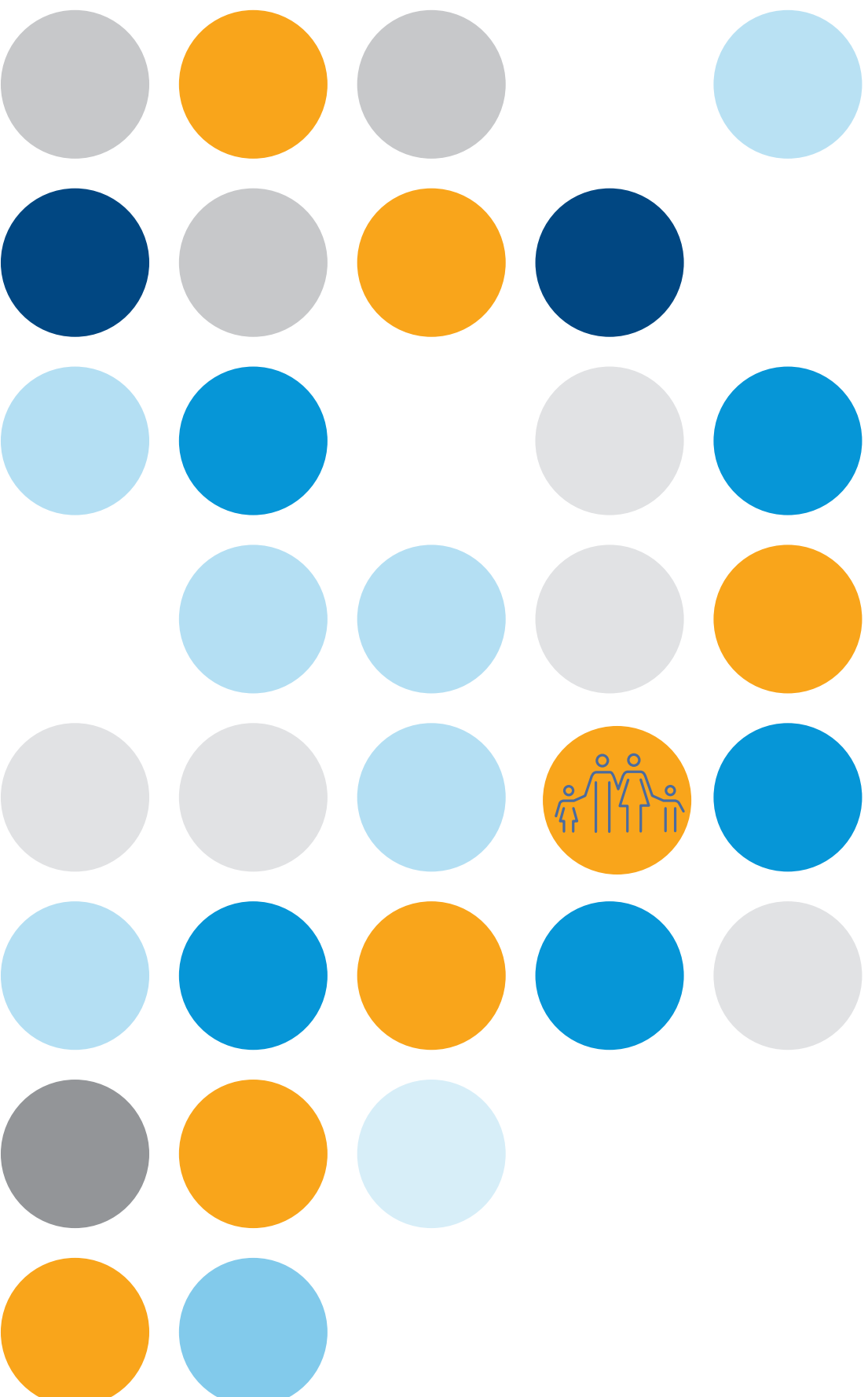


# CANCER IN VICTORIA STATISTICS & TRENDS 2012



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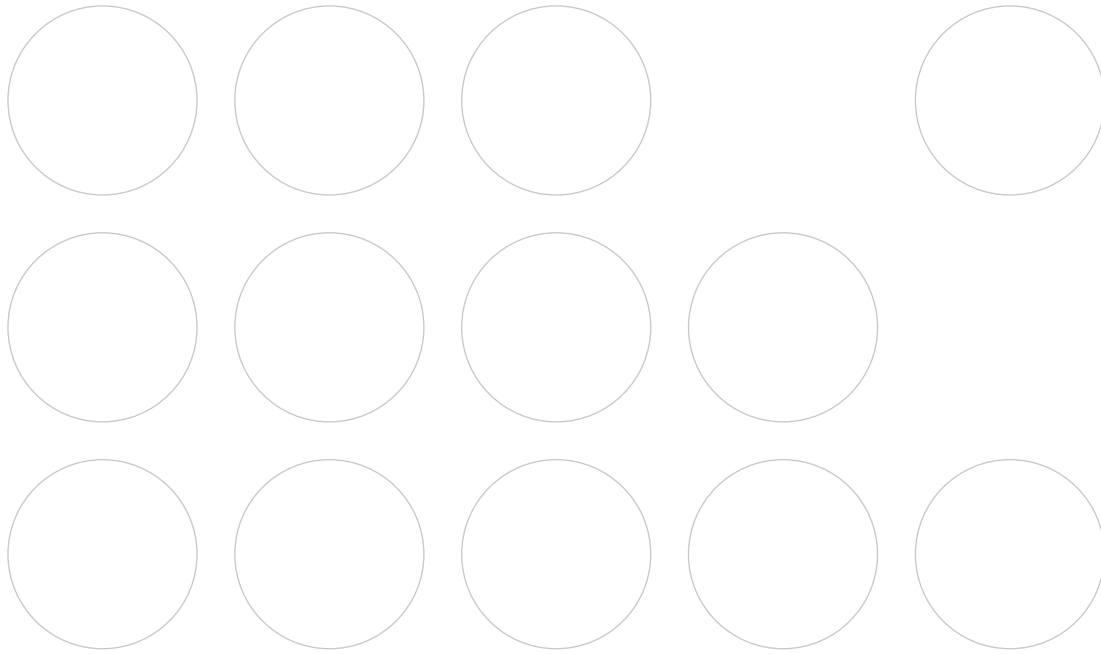
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# Cancer in Victoria

## Statistics & trends 2012

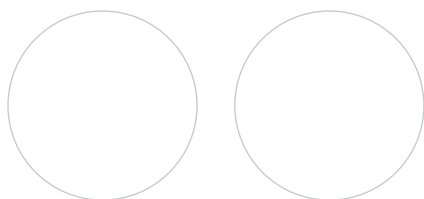
This report is a compilation of the latest available Victorian cancer statistics.

Included in the report are detailed tables on cancer incidence, mortality and survival, and projections of incidence and mortality to 2027.

The early pages of the report include a brief overview of cancer in Victoria in 2012, and a selection of easily interpretable graphs which may be copied into your own reports and presentations.

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

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



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# Message from the Director

I am delighted to present [Cancer In Victoria: Statistics & trends 2012](#), a report of statewide cancer statistics for 2012, compiled by the Victorian Cancer Registry.

For the first time, our report includes cancer statistics for Aboriginal and/or Torres Strait Islander Victorians. In this report we also include incidence and mortality data for 1982-2012, along with projections to 2027, and survival estimates for 2011.

Our ability to make available incidence and mortality statistics for a calendar year within 12 months of its completion, makes the our data among the most current in the world.

I would like to thank each notifying hospital, pathology laboratory and prescribed register 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.

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.

More than thirty years of cancer incidence and mortality data are held by the Victorian Cancer Registry. This is a valuable resource for cancer control activities. We aim to make these data and statistics accessible in a variety of formats to suit all of our audiences. In addition to our regular publications, data can be obtained from our online service or more detailed customised data are available on request.

We are happy to discuss your data requirements with you and encourage you to contact the Registry with any questions or requests.



**Helen Farrugia**  
Director, Victorian Cancer Registry





# Key Messages

## Incidence

Cancer is a leading cause of disease burden in Victoria with an average of 80 new diagnoses every day. In 2012, 29,387 Victorians were diagnosed with cancer.

Cancer incidence rates continue to increase (annual increases of 0.8% for men and 0.6% for women).

## Mortality

There are 30 deaths from cancer in Victoria every day. In 2012, 10,780 people died from cancer.

Death rates have declined steadily since 1982 (falls of 1.4% per year for males and 1.1% for females). This reflects earlier detection of cancers through screening, falling tobacco use, especially by males, and improvements in treatment.

In 2012, cancer deaths in Victoria resulted in the premature loss of nearly 60,000 years of life. This is more than four times the loss resulting from other major causes of death.

## Most common cancers

Breast cancer is the most common new cancer for Victorian women with almost 3,700 diagnoses in 2012 (28% of all cancers).

Though prostate cancer incidence rates declined from 2009 to 2012, it remains the most common new cancer for Victorian men with almost 4,800 new diagnoses in 2012 (30% of all cancers).

The five most common cancers in Victoria are prostate, bowel, breast, lung and melanoma. These account for almost 60% of all new cancers and half of cancer deaths.

## Less common cancers

In this report, we highlight some less common cancers for which incidence rates are increasing, including liver and thyroid cancer.

**Liver cancer** - incidence rates are increasing by more than 4% per year in both men and women which is largely due to prevalence of chronic hepatitis B infection.

However, vaccination is now recommended to persons at increased risk of hepatitis B infection, including migrants from countries where this is common, those in contact with infected individuals, recipients of blood products and children.

**Thyroid cancer** - is three times more common in women than in men and is increasing by over 6% and 5% per year respectively.

The differences between the sexes may include increased incidence and treatment of non-cancerous thyroid disease in females resulting in incidental detection of asymptomatic cancers.

## Aboriginal and/or Torres Strait Islander Victorians

There are over 90 new diagnoses of cancer and almost 40 deaths for Aboriginal and/or Torres Strait Islander Victorians each year.

Overall cancer incidence rates were higher for Aboriginal and/or Torres Strait Islander Victorian women than for Victorian women of other descent but male rates did not differ significantly.

Mortality rates were significantly higher for Aboriginal and/or Torres Strait Islander Victorians than Victorians of other descent for both men and women.

## Trends in cervix cancer

The incidence rate of cervix cancer in Victorian women has fallen by 45% in the last twenty years, with death rates falling by 61% over the same period. This decline is largely attributable to the success of the population-based organised screening program.

Staging data for 2008-2009 show that almost 60% of women are diagnosed with early disease. In women aged less than 30 years, almost 90% have stage 1 cancer. Stage 4 disease is most prominent (15%) in women aged over 50 years.

## Survival

During the period 1987-2011, five-year survival increased from 47% to 66%.

## Projections

It is estimated that by 2023-2027 the annual incidence of cancer will reach over 44,000, an increase of 53% from 2008-2012.

During the same period, deaths from cancer will increase to over 13,000 per year. Though actual numbers of new cases and deaths are increasing rapidly, this is largely due to the growth and ageing of the Victorian population.

# 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 2012, the population of Victoria was 5,629,122 persons making it the second most populous state of Australia. One in four Australians live in Victoria, with nearly three-quarters of these in metropolitan Melbourne. Most of the remainder live in small provincial cities with only 0.1% in remote areas.

At the 2011 census, the number of Aboriginal and/or Torres Strait Islander Victorians was 37,990 persons, making up 0.7% of the Victorian population and 7% of the national Aboriginal and/or Torres Strait Islander population.

Victoria has an area of 227,420 km<sup>2</sup> and makes up less than 3% of the Australian continent (Figure 1). It is the most densely populated state with an average population density of 24 persons per km<sup>2</sup> (Australia 2.9 persons per km<sup>2</sup>).

## Age and sex

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

In 2012, 18% of Victorians were aged under 15 years and 14% 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 has been steadily declining since the early 1970s. In 2011, the crude rate was 12.7 births per 1,000 persons. Life expectancy at birth was, in 2011, 80.3 years for males and 84.4 for females. Over the last decade, life expectancy has increased by 3 and 2 years for males and females respectively.

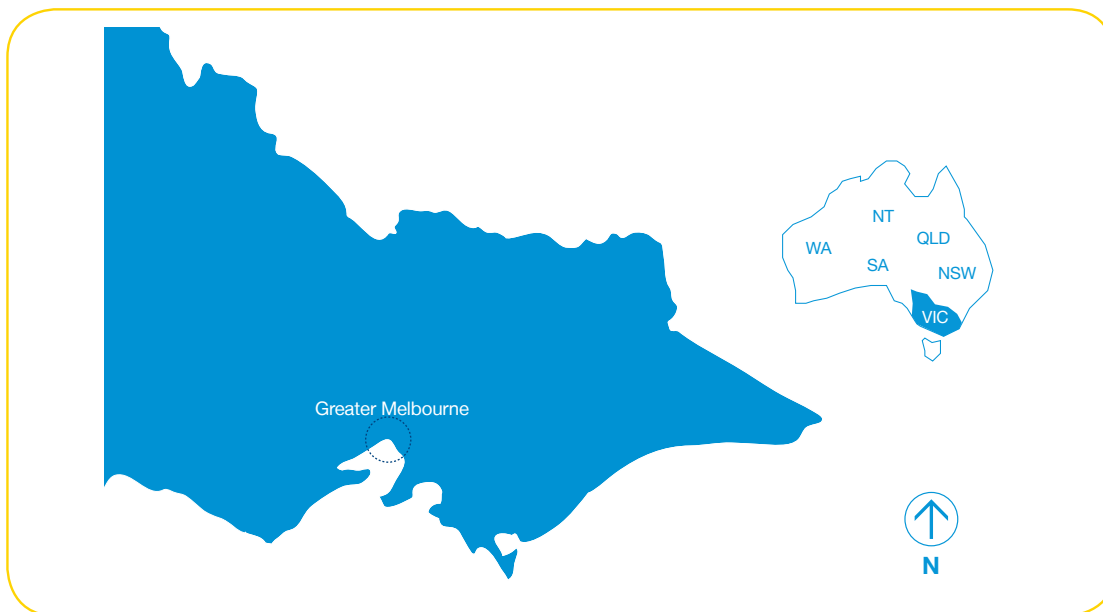
There were 36,552 deaths of Victorian residents in 2011. The numbers of male deaths (18,471) were slightly greater than female deaths (18,081).

Between 2001 and 2011, the median age at death for Victorian males increased from 76.1 to 79.3 years, and for Victorian females from 82.1 to 84.8 years.

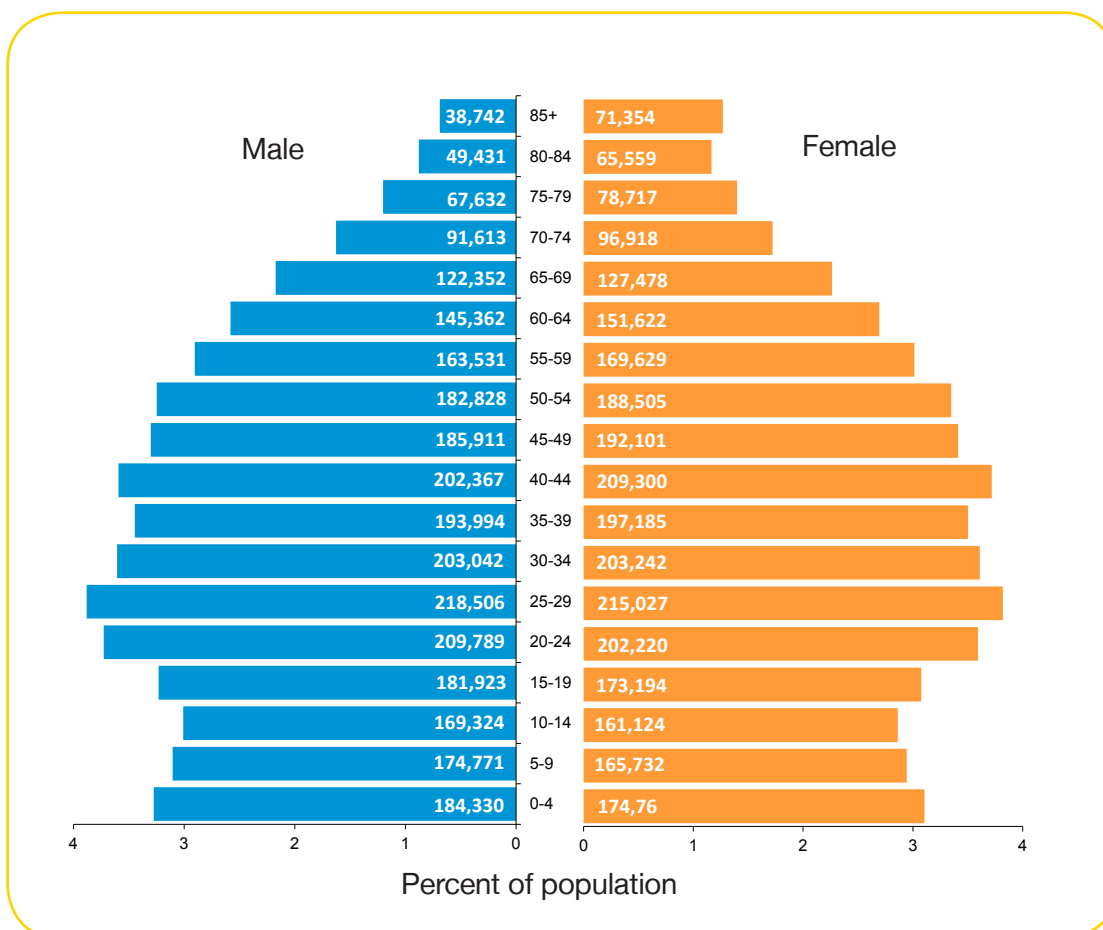
Cancer caused 29% of all deaths, ischaemic heart disease 14%, cerebrovascular disease 7%, chronic lower respiratory disease 4%, diabetes 3%, suicide 1% and transport accidents 1%.

\*2012 figures not available at time of publication.

**Figure 1** Map of Victoria



**Figure 2** Percent of population (and numbers of persons) by sex and age, Victoria 2012



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

# Incidence and mortality overview

In 2012, 29,387 Victorians were diagnosed with cancer, and 10,780 died from cancer.

For the first time, we report information for Aboriginal and/or Torres Strait Islander Victorians (pages 24-25).

During 2008-2012, an average of 91 Aboriginal and/or Torres Strait Islander Victorians were diagnosed with cancer, and 39 died from cancer each year.

## Incidence

Each year, over 29,000 Victorians develop cancer<sup>1</sup>, and there are over 10,500 cancer related deaths. In 2012, 16,075 men and 13,312 women were diagnosed with new cancers and 5,974 men and 4,806 women died from cancer.

The standardised incidence rates (per 100,000 persons) were 351.0 for males and 278.9 for females. The cumulative percentage rates, to 75 years of age, were 41.0% for males and 31.0% 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 Appendix 7 (pages 45-56) for incidence rates by sex and individual sites.

## Age and sex

Cancer was strongly related to age, with less than 1% of tumours occurring before age 15 and 58% occurring in persons older than 65 years. More men than women developed cancer: 121 males for every 100 females. The predominance of males was associated with tobacco-related cancers and large numbers of prostate cancers.

## Mortality

Age-standardised mortality rates for cancer were 110.3 per 100,000 males and 77.3 per 100,000 females. Cancer death rates for men and women continue to decrease by more than 1% per year. The years of potential life lost (YPLL) to age 75 were 30,337 for males and 28,718 for females.

A comparison of deaths caused by cancer, and the years of potential life lost, with those of other leading causes is shown in Figure 3.

A summary of mortality rates by sex and cancer type is given in Table 3 (page 16). In 2012, there were 23 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). There were also 86 deaths (44 male and 42 female) from the common non-melanoma skin cancers (basal and squamous cell carcinomas) which are not included elsewhere in this report.

See Appendix 5 (page 43) regarding 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).

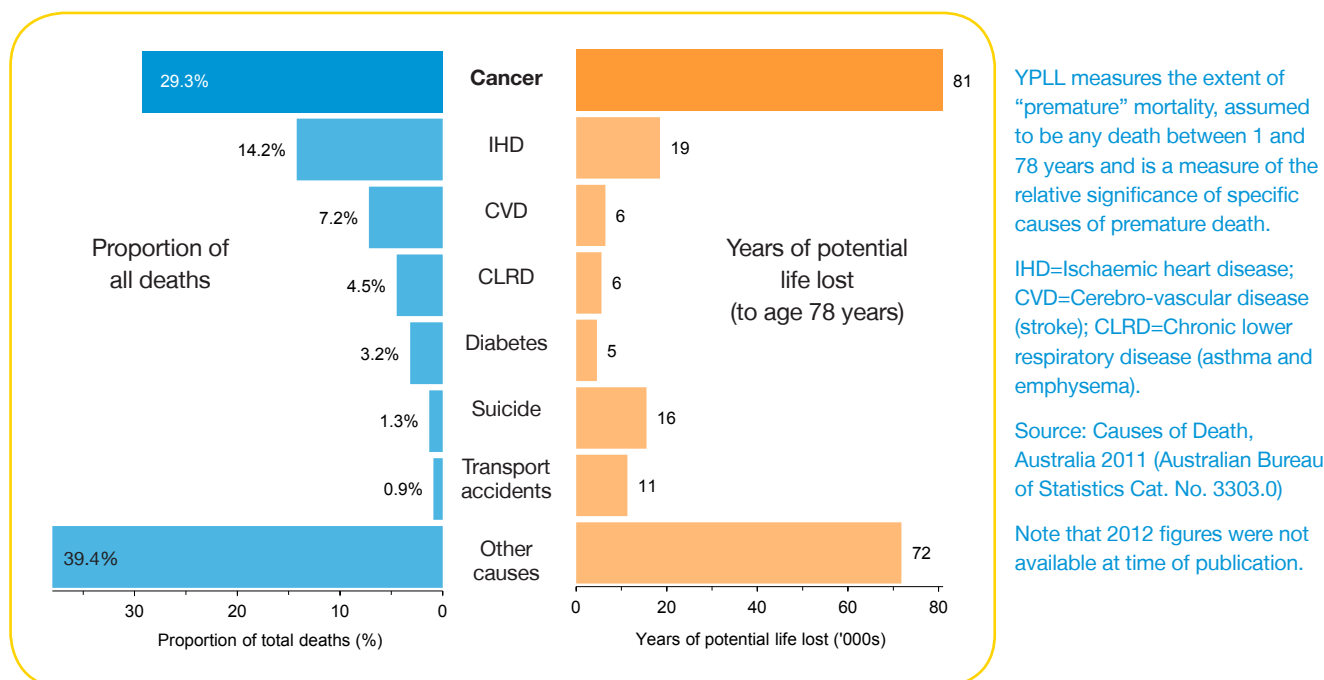
**Prostate cancer** was again the leading new cancer in 2012 (4,764 cases, 16% of all cancers and 30% of cancers for men). Incidence rates rose steeply between 1987 and 1995, largely due to the introduction of Prostate Specific Antigen (PSA) testing to detect early asymptomatic cancers. Rates increased rapidly again between 1999 and 2009, but have shown a decline since. Prostate cancer was the second ranking cause of cancer death for men (790 deaths, 13% of total) in 2012.

**Breast cancer** overtook bowel cancer, in 2011, as the second most common new cancer, accounting for 13% (3,721) of new cases and 28% of all cancers for women. It was the fourth ranking cause of cancer death (759 deaths, 6.6% of total). Incidence rates have stabilised recently after a decade of increase, largely due to mammographic screening. Breast cancer mortality rates have shown a downward trend since 1994.

**Bowel (colon and rectum) cancer** was the third most common new cancer in Victoria, in 2012, with 3,583 cases (12% of all cancers). It was the second ranking site of fatal cancer (1,358 deaths, 13% of total). Though rates have shown a decrease in last two years, it is too early to comment on whether this change is likely to be associated with the National Bowel Cancer Screening Program.

<sup>1</sup> "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) 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 2011



**Lung cancer** was the fourth most common new cancer (2,683 new cases) in 2012, and remains the leading cause of cancer death (1,946 deaths, 18% of all cancer deaths). Incidence and mortality rates continue to decline for males, but rates for females have yet to clearly reach their peak.

**Melanoma** was the fifth ranking new cancer in Victoria (2,261 cases, 8% of total) and was the eleventh cause of cancer death (313 deaths, 3% of total). Mortality rates are stable, while incidence continues to increase for older age groups.

**Cancers of unspecified primary site** form a substantial group of new cancers with 670 (2%) diagnoses in 2012. We do not include cancers of unknown primary site in our most common cancers figures as these are a very heterogeneous group. Numerically these cancers would appear in the top ten cancer sites for incidence and, because they are often advanced or widespread at the time of diagnosis, rank sixth for mortality with 642 deaths (6% of all cancer deaths).

There are estimated to be nearly 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.

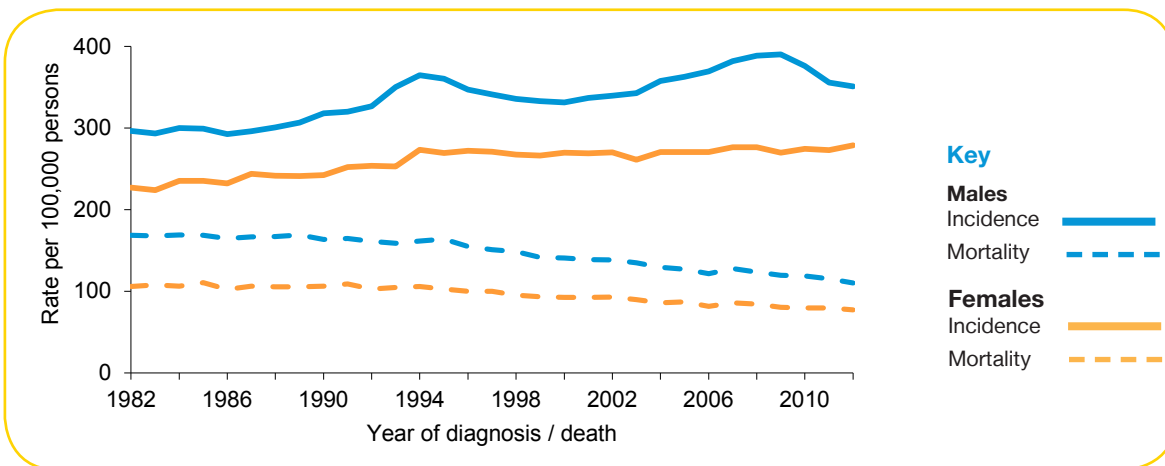
### Trends in cancer incidence and mortality

The trends in age-standardised rates of incidence and mortality for all cancers in Victoria by sex from 1982-2012 are shown in Figure 4 (Page 14). Figures 7 and 8 (pages 20-21) show trends for selected cancer types.

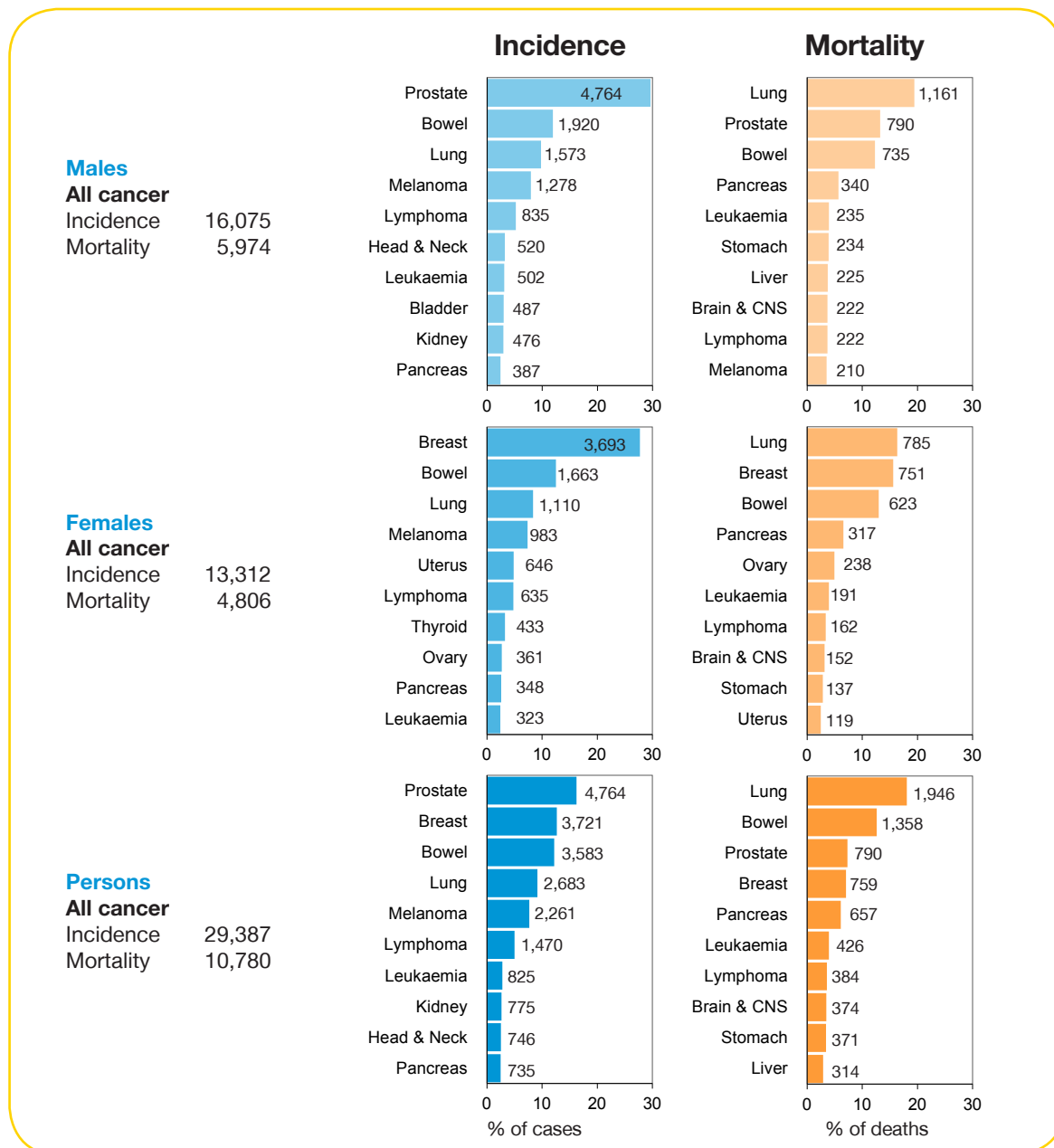
Although cancer incidence rates continue to increase (annual % increases of 0.8% for men and 0.6% for women), death rates have declined steadily since 1982 with average falls of 1.4% per year for males and 1.1% for females.

Note: The behaviour codes for some tumours changed between ICD-O editions 2 and 3 (in which the Victorian Cancer Registry has coded since 2003). These changes affect the range of tumours included in incidence reporting. In particular, ovarian tumours of borderline malignancy and superficial (non-invasive) transitional cell cancers of the bladder are no longer coded as malignant tumours and are therefore not included. Conversely, myelodysplastic syndromes and myeloproliferative disorders are now classified as malignant and are included in this report. Changes to reported rates prior to and after 2003 may reflect these coding changes.

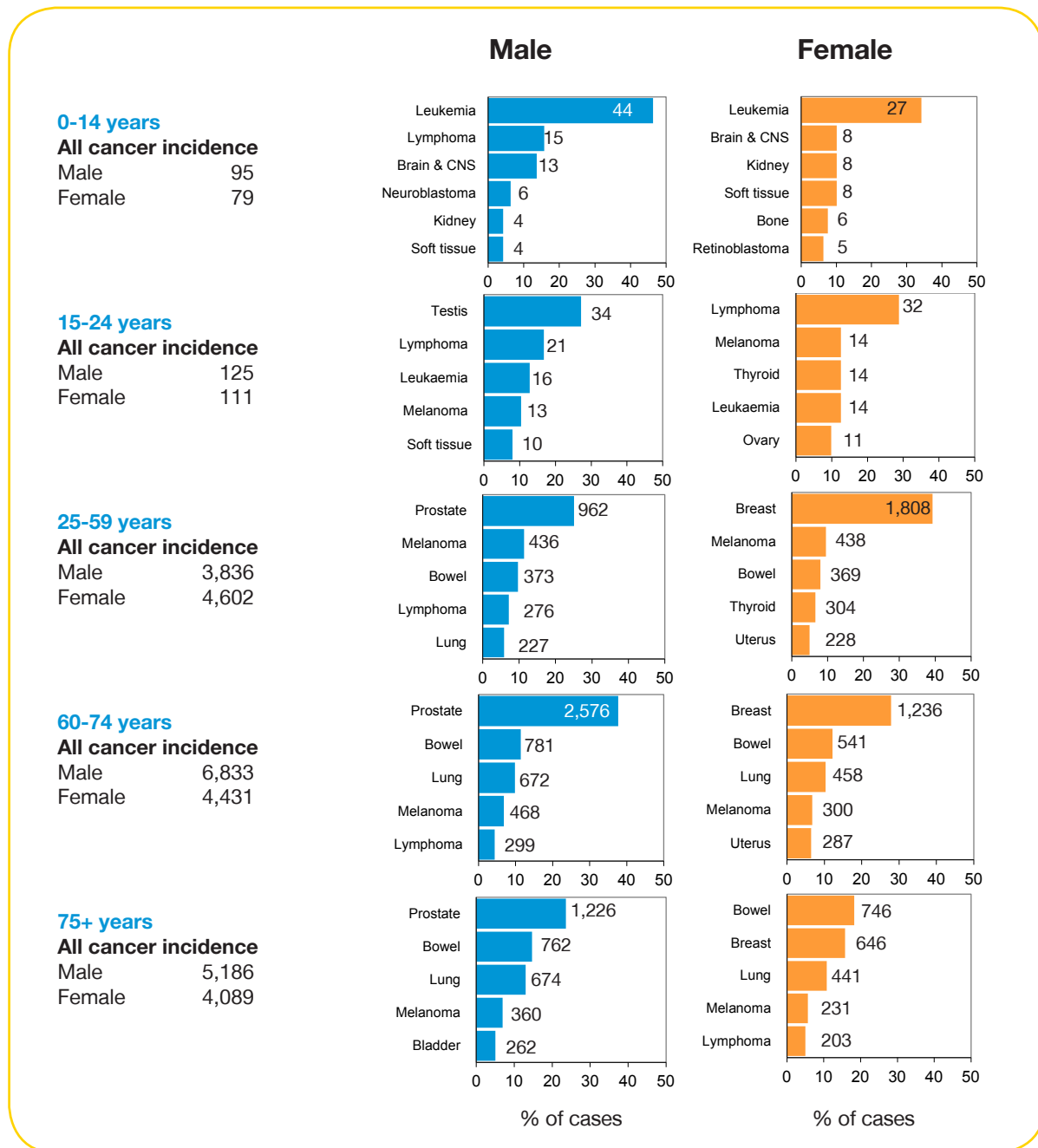
**Figure 4** Trends in cancer incidence and mortality rates by sex, Victoria 1982-2012



**Figure 5** Leading cancer types by sex, Victoria 2012. 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 2012. Percentage of new cancers and number of cases for most common cancers by sex and age



**Table 1** Cancer incidence, Victoria 2012

Number (N) 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 cancer type and sex

ICD	Site	N	Males			Females			
			CR	CR%	ASR	N	CR	CR%	ASR
C00	Lip	130	4.7	0.3	3.1	62	2.2	0.1	1.1
C01,C02	Tongue	104	3.7	0.3	2.6	63	2.2	0.1	1.3
C07,C08	Salivary glands	31	1.1	0.1	0.7	37	1.3	0.1	0.8
C03	Gum	25	0.9	0.1	0.6	18	0.6	0.0	0.3
C04	Floor of mouth	23	0.8	0.1	0.6	12	0.4	0.0	0.3
C05, C06	Other mouth	26	0.9	0.1	0.6	22	0.8	0.1	0.4
<b>C01-C06</b>	<b>Oral cavity</b>	<b>177</b>	<b>6.4</b>	<b>0.5</b>	<b>4.3</b>	<b>114</b>	<b>4.0</b>	<b>0.3</b>	<b>2.3</b>
C09, C10	Oropharynx	90	3.2	0.3	2.3	26	0.9	0.1	0.6
C11	Nasopharynx	38	1.4	0.1	1.0	8	0.3	0.0	0.2
C12, C13	Hypopharynx	26	0.9	0.1	0.6	9	0.3	0.0	0.2
<b>C09-C13</b>	<b>Pharynx</b>	<b>154</b>	<b>5.5</b>	<b>0.5</b>	<b>3.9</b>	<b>43</b>	<b>1.5</b>	<b>0.1</b>	<b>1.0</b>
C14	Other oral	16	0.6	0.0	0.3	2	0.1	0.0	0.0
C15	Oesophagus	226	8.1	0.6	4.9	100	3.5	0.1	1.4
C16	Stomach	382	13.7	0.9	7.8	211	7.4	0.4	3.6
C17	Small Intestine	63	2.3	0.2	1.4	70	2.5	0.2	1.4
C18	Colon	1,195	42.9	2.7	23.7	1,202	42.3	2.2	20.5
C19-C20	Rectum	725	26.0	1.8	15.4	461	16.2	1.1	9.1
<b>C18-C20</b>	<b>Bowel</b>	<b>1,920</b>	<b>68.9</b>	<b>4.5</b>	<b>39.1</b>	<b>1,663</b>	<b>58.5</b>	<b>3.3</b>	<b>29.6</b>
C21	Anus	51	1.8	0.1	1.2	64	2.3	0.2	1.3
C22	Liver	290	10.4	0.8	6.5	109	3.8	0.2	1.9
C23, C24	Gallbladder	87	3.1	0.2	1.7	111	3.9	0.2	1.7
C25	Pancreas	387	13.9	0.9	7.8	348	12.2	0.7	5.7
C30, C31	Nasal Cavities	29	1.0	0.1	0.6	13	0.5	0.0	0.3
C32	Larynx	112	4.0	0.3	2.5	17	0.6	0.0	0.3
C33, C34	Lung	1,573	56.5	3.7	31.0	1,110	39.0	2.5	20.4
C37, C38	Thymus etc	14	0.5	0.0	0.3	13	0.5	0.0	0.3
C40, C41	Bone	24	0.9	0.1	0.7	15	0.5	0.0	0.6
C43	Melanoma	1,278	45.9	3.2	29.0	983	34.6	2.4	22.2
C44	Other skin	40	1.4	0.1	0.8	32	1.1	0.1	0.6
C45	Mesothelioma	124	4.5	0.2	2.2	22	0.8	0.0	0.4
C46	Kaposi Sarcoma	17	0.6	0.0	0.4	3	0.1	0.0	0.0
C48	Peritoneum	12	0.4	0.0	0.3	29	1.0	0.1	0.6
C47, C49	Connective Tissue	115	4.1	0.3	2.9	79	2.8	0.2	2.1
C50	Breast	28	1.0	0.1	0.6	3,693	129.9	9.7	85.8
C53	Cervix	-	-	-	-	213	7.5	0.5	5.7
C54, C55	Uterus	-	-	-	-	646	22.7	1.8	14.2
C56	Ovary	-	-	-	-	361	12.7	0.9	7.8
C58	Placenta	-	-	-	-	1	0.0	0.0	0.0
C51, C52, C57	Vulva etc	-	-	-	-	158	5.6	0.4	3.0
C61	Prostate	4,764	171.0	13.8	104.8	-	-	-	-
C62	Testis	218	7.8	0.5	7.1	-	-	-	-
C60, C63	Penis etc	25	0.9	0.0	0.5	-	-	-	-
C64	Kidney	476	17.1	1.3	11.1	299	10.5	0.7	6.5
C67	Bladder	487	17.5	0.9	8.9	143	5.0	0.2	2.2
C65, C66, C68	Renal pelvis etc	76	2.7	0.2	1.4	39	1.4	0.1	0.6



**Table 1** Cancer incidence, Victoria 2012 - continued

	Site	N	Males			Females			
			CR	CR%	ASR	N	CR	CR%	ASR
C69	Eye	23	0.8	0.1	0.5	28	1.0	0.1	0.9
C70	Meninges	4	0.1	0.0	0.1	2	0.1	0.0	0.1
C71	Brain	245	8.8	0.6	6.4	171	6.0	0.4	3.8
C72	Other CNS	9	0.3	0.0	0.3	7	0.2	0.0	0.3
<b>C70-C72</b>	<b>Brain &amp; CNS</b>	<b>258</b>	<b>9.3</b>	<b>0.7</b>	<b>6.7</b>	<b>180</b>	<b>6.3</b>	<b>0.4</b>	<b>4.1</b>
C73	Thyroid	141	5.1	0.4	3.7	433	15.2	1.1	11.6
C74, C75	Other endocrine	17	0.6	0.0	0.6	16	0.6	0.0	0.4
C26, C39, C76-C79	Ill-defined site	35	1.3	0.1	0.7	39	1.4	0.1	0.7
C80	Unspecified site	335	12.0	0.6	6.2	335	11.8	0.6	5.2
C81	Hodgkin lymphoma	107	3.8	0.3	3.3	78	2.7	0.2	2.5
C82	Nodular NHL	197	7.1	0.5	4.8	171	6.0	0.4	3.7
C83	Diffuse NHL	383	13.8	1.0	8.6	256	9.0	0.6	5.0
C84	T-cell lymphoma	55	2.0	0.1	1.2	36	1.3	0.1	0.9
C85	Other NHL	93	3.3	0.2	2.0	94	3.3	0.2	1.6
<b>C82-C85</b>	<b>Non-Hodgkin lymphoma</b>	<b>728</b>	<b>26.1</b>	<b>1.8</b>	<b>16.7</b>	<b>557</b>	<b>19.6</b>	<b>1.3</b>	<b>11.3</b>
C88	Immunoproliferative	22	0.8	0.1	0.5	26	0.9	0.0	0.4
C90	Multiple myeloma	251	9.0	0.6	5.0	222	7.8	0.5	4.0
C91	Lymphoid leukaemia	244	8.8	0.6	6.8	135	4.7	0.3	3.6
C91.0	Acute lymphoblastic leukaemia	64	2.3	0.2	3.1	42	1.5	0.1	1.9
C91.1	Chronic lymphatic leukaemia	164	5.9	0.4	3.3	84	3.0	0.2	1.5
C92	Myeloid leukaemia	235	8.4	0.5	5.3	157	5.5	0.3	3.1
C92.0	Acute myeloid leukaemia	107	3.8	0.2	2.4	77	2.7	0.2	1.6
C92.1	Chronic myeloid leukaemia	54	1.9	0.1	1.3	33	1.2	0.1	0.7
C93	Monocytic leukaemia	10	0.4	0.0	0.2	16	0.6	0.0	0.4
C94	Other leukaemia	8	0.3	0.0	0.2	6	0.2	0.0	0.1
C95	Unspecified Leukaemia	5	0.2	0.0	0.1	9	0.3	0.0	0.1
C96	Other haematopoietic	2	0.1	0.0	0.1	6	0.2	0.0	0.1
<b>C91-C95</b>	<b>All leukaemia</b>	<b>502</b>	<b>18.0</b>	<b>1.2</b>	<b>12.6</b>	<b>323</b>	<b>11.4</b>	<b>0.7</b>	<b>7.3</b>
D45-D47	Myeloproliferative	327	11.7	0.6	6.4	266	9.4	0.4	4.5
<b>C00-C96, D45-D47</b>	<b>All malignant tumours</b>	<b>16,075</b>	<b>577.1</b>	<b>41.0</b>	<b>351.0</b>	<b>13,312</b>	<b>468.1</b>	<b>31.0</b>	<b>278.9</b>

**Table 2** Cancer mortality, Victoria 2012

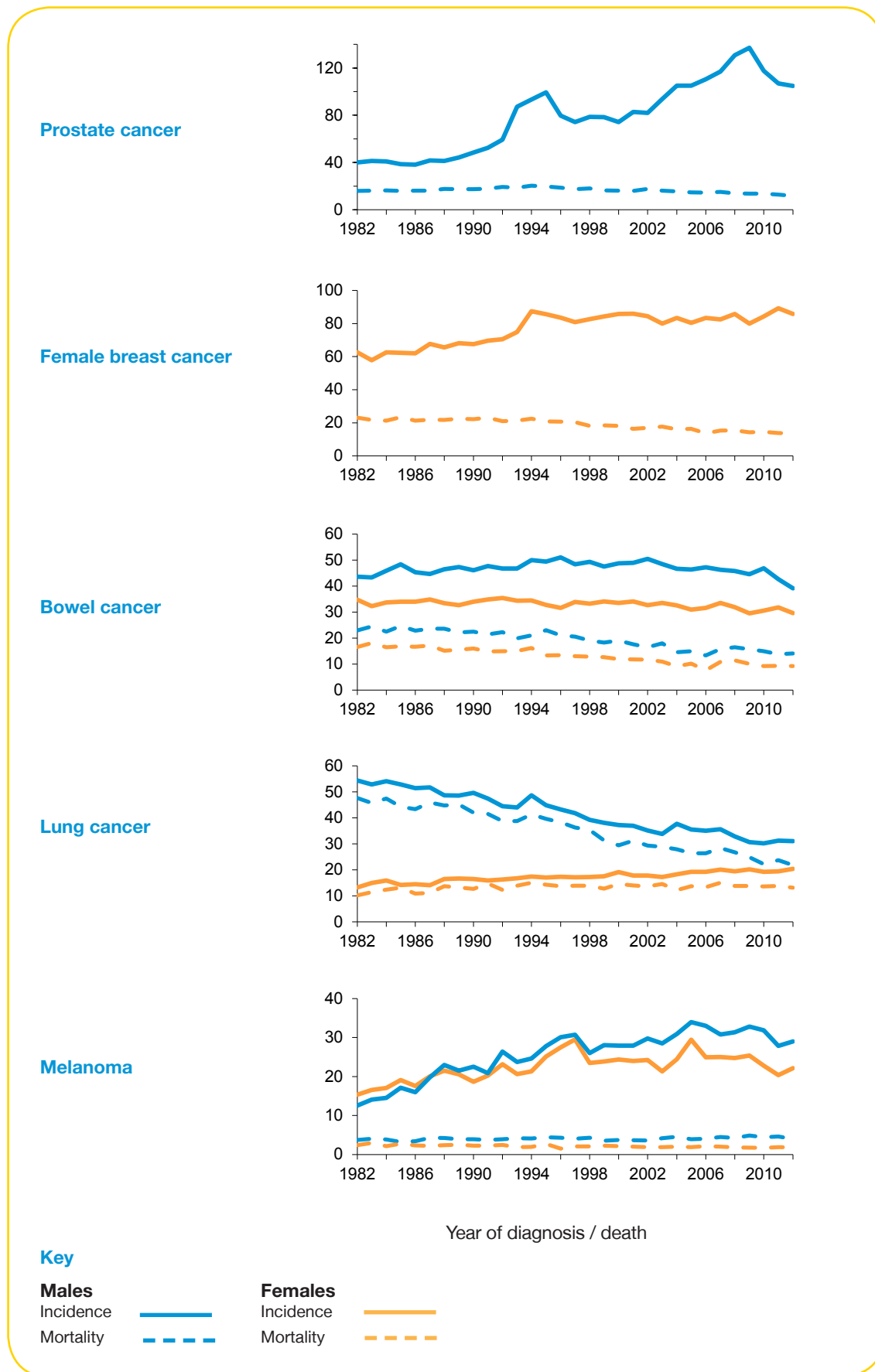
Number (N) of deaths, crude rate (CR), years of potential life lost to age 75 years (YPLL) and age-standardised rate (ASR) per 100,000 (standardised to World Standard Population) by cancer type and sex

ICD	Site	N	Males			N	Females		
			CR	YPLL	ASR		CR	YPLL	ASR
C00	Lip	7	0.3	78	0.1	2	0.1	0	0.0
C01,C02	Tongue	38	1.4	253	0.8	16	0.6	129	0.3
C07,C08	Salivary glands	10	0.4	41	0.2	6	0.2	33	0.1
C03	Gum	8	0.3	59	0.2	6	0.2	19	0.1
C04	Floor of mouth	8	0.3	26	0.2	1	0.0	12	0.0
C05, C06	Other mouth	10	0.4	106	0.2	6	0.2	35	0.1
<b>C01-C06</b>	<b>Oral cavity</b>	<b>64</b>	<b>2.3</b>	<b>444</b>	<b>1.3</b>	<b>29</b>	<b>1.0</b>	<b>195</b>	<b>0.5</b>
C09, C10	Oropharynx	33	1.2	267	0.7	6	0.2	33	0.1
C11	Nasopharynx	7	0.3	79	0.1	2	0.1	19	0.0
C12, C13	Hypopharynx	13	0.5	18	0.2	4	0.1	47	0.1
<b>C09-C13</b>	<b>Pharynx</b>	<b>53</b>	<b>1.9</b>	<b>364</b>	<b>1.1</b>	<b>12</b>	<b>0.4</b>	<b>99</b>	<b>0.2</b>
C14	Other oral	5	0.2	25	0.1	4	0.1	19	0.1
C15	Oesophagus	148	5.3	892	2.9	74	2.6	221	1.0
C16	Stomach	234	8.4	1,088	4.3	137	4.8	592	2.1
C17	Small Intestine	28	1.0	235	0.6	24	0.8	168	0.4
C18	Colon	464	16.7	2,260	8.5	448	15.8	1,879	6.2
C19-C20	Rectum	271	9.7	1,631	5.3	175	6.2	1,072	2.8
<b>C18-C20</b>	<b>Bowel</b>	<b>735</b>	<b>26.4</b>	<b>3,901</b>	<b>13.8</b>	<b>623</b>	<b>21.9</b>	<b>2,956</b>	<b>9.0</b>
C21	Anus	12	0.4	87	0.3	15	0.5	106	0.3
C22	Liver	225	8.1	1,728	4.8	89	3.1	490	1.4
C23, C24	Gallbladder	61	2.2	191	1.1	101	3.6	457	1.6
C25	Pancreas	340	12.2	1,770	6.5	317	11.1	1,254	4.8
C30, C31	Nasal Cavities	14	0.5	62	0.3	5	0.2	98	0.1
C32	Larynx	29	1.0	181	0.6	4	0.1	30	0.1
C33, C34	Lung	1,161	41.7	5,400	21.8	785	27.6	4,077	13.2
C37, C38	Thymus etc	4	0.1	78	0.1	5	0.2	76	0.1
C40, C41	Bone	10	0.4	218	0.3	2	0.1	55	0.1
C43	Melanoma	210	7.5	1,165	4.0	103	3.6	844	1.8
C44	Other skin	13	0.5	54	0.2	10	0.4	45	0.1
C45	Mesothelioma	116	4.2	331	2.0	22	0.8	125	0.4
C46	Kaposi Sarcoma	0	0.0	0	0.0	0	0.0	0	0.0
C48	Peritoneum	5	0.2	50	0.1	18	0.6	113	0.3
C47, C49	Connective Tissue	40	1.4	461	0.9	30	1.1	300	0.5
C50	Breast	8	0.3	77	0.2	751	26.4	6,488	13.7
C53	Cervix	-	-	-	-	51	1.8	719	1.1
C54, C55	Uterus	-	-	-	-	119	4.2	567	1.9
C56	Ovary	-	-	-	-	238	8.4	1,534	4.2
C58	Placenta	-	-	-	-	0	0.0	0	0.0
C51, C52, C57	Vulva etc	-	-	-	-	43	1.5	301	0.7
C61	Prostate	790	28.4	1,038	11.8	-	-	-	-
C62	Testis	4	0.1	145	0.1	-	-	-	-
C60, C63	Penis etc	5	0.2	46	0.1	-	-	-	-
C64	Kidney	153	5.5	1,098	3.1	67	2.4	318	1.0
C67	Bladder	186	6.7	595	3.2	70	2.5	228	1.0
C65, C66, C68	Renal pelvis etc	34	1.2	120	0.6	29	1.0	40	0.3

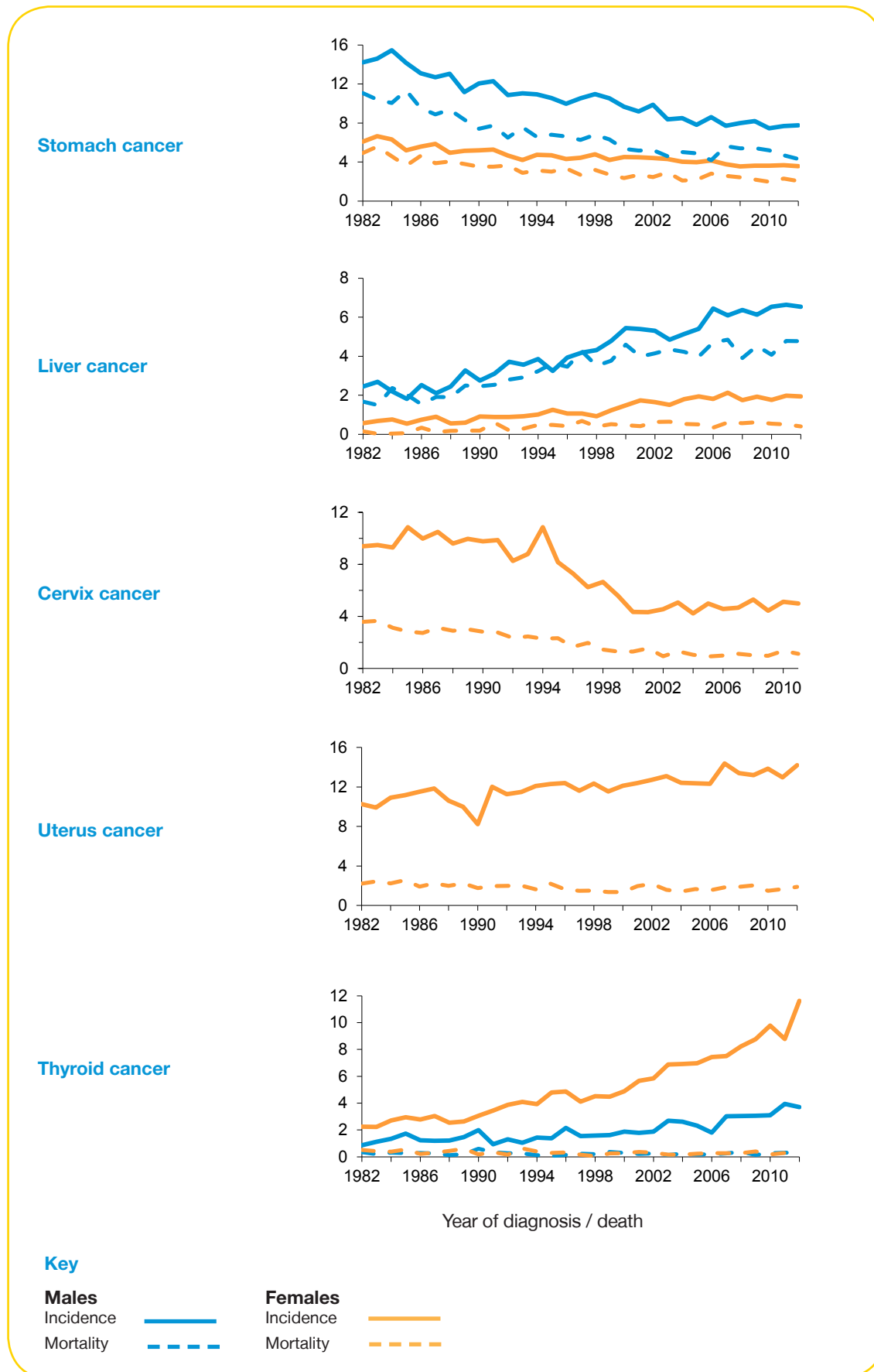
**Table 2** Cancer mortality, Victoria 2012 – continued

ICD	Site	N	Males			N	Females		
			CR	YPLL	ASR		CR	YPLL	ASR
C69	Eye	10	0.4	75	0.2	5	0.2	64	0.1
C70	Meninges	0	0.0	0	0.0	3	0.1	48	0.1
C71	Brain	220	7.9	2,616	5.2	148	5.2	1,710	3.1
C72	Other CNS	2	0.1	59	0.1	1	0.0	0	0.0
<b>C70-C72</b>	<b>Brain &amp; CNS</b>	<b>222</b>	<b>8.0</b>	<b>2,675</b>	<b>5.2</b>	<b>152</b>	<b>5.3</b>	<b>1,759</b>	<b>3.2</b>
C73	Thyroid	14	0.5	142	0.3	18	0.6	33	0.2
C74, C75	Other endocrine	10	0.4	276	0.3	4	0.1	19	0.1
C26, C39, C76-C79	Ill-defined site	30	1.1	104	0.5	35	1.2	106	0.5
C80	Unspecified site	328	11.8	1,329	5.7	314	11.0	1,359	4.5
C81	Hodgkin lymphoma	15	0.5	128	0.3	9	0.3	110	0.2
C82	Nodular NHL	14	0.5	80	0.3	16	0.6	28	0.2
C83	Diffuse NHL	144	5.2	497	2.5	94	3.3	376	1.2
C84	T-cell lymphoma	22	0.8	147	0.4	14	0.5	137	0.3
C85	Other NHL	27	1.0	62	0.4	29	1.0	89	0.3
<b>C82-C85</b>	<b>Non-Hodgkin lymphoma</b>	<b>207</b>	<b>7.4</b>	<b>786</b>	<b>3.6</b>	<b>153</b>	<b>5.4</b>	<b>631</b>	<b>2.0</b>
C88	Immunoproliferative	7	0.3	13	0.1	3	0.1	21	0.0
C90	Multiple myeloma	141	5.1	504	2.5	99	3.5	277	1.3
C91	Lymphoid leukaemia	67	2.4	438	1.3	62	2.2	290	0.9
C91.0	Acute lymphoblastic leukaemia	13	0.5	320	0.4	14	0.5	217	0.3
C91.1	Chronic lymphatic leukaemia	51	1.8	95	0.8	44	1.5	45	0.5
C92	Myeloid leukaemia	147	5.3	738	2.8	113	4.0	621	1.8
C92.0	Acute myeloid leukaemia	113	4.1	579	2.1	85	3.0	483	1.4
C92.1	Chronic myeloid leukaemia	8	0.3	20	0.1	8	0.3	77	0.1
C93	Monocytic leukaemia	8	0.3	56	0.1	10	0.4	152	0.2
C94	Other leukaemia	2	0.1	0	0.0	0	0.0	0	0.0
C95	Unspecified Leukaemia	11	0.4	44	0.2	6	0.2	0	0.0
C96	Other haematopoietic	0	0.0	0	0.0	0	0.0	0	0.0
C91-C95	All leukaemia	235	8.4	1,276	4.4	191	6.7	1,064	2.9
D45-D47	Myeloproliferative	51	1.8	75	0.7	38	1.3	7	0.3
C00-C96, D45-D47	<b>All malignant tumours</b>	<b>5,974</b>	<b>214.5</b>	<b>30,337</b>	<b>110.3</b>	<b>4,806</b>	<b>169.0</b>	<b>28,718</b>	<b>77.3</b>

**Figure 7** Trends in incidence and mortality (annual age-standardised rates per 100,000 persons) for the 5 most common cancers by sex, Victoria 1982-2012



**Figure 8** Trends in incidence and mortality (annual age-standardised rates per 100,000 persons) for other selected cancers by sex, Victoria 1982-2012



# Trends in cervix cancer in Victorian women, 1982-2012

## Cervix cancer burden and prevention

In Australia, cervix cancer is uncommon and its incidence is among the lowest in the world. This is in sharp contrast to many lower income countries where cervix cancer is very common and it is associated with many deaths. Women who migrate to Victoria from countries where there is a high prevalence of cervix cancer, bring this heightened risk with them but this risk diminishes over time, eventually approaching the same as that of Australian born women. For example, in the period 1996-99 Victorian migrant women from South East Asia had a cervix cancer incidence rate twice that of Australian born women, but by 2008-11, their rate was the same.

In Victoria, in 2012, there were 213 new diagnoses of invasive cervix cancer and 2,499 diagnoses of in situ cancer of the cervix. In the same year, 51 women died from cervix cancer. Survival from cervix cancer is relatively high, but has not shown significant improvement over the last 20 years. Five-year survival from cervix cancer for Victorian women averaged 70% in 1987-1991 and 74% in 2007-11.

The principal cause of cervix cancer is infection with certain strains of the human papilloma virus (HPV). These are spread by sexual contact. The development of a vaccine against HPV, in recent years, and subsequent mass vaccination campaigns targeted to girls and boys will provide primary prevention of up to 80% of cervical cancers. However, in both the short and longer term all women, whether vaccinated or unvaccinated, need to continue screening, which is the best way to prevent the development of cervical cancer in sexually active women, including those cancers caused by HPV types not covered by the vaccine.

## Cervix cancer staging

There is more than one type of cervix cancer; the main cell types being squamous cell carcinoma (SCC) and adenocarcinoma. The Victorian Cancer Registry routinely collects limited information on cervix cancer stage at diagnosis, that is, how far the cancer has spread. The earliest stage (stage 0) is carcinoma in situ where cancerous cells are confined to the layer of cells lining the cervix and have not extended into deeper tissues. The other stage data collected routinely by the Registry is microinvasive SCC, which includes

“early stromal invasion” of less than 1 mm and other lesions where cancerous cells have penetrated to 3-5 mm (stage 1a). The Registry does not routinely collect details on stage for more advanced cervix cancers (e.g. stages 1b, 2, 3 and 4) but, instead, groups these collectively as “invasive”.

For 2008 and 2009, the Victorian Cancer Registry was funded to capture staging for all gynaecological cancers diagnosed across the whole of Victoria. It was found that the majority of cervix cancers were diagnosed at an early stage, with 58% of cancers being diagnosed at stage 1, 15% at stage 2, 13% at stage 3, 9% at stage 4, and 5% were unknown.

The bars in Figure 9 show the frequency distribution of these stage categories for four age-groups. Although advanced stage cervix cancer can occur at any age, stage 1 disease is the norm for women aged less than 30 years (89%) and stage 4 disease is most prominent for women aged over 50 (15%). For cervix cancers in women aged over 70 years, stage was unknown for 16% compared with 4% for women aged 40 to 69 years.

## Cervix cancer trends over time

The overall trends in cervix cancer incidence and mortality are reported earlier in this report (Figure 8, Page 21). In the twenty years since 1993, the age-standardised incidence of cervix cancer has fallen by 45%. This is largely attributable to the success of the population wide screening program which invites eligible women to have regular smear tests accompanied by appropriate follow up of suspicious findings.

The trends in incidence rates suggest that the screening program has been particularly effective in the prevention of invasive SCC, with marked reductions over time (Figure 10). This is further supported by the pattern of increased detection of the non-invasive form of SCC (carcinoma in situ) accompanied by a decrease in the more invasive forms (Figure 11).

The most robust indicator of the success of the screening program, however, is a reduction in cervix cancer mortality. Since 1993, mortality from cervix cancer has declined by 3% a year – overall 61% in 20 years.

Figure 9: Distribution of invasive cervix cancer by FIGO stage and age group, 2008-2009

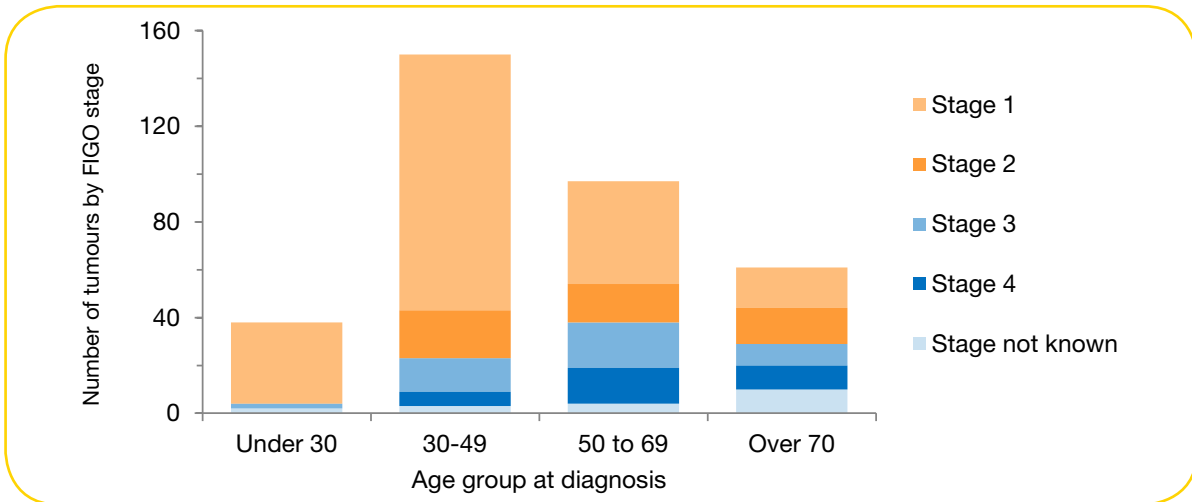


Figure 10: Trends in invasive cervix cancer by cell type, Victoria 1982-2012

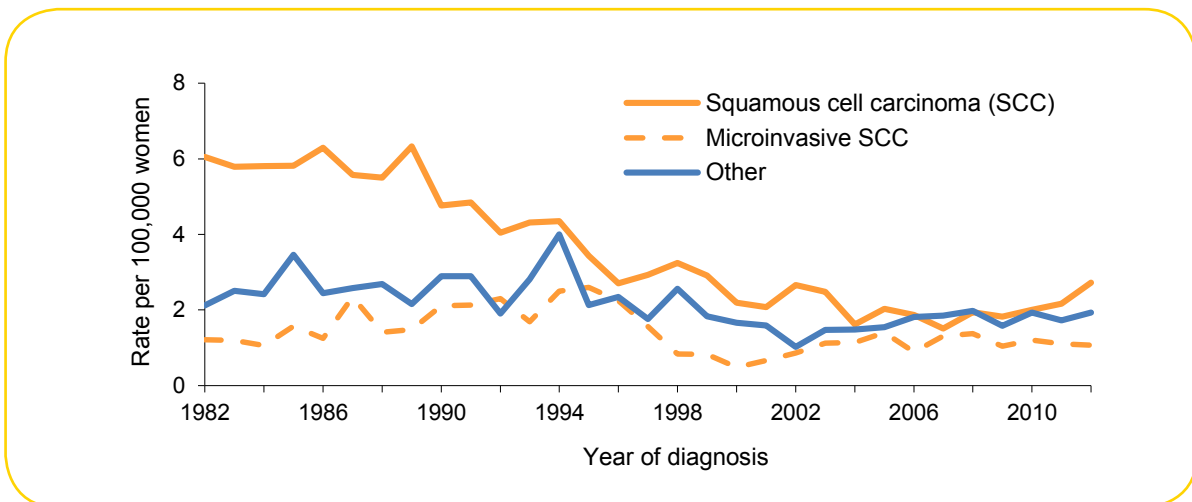
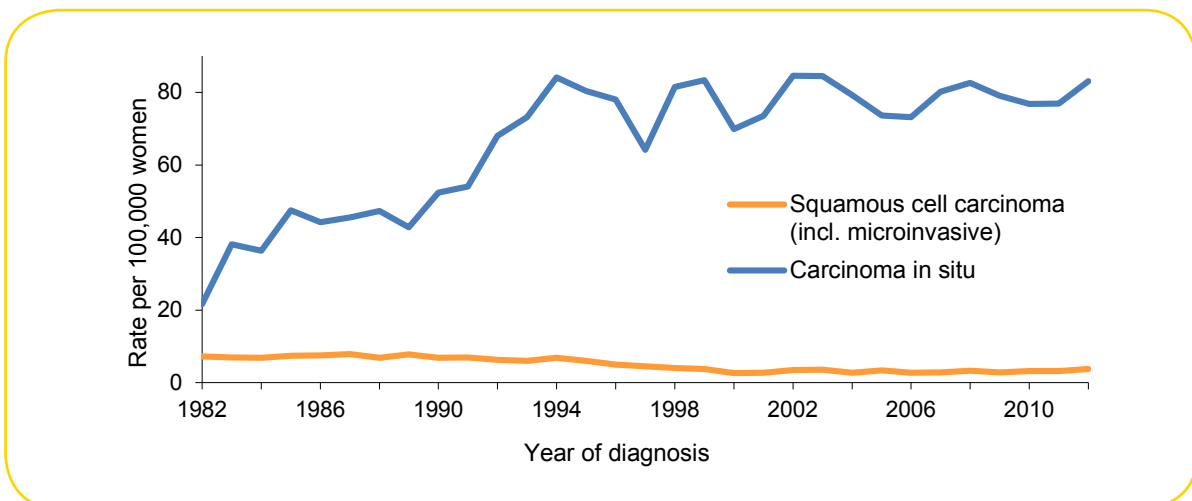


Figure 11: Trends in SCC by stage - in situ and invasive (including microinvasive), Victoria 1982-2012



# Cancer statistics for Aboriginal and/or Torres Strait Islander Victorians

## For Aboriginal and/or Torres Strait Islander Victorians:

- There are over 90 new diagnoses of cancer each year
- There are nearly 40 cancer related deaths each year
- Overall cancer incidence rates were higher than for women of other descent, but male rates did not differ significantly
- Mortality rates were significantly higher than for Victorians of other descent for both men and women

## Incidence

There were 457 cancer diagnoses reported for Aboriginal and/or Torres Strait Islander Victorians in the five-year period 2008-2012 inclusive; an average of 91 new diagnoses each year.

Incidence was slightly higher for women (52%) than for men (48%).

Overall incidence rates were higher for Aboriginal and/or Torres Strait Islander women (323.4 new cases per 100,000 women) than for Victorian women of other descent (274.1 per 100,000 women), but there was no significant difference in the rate for Aboriginal and/or Torres Strait Islander men (372.5 new cases per 100,000) and men of other descent (371.1 new cases per 100,000).

The most common cancers for Aboriginal and/or Torres Strait Islander Victorians are bowel, breast, lung and prostate cancer, lymphoma, melanoma, head and neck cancers and leukaemia.

Figure 12 shows the fifteen most common cancers for Aboriginal and/or Torres Strait Islander Victorians compared with Victorians of other descent as a percentage of total cancers.

Of the common cancers, rates were significantly higher for Aboriginal and/or Torres Strait Islander Victorians

for lung cancer (women), liver cancer (women), bowel cancer and cervical cancer. Incidence rates were significantly lower for melanoma and prostate cancer.

The cancers for which Aboriginal and/or Torres Strait Islander Victorians have relatively higher incidence rates, compared with Victorians of other descent, are associated with tobacco use, alcohol consumption, infection with hepatitis and infection with human papilloma virus (HPV).

It should be noted, when comparing rates for Aboriginal and/or Torres Strait Islander Victorians, that the rates are based on small numbers of cases, even when aggregated across the five year period 2008-2012. Therefore, random fluctuations are to be expected across time periods.

Figure 13 shows age-specific incidence curves for Aboriginal and/or Torres Strait Islander men and women and men and women of other descent for the five year period 2008-2012. Incidence rates for Aboriginal and/or Torres Strait Islander men and men of other descent are similar until over 70 years of age, whereas for Aboriginal and/or Torres Strait Islander women, incidence rates start to exceed those of women of other descent from the 40-49 years age group and are consistently 20-30% higher for older age groups.

## Mortality

There were 195 cancer deaths of Aboriginal and/or Torres Strait Islander Victorians in the five years 2008-2012 inclusive, an average of 39 deaths each year.

Mortality was slightly higher for women (52%) than for men (48%).

Overall mortality rates were significantly higher for both Aboriginal and/or Torres Strait Islander men and women (176.2 and 140.4 deaths per 100,000 respectively) than for men and women of other descent (117.2 and 79.9 deaths per 100,000 men and women respectively).

The greater mortality rates experienced by Aboriginal and/or Torres Strait Islander Victorians may be associated with diagnoses occurring at more advanced disease stage. This could reflect problems around timely access to treatment and insufficient participation in cancer screening services.



Figure 12: Most common types of cancer for Aboriginal and/or Torres Strait Islander Victorians and Victorians of other descent, 2008-2012

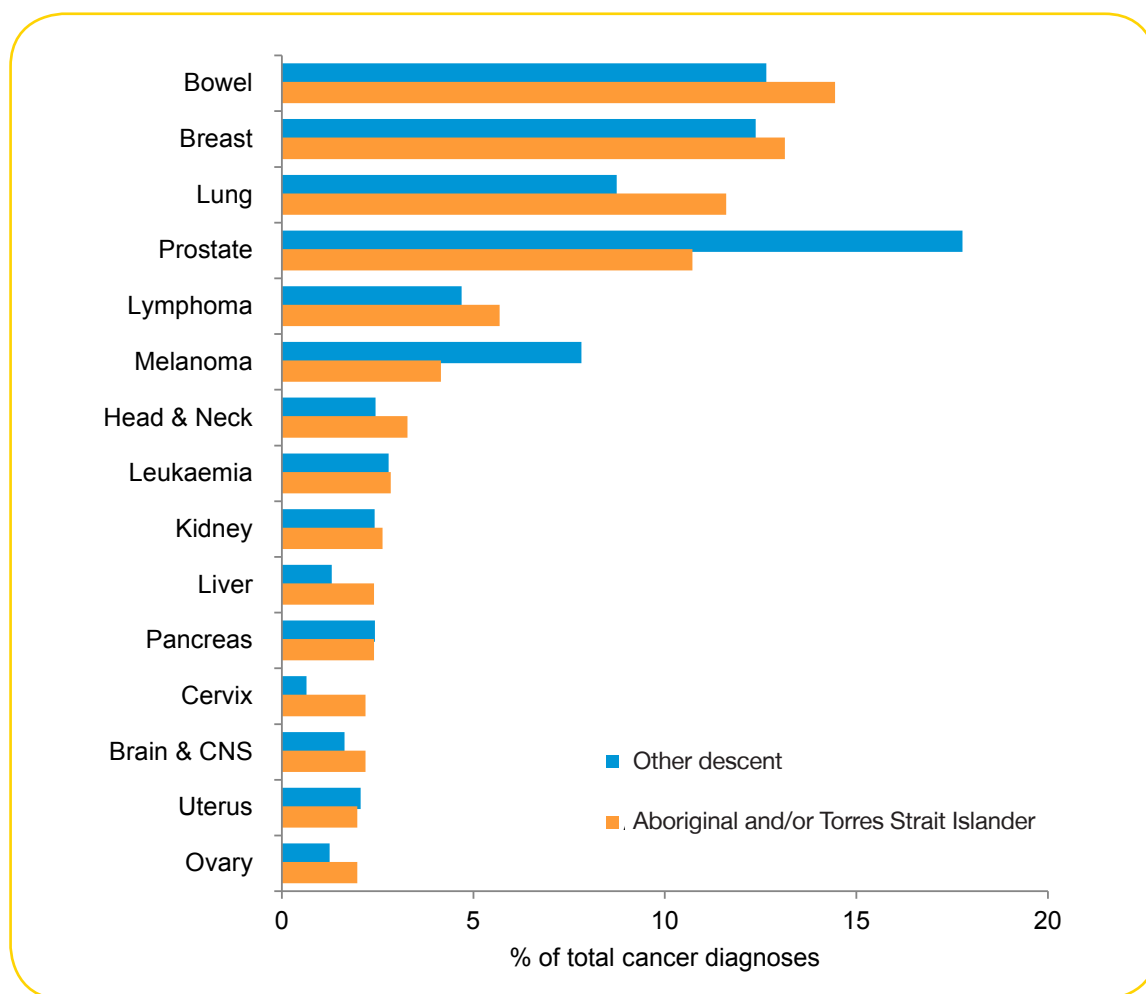
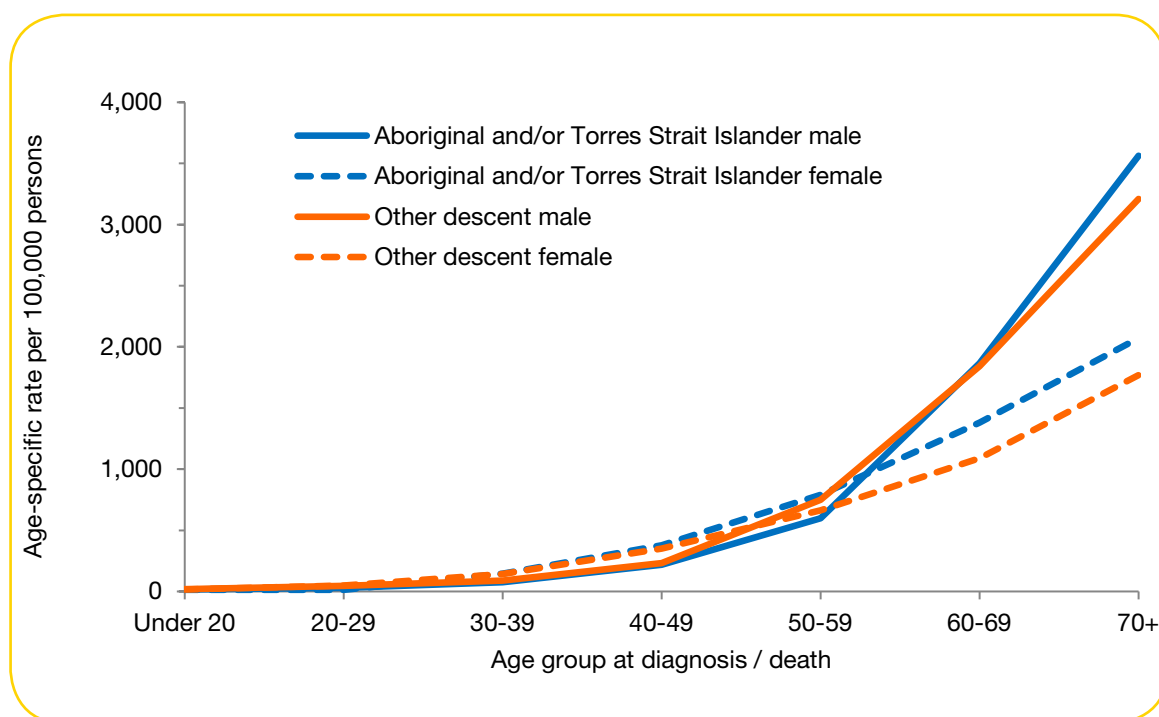


Figure 13: Age-specific cancer incidence rates by sex for Aboriginal and/or Torres Strait Islander Victorians and Victorians of other descent, 2008-2012



# Cancer survival

Cancer survival is increasing in Victoria. In 2007-2011, 66% of Victorians with cancer survived 5 years after diagnosis. This has increased from 61% in 2002-2006.

Cancer survival has been included in our annual statistics update since 2009. A comprehensive report *Cancer Survival in Victoria 2012* (Ref3) 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 the 2007-2011 analysis. More detailed tables are available from 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 27 for detailed explanation).

Overall five-year cancer survival was 66%, an increase from 61% from 2002-2006.

Table 3 (pages 30-1) shows detailed survival by sex, age group, tumour morphology and region of usual residence for Victorians with all cancers in 2007-2011.

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 (94%), prostate (93%), melanoma (90%), female breast (90%) and Hodgkin lymphoma (89%). Cancers with the lowest survival remain liver (15%), lung (14%), unknown primary (13%), mesothelioma (7%) and pancreas (6%).

Survival patterns vary considerably for the different types of cancer. Figure 14 (Page 28) shows the five-year survival by cancer site for males and females separately and Figure 15 (page 29) the survival curves from diagnosis to five years for all cancer and the leading sites of new cancer.

## Sex

Overall, survival was similar for men (65%) and women (66%). 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 and central nervous system. Survival was higher for men only for bladder cancer and unknown primary cancers.

## Age at diagnosis

Most cancers 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 70% for women aged <45 to 17% for those aged >75, whereas breast cancer survival showed a markedly smaller decrease from 89% to 80% between the same ages.

## Tumour morphology

For most cancers, there were differences in survival by tumour morphology. Table 3 (on page 30) shows survival by morphology for all cancers. Survival varied from 11% for tumours without histological confirmation and 7% for mesothelioma to 77% for other specified cancers (mostly melanoma), 75% for adenocarcinoma and 76% for lymphoma.

## Regional variation

Generally, survival from cancer for residents of metropolitan Melbourne (67%) is better than that for residents from the rest of Victoria (63%).

The reasons for this difference is not clear, and we currently lack 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 1987-1991 and 2007-2011 for almost all of the cancers in this report. The only cancers for which no gains have been made are cancers of the larynx, cervix and renal pelvis and mature T- and NK-cell non-Hodgkin lymphoma.

There have been a number of substantial gains for cancers having generally poor prognoses. For example, survival from oesophagus cancer increased from 9% to 18%, for gallbladder from 12% to 18%, for CML from 30% to 79%, for liver cancer from 4% to 15%, and for cancer of unknown primary from 6% to 13%. For the last three listed cancers, there were also significant survival gains between 2002-2006 and 2007-2011.

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

## Methods

As with our previous reports, the tables report “period” survival analysis. This uses only the most recent interval survival estimate for cases diagnosed in different calendar years (cross-sectional estimate of survival). The estimate of period 5-year survival for persons in 2007-2011 uses the 1-year interval survival for patients diagnosed in 2011, the 2-year interval survival from patients diagnosed in 2010, 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% five-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.

Example: Relative survival for two fictional groups of 100 cancer patients aged <30 and >85 years. In the whole (non-cancer) population we would expect to have 95 and 35 persons 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.

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.

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

### 1987-2011 survival analysis

Survival statistics for Victorians with cancer from 1987-2011 are presented on the following pages though the rest of the publication includes statistics to 2012.

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. In particular, there is considerable retiree migration from Victoria to Queensland.

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 1987-1991 because linkage of incidence data to death notifications was less complete prior to this period. The period 1987-2011 provides us with twenty-five years of cases, divided into five-year time intervals, for the comparison of time trends in survival.

Figure 14: Survival by cancer type for Victorian men and women with cancer in 2007-2011

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

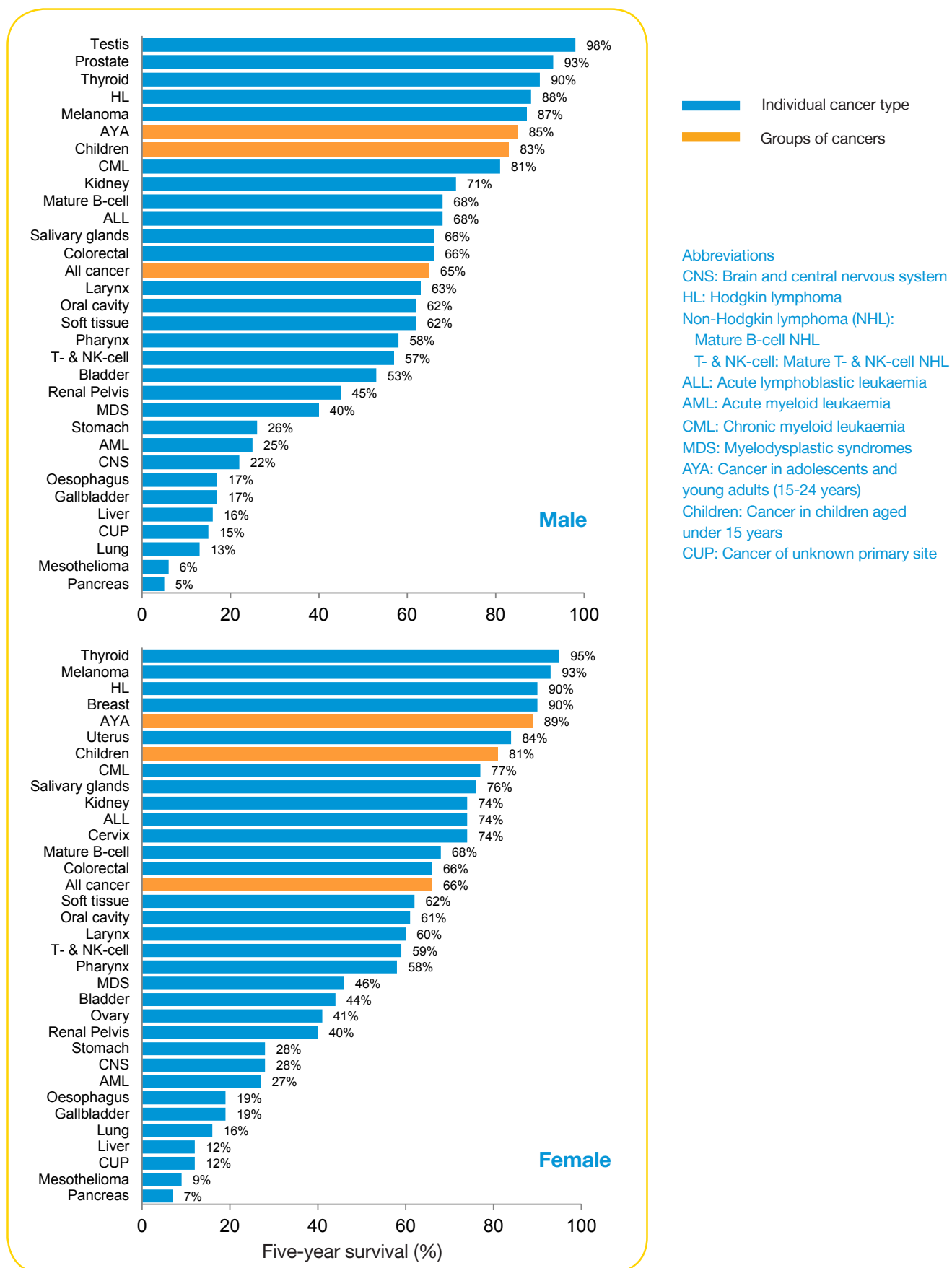


Figure 15: Survival in the five years following diagnosis for all cancers, and the most common cancers, Victoria 2007-2011.

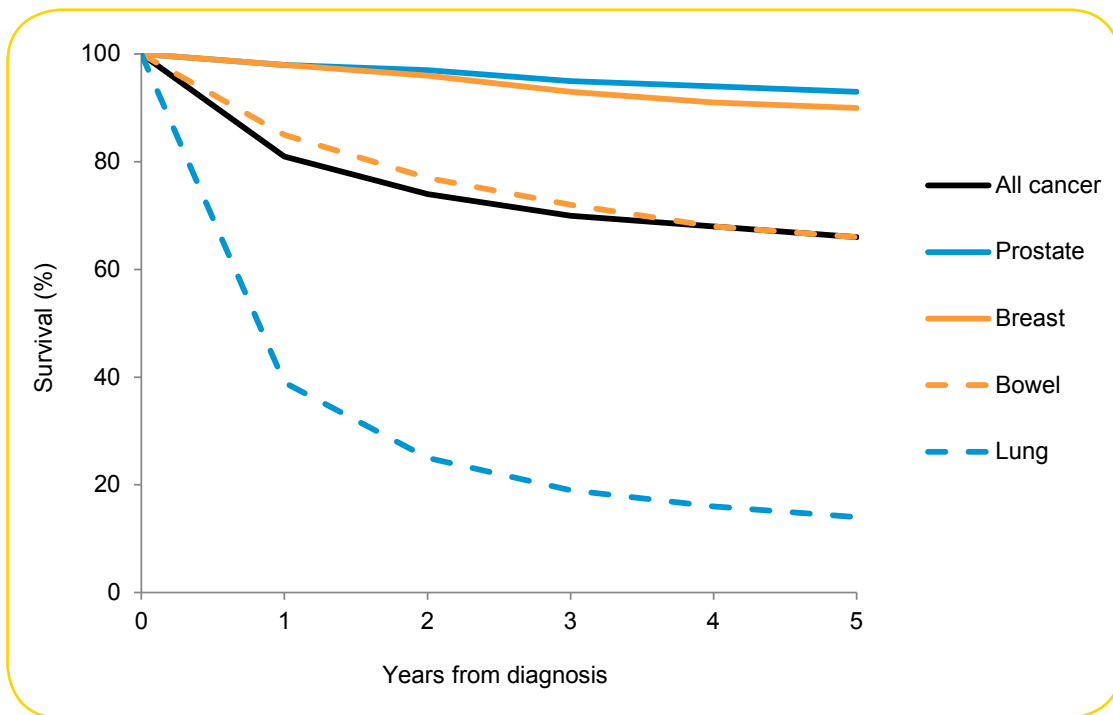
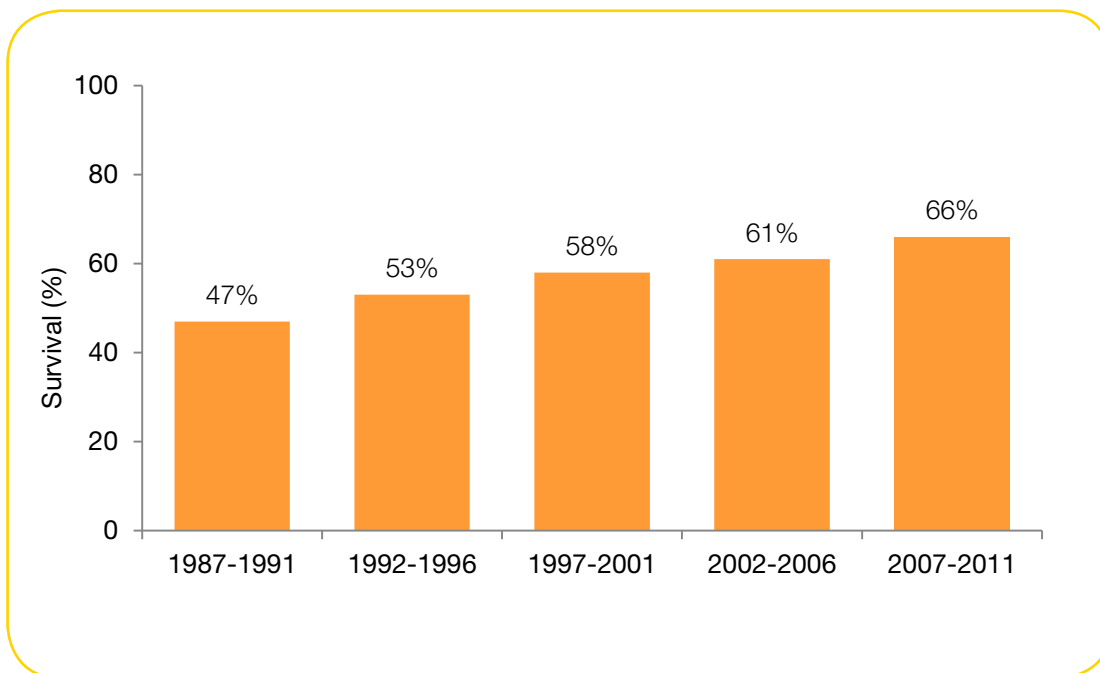


Figure 16: Trends in survival for all cancers, Victoria 1982-2011 - five-year relative survival for each of the five-year periods from 1987-1991 to 2007-2011



**Table 3: Survival by sex, age group, tumour morphology and region of usual residence for Victorians with cancer in 2007-2011**

Survival = five-year survival proportion (expressed as %) with 95% CI = 95% confidence interval for survival

p-value = statistical significance between groups. The first p-value tests for difference in survival for the two most recent periods (i.e. the period from 2002-2006 with the period from 2007-2011). The second p-value tests for the trend across all periods shown.

Years after diagnosis	Number of deaths	Survival (%)	95% confidence Interval	
1	28,134	81	(81,81)	
2	10,928	74	(74,74)	
3	6,562	70	(70,71)	
4	4,830	68	(67,68)	
5	3,737	66	(65,66)	
By subgroup	Number of deaths	5-year survival (%)	95% confidence Interval	p-value
<b>All cases</b>	54,191	66	(65,66)	
<b>Sex</b>				
Male	31,805	65	(65,66)	<0.01
Female	22,386	66	(66,67)	
<b>Age at diagnosis</b>				
0-14	135	82	(79,85)	<0.01
15-29	257	88	(87,89)	
30-44	1,363	84	(84,85)	
45-54	3,656	78	(77,78)	
55-64	8,304	74	(73,74)	
65-74	13,236	67	(66,67)	
75+	27,240	47	(46,48)	
<b>Region of residence</b>				
Melbourne	36,401	67	(66,67)	<0.01
Rest of Victoria	17,790	63	(63,64)	
<b>Integrated Cancer Services Region</b>				
Southern	14,648	67	(67,68)	<0.01
Western and Central	9,359	63	(63,64)	
North-Eastern	12,394	68	(68,69)	
Barwon	4,641	64	(63,65)	
Grampians	2,806	61	(60,63)	
Loddon-Mallee	3,869	64	(63,65)	
Hume	3,051	66	(64,67)	
Gippsland	3,423	61	(60,62)	
<b>Tumour Morphology group</b>				
Squamous and transitional cell	5,683	53	(52,54)	<0.01
Adenocarcinoma	24,072	75	(75,76)	
Other specific carcinoma	3,990	33	(31,34)	
Unspecified carcinoma	1,885	17	(16,19)	
Sarcomas and soft tissue tumours	542	65	(62,67)	
Kaposi sarcoma	29	88	(77,98)	
Mesothelioma	668	7	(5,9)	
Other specified types of cancer	5,151	77	(76,77)	
Leukaemia	3,138	55	(53,56)	
Lymphoma	1,908	76	(75,77)	
No histological confirmation	7,124	11	(11,12)	

**Table 3:** Survival by sex, age group, tumour morphology and region of usual residence for Victorians with cancer in 2007-2011 - continued

<b>For selected periods</b>	<b>Number of</b>	<b>5-year survival (%)</b>	<b>95% confidence Interval</b>	<b>p-value</b>
1987-1991	41,886	47	(47,48)	<0.01/<0.011
1992-1996	47,210	53	(53,53)	
1997-2001	48,267	58	(58,59)	
2002-2006	50,540	61	(61,62)	
2007-2011	54,191	66	(65,66)	

# Cancer projections

By 2023-2027 it is estimated that:

- more than 44,000 Victorians will be diagnosed with cancer, and 13,000 will die from cancer, each year
- incidence rates will increase to 627.7 per 100,000 men and 414.0 per 100,000 women
- Victorian men will have an 8% increase in cancer and women will have a 3% increase in rates

Projections of cancer incidence and mortality indicate an increased burden of cancer in Victoria in 2023-2027. 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. A brief summary of the method is given below.

The number of new diagnoses each year is predicted to increase 53% by 2023-2027 and deaths by 25%. This represents an additional 15,000 new diagnoses and over 2,600 deaths per year compared with 2008-2012.

Numbers of new cases are not predicted to fall for any of the cancers examined.

Figure 17 shows cancer incidence (new cases and age-standardised rates) from 1982-2012 with projections for 2013-2017, 2018-2022 and 2023-2027.

## All cancer

By 2023-2027, the annual diagnoses of cancer are forecast to increase by 62% for males and by 43% for females. Over the same period, the number of deaths is predicted to increase by around 27% for males and 22% for females.

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 2008-2012 and 2023-2027:

- male cancer incidence rates increasing by 8% and female rates by 3%
- male cancer mortality rates decreasing by 20% and females by 16%.

## 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, with some fluctuations, and a marked fall in the 2010-2012 incidence rates. The volatility of the rates make it difficult to project prostate cancer incidence rates with any confidence.

The Australian Institute of Health and Welfare conducted an analysis of Medicare Benefits Schedule (MBS) data for PSA screening tests and prostate cancer incidence rates, by ten-year age group, for 2002-2007. They found a constant relationship between the two over time for all groups except men aged 75-84 years. Assuming the same relationships, estimates were calculated for incidence to 2012 using the MBS data - these estimates showed a marked fall in incidence numbers in 2009 and 2011.

Victorian incidence decreased by almost 700 diagnoses in 2010, (though unlike the national estimates, was still rising in 2009) with the greatest decreases being for younger men. Without a more detailed analysis using the MBS data for Victoria, the projections for prostate cancer incidence should be treated with some caution.

## Breast cancer

A similar approach to that used for prostate cancer, was used in modelling female breast cancer incidence rates. A 13% increase is expected in incidence rates by 2023-2027 and a decline in mortality rates (about 21%).

## Methods

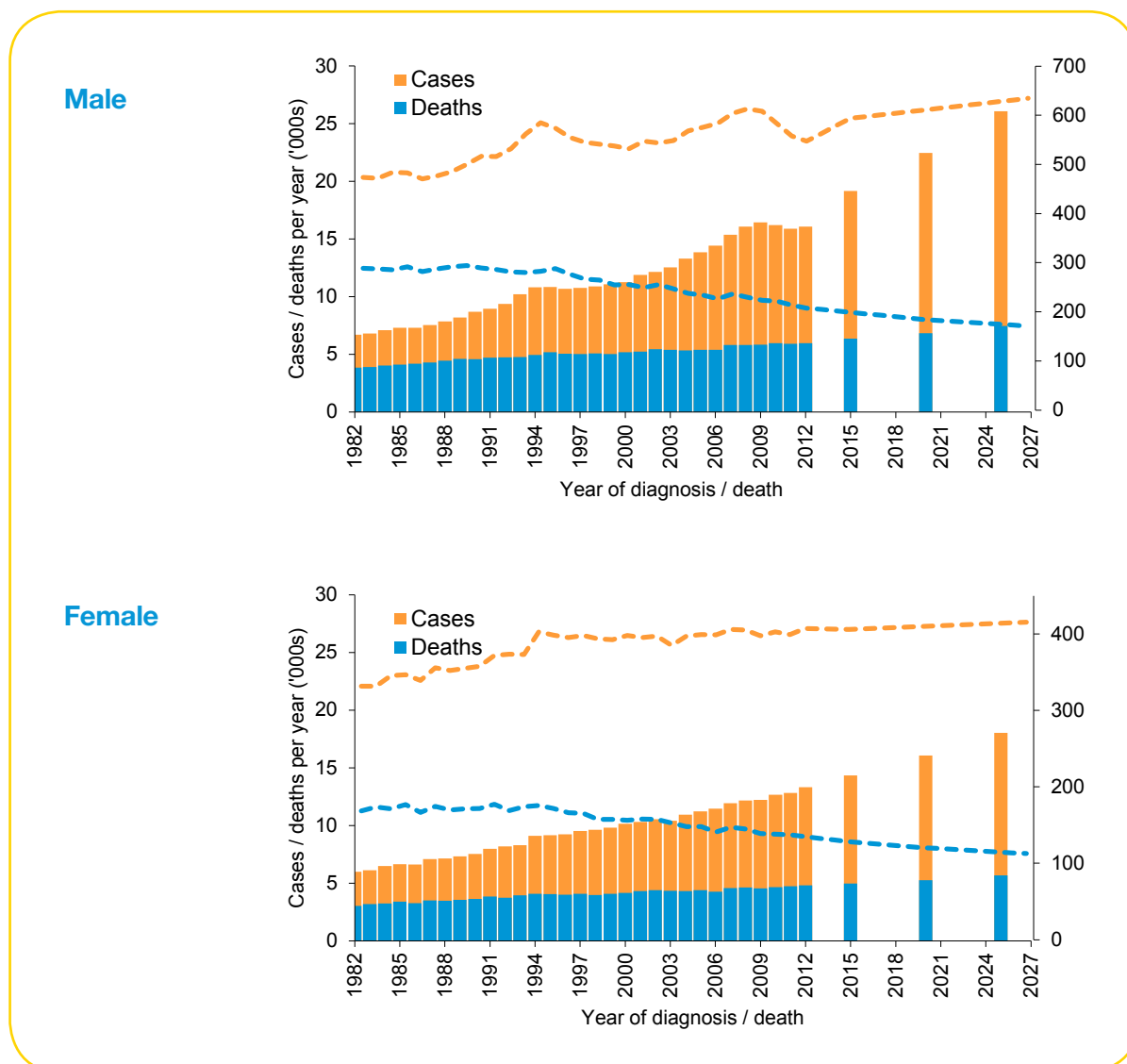
An age-period-cohort model with a power link function was used to project cancer incidence and mortality by sex for the next 15 years. Statistical analysis was performed using the Nordpred software package in R.



Figure 17: All cancer incidence and mortality by sex, 1983-2012 with projections to 2023-2027, 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 1983-2012 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 1998 to 2012. Projection was based on the last 9, 12 or 15 years depending on a goodness of fit test. This method was used to reduce the influence of mammographic screening and PSA testing respectively for prostate and female breast cancer projections. Bladder cancer projections were based on the years 1996 onwards because the coding of bladder cancer changed in 1996.

Mortality projection was similar to incidence projection except prostate and female breast cancers were

aggregated into 5-year age groups and 5-year periods instead.

Number of cases of bladder, female breast and prostate cancer and number of deaths of bladder cancer were projected for five 3-year periods: 2013-2015, 2016-2018, 2019-2021, 2022-2024 and 2025-2027. Cases and deaths of all other cancers were projected for three 5-year periods: 2013-2017, 2018-2022 and 2023-2027. For both 3-year and 5-year periods, observed and projected incidence are given for that period.

Only age groups with at least 10 cases or deaths in total were used in the age-period-cohort 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 Kavitha Krishnan 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) of new cases for selected common cancers to 2023-2027 by sex, Victoria

Note: rates standardised to Australian 2001 population to allow comparison with other Australian cancer projections

Cancer	Year	Males		Females	
		Cases	Rate	Cases	Rate
<b>All malignant tumours</b>					
	2008-2012	16,138	579.1	12,642	401.6
	2013-2017	19,167	594.0	14,348	405.9
	2018-2022	22,462	610.8	16,082	409.9
	2023-2027	26,077	627.7	18,028	414.0
<b>Head &amp; neck</b>					
	2008-2012	506	17.9	199	6.3
	2013-2017	553	17.3	223	6.4
	2018-2022	599	16.9	250	6.5
	2023-2027	653	16.8	283	6.8
<b>Stomach</b>					
	2008-2012	364	13.2	198	6.0
	2013-2017	380	11.9	212	5.6
	2018-2022	407	11.1	228	5.4
	2023-2027	448	10.7	258	5.5
<b>Bowel</b>					
	2008-2012	1,995	72.2	1,646	50.3
	2013-2017	2,184	68.2	1,777	47.8
	2018-2022	2,385	65.3	1,929	46.1
	2023-2027	2,632	64.1	2,124	45.6
<b>Pancreas</b>					
	2008-2012	361	13.1	339	10.1
	2013-2017	441	13.7	411	10.6
	2018-2022	520	14.1	481	11.0
	2023-2027	601	14.4	564	11.2
<b>Lung</b>					
	2008-2012	1,499	54.5	1,018	31.5
	2013-2017	1,537	47.9	1,182	31.9
	2018-2022	1,596	43.2	1,330	31.6
	2023-2027	1,705	40.5	1,462	30.6
<b>Melanoma</b>					
	2008-2012	1,270	45.9	978	32.0
	2013-2017	1,411	44.6	1,006	29.3
	2018-2022	1,524	42.3	1,049	27.2
	2023-2027	1,626	39.6	1,125	25.8
<b>Breast (female)</b>					
	2010-2012			3,648	117.4
	2013-2015			4,046	122.0
	2016-2018			4,401	125.8
	2019-2021			4,768	129.1
	2022-2024			5,111	131.4
	2025-2027			5,436	133.0
<b>Uterus</b>					
	2008-2012			591	19.0
	2013-2017			697	19.9
	2018-2022			822	21.2
	2023-2027			972	22.8

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

Cancer	Year	Males		Females	
		Cases	Rate	Cases	Rate
<b>Ovary</b>					
	2008-2012			359	11.4
	2013-2017			391	11.1
	2018-2022			420	10.8
	2023-2027			452	10.6
<b>Prostate</b>					
	2010-2012	4,833	164.3		
	2013-2015	4,542	140.7		
	2016-2018	4,482	128.8		
	2019-2021	4,697	126.3		
	2022-2024	5,177	131.3		
	2025-2027	5,736	138.0		
<b>Kidney</b>					
	2008-2012	446	16.0	252	8.1
	2013-2017	528	16.6	308	8.8
	2018-2022	613	17.1	367	9.3
	2023-2027	698	17.6	427	9.7
<b>Bladder</b>					
	2010-2012	496	17.8	148	4.3
	2013-2015	562	18.1	172	4.4
	2016-2018	631	18.6	178	4.3
	2019-2021	698	18.7	187	4.2
	2022-2024	775	18.8	208	4.3
	2025-2027	859	18.9	222	4.2
<b>Thyroid</b>					
	2008-2012	123	4.5	340	11.9
	2013-2017	184	6.0	478	15.4
	2018-2022	250	7.5	623	18.4
	2023-2027	314	8.6	755	20.5
<b>Lymphoma</b>					
	2008-2012	766	27.7	585	18.8
	2013-2017	883	28.2	648	18.6
	2018-2022	1,005	28.5	712	18.3
	2023-2027	1,130	28.6	777	18.0
<b>Leukaemia</b>					
	2008-2012	474	17.4	328	10.3
	2013-2017	575	18.5	380	10.7
	2018-2022	677	19.3	432	10.9
	2023-2027	780	19.7	486	11.0

**Table 5: Actual and projected mortality and mortality rate (age-standardised rate per 100,000 males/females) for selected common cancers to 2023-2027 by sex, Victoria**

Note: rates standardised to Australian 2001 population to allow comparison with other Australian cancer projections

Cancer	Year	Males		Females	
		Deaths	Rate	Deaths	Rate
<b>All malignant tumours</b>					
	2008-2012	5,901	217.2	4,663	137.6
	2013-2017	6,372	199.0	4,966	128.2
	2018-2022	6,835	184.3	5,262	120.5
	2023-2027	7,481	174.7	5,690	114.9
<b>Head &amp; neck</b>					
	2008-2012	169	6.1	70	2.1
	2013-2017	195	6.0	74	1.9
	2018-2022	211	5.6	78	1.8
	2023-2027	230	5.4	85	1.8
<b>Stomach</b>					
	2008-2012	244	8.9	134	3.9
	2013-2017	294	9.2	138	3.5
	2018-2022	355	9.7	144	3.3
	2023-2027	424	10.1	158	3.2
<b>Bowel</b>					
	2008-2012	731	26.8	611	17.5
	2013-2017	774	24.2	619	15.7
	2018-2022	825	22.4	649	14.6
	2023-2027	904	21.4	696	14.0
<b>Pancreas</b>					
	2008-2012	318	11.6	298	8.7
	2013-2017	376	11.7	351	9.0
	2018-2022	437	11.8	404	9.1
	2023-2027	499	11.8	463	9.1
<b>Lung</b>					
	2008-2012	1,188	43.4	761	23.1
	2013-2017	1,203	37.5	856	22.7
	2018-2022	1,237	33.4	948	22.0
	2023-2027	1,315	31.1	1,041	21.1
<b>Melanoma</b>					
	2008-2012	207	7.6	97	2.9
	2013-2017	251	7.9	101	2.7
	2018-2022	288	7.9	106	2.6
	2023-2027	324	7.7	113	2.4
<b>Breast (female)</b>					
	2008-2012			736	22.4
	2013-2017			746	20.2
	2018-2022			761	18.5
	2023-2027			807	17.7
<b>Uterus</b>					
	2008-2012			100	3.0
	2013-2017			121	3.2
	2018-2022			146	3.4
	2023-2027			173	3.6

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

Cancer	Year	Males		Females	
		Deaths	Rate	Deaths	Rate
<b>Ovary</b>					
	2008-2012			230	7.0
	2013-2017			231	6.1
	2018-2022			230	5.5
	2023-2027			237	5.0
<b>Prostate</b>					
	2008-2012	814	30.9		
	2013-2017	838	26.2		
	2018-2022	874	23.3		
	2023-2027	958	21.5		
<b>Kidney</b>					
	2008-2012	136	4.9	70	2.0
	2013-2017	141	4.4	62	1.6
	2018-2022	151	4.1	56	1.3
	2023-2027	165	4.0	57	1.1
<b>Bladder</b>					
	2010-2012	193	7.0	70	1.9
	2013-2015	217	7.0	76	1.9
	2016-2018	237	7.0	77	1.8
	2019-2021	262	7.1	82	1.8
	2022-2024	294	7.3	89	1.8
	2025-2027	326	7.3	93	1.7
<b>Thyroid</b>					
	2008-2012	13	0.5	19	0.5
	2013-2017	15	0.5	27	0.7
	2018-2022	16	0.5	33	0.7
	2023-2027	18	0.5	39	0.8
<b>Lymphoma</b>					
	2008-2012	213	7.8	163	4.6
	2013-2017	220	6.9	153	3.8
	2018-2022	231	6.2	143	3.2
	2023-2027	256	5.9	143	2.7
<b>Leukaemia</b>					
	2008-2012	243	9.0	180	5.2
	2013-2017	271	8.6	195	4.9
	2018-2022	300	8.2	212	4.7
	2023-2027	336	7.8	233	4.5

# Appendix 1

## The Victorian Cancer Registry

The Victorian Cancer Registry has been a population-based registry since 1982. Amendments to the Cancer Act, in 1981, made it mandatory for all hospitals and pathology laboratories to notify the cancer registry of the presence of cancer in patients or human tissues. The legislation, history, purpose and operation of the registry is described in more detail in the publication Canstat No 37 “A Guide to the Victorian Cancer Registry.”

All malignant neoplasms are registered, as are in situ carcinoma of breast and cervix and in situ melanoma. Basal cell carcinomas (BCC) and squamous cell carcinomas (SCC) of the skin are not registered (except for SCC of genital and perianal skin and the vermilion border of lip).

BCCs and SCCs of other skin sites are not registered by the Victorian Cancer Registry as many are treated in doctors' surgeries using destructive techniques which preclude histological confirmation.

All other non-melanoma skin cancers (NMSC), such as Merkel cell tumour, malignant fibrous histiocytoma (MFH), dermatofibrosarcoma protuberans (DFSP), sweat gland and skin appendage tumours are registered and reported as “other skin cancer”.

Currently, about 250 hospitals and 40 pathology laboratories notify cancer to the registry, increasingly in electronic format. In preparing the 2012 incidence data, around 100,000 notifications were processed. In addition, death certificates are obtained from the Registrar of Births, Deaths and Marriages in computerised format on a regular basis.

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 e.g. size, hormone receptor status and TNM stage for breast cancer, Clark's level and Breslow thickness for malignant melanoma. Specially trained staff interpret pathology reports to extract and code these data elements, assisted by a consultant pathologist.

The incidence tables in Appendix 7 (pages 45-56) 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  $(ASR \pm 1.96 \times SE)$ .

A brief explanation of the statistical methods used may be found In Appendix 4 (page 42).

### The minimum data set for each cancer:

- Registry identification number
- Name(s)
- Residential address
- Date of birth
- Indigenous status
- Country of birth
- Sex
- Vital status
- Date of last contact
- Number of primary tumours
- Date of diagnosis
- Site of cancer
- Cancer histology
- Tumour grade
- Method of diagnosis

# 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 2012. Tumour morphology and topography are coded to the International Classification of Diseases for Oncology, Third Edition (ICD-O-3) (Ref1).

In this report, cancers are grouped by ICD-10 (Ref 2) as described in Appendix 3 (pages 40-41). 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 and the International Association of Cancer Registries (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

The incidence data in this report are the 1982-2012 statistics as they stood on 24th September 2013.

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.

tissue, for example bladder - 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.

# Appendix 3

## Cancer types and groups used in report<sup>1</sup> by ICD-10 codes (Ref 2)

ICD-10 description	ICD-10	Label in tables
<b>Lip, oral cavity and pharynx (C00–C14)</b>		
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
<b>Digestive organs (C15–C26)</b>		
Oesophagus	C15	Oesophagus
Stomach	C16	Stomach
Small intestine including duodenum	C17	Small intestine
Colon	C18	Colon
Rectum including rectosigmoid, anal canal and anus	C19–C21	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
<b>Respiratory system and intrathoracic organs (C30–C39)</b>		
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
<b>Bones, joints and articular cartilage (C40–C41)</b>		
Bone and articular cartilage	C40,C41	Bone
<b>Melanoma (C43)</b>		
Melanoma of skin	C43	Melanoma
<b>Other malignant neoplasms of skin (C44)</b>		
Other skin cancer <sup>2</sup>	C44	Other skin
<b>Mesothelial and soft tissue (C45–C49)</b>		
Mesothelioma	C45	Mesothelioma
Kaposi sarcoma	C46	Kaposi sarcoma
Retroperitoneum and peritoneum	C48	Peritoneum
Other connective tissue (incl. peripheral nerves etc)	C47,C49	Connective tissue
<b>Breast (C50) and female genital organs (C51–C58)</b>		
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



ICD-10 description	ICD-10	Label in tables
<b>Male genital organs (C60–C63)</b>		
Prostate	C61	Prostate
Testis	C62	Testis
Penis and other male genital organs	C60,C63	Penis etc
<b>Urinary tract (C64–C68)</b>		
Kidney, except renal pelvis	C64	Kidney
Bladder	C67	Bladder
Renal pelvis and other/unspecified urinary organs	C65,C66,C68	Renal pelvis etc
<b>Eye, brain and other parts of central nervous system (C69–C72)</b>		
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
<b>Thyroid and other endocrine glands (C73–C75)</b>		
Thyroid gland	C73	Thyroid
Other endocrine glands and related structures	C74,C75	Other endocrine
<b>Unknown primary site (C26, C39, C76–C80)</b>		
Other and ill-defined sites	C26, C39, C76–79	Ill-defined sites
Unspecified site	C80	Unspecified site
<b>Malignant neoplasms of lymphoid, haematopoietic and related tissue (C81–96, D45–47)</b>		
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	C82–85	All NHL
All lymphoma	C81–85	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
<b>All malignant tumours<sup>2</sup></b>	<b>C00–C96, D45–D47</b>	<b>All malignant tumours</b>

The following in situ tumours are also reported:

- In situ melanoma (D03)
- Carcinoma in situ of breast (D05)
- Carcinoma in situ of cervix (D06)

1. Reportable neoplasms include all 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).
2. Excludes squamous and basal cell carcinomas of skin

# Appendix 4

## Statistical glossary

### Incidence and mortality rates

Incidence and mortality rates were calculated using the estimated resident population for Victoria in 2012 (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  $(\text{rate} \pm 1.96 \text{ SE})$ .

### 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.

### 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 =  $1/\text{cumulative risk}$

where

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

### 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 2012 who ever had a diagnosis of cancer. WHO rules (Ref 6) are used to determine the underlying cause of death from information supplied by the certifying doctor on the death certificate. 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 we have presented our 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 practice. The overall number of cancer deaths coded by VCR in 2010 was about 2% lower than was reported by ABS. Generally we code slightly more deaths to specific cancers and fewer to ill-defined and unknown sites than the ABS. When comparing trends over time, these changes should be taken into account.

# Appendix 6

## In situ cancers 2012

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 in situ incidence of these cancers will be 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: For the purposes of this report, carcinoma in situ of the cervix includes CIN II-III lesions as well as CIN III lesions.

Age group	Cervix Female		Breast Female		Melanoma			
	Cases	Rate	Cases	Rate	Male Cases	Male Rate	Female Cases	Female 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	27	15.6	0	0.0	3	1.7	1	0.6
20-24	366	181.0	1	0.5	3	1.4	5	2.5
25-29	721	335.3	2	0.9	6	2.8	15	7.0
30-34	517	254.4	3	1.5	11	5.4	11	5.4
35-39	330	167.4	16	8.1	21	10.8	33	16.7
40-44	227	108.5	41	19.6	45	22.2	57	27.2
45-49	129	67.2	63	32.8	47	25.3	69	35.9
50-54	72	38.2	89	47.2	78	42.7	67	35.5
55-59	50	29.5	85	50.1	105	64.2	80	47.2
60-64	37	24.4	82	54.1	139	95.6	111	73.2
65-69	17	13.3	74	58.1	159	130.0	111	87.1
70-74	3	3.1	45	46.4	143	156.1	89	91.8
75-79	1	1.3	15	19.1	137	202.6	73	92.7
80-84	1	1.5	16	24.4	107	216.5	79	120.5
85+	1	1.4	6	8.4	81	209.1	64	89.7
<b>Total cases</b>	<b>2,499</b>		<b>538</b>		<b>1,085</b>		<b>865</b>	
<b>Cumulative rate (%)</b>		<b>6.2</b>		<b>1.6</b>		<b>2.79</b>		<b>2.15</b>
<b>Lifetime risk (to age 75)</b>		<b>1 in 17</b>		<b>1 in 63</b>		<b>1 in 36</b>		<b>1 in 47</b>
<b>Age-standardised rate</b>		<b>83.1</b>		<b>13.4</b>		<b>24.0</b>		<b>18.9</b>

# Appendix 7

## Detailed tables of cancer incidence 2012 by age, sex and cancer type, Victoria

Appendix 7: Detailed tables of cancer incidence 2012 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
<b>C00 Lip</b>																						
Male	1	0	0	0	0	1	3	10	6	9	9	13	13	17	13	16	7	12	130			
	0.5	0.0	0.0	0.0	0.0	0.5	1.5	5.2	3.0	4.8	4.9	8.0	8.9	13.9	14.2	23.7	14.2	31.0		4.7	3.1	0.2
Female	0	0	0	0	0	0	1	2	2	2	5	4	6	7	7	9	11	6	62			
	0.0	0.0	0.0	0.0	0.0	0.0	0.5	1.0	1.0	1.0	2.7	2.4	4.0	5.5	7.2	11.4	16.8	8.4		2.2	1.1	0.1
<b>C01, C02 Tongue</b>																						
Male	0	0	0	0	0	2	2	2	4	9	9	17	21	15	13	4	5	1	104			
	0.0	0.0	0.0	0.0	0.0	0.9	1.0	1.0	2.0	4.8	4.9	10.4	14.5	12.3	14.2	5.9	10.1	2.6		3.7	2.6	0.2
Female	0	0	0	0	0	0	2	0	1	5	6	7	9	8	6	8	6	5	63			
	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.5	2.6	3.2	4.1	5.9	6.3	6.2	10.2	9.2	7.0		2.2	1.3	0.1
<b>C07, C08 Salivary glands</b>																						
Male	0	0	0	1	2	1	0	0	1	0	1	3	1	4	3	5	4	5	31			
	0.0	0.0	0.0	0.6	1.0	0.5	0.0	0.0	0.5	0.0	0.6	1.8	0.7	3.3	3.3	7.4	8.1	12.9		1.1	0.7	0.1
Female	0	0	0	0	0	0	1	2	5	2	5	3	5	3	2	1	5	3	37			
	0.0	0.0	0.0	0.0	0.0	0.0	0.5	1.0	2.4	1.0	2.7	1.8	3.3	2.4	2.1	1.3	7.6	4.2		1.3	0.8	0.1
<b>C03 Gum</b>																						
Male	0	0	0	0	0	0	1	0	1	1	1	4	2	6	3	3	0	3	25			
	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.5	0.5	0.6	2.5	1.4	4.9	3.3	4.4	0.0	7.7		0.9	0.6	0.1
Female	0	0	0	0	0	0	1	0	0	0	2	1	1	3	4	1	1	4	18			
	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	1.1	0.6	0.7	2.4	4.1	1.3	1.5	5.6		0.6	0.3	0.1
<b>C04 Floor of mouth</b>																						
Male	0	0	0	0	0	0	0	1	0	1	4	4	4	3	4	1	1	0	23			
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.5	2.2	2.5	2.8	2.5	4.4	1.5	2.0	0.0		0.8	0.6	0.1
Female	0	0	0	0	0	0	1	0	0	1	2	1	1	2	2	2	0	0	12			
	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.5	1.1	0.6	0.7	1.6	2.1	2.5	0.0	0.0		0.4	0.3	0.1
<b>C05, C06 Other mouth</b>																						
Male	0	0	0	0	0	0	0	1	0	2	2	5	4	3	2	2	4	1	26			
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	1.1	1.1	3.1	2.8	2.5	2.2	3.0	8.1	2.6		0.9	0.6	0.1
Female	0	0	0	0	0	1	0	2	0	1	1	1	3	2	4	2	0	5	22			
	0.0	0.0	0.0	0.0	0.0	0.5	0.0	1.0	0.0	0.5	0.5	0.6	2.0	1.6	4.1	2.5	0.0	7.0		0.8	0.5	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 2012 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
<b>C01-C06 Oral cavity</b>																						
Male	0	0	0	0	0	2	3	4	5	13	15	30	31	27	22	10	10	5	177			
	0.0	0.0	0.0	0.0	0.0	0.9	1.5	2.1	2.5	7.0	8.2	18.4	21.3	22.1	24.0	14.8	20.2	12.9		6.4	4.3	0.3
Female	0	0	0	0	1	4	2	1	7	11	9	14	15	16	16	13	7	14	114			
	0.0	0.0	0.0	0.0	0.5	2.0	1.0	0.5	3.6	5.8	5.3	9.2	11.8	11.8	16.5	16.5	10.7	19.6		4.0	2.3	0.2
<b>C09, C10 Oropharynx</b>																						
Male	0	0	0	0	0	0	0	0	6	11	10	19	17	15	9	1	1	1	90			
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	5.9	5.5	11.6	11.7	12.3	9.8	1.5	2.0	2.6		3.2	2.3	0.2
Female	0	0	0	0	0	2	0	0	0	4	3	7	4	3	1	0	2	0	26			
	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	2.1	1.6	4.1	2.6	2.4	1.0	0.0	3.1	0.0		0.9	0.6	0.1
<b>C11 Nasopharynx</b>																						
Male	0	0	0	1	1	2	1	1	3	5	8	4	1	3	3	2	1	2	38			
	0.0	0.0	0.0	0.6	0.5	0.9	0.5	0.5	1.5	2.7	4.4	2.5	0.7	2.5	3.3	3.0	2.0	5.2		1.4	1.0	0.1
Female	0	0	0	0	0	0	0	0	0	1	1	2	0	1	2	0	0	1	8			
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5	1.2	0.0	0.8	2.1	0.0	0.0	1.4		0.3	0.2	0.0
<b>C12, C13 Hypopharynx</b>																						
Male	0	0	0	0	0	0	0	0	1	1	0	2	5	5	5	4	1	2	26			
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.0	1.2	3.4	4.1	5.5	5.9	2.0	5.2		0.9	0.6	0.1
Female	0	0	0	0	1	0	0	0	0	0	1	2	0	0	2	1	0	2	9			
	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.5	1.2	0.0	0.0	2.1	1.3	0.0	2.8		0.3	0.2	0.0
<b>C09-C13 Pharynx</b>																						
Male	0	0	0	1	1	2	1	1	10	17	18	25	23	23	17	7	3	5	154			
	0.0	0.0	0.0	0.6	0.5	0.9	0.5	0.5	4.9	9.1	9.9	15.3	15.8	18.8	18.6	10.4	6.1	12.9		5.5	3.9	0.3
Female	0	0	0	0	1	0	2	0	0	5	5	11	4	4	5	1	2	3	43			
	0.0	0.0	0.0	0.0	0.5	0.0	1.0	0.0	0.0	2.6	2.7	6.5	2.6	3.1	5.2	1.3	3.1	4.2		1.5	1.0	0.1
<b>C14 Other oral</b>																						
Male	0	0	0	0	0	0	0	0	0	0	1	4	1	5	1	2	2	0	16			
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	2.5	0.7	4.1	1.1	3.0	4.1	0.0		0.6	0.4	0.1
Female	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	2			
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0	1.4		0.1	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 2012 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
<b>C15 Oesophagus</b>																						
Male	0	0	0	0	0	0	0	1	4	9	12	29	30	39	33	26	23	20	226			
Female	0	0	0	0	0	0	0	0	2	0	3	4	10	11	5	16	22	27	100	8.1	4.9	0.3
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	1.6	2.4	6.6	8.6	5.2	20.3	33.6	37.8		3.5	1.4	0.1
<b>C16 Stomach</b>																						
Male	0	0	0	0	1	0	2	3	7	10	21	30	50	48	57	50	45	58	382			
Female	0	0	0	0	0	1	3	5	3	6	6	15	22	17	31	29	34	39	211	13.7	7.8	0.4
	0.0	0.0	0.0	0.0	0.0	0.5	1.5	2.5	1.4	3.1	3.2	8.8	14.5	13.3	32.0	36.8	51.9	54.7		7.4	3.6	0.2
<b>C17 Small intestine</b>																						
Male	0	0	0	0	0	0	1	2	0	1	4	7	8	12	9	7	6	6	63			
Female	0	0	0	0	0	0	0	0	0	0	2	4	5	12	7	8	6	9	70	2.3	1.4	0.2
	0.0	0.0	0.0	0.0	0.0	0.0	0.5	1.0	0.0	0.5	2.2	4.3	5.5	9.8	9.8	10.4	12.1	15.5		2.5	1.4	0.1
<b>C18 Colon</b>																						
Male	0	0	0	0	1	6	7	10	12	27	51	88	128	161	198	190	176	140	1,195			
Female	0	0	1	2	3	5	10	9	19	36	53	94	96	139	144	197	204	190	1,202	42.9	23.7	0.7
	0.0	0.0	0.6	1.2	1.5	2.3	4.9	4.6	9.1	18.7	28.1	55.4	63.3	109.0	148.6	250.3	311.2	266.3		42.3	20.5	0.6
<b>C19-C20 Rectum</b>																						
Male	0	0	0	0	3	2	8	10	19	28	36	69	93	99	102	113	75	68	725			
Female	0	0	0	0	0	1	8	9	22	24	38	41	51	54	57	46	60	49	461	26.0	15.4	0.6
	0.0	0.0	0.0	0.0	0.5	0.5	3.9	4.6	10.5	12.5	20.2	24.2	33.6	42.4	58.8	58.4	91.5	68.7		16.2	9.1	0.4
<b>C18-C20 Bowel</b>																						
Male	0	0	0	0	4	8	15	20	31	55	87	157	221	260	300	303	251	208	1,920			
Female	0	0	0	0	0	1	9	10	15	29	47	96	152	212	327	448	507	536	3,663	68.9	39.1	0.9
	0.0	0.0	0.0	0.0	0.0	0.0	3.7	7.4	10.3	29.6	47.6	96.0	152.0	212.5	327.5	448.0	507.8	536.9		58.5	29.6	0.7

Appendix 7 Numbers (Blue) and age-specific rates (Black)

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Appendix 7: Detailed tables of cancer incidence 2012 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	
<b>C21 Anus &amp; anal canal</b>																							
Male	0	0	0	0	0	1	0	4	4	4	7	3	5	7	7	2	4	3	51				
Female	0	0	0	0	0	0	0	0	1	4	6	10	9	7	8	5	7	7	64	1.8	1.8	1.2	0.1
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	2.1	3.2	5.9	5.9	5.5	8.3	6.4	10.7	9.8	2.3	2.3	1.3	0.1	
<b>C22 Liver</b>																							
Male	1	0	0	0	0	1	0	3	8	11	27	42	41	45	36	34	23	18	290				
Female	1	0	0	0	0	0	0	3	3	1	3	7	13	15	14	14	20	15	109	10.4	10.4	6.5	0.4
	0.6	0.0	0.0	0.0	0.0	0.0	0.0	1.5	1.4	0.5	1.6	4.1	8.6	11.8	14.5	17.8	30.5	21.0	3.8	3.8	1.9	0.2	
<b>C23, C24 Gallbladder</b>																							
Male	1	0	0	0	0	0	0	1	0	3	4	4	12	7	11	16	12	16	87				
Female	0	0	0	0	0	0	0	0	0	0	2	2	8	14	23	22	14	25	111	3.1	3.1	1.7	0.2
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	1.2	5.3	11.0	23.7	28.0	21.4	35.0	3.9	3.9	1.7	0.1	
<b>C25 Pancreas</b>																							
Male	0	0	0	0	0	0	0	5	5	15	20	32	34	58	66	49	49	54	387				
Female	0	0	0	0	0	0	0	2	2	1	10	19	23	47	72	72	99	139	348	13.9	13.9	7.8	0.4
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.5	2.1	5.3	11.8	25.7	29.0	52.6	71.1	80.8	99.5	12.2	12.2	5.7	0.3	
<b>C30, C31 Nasal cavities</b>																							
Male	0	0	0	0	0	0	0	1	2	0	1	4	3	3	3	5	2	5	29				
Female	0	0	0	0	0	0	0	0	1	0	0	2	2	1	2	1	2	2	13	1.0	1.0	0.6	0.1
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.5	1.2	0.0	0.8	2.1	1.3	3.1	2.8	0.5	0.5	0.3	0.1	
<b>C32 Larynx</b>																							
Male	0	0	0	0	0	0	0	0	2	4	9	13	20	22	14	16	7	5	112				
Female	0	0	0	0	0	0	0	0	1	2	4	8	13	18	15	23	14	12	17	4.0	4.0	2.5	0.2
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	2.2	4.9	8.0	13.8	18.0	15.3	23.7	14.2	12.9	0.6	0.6	0.3	0.1	

Appendix 7 Numbers (Blue) and age-specific rates (Black)

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<b>C33, C34 Lung</b>																							
Male	0	0	0	0	0	2	1	3	13	36	68	104	169	236	267	275	219	180	1,573				
	0.0	0.0	0.0	0.0	0.0	0.9	0.5	1.6	6.4	19.4	37.2	63.6	116.3	192.9	291.4	406.6	443.0	464.6	56.5	31.0	0.8		
Female	0	0	1	0	0	0	2	5	15	36	55	97	126	158	174	176	151	114	1,110				
	0.0	0.0	0.6	0.0	0.0	0.0	1.0	2.5	7.2	18.7	29.2	57.2	83.1	123.9	179.5	223.6	230.3	159.8	39.0	20.4	0.6		
<b>C37, C38 Thymus etc</b>																							
Male	0	0	0	0	0	1	1	0	0	1	2	2	2	0	2	1	2	0	14				
	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.0	0.0	0.5	1.1	1.2	1.4	0.0	2.2	1.5	4.1	0.0	0.5	0.3	0.1		
Female	1	0	0	0	1	0	0	1	0	2	2	1	2	2	0	1	2	0	13				
	0.6	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.5	0.0	1.1	0.6	1.3	1.6	0.0	1.3	3.1	0.0	0.5	0.3	0.1		
<b>C40, C41 Bone</b>																							
Male	0	1	2	2	1	0	1	1	1	1	2	2	1	2	2	4	0	1	24				
	0.0	0.6	1.2	1.1	0.5	0.0	0.5	0.5	0.5	0.5	1.1	1.2	0.7	1.6	2.2	5.9	0.0	2.6	0.9	0.7	0.1		
Female	1	1	4	1	0	1	0	1	1	2	2	0	0	0	0	1	0	0	15				
	0.6	0.6	2.5	0.6	0.0	0.5	0.0	0.5	0.5	1.0	1.1	0.0	0.0	0.0	0.0	1.3	0.0	0.0	0.5	0.6	0.1		
<b>C43 Melanoma</b>																							
Male	1	0	0	1	12	13	27	33	65	63	111	124	148	171	149	135	110	115	1,278				
	0.5	0.0	0.0	0.6	5.7	6.0	13.3	17.0	32.1	33.9	60.7	75.8	101.8	139.8	162.6	199.6	222.5	296.8	45.9	29.0	0.8		
Female	0	0	0	3	11	20	33	50	69	78	94	94	114	103	83	69	68	94	983				
	0.0	0.0	0.0	1.7	5.4	9.3	16.2	25.4	33.0	40.6	49.9	55.4	75.2	80.8	85.6	87.7	103.7	131.7	34.6	22.2	0.7		
<b>C44 Other skin</b>																							
Male	0	0	0	0	1	1	2	0	1	2	1	6	4	4	2	4	7	5	40				
	0.0	0.0	0.0	0.0	0.5	0.5	1.0	0.0	0.5	1.1	0.6	3.7	2.8	3.3	2.2	5.9	14.2	12.9	1.4	0.9	0.1		
Female	0	0	0	0	2	2	0	1	0	2	2	0	2	2	4	5	4	6	32				
	0.0	0.0	0.0	0.0	1.0	0.9	0.0	0.5	0.0	1.0	1.1	0.0	1.3	1.6	4.1	6.4	6.1	8.4	1.1	0.6	0.1		
<b>C45 Mesothelioma</b>																							
Male	0	0	0	0	0	0	0	0	0	0	2	8	11	12	24	18	31	18	124				
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	4.9	7.6	9.8	26.2	26.6	62.7	46.5	4.5	2.2	0.2		
Female	0	0	0	0	0	0	0	0	0	0	0	3	4	5	0	6	2	2	22				
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	2.6	3.9	0.0	7.6	3.1	2.8	0.8	0.4	0.1		

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<b>C46 Kaposi sarcoma</b>																						
Male	0	0	0	0	0	0	1	2	1	2	2	2	2	2	0	2	1	0	17			
	0.0	0.0	0.0	0.0	0.0	0.0	0.5	1.0	0.5	1.1	1.1	1.2	1.4	1.6	0.0	3.0	2.0	0.0		0.6	0.4	0.1
Female	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	3			
	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	1.0	2.5	0.0	0.0		0.1	0.1	0.0
<b>C48 Peritoneum</b>																						
Male	2	0	0	0	0	0	1	0	0	1	0	2	1	1	0	1	2	1	12			
	1.1	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.5	0.0	1.2	0.7	0.8	0.0	1.5	4.1	2.6		0.4	0.3	0.1
Female	2	0	0	0	0	0	1	0	0	2	0	0	3	4	5	6	3	2	29			
	1.1	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	1.1	0.0	0.0	2.0	3.1	5.2	7.6	4.6	2.8		1.0	0.6	0.1
<b>C47, C49 Connective Tissue</b>																						
Male	3	0	0	3	7	2	1	5	2	6	8	7	14	10	13	14	12	8	115			
	1.6	0.0	0.0	1.7	3.3	0.9	0.5	2.6	1.0	3.2	4.4	4.3	9.6	8.2	14.2	20.7	24.3	20.7		4.1	2.9	0.2
Female	5	1	2	0	3	2	3	2	3	6	6	5	9	7	6	7	6	6	79			
	2.9	0.6	1.2	0.0	1.5	0.9	1.5	1.0	1.4	3.1	3.2	3.0	5.9	5.5	6.2	8.9	9.2	8.4		2.8	2.1	0.2
<b>C50 Breast</b>																						
Male	0	0	0	0	0	0	0	2	1	0	1	3	4	4	4	2	3	4	28			
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.5	0.0	0.6	1.8	2.8	3.3	4.4	3.0	6.1	10.3		1.0	0.6	0.1
Female	0	0	0	0	3	28	59	125	282	406	474	434	480	435	321	238	184	224	3,693			
	0.0	0.0	0.0	0.0	1.5	13.0	29.0	63.4	134.7	211.4	251.5	255.9	316.6	341.2	331.2	302.4	280.7	313.9		129.9	85.8	1.4
<b>C53 Cervix</b>																						
Female	0	0	0	0	2	20	24	29	25	19	20	13	16	16	8	10	4	7	213			
	0.0	0.0	0.0	0.0	1.0	9.3	11.8	14.7	11.9	9.9	10.6	7.7	10.6	12.6	8.3	12.7	6.1	9.8		7.5	5.7	0.4
<b>C54, C55 Uterus</b>																						
Female	0	0	0	0	0	2	5	9	19	30	68	95	118	102	67	61	38	32	646			
	0.0	0.0	0.0	0.0	0.0	0.9	2.5	4.6	9.1	15.6	36.1	56.0	77.8	80.0	69.1	77.5	58.0	44.9		22.7	14.2	0.5
<b>C56 Ovary</b>																						
Female	0	0	0	1	4	7	4	7	9	14	18	30	46	49	37	28	25	44	361			
	0.0	0.0	0.0	0.6	2.3	3.5	1.9	3.4	4.6	6.7	9.4	17.7	30.3	38.4	38.2	35.6	38.1	61.7		12.7	7.8	0.4

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<b>C51, C52, C57 Vulva etc,</b>																						
Female	1	0	0	0	0	1	0	4	0	8	13	14	18	20	20	10	22	27	158			
	0.6	0.0	0.0	0.0	0.0	0.5	0.0	2.0	0.0	4.2	6.9	8.3	11.9	15.7	20.6	12.7	33.6	37.8		5.6	3.0	0.2
<b>C61 Prostate</b>																						
Male	0	0	0	0	0	0	2	23	109	271	557	838	1,010	728	524	375	327	4,764				
	0.0	0.0	0.0	0.0	0.0	0.0	1.0	11.4	58.6	148.2	340.6	576.5	825.5	794.7	774.8	758.6	844.1		171.0	104.8	1.5	
<b>C62 Testis</b>																						
Male	0	0	1	9	25	42	36	28	33	21	8	7	3	1	1	2	1	0	218			
	0.0	0.0	0.6	5.0	11.9	19.2	17.7	14.4	16.3	11.3	4.4	4.3	2.1	0.8	1.1	3.0	2.0	0.0		7.8	7.1	0.4
<b>C60, C63 Penis etc</b>																						
Male	0	0	0	0	0	1	0	0	3	1	2	1	2	2	2	5	3	3	25			
	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	1.5	0.5	1.1	0.6	1.4	1.6	2.2	7.4	6.1	7.7		0.9	0.5	0.1
<b>C64 Kidney</b>																						
Male	3	1	0	1	2	3	9	26	19	52	69	55	63	57	59	32	24	476				
	1.6	0.6	0.0	0.6	0.5	0.9	1.5	4.6	12.9	10.2	28.4	42.2	37.8	51.5	62.2	87.2	64.7	62.0		17.1	11.1	0.5
Female	6	1	1	0	1	5	2	5	13	10	29	38	37	26	40	30	31	24	299			
	3.4	0.6	0.6	0.0	0.5	2.3	1.0	2.5	6.2	5.2	15.4	22.4	24.4	20.4	41.3	38.1	47.3	33.6		10.5	6.5	0.4
<b>C67 Bladder</b>																						
Male	0	0	0	0	0	0	0	0	4	8	19	18	41	58	77	80	86	96	487			
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	4.3	10.4	11.0	28.2	47.4	84.1	118.3	174.0	247.8		17.5	8.9	0.4
Female	0	0	0	0	0	1	0	0	2	5	5	5	9	16	16	28	29	27	143			
	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	1.0	2.6	2.7	3.0	5.9	12.6	16.5	35.6	44.2	37.8		5.0	2.2	0.2
<b>C65, C66, C68 Renal pelvis etc</b>																						
Male	0	0	0	0	0	1	0	1	1	1	5	5	6	8	15	17	15	6	76			
	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.5	0.5	0.5	0.6	3.1	4.1	6.5	16.4	25.1	30.4	15.5		2.7	1.4	0.1
Female	0	0	0	0	0	0	0	0	0	0	3	0	4	6	2	10	4	10	39			
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	0.0	2.6	4.7	2.1	12.7	6.1	14.0		1.4	0.6	0.1

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<b>C69 Eye</b>																							
Male	0	0	0	0	0	2	1	0	0	1	1	2	5	1	4	1	4	1	23				
	0.0	0.0	0.0	0.0	0.0	0.9	0.5	0.0	0.0	0.5	0.6	1.2	3.4	0.8	4.4	1.5	8.1	2.6	0.8	0.5	0.1	0.1	
Female	5	0	0	0	0	1	0	0	2	1	4	4	2	2	3	0	1	3	28				
	2.9	0.0	0.0	0.0	0.0	0.5	0.0	0.0	1.0	0.5	2.1	2.4	1.3	1.6	3.1	0.0	1.5	4.2	1.0	0.9	0.1	0.1	
<b>C70 Meninges</b>																							
Male	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	0	4				
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0	4.1	0.0	0.1	0.1	0.0	0.0	
Female	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2				
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	
<b>C71 Brain</b>																							
Male	6	4	3	2	5	6	7	6	14	21	17	28	21	27	26	23	14	15	245				
	3.3	2.3	1.8	1.1	2.4	2.8	3.5	3.1	6.9	11.3	9.3	17.1	14.5	22.1	28.4	34.0	28.3	38.7	8.8	6.4	0.4	0.4	
Female	1	4	3	1	0	6	4	8	6	8	12	17	15	15	14	17	19	21	171				
	0.6	2.4	1.9	0.6	0.0	2.8	2.0	4.1	2.9	4.2	6.4	10.0	9.9	11.8	14.5	21.6	29.0	29.4	6.0	3.8	0.3	0.3	
<b>C72 Other CNS</b>																							
Male	0	0	1	0	1	0	0	0	0	1	1	0	2	2	0	0	0	1	9				
	0.0	0.0	0.6	0.0	0.5	0.0	0.0	0.0	0.0	0.5	0.6	0.0	1.4	1.6	0.0	0.0	0.0	2.6	0.3	0.3	0.1	0.1	
Female	2	0	0	0	0	0	0	0	0	1	1	2	0	1	0	0	0	0	7				
	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5	1.2	0.0	0.8	0.0	0.0	0.0	0.0	0.3	0.3	0.1	0.1	
<b>C70-C72 Brain &amp; CNS</b>																							
Male	6	4	4	2	6	6	7	6	14	22	20	28	23	29	26	23	16	16	258				
	3.3	2.3	2.4	1.1	2.9	2.8	3.5	3.1	6.9	11.8	10.9	17.1	15.8	23.7	28.4	34.0	32.4	41.3	9.3	6.8	0.4	0.4	
Female	3	4	3	1	0	6	4	8	6	10	13	19	16	16	14	17	19	21	180				
	1.7	2.4	1.9	0.6	0.0	2.8	2.0	4.1	2.9	5.2	6.9	11.2	10.6	12.6	14.5	21.6	29.0	29.4	6.3	4.1	0.3	0.3	
<b>C73 Thyroid</b>																							
Male	0	0	0	2	1	4	7	6	15	11	22	11	21	18	6	5	9	3	141				
	0.0	0.0	0.0	1.1	0.5	1.8	3.5	3.1	7.4	5.9	12.0	6.7	14.5	14.7	6.6	7.4	18.2	7.7	5.1	3.7	0.3	0.3	
Female	0	0	1	6	8	19	27	39	55	44	72	48	39	23	16	16	14	6	433				
	0.0	0.0	0.6	3.5	4.0	8.8	13.3	19.8	26.3	22.9	38.2	28.3	25.7	18.0	16.5	20.3	21.4	8.4	15.2	11.6	0.5	0.5	

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 2012 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
<b>C74, C75 Other endocrine</b>																						
Male	3	1	0	0	1	0	0	1	2	2	1	1	1	3	0	0	1	0	17			
	1.6	0.6	0.0	0.0	0.5	0.0	0.0	0.5	1.0	1.1	0.6	0.6	0.7	2.5	0.0	0.0	2.0	0.0		0.6	0.6	0.1
Female	1	0	0	0	1	1	0	0	2	1	0	2	1	2	2	0	2	1	16			
	0.6	0.0	0.0	0.0	0.5	0.5	0.0	0.0	1.0	0.5	0.0	1.2	0.7	1.6	2.1	0.0	3.1	1.4		0.6	0.4	0.1
<b>C80 Unspecified site</b>																						
Male	1	0	0	0	1	0	1	0	2	8	20	19	23	37	49	44	57	73	335			
	0.5	0.0	0.0	0.0	0.5	0.0	0.5	0.0	1.0	4.3	10.9	11.6	15.8	30.2	53.5	65.1	115.3	188.4		12.0	6.2	0.3
Female	0	0	0	0	2	1	4	6	6	6	13	16	22	37	42	45	66	75	335			
	0.0	0.0	0.0	0.0	0.9	0.5	2.0	2.9	3.1	3.1	6.9	9.4	14.5	29.0	43.3	57.2	100.7	105.1		11.8	5.2	0.3
<b>C81 Hodgkin lymphoma</b>																						
Male	0	1	4	7	7	15	10	10	3	5	8	5	7	6	8	7	2	2	107			
	0.0	0.6	2.4	3.9	3.3	6.9	4.9	5.2	1.5	2.7	4.4	3.1	4.8	4.9	8.7	10.4	4.1	5.2		3.8	3.3	0.3
Female	0	1	0	12	11	8	4	6	8	2	3	8	1	3	4	1	5	1	78			
	0.0	0.6	0.0	6.9	5.4	3.7	2.0	3.0	3.8	1.0	1.6	4.7	0.7	2.4	4.1	1.3	7.6	1.4		2.7	2.5	0.3
<b>C82 Nodular NHL</b>																						
Male	1	0	0	0	1	3	3	6	16	12	18	25	30	22	16	25	10	9	197			
	0.5	0.0	0.0	0.0	0.5	1.4	1.5	3.1	7.9	6.5	9.9	15.3	20.6	18.0	17.5	37.0	20.2	23.2		7.1	4.8	0.3
Female	0	0	0	0	1	1	1	3	11	10	15	21	22	23	20	28	10	5	171			
	0.0	0.0	0.0	0.0	0.5	0.5	0.5	1.5	5.3	5.2	8.0	12.4	14.5	18.0	20.6	35.6	15.3	7.0		6.0	3.7	0.3
<b>C83 Diffuse NHL</b>																						
Male	1	3	4	0	4	1	5	5	8	19	25	29	49	64	50	45	46	25	383			
	0.5	1.7	2.4	0.0	1.9	0.5	2.5	2.6	4.0	10.2	13.7	17.7	33.7	52.3	54.6	66.5	93.1	64.5		13.8	8.7	0.4
Female	1	0	1	2	4	5	3	7	3	9	19	15	20	29	38	41	29	30	256			
	0.6	0.0	0.6	1.2	2.0	2.3	1.5	3.6	1.4	4.7	10.1	8.8	13.2	22.8	39.2	52.1	44.2	42.0		9.0	5.1	0.3
<b>C84 T-cell lymphoma</b>																						
Male	0	0	1	0	0	0	1	0	2	4	2	8	7	6	5	10	5	4	55			
	0.0	0.0	0.6	0.0	0.0	0.0	0.5	0.0	1.0	2.2	1.1	4.9	4.8	4.9	5.5	14.8	10.1	10.3		2.0	1.2	0.1
Female	0	0	1	2	0	4	1	1	1	3	5	1	3	2	3	2	3	4	36			
	0.0	0.0	0.6	1.2	0.0	1.9	0.5	0.5	0.5	1.6	2.7	0.6	2.0	1.6	3.1	2.5	4.6	5.6		1.3	0.9	0.1

Appendix 7 Numbers (Blue) and age-specific rates (Black)

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Appendix 7: Detailed tables of cancer incidence 2012 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
<b>C85 Other NHL</b>																						
Male	0	0	0	0	2	2	1	3	4	6	5	7	13	5	11	11	15	8	93			
	0.0	0.0	0.0	0.0	1.0	0.9	0.5	1.6	2.0	3.2	2.7	4.3	8.9	4.1	12.0	16.3	30.4	20.7		3.3	2.0	0.2
Female	0	0	0	0	0	0	1	1	1	2	9	4	8	12	12	11	17	16	94			
	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5	1.0	4.8	2.4	5.3	9.4	12.4	14.0	25.9	22.4		3.3	1.6	0.2
<b>C82-C85 Non-Hodgkin lymphoma</b>																						
Male	2	3	5	0	7	6	10	14	30	41	50	69	99	97	82	91	76	46	728			
	1.1	1.7	3.0	0.0	3.3	2.8	4.9	7.2	14.8	22.1	27.4	42.2	68.1	79.3	89.5	134.6	153.8	118.7		26.1	16.7	0.6
Female	1	0	2	4	5	10	6	12	16	24	48	41	53	66	73	82	59	55	557			
	0.6	0.0	1.2	2.3	2.5	4.7	3.0	6.1	7.6	12.5	25.5	24.2	35.0	51.8	75.3	104.2	90.0	77.1		19.6	11.3	0.5
<b>C88 Immunoproliferative</b>																						
Male	0	0	0	0	0	0	0	0	0	1	0	2	4	3	5	2	3	2	22			
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	1.2	2.8	2.5	5.5	3.0	6.1	5.2		0.8	0.5	0.1
Female	0	0	0	0	0	0	0	0	1	0	2	0	4	3	2	4	4	6	26			
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	1.1	0.0	2.6	2.4	2.1	5.1	6.1	8.4		0.9	0.4	0.1
<b>C90 Multiple myeloma</b>																						
Male	0	0	0	0	0	0	1	1	1	6	13	19	29	43	35	43	33	27	251			
	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5	3.2	7.1	11.6	20.0	35.1	38.2	63.6	66.8	69.7		9.0	5.0	0.3
Female	0	0	0	0	0	1	0	1	5	9	12	20	21	31	30	25	40	27	222			
	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.5	2.4	4.7	6.4	11.8	13.9	24.3	31.0	31.8	61.0	37.8		7.8	4.0	0.3
<b>C91 Lymphoid leukaemia</b>																						
Male	18	11	7	8	1	4	3	3	6	6	11	16	16	35	25	33	17	24	244			
	9.8	6.3	4.1	4.4	0.5	1.8	1.5	1.6	3.0	3.2	6.0	9.8	11.0	28.6	27.3	48.8	34.4	62.0		8.8	6.8	0.4
Female	12	5	4	0	5	3	2	4	2	3	11	4	9	16	14	10	10	21	135			
	6.9	3.0	2.5	0.0	2.5	1.4	1.0	2.0	1.0	1.6	5.8	2.4	5.9	12.6	14.5	12.7	15.3	29.4		4.8	3.6	0.3
<b>C92 Myeloid leukaemia</b>																						
Male	3	2	0	0	7	0	5	7	11	7	15	14	29	26	26	33	22	28	235			
	1.6	1.1	0.0	0.0	3.3	0.0	2.5	3.6	5.4	3.8	8.2	8.6	20.0	21.3	28.4	48.8	44.5	72.3		8.4	5.3	0.3
Female	0	2	1	2	7	0	2	5	3	7	7	11	9	16	17	17	29	22	157			
	0.0	1.2	0.6	1.2	3.5	0.0	1.0	2.5	1.4	3.6	3.7	6.5	5.9	12.6	17.5	21.6	44.2	30.8		5.5	3.1	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 2012 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
<b>C93 Monocytic leukaemia</b>																						
Male	0	0	0	0	0	0	0	0	0	1	1	0	0	3	1	1	1	3	0	10		
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.6	0.0	0.0	2.5	1.1	1.5	6.1	0.0		0.4	0.2	0.0
Female	0	0	1	0	0	0	0	0	2	2	2	1	2	2	1	1	1	1	1	16		
	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	1.0	1.0	1.1	0.6	1.3	1.6	1.0	1.3	1.5	1.4		0.6	0.4	0.1
<b>C94 Other leukaemia</b>																						
Male	0	0	0	0	0	0	0	0	1	2	1	1	0	0	1	2	0	0	0	8		
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	1.1	1.1	0.6	0.6	0.0	0.0	1.1	3.0	0.0	0.0		0.3	0.2	0.1
Female	1	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	2	0	0	6		
	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.8	0.0	1.3	3.1	0.0		0.2	0.1	0.0
<b>C95 Unspecified leukaemia</b>																						
Male	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	3	5			
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0	2.0	7.7		0.2	0.1	0.0
Female	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	7	9			
	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	0.8	0.0	0.0	1.5	9.8		0.3	0.1	0.0
<b>C91-C95 All leukaemia</b>																						
Male	21	13	7	8	8	4	8	10	18	16	28	31	46	64	53	69	43	55	502			
	11.4	7.4	4.1	4.4	3.8	1.8	3.9	5.2	8.9	8.6	15.3	19.0	31.7	52.3	57.9	102.0	87.0	142.0		18.0	12.6	0.5
Female	13	7	6	2	12	3	4	9	7	12	20	17	20	36	32	29	43	51	323			
	7.4	4.2	3.7	1.2	5.9	1.4	2.0	4.6	3.3	6.3	10.6	10.0	13.2	28.2	33.0	36.8	65.6	71.5		11.4	7.3	0.4
<b>D45-D47 Myeloproliferative &amp; myelodysplastic</b>																						
Male	1	1	1	1	3	1	3	1	3	11	8	13	33	36	35	55	48	65	327			
	0.5	0.6	0.6	0.6	0.5	1.4	0.5	1.6	5.4	4.3	6.0	8.0	22.7	29.4	38.2	81.3	97.1	167.8		11.7	6.4	0.3
Female	1	0	0	2	2	1	7	4	3	11	10	11	24	22	27	35	44	62	266			
	0.6	0.0	0.0	1.2	1.0	0.5	3.4	2.0	1.4	5.7	5.3	6.5	15.8	17.3	27.9	44.5	67.1	86.9		9.4	4.5	0.3
<b>C00-C96, D45-D47 All malignant tumours</b>																						
Male	46	25	24	38	87	119	148	191	355	544	961	1,518	2,089	2,503	2,241	2,036	1,642	1,508	16,075			
	25.0	14.3	14.2	20.9	41.5	54.5	72.9	98.5	175.4	292.6	525.6	928.3	1437.1	2045.7	2446.2	3010.4	3321.8	3892.4		577.1	351.0	2.7
Female	42	15	22	38	73	150	222	359	619	842	1,163	1,247	1,486	1,530	1,415	1,366	1,324	1,399	13,312			
	24.0	9.1	13.7	21.9	36.1	69.8	109.2	182.1	295.8	438.3	617.0	735.1	980.1	1200.2	1460.0	1735.3	2019.6	1960.7		468.1	278.9	2.4

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 8

## Indices of data quality

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 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%
<b>All malignant tumours</b>	<b>1.7</b>	<b>93</b>	<b>37</b>
Head & neck	0.8	97	32
Oesophagus	1.2	92	68
Stomach	1.7	95	63
Bowel	1.4	95	38
Liver	4.8	46	79
Gallbladder	0.0	79	82
Pancreas	4.4	67	89
Lung	3.4	86	73
Melanoma	0.2	99	14
Breast	0.6	99	20
Cervix	0.5	100	24
Uterus	0.9	98	18
Ovary	4.7	85	66
Prostate	1.2	96	17
Testis	0.0	98	2
Kidney	1.8	89	28
Bladder	2.1	91	41
Brain & CNS	2.5	87	85
Thyroid	0.2	99	6
Unspecified site	7.6	68	96
Lymphoma	0.9	99	26
Multiple myeloma	0.8	99	51
Leukaemia	3.6	96	52

# Appendix 9

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2. National Centre for Classification in Health. The International Statistical Classification of Diseases and Related Health Problems. Tenth Revision, Australian Modification (ICD-10-AM). Seventh edition. National Centre for Classification in Health, Sydney 2010.
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# Appendix 10

## Victorian Cancer Registry publications

### Canstats

Annual data were published in the Canstat series from 1991-2009 Titles include:

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

### Reports

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)

Karahalios E, English D, Thursfield V, Simpson J, Farrugia H, Giles G. Aug 2010. Second primary Cancers in Victoria.

Farrugia H, Thursfield V, Karahalios E, Giles G. Cancer Survival Victoria 2013: Estimates of survival in 2007-2011 (and comparison with earlier periods). Victorian Cancer Registry, The Cancer Council Victoria, Melbourne. August 2013.

All publications are available for download, in pdf format, from our website at :  
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