 22 | 23 | 45 | 39 | 62 | 232 | | | |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.5 | 2.5 | 3.7 | 5.6 | 10.8 | 15.3 | 21.4 | 57.7 | 74.1 | 130.3 | | 7.6 | 3.5 | 0.2 |
| Female | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 5 | 4 | 12 | 9 | 15 | 20 | 29 | 35 | 83 | 215 | | | |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 1.0 | 2.4 | 2.0 | 6.4 | 5.4 | 9.9 | 17.6 | 32.9 | 52.6 | 104.1 | | 6.9 | 2.6 | 0.2 |

Appendix 7 Numbers (Blue) and age-specific rates (Black)
– CR crude incidence rate – ASR Age-standardised rate (Age-standardised to World Standard Population) – SE Standard error of ASR – All rates are per 100,000

## Appendix 7: Detailed tables of cancer incidence 2016 by age, sex and cancer type

| Age | 0-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30-34 | 35-39 | 40-44 | 45-49 | 50-54 | 55-59 | 60-64 | 65-69 | 70-74 | 75-79 | 80-84 | 85+ | Total | CR | ASR | SE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **C81 Hodgkin lymphoma** | | | | | | | | | | | | | | | | | | | | | | |
| Male | 0 | 2 | 3 | 8 | 13 | 10 | 12 | 8 | 8 | 5 | 11 | 3 | 4 | 10 | 12 | 4 | 5 | 5 | 123 | | | |
| | 0.0 | 1.0 | 1.7 | 4.2 | 5.7 | 4.1 | 5.1 | 3.8 | 3.9 | 2.5 | 5.8 | 1.7 | 2.5 | 7.0 | 11.2 | 5.1 | 9.5 | 10.5 | | 4.0 | 3.4 | 0.3 |
| Female | 1 | 0 | 3 | 10 | 18 | 3 | 13 | 8 | 6 | 1 | 4 | 4 | 4 | 9 | 1 | 5 | 4 | 2 | 96 | | | |
| | 0.5 | 0.0 | 1.8 | 5.5 | 8.2 | 1.2 | 5.4 | 3.8 | 2.9 | 0.5 | 2.0 | 2.1 | 2.4 | 5.9 | 0.9 | 5.7 | 6.0 | 2.5 | | 3.1 | 2.8 | 0.3 |
| **C82 Nodular NHL** | | | | | | | | | | | | | | | | | | | | | | |
| Male | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 7 | 4 | 11 | 20 | 15 | 24 | 20 | 24 | 15 | 8 | 9 | 161 | | | |
| | 0.0 | 0.0 | 0.6 | 0.0 | 0.4 | 0.4 | 0.4 | 3.3 | 2.0 | 5.5 | 10.5 | 8.4 | 15.2 | 13.9 | 22.3 | 19.2 | 15.2 | 18.9 | | 5.3 | 3.5 | 0.3 |
| Female | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 4 | 5 | 5 | 8 | 15 | 18 | 23 | 21 | 20 | 8 | 10 | 138 | | | |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 1.9 | 2.4 | 2.4 | 4.0 | 8.0 | 10.8 | 15.2 | 18.5 | 22.7 | 12.0 | 12.5 | | 4.4 | 2.6 | 0.2 |
| **C83 Diffuse NHL** | | | | | | | | | | | | | | | | | | | | | | |
| Male | 2 | 1 | 2 | 0 | 2 | 1 | 4 | 12 | 11 | 8 | 21 | 37 | 46 | 76 | 64 | 62 | 57 | 49 | 455 | | | |
| | 1.0 | 0.5 | 1.1 | 0.0 | 0.9 | 0.4 | 1.7 | 5.7 | 5.4 | 4.0 | 11.1 | 20.7 | 29.2 | 52.8 | 59.5 | 79.5 | 108.3 | 102.9 | | 14.9 | 8.6 | 0.4 |
| Female | 0 | 0 | 0 | 0 | 1 | 1 | 6 | 2 | 4 | 13 | 17 | 28 | 36 | 42 | 57 | 37 | 49 | 36 | 329 | | | |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 0.4 | 2.5 | 1.0 | 1.9 | 6.2 | 8.6 | 14.9 | 21.6 | 27.7 | 50.2 | 42.0 | 73.6 | 45.1 | | 10.5 | 5.5 | 0.3 |
| **C84 T-cell lymphoma** | | | | | | | | | | | | | | | | | | | | | | |
| Male | 0 | 0 | 0 | 2 | 1 | 3 | 1 | 2 | 3 | 3 | 5 | 6 | 7 | 10 | 12 | 8 | 9 | 5 | 77 | | | |
| | 0.0 | 0.0 | 0.0 | 1.1 | 0.4 | 1.2 | 0.4 | 1.0 | 1.5 | 1.5 | 2.6 | 3.4 | 4.4 | 7.0 | 11.2 | 10.3 | 17.1 | 10.5 | | 2.5 | 1.6 | 0.2 |
| Female | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 4 | 2 | 7 | 7 | 1 | 6 | 8 | 12 | 0 | 3 | 1 | 56 | | | |
| | 0.0 | 0.5 | 0.6 | 0.0 | 0.5 | 0.4 | 0.4 | 1.9 | 1.0 | 3.3 | 3.5 | 0.5 | 3.6 | 5.3 | 10.6 | 0.0 | 4.5 | 1.3 | | 1.8 | 1.3 | 0.2 |
| **C85 Other NHL** | | | | | | | | | | | | | | | | | | | | | | |
| Male | 0 | 1 | 0 | 1 | 2 | 3 | 0 | 3 | 3 | 4 | 4 | 12 | 20 | 13 | 24 | 28 | 30 | 23 | 171 | | | |
| | 0.0 | 0.5 | 0.0 | 0.5 | 0.9 | 1.2 | 0.0 | 1.4 | 1.5 | 2.0 | 2.1 | 6.7 | 12.7 | 9.0 | 22.3 | 35.9 | 57.0 | 48.3 | | 5.6 | 3.0 | 0.2 |
| Female | 0 | 0 | 0 | 2 | 0 | 4 | 2 | 2 | 0 | 3 | 1 | 5 | 7 | 12 | 18 | 18 | 25 | 32 | 131 | | | |
| | 0.0 | 0.0 | 0.0 | 1.1 | 0.0 | 1.6 | 0.8 | 1.0 | 0.0 | 1.4 | 0.5 | 2.7 | 4.2 | 7.9 | 15.9 | 20.5 | 37.6 | 40.1 | | 4.2 | 1.9 | 0.1 |
| **C82-C85 Non-Hodgkin lymphoma** | | | | | | | | | | | | | | | | | | | | | | |
| Male | 2 | 2 | 3 | 3 | 6 | 8 | 6 | 24 | 21 | 26 | 50 | 70 | 97 | 119 | 124 | 113 | 104 | 86 | 864 | | | |
| | 1.0 | 1.0 | 1.7 | 1.6 | 2.6 | 3.3 | 2.5 | 11.5 | 10.2 | 13.0 | 26.3 | 39.2 | 61.6 | 82.7 | 115.2 | 144.9 | 197.7 | 180.7 | | 28.3 | 16.7 | 0.5 |
| Female | 0 | 1 | 1 | 2 | 2 | 6 | 10 | 12 | 11 | 28 | 33 | 49 | 67 | 85 | 108 | 75 | 85 | 79 | 654 | | | |
| | 0.0 | 0.5 | 0.6 | 1.1 | 0.9 | 2.5 | 4.2 | 5.7 | 5.2 | 13.3 | 16.7 | 26.1 | 40.2 | 56.1 | 95.2 | 85.2 | 127.7 | 99.1 | | 20.9 | 11.2 | 0.4 |

Appendix 7 Numbers (Blue) and age-specific rates (Black)
– CR crude incidence rate – ASR Age-standardised rate (Age-standardised to World Standard Population) – SE Standard error of ASR – All rates are per 100,000

## Appendix 7: Detailed tables of cancer incidence 2016 by age, sex and cancer type

| Age | 0-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30-34 | 35-39 | 40-44 | 45-49 | 50-54 | 55-59 | 60-64 | 65-69 | 70-74 | 75-79 | 80-84 | 85+ | Total | CR | ASR | SE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **C88 Immunoproliferative** | | | | | | | | | | | | | | | | | | | | | | |
| Male | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 1 | 1 | 7 | 8 | 2 | 3 | 2 | 27 | | | |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 1.1 | 0.6 | 0.6 | 4.9 | 7.4 | 2.6 | 5.7 | 4.2 | | 0.9 | 0.5 | 0.1 |
| Female | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 2 | 0 | 4 | 4 | 4 | 4 | 4 | 25 | | | |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.5 | 1.1 | 0.0 | 2.6 | 3.5 | 4.5 | 6.0 | 5.0 | | 0.8 | 0.4 | 0.1 |
| **C90 Multiple myeloma** | | | | | | | | | | | | | | | | | | | | | | |
| Male | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 6 | 9 | 17 | 23 | 46 | 52 | 45 | 58 | 42 | 30 | 331 | | | |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 1.0 | 2.9 | 4.5 | 8.9 | 12.9 | 29.2 | 36.1 | 41.8 | 74.4 | 79.8 | 63.0 | | 10.8 | 6.0 | 0.3 |
| Female | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 6 | 7 | 13 | 26 | 38 | 36 | 36 | 29 | 23 | 217 | | | |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 1.0 | 2.8 | 3.5 | 6.9 | 15.6 | 25.1 | 31.7 | 40.9 | 43.6 | 28.8 | | 7.0 | 3.5 | 0.2 |
| **C91 Lymphoid leukaemia** | | | | | | | | | | | | | | | | | | | | | | |
| Male | 11 | 9 | 2 | 8 | 3 | 4 | 2 | 8 | 5 | 15 | 24 | 26 | 41 | 66 | 69 | 59 | 63 | 39 | 454 | | | |
| | 5.3 | 4.5 | 1.1 | 4.2 | 1.3 | 1.7 | 0.9 | 3.8 | 2.4 | 7.5 | 12.6 | 14.5 | 26.0 | 45.9 | 64.1 | 75.6 | 119.7 | 81.9 | | 14.9 | 9.4 | 0.4 |
| Female | 10 | 9 | 5 | 2 | 4 | 1 | 1 | 1 | 3 | 10 | 15 | 16 | 29 | 36 | 40 | 39 | 27 | 41 | 289 | | | |
| | 5.1 | 4.8 | 2.9 | 1.1 | 1.8 | 0.4 | 0.4 | 0.5 | 1.4 | 4.7 | 7.6 | 8.5 | 17.4 | 23.7 | 35.3 | 44.3 | 40.6 | 51.4 | | 9.3 | 5.8 | 0.3 |
| **C91.0 Acute lymphoblastic leukaemia** | | | | | | | | | | | | | | | | | | | | | | |
| Male | 11 | 9 | 2 | 8 | 3 | 4 | 1 | 1 | 1 | 2 | 3 | 1 | 2 | 3 | 2 | 1 | 3 | 0 | 57 | | | |
| | 5.3 | 4.5 | 1.1 | 4.2 | 1.3 | 1.7 | 0.4 | 0.5 | 0.5 | 1.0 | 1.6 | 0.6 | 1.3 | 2.1 | 1.9 | 1.3 | 5.7 | 0.0 | | 1.9 | 2.2 | 0.3 |
| Female | 10 | 9 | 5 | 2 | 4 | 1 | 0 | 1 | 2 | 0 | 0 | 0 | 2 | 2 | 3 | 0 | 0 | 1 | 42 | | | |
| | 5.1 | 4.8 | 2.9 | 1.1 | 1.8 | 0.4 | 0.0 | 0.5 | 1.0 | 0.0 | 0.0 | 0.0 | 1.2 | 1.3 | 2.6 | 0.0 | 0.0 | 1.3 | | 1.3 | 1.9 | 0.3 |
| **C91.1 Chronic lymphocytic leukaemia** | | | | | | | | | | | | | | | | | | | | | | |
| Male | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 3 | 11 | 20 | 22 | 39 | 56 | 62 | 55 | 54 | 39 | 364 | | | |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 1.0 | 1.5 | 5.5 | 10.5 | 12.3 | 24.8 | 38.9 | 57.6 | 70.5 | 102.6 | 81.9 | | 11.9 | 6.5 | 0.3 |
| Female | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 9 | 12 | 15 | 26 | 33 | 35 | 38 | 27 | 39 | 236 | | | |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.5 | 4.3 | 6.1 | 8.0 | 15.6 | 21.8 | 30.8 | 43.2 | 40.6 | 48.9 | | 7.6 | 3.7 | 0.2 |
| **C92 Myeloid leukaemia** | | | | | | | | | | | | | | | | | | | | | | |
| Male | 3 | 0 | 2 | 4 | 6 | 4 | 6 | 8 | 8 | 11 | 12 | 21 | 15 | 21 | 21 | 29 | 18 | 22 | 211 | | | |
| | 1.5 | 0.0 | 1.1 | 2.1 | 2.6 | 1.7 | 2.5 | 3.8 | 3.9 | 5.5 | 6.3 | 11.8 | 9.5 | 14.6 | 19.5 | 37.2 | 34.2 | 46.2 | | 6.9 | 4.5 | 0.3 |
| Female | 2 | 0 | 0 | 1 | 1 | 3 | 8 | 2 | 9 | 8 | 7 | 17 | 13 | 18 | 15 | 16 | 15 | 24 | 159 | | | |
| | 1.0 | 0.0 | 0.0 | 0.6 | 0.5 | 1.2 | 3.3 | 1.0 | 4.3 | 3.8 | 3.5 | 9.1 | 7.8 | 11.9 | 13.2 | 18.2 | 22.5 | 30.1 | | 5.1 | 3.0 | 0.2 |

Appendix 7 Numbers (Blue) and age-specific rates (Black)
– CR crude incidence rate – ASR Age-standardised rate (Age-standardised to World Standard Population) – SE Standard error of ASR – All rates are per 100,000

## Appendix 7: Detailed tables of cancer incidence 2016 by age, sex and cancer type

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **C92.0 Acute myeloid leukaemia** | | | | | | | | | | | | | | | | | | | | | | |
| Male | 0 | 0 | 0 | 3 | 2 | 2 | 1 | 2 | 3 | 5 | 4 | 13 | 10 | 11 | 18 | 20 | 8 | 13 | 115 | | | |
| | 0.0 | 0.0 | 0.0 | 1.6 | 0.9 | 0.8 | 0.4 | 1.0 | 1.5 | 2.5 | 2.1 | 7.3 | 6.4 | 7.6 | 16.7 | 25.6 | 15.2 | 27.3 | | 3.8 | 2.3 | 0.2 |
| Female | 1 | 0 | 0 | 1 | 1 | 1 | 6 | 1 | 5 | 3 | 2 | 6 | 5 | 7 | 8 | 8 | 8 | 11 | 74 | | | |
| | 0.5 | 0.0 | 0.0 | 0.6 | 0.5 | 0.4 | 2.5 | 0.5 | 2.4 | 1.4 | 1.0 | 3.2 | 3.0 | 4.6 | 7.1 | 9.1 | 12.0 | 13.8 | | 2.4 | 1.4 | 0.1 |
| **C92.1 Chronic myeloid leukaemia** | | | | | | | | | | | | | | | | | | | | | | |
| Male | 0 | 0 | 1 | 1 | 4 | 0 | 4 | 4 | 2 | 4 | 5 | 6 | 2 | 5 | 1 | 5 | 4 | 5 | 53 | | | |
| | 0.0 | 0.0 | 0.6 | 0.5 | 1.7 | 0.0 | 1.7 | 1.9 | 1.0 | 2.0 | 2.6 | 3.4 | 1.3 | 3.5 | 0.9 | 6.4 | 7.6 | 10.5 | | 1.7 | 1.2 | 0.1 |
| Female | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 1 | 2 | 2 | 6 | 3 | 5 | 5 | 3 | 2 | 8 | 41 | | | |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.8 | 0.8 | 0.0 | 0.5 | 1.0 | 1.0 | 3.2 | 1.8 | 3.3 | 4.4 | 3.4 | 3.0 | 10.0 | | 1.3 | 0.7 | 0.1 |
| **C93 Monocytic leukaemia** | | | | | | | | | | | | | | | | | | | | | | |
| Male | 1 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 4 | 5 | 4 | 6 | 9 | 17 | 10 | 15 | 74 | | | |
| | 0.5 | 0.0 | 0.0 | 0.0 | 0.4 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 2.1 | 2.8 | 2.5 | 4.2 | 8.4 | 21.8 | 19.0 | 31.5 | | 2.4 | 1.2 | 0.1 |
| Female | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 5 | 4 | 4 | 1 | 9 | 26 | | | |
| | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 3.3 | 3.5 | 4.5 | 1.5 | 11.3 | | 0.8 | 0.4 | 0.1 |
| **C91-C95 All leukaemia** | | | | | | | | | | | | | | | | | | | | | | |
| Male | 16 | 9 | 5 | 12 | 11 | 10 | 8 | 18 | 13 | 27 | 40 | 53 | 60 | 94 | 101 | 107 | 93 | 79 | 756 | | | |
| | 7.7 | 4.5 | 2.8 | 6.3 | 4.8 | 4.1 | 3.4 | 8.6 | 6.3 | 13.5 | 21.0 | 29.6 | 38.1 | 65.3 | 93.9 | 137.2 | 176.8 | 166.0 | | 24.7 | 15.5 | 0.5 |
| Female | 14 | 9 | 5 | 3 | 5 | 5 | 9 | 4 | 13 | 18 | 24 | 33 | 42 | 59 | 59 | 59 | 43 | 75 | 479 | | | |
| | 7.2 | 4.8 | 2.9 | 1.7 | 2.3 | 2.1 | 3.8 | 1.9 | 6.2 | 8.5 | 12.1 | 17.6 | 25.2 | 38.9 | 52.0 | 67.0 | 64.6 | 94.0 | | 15.3 | 9.3 | 0.4 |
| **D45-D47 Myeloproliferative & myelodysplastic** | | | | | | | | | | | | | | | | | | | | | | |
| Male | 0 | 0 | 1 | 1 | 1 | 1 | 2 | 4 | 9 | 11 | 10 | 18 | 27 | 48 | 66 | 42 | 57 | 77 | 375 | | | |
| | 0.0 | 0.0 | 0.6 | 0.5 | 0.4 | 0.4 | 0.9 | 1.9 | 4.4 | 5.5 | 5.3 | 10.1 | 17.1 | 33.4 | 61.3 | 53.8 | 108.3 | 161.8 | | 12.3 | 6.4 | 0.3 |
| Female | 0 | 0 | 1 | 0 | 1 | 2 | 5 | 4 | 8 | 8 | 13 | 14 | 18 | 32 | 43 | 50 | 39 | 63 | 301 | | | |
| | 0.0 | 0.0 | 0.6 | 0.0 | 0.5 | 0.8 | 2.1 | 1.9 | 3.8 | 3.8 | 6.6 | 7.5 | 10.8 | 21.1 | 37.9 | 56.8 | 58.6 | 79.0 | | 9.6 | 4.6 | 0.2 |
| **C00-C96, D45-D47 All malignant tumours** | | | | | | | | | | | | | | | | | | | | | | |
| Male | 56 | 25 | 27 | 59 | 84 | 116 | 183 | 237 | 345 | 589 | 980 | 1,637 | 2,211 | 2,849 | 2,703 | 2,297 | 1,806 | 1,654 | 17,858 | | | |
| | 27.1 | 12.6 | 14.9 | 31.0 | 36.5 | 47.8 | 77.6 | 113.1 | 167.8 | 294.7 | 515.6 | 915.6 | 1403.5 | 1979.4 | 2512.2 | 2944.6 | 3432.4 | 3474.6 | | 584.3 | 346.7 | 2.6 |
| Female | 36 | 25 | 31 | 53 | 77 | 154 | 308 | 383 | 630 | 963 | 1,212 | 1,379 | 1,628 | 1,909 | 1,864 | 1,599 | 1,281 | 1,647 | 15,179 | | | |
| | 18.5 | 13.3 | 18.2 | 29.2 | 34.9 | 63.3 | 128.3 | 182.7 | 299.1 | 455.9 | 612.5 | 735.1 | 976.1 | 1259.0 | 1642.5 | 1816.4 | 1924.5 | 2065.2 | | 486.1 | 287.4 | 2.3 |

Appendix 7 Numbers (Blue) and age-specific rates (Black)
– CR crude incidence rate – ASR Age-standardised rate (Age-standardised to World Standard Population) – SE Standard error of ASR – All rates are per 100,000

Appendix 7: Detailed tables of cancer incidence 2016 by age, sex and cancer type - Haematological malignancy groups (See table at foot of page 43 for details)

| Age | 0-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30-34 | 35-39 | 40-44 | 45-49 | 50-54 | 55-59 | 60-64 | 65-69 | 70-74 | 75-79 | 80-84 | 85+ | Total | CR | ASR | SE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Lymphoid neoplasms: Hodgkin lymphoma** | | | | | | | | | | | | | | | | | | | | | | |
| Male | 0 | 2 | 3 | 8 | 13 | 10 | 12 | 8 | 8 | 5 | 11 | 3 | 4 | 10 | 12 | 4 | 5 | 5 | 123 | | | |
| | 0.0 | 1.0 | 1.7 | 4.2 | 5.7 | 4.1 | 5.1 | 3.8 | 3.9 | 2.5 | 5.8 | 1.7 | 2.5 | 7.0 | 11.2 | 5.1 | 9.5 | 10.5 | | 4.0 | 3.4 | 0.3 |
| Female | 1 | 0 | 3 | 10 | 18 | 3 | 13 | 8 | 6 | 1 | 4 | 4 | 4 | 9 | 1 | 5 | 4 | 2 | 96 | | | |
| | 0.5 | 0.0 | 1.8 | 5.5 | 8.2 | 1.2 | 5.4 | 3.8 | 2.9 | 0.5 | 2.0 | 2.1 | 2.4 | 5.9 | 0.9 | 5.7 | 6.0 | 2.5 | | 3.1 | 2.8 | 0.3 |
| **Lymphoid neoplasms: CLL/small lymphocytic lymphoma** | | | | | | | | | | | | | | | | | | | | | | |
| Male | 9 | 4 | 0 | 5 | 1 | 1 | 1 | 2 | 3 | 11 | 23 | 22 | 41 | 59 | 65 | 55 | 57 | 41 | 400 | | | |
| | 4.4 | 2.0 | 0.0 | 2.6 | 0.4 | 0.4 | 0.4 | 1.0 | 1.5 | 5.5 | 12.1 | 12.3 | 26.0 | 41.0 | 60.4 | 70.5 | 108.3 | 86.1 | | 13.1 | 7.8 | 0.4 |
| Female | 7 | 3 | 4 | 1 | 4 | 1 | 1 | 1 | 1 | 9 | 13 | 15 | 27 | 36 | 39 | 38 | 27 | 42 | 269 | | | |
| | 3.6 | 1.6 | 2.3 | 0.6 | 1.8 | 0.4 | 0.4 | 0.5 | 0.5 | 4.3 | 6.6 | 8.0 | 16.2 | 23.7 | 34.4 | 43.2 | 40.6 | 52.7 | | 8.6 | 5.0 | 0.3 |
| **Lymphoid neoplasms: Diffuse large B-cell lymphoma** | | | | | | | | | | | | | | | | | | | | | | |
| Male | 0 | 0 | 0 | 0 | 1 | 0 | 3 | 5 | 8 | 7 | 15 | 21 | 35 | 54 | 41 | 40 | 40 | 34 | 304 | | | |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 1.3 | 2.4 | 3.9 | 3.5 | 7.9 | 11.8 | 22.2 | 37.5 | 38.1 | 51.3 | 76.0 | 71.4 | | 10.0 | 5.6 | 0.3 |
| Female | 0 | 0 | 0 | 0 | 1 | 1 | 3 | 1 | 2 | 11 | 10 | 16 | 26 | 25 | 36 | 24 | 34 | 22 | 212 | | | |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 0.4 | 1.3 | 0.5 | 1.0 | 5.2 | 5.1 | 8.5 | 15.6 | 16.5 | 31.7 | 27.3 | 51.1 | 27.6 | | 6.8 | 3.6 | 0.2 |
| **Lymphoid neoplasms: Follicular lymphoma** | | | | | | | | | | | | | | | | | | | | | | |
| Male | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 6 | 4 | 9 | 20 | 14 | 24 | 20 | 21 | 15 | 8 | 9 | 154 | | | |
| | 0.0 | 0.0 | 0.6 | 0.0 | 0.4 | 0.4 | 0.4 | 2.9 | 2.0 | 4.5 | 10.5 | 7.8 | 15.2 | 13.9 | 19.5 | 19.2 | 15.2 | 18.9 | | 5.0 | 3.3 | 0.2 |
| Female | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 4 | 5 | 5 | 8 | 15 | 18 | 23 | 21 | 20 | 8 | 10 | 138 | | | |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 1.9 | 2.4 | 2.4 | 4.0 | 8.0 | 10.8 | 15.2 | 18.5 | 22.7 | 12.0 | 12.5 | | 4.4 | 2.6 | 0.2 |
| **Lymphoid neoplasms: Plasma cell disorders** | | | | | | | | | | | | | | | | | | | | | | |
| Male | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 6 | 9 | 17 | 23 | 46 | 52 | 45 | 58 | 42 | 30 | 331 | | | |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 1.0 | 2.9 | 4.5 | 8.9 | 12.9 | 29.2 | 36.1 | 41.8 | 74.4 | 79.8 | 63.0 | | 10.8 | 6.0 | 0.3 |
| Female | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 6 | 7 | 13 | 26 | 38 | 36 | 36 | 29 | 23 | 217 | | | |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 1.0 | 2.8 | 3.5 | 6.9 | 15.6 | 25.1 | 31.7 | 40.9 | 43.6 | 28.8 | | 7.0 | 3.5 | 0.2 |
| **Lymphoid neoplasms: Other mature B-cell neoplasms** | | | | | | | | | | | | | | | | | | | | | | |
| Male | 2 | 1 | 2 | 1 | 3 | 3 | 1 | 15 | 6 | 4 | 8 | 19 | 13 | 34 | 32 | 27 | 21 | 16 | 208 | | | |
| | 1.0 | 0.5 | 1.1 | 0.5 | 1.3 | 1.2 | 0.4 | 7.2 | 2.9 | 2.0 | 4.2 | 10.6 | 8.3 | 23.6 | 29.7 | 34.6 | 39.9 | 33.6 | | 6.8 | 4.3 | 0.3 |
| Female | 0 | 0 | 0 | 1 | 0 | 4 | 4 | 1 | 4 | 4 | 7 | 14 | 10 | 20 | 24 | 17 | 19 | 16 | 145 | | | |
| | 0.0 | 0.0 | 0.0 | 0.6 | 0.0 | 1.6 | 1.7 | 0.5 | 1.9 | 1.9 | 3.5 | 7.5 | 6.0 | 13.2 | 21.2 | 19.3 | 28.5 | 20.1 | | 4.6 | 2.5 | 0.2 |

Appendix 7 Numbers (Blue) and age-specific rates (Black)
– CR crude incidence rate – ASR Age-standardised rate (Age-standardised to World Standard Population) – SE Standard error of ASR – All rates are per 100,000

Appendix 7: Detailed tables of cancer incidence 2016 by age, sex and cancer type - Haematological malignancy groups (See table at foot of page 43 for details)

| Age | 0-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30-34 | 35-39 | 40-44 | 45-49 | 50-54 | 55-59 | 60-64 | 65-69 | 70-74 | 75-79 | 80-84 | 85+ | Total | CR | ASR | SE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Lymphoid neoplasms: Mature T- and NK--cell neoplasms** | | | | | | | | | | | | | | | | | | | | | | |
| Male | 0 | 0 | 0 | 2 | 1 | 3 | 1 | 3 | 3 | 4 | 6 | 8 | 7 | 12 | 14 | 9 | 11 | 5 | 89 | | | |
| | 0.0 | 0.0 | 0.0 | 1.1 | 0.4 | 1.2 | 0.4 | 1.4 | 1.5 | 2.0 | 3.2 | 4.5 | 4.4 | 8.3 | 13.0 | 11.5 | 20.9 | 10.5 | | 2.9 | 1.8 | 0.2 |
| Female | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 4 | 2 | 7 | 9 | 2 | 6 | 9 | 13 | 1 | 3 | 1 | 62 | | | |
| | 0.0 | 0.5 | 0.6 | 0.0 | 0.5 | 0.4 | 0.4 | 1.9 | 1.0 | 3.3 | 4.6 | 1.1 | 3.6 | 5.9 | 11.5 | 1.1 | 4.5 | 1.3 | | 2.0 | 1.4 | 0.2 |
| **Lymphoid neoplasms: Acute lymphoblastic leukaemia** | | | | | | | | | | | | | | | | | | | | | | |
| Male | 0 | 3 | 1 | 2 | 0 | 2 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 14 | | | |
| | 0.0 | 1.5 | 0.6 | 1.1 | 0.0 | 0.8 | 0.4 | 0.0 | 0.0 | 0.5 | 0.0 | 0.6 | 0.6 | 0.0 | 0.0 | 1.3 | 1.9 | 0.0 | | 0.5 | 0.5 | 0.1 |
| Female | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | | | |
| | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.1 | 0.1 | 0.0 |
| **Myeloid neoplasms: Acute myeloid leukaemia** | | | | | | | | | | | | | | | | | | | | | | |
| **Male** | **1** | **0** | **1** | **3** | **3** | **5** | **2** | **5** | **6** | **7** | **9** | **15** | **14** | **17** | **24** | **23** | **16** | **18** | **169** | | | |
| | 0.5 | 0.0 | 0.6 | 1.6 | 1.3 | 2.1 | 0.9 | 2.4 | 2.9 | 3.5 | 4.7 | 8.4 | 8.9 | 11.8 | 22.3 | 29.5 | 30.4 | 37.8 | | 5.5 | 3.5 | 0.2 |
| Female | 4 | 0 | 0 | 1 | 1 | 1 | 6 | 2 | 9 | 6 | 6 | 11 | 10 | 14 | 10 | 13 | 13 | 15 | 122 | | | |
| | 2.1 | 0.0 | 0.0 | 0.6 | 0.5 | 0.4 | 2.5 | 1.0 | 4.3 | 2.8 | 3.0 | 5.9 | 6.0 | 9.2 | 8.8 | 14.8 | 19.5 | 18.8 | | 3.9 | 2.4 | 0.2 |
| **Myeloid neoplasms: Chronic myeloid leukaemia** | | | | | | | | | | | | | | | | | | | | | | |
| Male | 0 | 0 | 1 | 1 | 4 | 0 | 4 | 4 | 2 | 4 | 5 | 6 | 2 | 5 | 1 | 5 | 4 | 5 | 53 | | | |
| | 0.0 | 0.0 | 0.6 | 0.5 | 1.7 | 0.0 | 1.7 | 1.9 | 1.0 | 2.0 | 2.6 | 3.4 | 1.3 | 3.5 | 0.9 | 6.4 | 7.6 | 10.5 | | 1.7 | 1.2 | 0.1 |
| Female | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 1 | 2 | 2 | 6 | 3 | 5 | 5 | 3 | 2 | 8 | 41 | | | |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.8 | 0.8 | 0.0 | 0.5 | 1.0 | 1.0 | 3.2 | 1.8 | 3.3 | 4.4 | 3.4 | 3.0 | 10.0 | | 1.3 | 0.7 | 0.1 |
| **Myeloid neoplasms: Other chronic myeloproliferative disease** | | | | | | | | | | | | | | | | | | | | | | |
| Male | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 4 | 5 | 10 | 8 | 14 | 9 | 23 | 31 | 8 | 17 | 16 | 148 | | | |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.9 | 1.9 | 2.4 | 5.0 | 4.2 | 7.8 | 5.7 | 16.0 | 28.8 | 10.3 | 32.3 | 33.6 | | 4.8 | 2.9 | 0.2 |
| Female | 0 | 0 | 0 | 0 | 0 | 2 | 4 | 3 | 8 | 5 | 10 | 7 | 7 | 16 | 12 | 18 | 12 | 7 | 111 | | | |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.8 | 1.7 | 1.4 | 3.8 | 2.4 | 5.1 | 3.7 | 4.2 | 10.6 | 10.6 | 20.5 | 18.0 | 8.8 | | 3.6 | 2.1 | 0.2 |
| **Myeloid neoplasms: Myelodysplastic syndromes** | | | | | | | | | | | | | | | | | | | | | | |
| Male | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 2 | 1 | 2 | 2 | 15 | 22 | 32 | 29 | 34 | 57 | 199 | | | |
| | 0.0 | 0.0 | 0.6 | 0.5 | 0.4 | 0.0 | 0.0 | 0.0 | 1.0 | 0.5 | 1.1 | 1.1 | 9.5 | 15.3 | 29.7 | 37.2 | 64.6 | 119.7 | | 6.5 | 3.1 | 0.2 |
| Female | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 2 | 2 | 5 | 10 | 13 | 25 | 26 | 23 | 46 | 155 | | | |
| | 0.0 | 0.0 | 0.6 | 0.0 | 0.0 | 0.0 | 0.4 | 0.5 | 0.0 | 1.0 | 1.0 | 2.7 | 6.0 | 8.6 | 22.0 | 29.5 | 34.6 | 57.7 | | 5.0 | 2.0 | 0.1 |
| **Myeloid neoplasms: Myelodysplastic/myeloproliferative diseases** | | | | | | | | | | | | | | | | | | | | | | |
| Male | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 2 | 7 | 5 | 8 | 9 | 22 | 15 | 19 | 91 | | | |
| | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 1.0 | 0.0 | 1.1 | 3.9 | 3.2 | 5.6 | 8.4 | 28.2 | 28.5 | 39.9 | | 3.0 | 1.4 | 0.1 |
| Female | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 1 | 7 | 10 | 10 | 5 | 18 | 56 | | | |
| | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 0.5 | 1.1 | 0.6 | 4.6 | 8.8 | 11.4 | 7.5 | 22.6 | | 1.8 | 0.7 | 0.1 |

Appendix 7 Numbers (Blue) and age-specific rates (Black)
– CR crude incidence rate – ASR Age-standardised rate (Age-standardised to World Standard Population) – SE Standard error of ASR – All rates are per 100,000

# Appendix 8

## Indices of data quality 2016

Three indices of data quality are shown in the following table. These indices, as defined in Cancer Incidence in Five Continents Vol. VI[Ref 6], are:

### Histological verification (HV%)

The proportion of cases registered which had histological verification of diagnosis. A low HV% suggests incomplete registration of pathology reports and consequently poorer verification of diagnoses and incomplete registration of cancers for which this is often the only source of notification, such as melanoma. The higher the HV% for cancers of less accessible sites, like brain and pancreas, the more confident one can be that the neoplasm existed and that it was primary rather than metastatic.

### Mortality to incidence ratio (M/I%)

The M/I% is the ratio of the number of deaths attributed to a specific cancer with the number of new cases of the same cancer diagnosed during the same period in the same population. If registration is complete and the incidence of the cancer is not changing rapidly, the mortality to incidence ratio should reflect long-term survival. If survival rates are comparable in two populations, a more complete case ascertainment is suggested by a lower M/I%.

### Death certificate only (DCO%)

The DCO% is the proportion of cases registered for which no information was available other than a statement on the death certificate that the deceased died from or with cancer. A high DCO% suggests incomplete incidence notification, and such diagnoses may be less accurate. Registry staff seek additional information for cancers first notified by death certificate to identify possible missed registrations. If no further information is available, the cancer is registered as DCO on the basis of information provided on the death certificate. For DCO cases, the date of diagnosis is taken as the date of death.

| Site | DCO% | HV% | M/I% |
|---|---|---|---|
| **All malignant tumours** | **1.6** | **93** | **34** |
| Head & neck | 0.7 | 97 | 28 |
| Oesophagus | 1.9 | 94 | 71 |
| Stomach | 1.3 | 96 | 61 |
| Bowel | 1.4 | 95 | 35 |
| Liver | 4.4 | 52 | 68 |
| Gallbladder | 1.0 | 83 | 71 |
| Pancreas | 4.3 | 74 | 86 |
| Lung | 2.8 | 87 | 71 |
| Melanoma | 0.2 | 100 | 9 |
| Breast | 0.5 | 99 | 17 |
| Cervix | 1.0 | 98 | 27 |
| Uterus | 0.3 | 99 | 21 |
| Ovary | 2.1 | 92 | 72 |
| Prostate | 1.1 | 97 | 16 |
| Testis | 0.0 | 99 | 2 |
| Kidney | 1.8 | 91 | 26 |
| Bladder | 3.0 | 95 | 42 |
| Brain & CNS | 1.4 | 88 | 87 |
| Thyroid | 0.2 | 99 | 5 |
| Unspecified site | 15.0 | 50 | 77 |
| Lymphoma | 0.9 | 97 | 22 |
| Multiple myeloma | 0.7 | 93 | 40 |
| Leukaemia | 2.9 | 94 | 30 |

# Appendix 9

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**Canstats**: Annual data were published in the Canstat series from 1991-2009.

Titles include:

Cancer in Adolescents and Young Adults
Testicular Cancer
Lung Cancer
Breast Cancer
Cancer of the Brain and Central Nervous System
Childhood Cancer 2010
Prostate Cancer
Trends in Cancer Mortality, Australia 1910–1999
A Guide to the Victorian Cancer Registry
Skin Cancer
Haematological Malignancies (Neoplastic diseases of haematopoietic and lymphoid tissue)

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English D, Farrugia H, Thursfield V, Chang P, Giles G. April 2010. Cancer Survival Victoria 2010. Estimates of survival in 2004 (and comparison with earlier periods)

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## Self-service statistics

Our online interactive reporting tool allows you to select, customise and download the latest Victorian cancer statistics, from 1982 to 2015, in a variety of table and graph formats. The data that are available include cancer incidence and mortality by type of cancer, age group, sex, year of diagnosis, international region of birth, and region of residence within Victoria. Information is now available for individual cancer types and for Department of Health and Human Services tumour streams.

Maps of cancer incidence and mortality are now available by both Victorian Primary Health Network regions and Integrated Cancer Services Regions, showing regional rates for all the major cancer types by sex.

The online reports are accessible at http://vcrdata.cancervic.org.au/vs/

We hope you'll take time to explore the reports and please circulate the link to anyone you think could benefit from access to this data. Your feedback is much appreciated to assist us in the ongoing development of this online resource. Please feel free to send your comments or questions to us.

## Customised statistics

If you require statistics, tables or figures not available from the online interactive web reports, please contact us - we are very happy to to discuss with you the range of data that we may be able to provide and to supply customised aggregated data, tables and graphs to suit your needs.

## Data for research

More detailed and/or identifiable data is be available for use for research and planning, subject to governance requirements of the Victorian Cancer Registry. Please refer to the Data Access Guidelines which explain the type of data that can be obtained; criteria, conditions and limitations for access and procedures to be followed when requesting data access. These procedures are in place to protect, as far as possible, against potential breaches of privacy as well as ensuring ethical integrity and scientific merit of proposals seeking data access.

The guidelines explain access for identifiable unit record data, obtaining access to patients for recruitment to research studies and record linkage of external cohorts to the Victorian Cancer Registry.

http://www.cancervic.org.au/research/registry-statistics/accessing-registry

## Contact details

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