



Government of **Western Australia**
Department of **Health**

Cancer incidence and mortality in Western Australia, 2012

A report of the Western Australian Cancer Registry



Statistical series number 99
ISSN: 0816-2999
April 2014

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**Data Integrity Directorate, Performance Activity and Quality Division
Department of Health
Perth, Western Australia**

April 2014

Statistical Series Number 99

ISSN: 0816-2999

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Citation

The following citation is suggested in referring to this report:

Threlfall TJ, Thompson JR (2014). *Cancer incidence and mortality in Western Australia, 2012*. Department of Health, Western Australia, Perth. Statistical Series Number 99.

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Summary - Cancer incidence and mortality in Western Australia, 2012

The Western Australian Cancer Registry has provided population-based cancer data since 1982 for use in the planning of health care services and the support of cancer-related research, at local, national and international levels. Most of this report is concerned with invasive tumours, or “cancers”, using standardised reporting practices as used in other cancer registries in Australia and overseas. This report deals primarily with cancer incidence and cancer-related mortality in Western Australian residents, who comprise approximately 10% of the Australian population.

CANCER INCIDENCE

There were 11939 new cases of cancer recorded in Western Australians in 2011, 6689 (56%) occurring in males and 5250 in females. Age-standardised incidence rates were 353 per 100,000 males, and 274 per 100,000 females. The rate in males is significantly decreased from that seen in 2011 but the incidence rate in females has been relatively stable. The estimated cumulative risk of cancer to age 75 years was 1 in 3 for males, and 1 in 4 for females.

The most common cancers in males in 2012 were prostate cancer, melanoma, colorectal cancer and lung cancer, while breast cancer predominated among females, followed by colorectal cancer, melanoma and lung cancer. Colorectal cancer was the most common type affecting both males and females.

Based on 2012 data, one in 7 men would be expected to have a diagnosis of prostate cancer before the age of 75, and one in 10 women would be expected to develop breast cancer.

CANCER MORTALITY

Among Western Australian residents, there were 4002 deaths due to cancer in 2012, 2273 in males and 1729 in females. All-cancers mortality rates for 2012 were 105 deaths per 100,000 males (decreased since 2010 and 2011) and 73 per 100,000 females (no recent change). As usual in recent years, the most common causes of cancer-related death in males were lung, colorectal and prostate cancers, while lung, breast and colorectal cancers were the most common in females. Pancreatic cancer was the fourth most common cause of cancer-related death in both sexes.

As in recent years, lung cancer was the most common cause of cancer-related death for both males and females, killing one in 43 males and one in 51 females before age 75. Based on 2012 data, one in 166 men could be expected to die from prostate cancer, and one in 70 women to die from breast cancer, before age 75.

CANCER IN CHILDREN

There were 79 children under the age of 15 years diagnosed with cancer in 2012 (Age-adjusted rates 22 per 100,000 in males and 12 in females), as well as five children with benign brain tumours. The case numbers were higher than the 58 cases in 2010 but similar to those reported for 2011.

OTHER CANCERS

Melanoma of the skin was - as in most years since 1982 - the most common cancer and cause of cancer-related mortality in males in the 15-39 years age range, and second most common incident cancer in females in this age range. In persons over the age of 40 years, prostate

and breast cancers, melanoma, colorectal and lung cancers, remain the most common incident cancers.

DATA COLLECTION

The last year has seen further advances in processing of information and streamlining some processes, with more pathology laboratories using electronic transmission methods for notification. One section of this report shows the “Cancer” statistics in conjunction with the Registry’s throughput of a wider spread of tumour types, in an attempt to show the specialty workloads and possible health promotion target areas in a broader context than “cancers” alone.

Acknowledgments

This report is based on data recorded and maintained by the staff of the Western Australian Cancer Registry, whose dedication and attention to detail are much appreciated.

We also wish to acknowledge the invaluable contribution of the Western Australian pathologists, haematologists and radiation oncologists who supply the vast majority of the Registry’s primary notifications, and the health professionals and organisations who supply additional information in response to our enquiries.

The cooperation of other Australian Cancer Registries regarding procedures, coding, duplication and demarcation issues, and of staff of the Australian Cancer Database at AIHW, Canberra, is acknowledged as playing a vital part in ensuring data quality and comparability.

The Registry staff are grateful to have access to a variety of supporting services in order to produce reports on cancer; these include population figures and projections, mapping, hospitalisation data, legal advice, computing services and general support and encouragement.

1 Overview and Methods

1.1 This Report

Overview

This is the latest in the Registry's series of annual reports, and is devoted largely to Western Australian cancer incidence and mortality for 2012. In the interest of timeliness, regular sections may contain less commentary and interpretation than in some past reports, but there is substantially more coverage of technical and data-related issues. It is anticipated that more detailed discussion of particular issues will continue to be made available in other reports as the opportunity arises.

The **Western Australian Cancer Registry (WACR)** is a population-based cancer registry established in 1981, operating within the Department of Health (Western Australia). The main information sources are reports from pathologists, haematologists and radiation oncologists, supplemented by death registrations, hospital statistical discharge (HMDS) records, as well as information from hospital files and clinical information systems, and responses to enquiries directed to treating medical practitioners.

The WACR is managed within the Data Integrity Branch of the Performance, Activity and Quality Division of the Department of Health (Western Australia). A summary of the legislative basis of the Registry can be found in Appendix 1.

1.2 General structure; how to find information

The major sections are based on cancers diagnosed, and deaths due to cancer, in 2012.

- Data for most common cancers are presented under headings based on incidence, mortality and age,
- Detailed data for all cancers for 2012 are found in the tables of Appendices 3A and 3B. The layout of those tables follows the coding system summarised in material available at www.health.wa.gov.au/wacr/home .
- Data for selected geographic areas are presented in Appendices 3D and 3E.

Readers seeking detailed information for particular cancers not shown in tables, should contact WACR for further information.

Information from this report, and other WACR information, is available at - http://www.health.wa.gov.au/wacr/statistics/stats_full.cfm

1.3 Interpretation

Western Australia is particularly polarised into metropolitan and rural areas, with huge differences in population density and there are likely to be some statistical biases due to the difficulties of transport and the location of services within the State. Throughout this report, readers should be aware that assessing the relevance of changes in cancer incidence and mortality is complex and depends on the size of underlying populations and their age structures. Caution is required in assessing changes on the basis of single rate comparisons.

The Cancer Registry database is continually updated in the light of the most recent available information. Accordingly, numbers in this report for earlier years may vary slightly from those in previous publications, as some Western Australian cases are eventually found to have been diagnosed elsewhere, or in earlier years, and case-counts necessarily rise and fall

as new information arrives. Mortality information, in particular, sheds new light on a person's cancer history and often leads to the initiation of new enquiries.

As a guide, while total cancers for 2011 were quoted at 11636 in our previous report,¹ the total currently recorded for 2011 is 11691, an increase of about 0.5%. Mortality data are generally more stable, but the benefits of more timely incidence reporting must be weighed against the apparent stability of the data as time passes.

1.4 Statistical methods

Statistics from the Registry commonly fall into one of two major groups: **incidence** is reported for all malignancies except primary squamous cell and basal cell skin cancers (SCC and BCC), and **mortality** for all malignancies and certain other tumours or tumour-like conditions. The usual statistics calculated for both types of report are briefly discussed below; formulae and relevant details are in Appendix 2B.

Rates are calculated separately for males and females, expressed as events (diagnoses or deaths) per 100,000 person-years:

Age-specific rates (ASPR) are based on five-year age groups and are calculated by dividing the numbers of cases by the population of the same sex and age group. Whole-population data come from the ABS and regional data from the Epidemiology Branch, Department of Health (WA).

Age-standardised rates (ASR in Tables) are calculated by the direct method, as a summation of weighted age-specific rates. Tables show the 95% confidence interval (C.I.) for ASRs. When a subset of age groups (e.g. 15-39 years) is considered, the term **age-adjusted rate (AAR)** is used instead of ASR.

The **World Standard Population 1960**² remains in routine use for ASR calculation, as in most cancer registries worldwide. However in some tables a second ASR and 95% C.I. are shown, using the Australian (2001)³ population standard, labelled "ASR2". These ASRs are usually quite different, and comparisons need to take note of which "standard" is being used.

Cumulative Incidence and Cumulative Risk are closely related. **Cumulative incidence** is an estimate of the proportion of persons, up to a specific age, who have been affected by a particular condition at some time. In Registry reports, this is expressed as a percentage.

Cumulative risk (LR) estimates the probability of having cancer (incidence) or dying of it (mortality), up to a specific age. This is derived from the relevant cumulative incidence figures, and calculated for ages 0 to 74 years (see **Appendix 2B** for formulae).

In this report, LR is expressed as a "1 in *n*" chance of diagnosis or death. As indicated in relevant tables, a "-" is used to indicate a lack of data (no cases), and a "*" to indicate no data for cases under 75 years of age, or a "risk" smaller than 1 in 10,000.

Person years of life lost (PYLL) is an estimate of the number of years of life lost due to specific causes, calculated to age 75 years; an index of premature death (see Appendix 2B).

Rates and risks: It should be noted that incidence and mortality **rates** and cumulative **risks** may not be in proportion to one another because of differences in the age structures of populations.

Small numbers: Some small-number case counts and associated percentages and rates in this report have been obscured or omitted where they relate to specific types of conditions.

2. Cancer in Western Australia, 2012

2.1 All cancers

2.1.1 Incidence

In 2012, there were 11939 new diagnoses of cancer in Western Australia, just over 2% more than reported a year ago for 2011. Despite continuing growth in case numbers, as a consequence of population growth, the all-cancers age-standardised incidence rate was not significantly changed in women. However in males, the all-cancers incidence rate was significantly lower than in the last 2 years, and prostate cancer incidence fell to the level last seen in 2010. There were 6689 cancers diagnosed in males (ASR 353 per 100,000) and 5250 in females (ASR 274) (Table 1). Cancers in males accounted for 56% of all cases.

The estimated cumulative risk of cancer to age 75 years was 1 in 3 for males and 1 in 4 for females; the cumulative incidence of cancer (the proportion of persons in whom cancer had been diagnosed by age 75) was 42% for males and 31% for females. These measures have remained essentially unchanged in recent years.

Cancer is generally more common in females than in males between ages 30 and 55 (mainly ovarian and breast cancers), but prostate cancer and lung cancer account for much of the male predominance in older ages.

The differences in cancer incidence rates across the age range can be seen for individual cancers and all cancers combined, in Appendix 3A.

2.1.2 Mortality

Among Western Australian residents in 2012 there were 4002 deaths due to cancer (2273 in males, 1729 in females) (Table 1). Mortality ASRs were 105 deaths per 100,000 males (slightly reduced since 2011) and 73 per 100,000 in females (essentially unchanged). The estimated cumulative risk of death due to cancer before age 75 years was 1 in 10 for males and 1 in 13 for females.

There was no significant change in the age-pattern of cancer mortality in 2012. Cancer death rates generally increased for both males and females from age 20. All-cancers death rates among males were consistently higher than in females at ages greater than 55 years.

These cancer deaths include 80 deaths due to non-melanoma skin cancers, 79% of them in males. Of these, 54 (68%) were due to squamous or basal cell carcinomas, types not included in “cancer” incidence statistics. As noted in the Registry’s last report, the annual number of non-melanoma skin-cancer related deaths continues to increase.

Other deaths that are not included in these mortality statistics were -

- 21 cancer-related deaths in persons not normally resident in Western Australia

- 7 deaths due to benign tumours (all but 2 CNS tumours)

- 4 deaths due to “uncertain malignant potential” lymphohaematopoietic neoplasms

- 8 deaths due to “uncertain malignant potential” non-lymphohaematopoietic neoplasms

- 1965 deaths due to non-tumour-related causes among persons with a Registry tumour record (1067 males, 898 females)

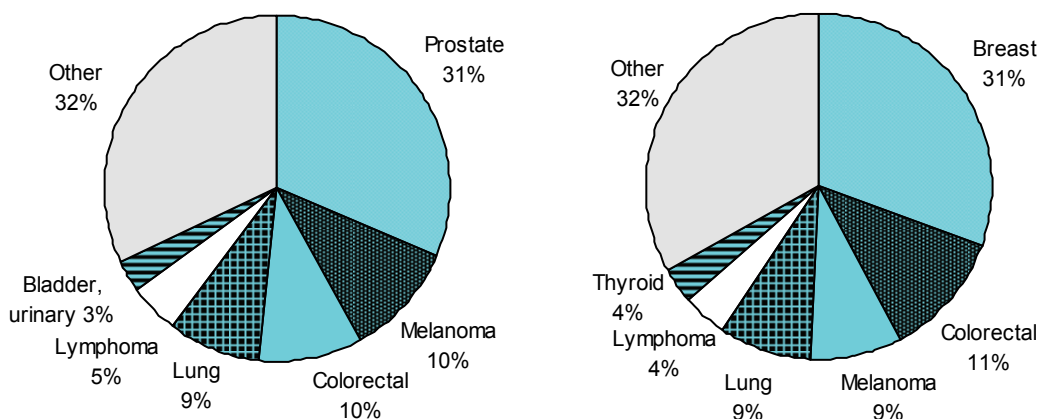
- 43 deaths of unresolved cause among persons with a tumour record (pending outcome of coronial investigations).

2.2 Common cancers - Incidence and Mortality

The most common incident cancer types in males and females are shown in summary form in Figure 1, with the detailed statistics in Table 1. Prostate cancer incidence has been relatively unstable since 2009, with a fall reported in 2010 being repeated in 2012 (Fig. 9).

For further breakdown by age group, and including the less common cancer types, see Appendix 3A; for incidence statistics from different Regions within WA see Appendix 3D.

Figure 1. Cancer incidence, Western Australia, 2012: common cancers
Males (6689) Females (5250)



The cancers most commonly causing death are shown in summary form in Figure 2, with the detailed statistics in Table 1. There have been only minor differences in the relative impact of these most common types in recent years. Lung cancer now appears firmly established as a more frequent cause of mortality in women than breast cancer, and continues to be the most common cause of cancer-related death in males.

For further breakdown by age group, and including the less common cancer types, see Appendix 3B; for mortality statistics from different Regions within WA see Appendix 3E.

Figure 2. Cancer mortality, Western Australia, 2012: common cancers
Males (2273) Females (1729)

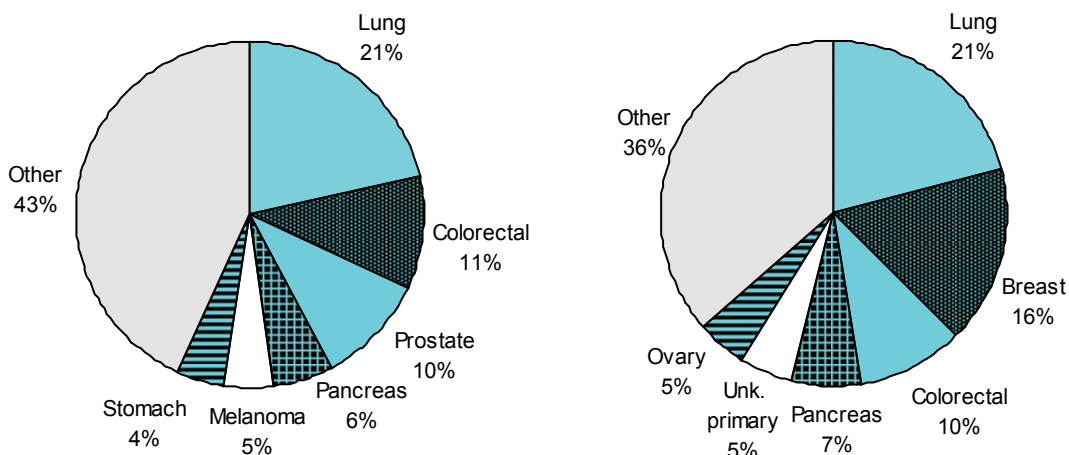


Table 1. Cancer incidence and mortality, Western Australia 2012: leading types in males and females

Incidence

Males						Females					
	Cases	%	ASR	95%c.i.	Risk		Cases	%	ASR	95%c.i.	Risk
Prostate	2108	31.5	110.0	105-115	7	Breast	1608	30.63	89.7	85.2-94.2	10
Melanoma (skin)	696	10.4	37.7	34.8-40.6	23	Colorectal	602	11.47	27.8	25.4-30.2	31
Colorectal	647	9.7	32.8	30.2-35.4	25	Colon	428	8.152	19.3	17.3-21.3	45
Colon	441	6.6	21.8	19.7-23.9	40	Rectum	171	3.257	8.3	7.0-9.6	104
Rectum	206	3.1	11.0	9.5-12.5	69	Melanoma (skin)	453	8.629	25.0	22.6-27.4	38
Lung	580	8.7	28.3	25.9-30.7	31	Lung	451	8.59	20.9	18.9-23.0	39
Lymphoma	309	4.6	17.1	15.1-19.0	53	Lymphoma	219	4.171	11.8	10.1-13.4	82
Lymphoma NOS	10	0.1	0.4	0.1-0.7	9057	Lymphoma NOS	6	0.114	0.2	0.0-0.3	*
Hodgkin lymphoma	41	0.6	2.8	1.9-3.6	385	Hodgkin lymphoma	20	0.381	1.7	0.9-2.5	816
NHL	258	3.9	13.9	12.1-15.6	62	NHL	193	3.676	9.9	8.4-11.3	92
Bladder & urinary tract	210	3.1	9.8	8.4-11.2	92	Thyroid gland	188	3.581	12.1	10.4-13.9	84
Kidney	205	3.1	11.5	9.8-13.1	76	Uterus	183	3.486	10.0	8.5-11.4	76
Leukaemia	167	2.5	10.2	8.5-11.9	96	Ovary	133	2.533	6.8	5.6-8.0	128
Leukaemia NOS	<5	NR	NR	0 - 0.2	*	Pancreas	128	2.438	5.6	4.5-6.6	157
Lymphoid leukaemia	91	1.4	5.7	4.4-7.0	170	Unknown primary	127	2.419	4.7	3.7-5.6	239
Myeloid leukaemia	74	1.1	4.4	3.3-5.5	227	Leukaemia	118	2.248	6.9	5.5-8.3	151
Leukaemia, other	<5	NR	NR			Leukaemia NOS	<5	NR	NR	0 - 0.1	*
Unknown primary	156	2.3	7.3	6.1-8.5	149	Lymphoid leukaemia	57	1.086	3.7	2.6-4.8	306
Pancreas	138	2.1	7.0	5.8-8.2	119	Myeloid leukaemia	60	1.143	3.2	2.3-4.1	297
Stomach	132	2.0	6.6	5.4-7.8	138	Leukaemia, other	<5	NR	NR		
Lip, gum & mouth	131	2.0	7.3	6.0-8.6	125	Kidney	99	1.886	5.2	4.1-6.4	169
Oesophagus	108	1.6	5.6	4.6-6.7	140	Cervix	97	1.848	6.5	5.2-7.8	175
Brain	106	1.6	6.9	5.5-8.4	149	Myeloma	79	1.505	3.6	2.7-4.4	245
Liver	102	1.5	5.3	4.3-6.4	163	Bladder & urinary tract	75	1.429	2.9	2.2-3.6	340
Myeloma	97	1.5	5.0	4.0-6.0	161	Brain	75	1.429	4.7	3.5-5.9	230
Mesothelioma	88	1.3	4.3	3.4-5.2	174	Stomach	63	1.2	2.7	2.0-3.5	341
Testis	81	1.2	5.9	4.6-7.1	222	Lip, gum & mouth	60	1.143	2.8	2.0-3.6	335
Skin (NMSC exc. SCC/BCC)	75	1.1	3.6	2.7-4.5	272	Skin (NMSC exc. SCC/BCC)	51	0.971	2.4	1.7-3.2	328
Thyroid gland	74	1.1	4.4	3.4-5.5	214	Liver	40	0.857	2.0	1.4-2.6	398
Myelodysplastic diseases	62	0.9	2.7	2.0-3.4	384	Gallbladder / bile ducts	41	0.781	1.7	1.2-2.3	541
All cancers	6689	100.0	353.2	344-362	3	All cancers	5250	100.0	274.1	266-282	4

Mortality

Males						Females					
	Cases	%	ASR	95%c.i.	Risk		Cases	%	ASR	95%c.i.	Risk
Lung	488	21.5	22.3	20.2-24.3	43	Lung	361	20.9	15.9	14.1-17.6	51
Colorectal	240	10.6	11.4	9.9-12.9	86	Breast	285	16.5	13.1	11.5-14.8	70
Colon	149	6.6	6.6	5.5-7.7	163	Colorectal	175	10.1	6.1	5.1-7.1	170
Rectum	91	4.0	4.8	3.8-5.8	180	Colon	131	7.6	4.5	3.6-5.4	250
Prostate	230	10.1	9.1	7.9-10.3	166	Rectum	44	2.5	1.6	1.1-2.1	532
Pancreas	129	5.7	6.2	5.1-7.3	137	Pancreas	113	6.5	4.7	3.7-5.6	198
Melanoma (skin)	109	4.8	5.5	4.5-6.6	170	Unknown primary	85	4.9	2.7	2.1-3.4	485
Stomach	99	4.4	4.7	3.7-5.7	198	Ovary	80	4.6	3.6	2.8-4.5	229
Lymphoma	99	4.4	4.6	3.7-5.6	198	Lymphoma	62	3.6	2.3	1.6-2.9	527
Lymphoma NOS	<5	NR	NR	0.0-0.3	*	Lymphoma NOS	<5	NR	NR	0 - 0.1	*
Hodgkin lymphoma	NR	NR	NR	0.0-0.4	4562	Hodgkin lymphoma	<5	NR	NR	0 - 0.4	7598
NHL	90	4.0	4.3	3.4-5.2	207	NHL	57	3.3	2.0	1.4-2.6	566
Unknown primary	98	4.3	4.3	3.4-5.2	258	Leukaemia	54	3.1	2.5	1.7-3.3	437
Brain	77	3.4	4.2	3.2-5.2	210	Leukaemia NOS	0				-
Oesophagus	75	3.3	3.7	2.8-4.5	232	Lymphoid leukaemia	21	1.2	1.1	0.5-1.6	1187
Bladder & urinary tract	70	3.1	2.8	2.1-3.5	511	Myeloid leukaemia	33	1.9	1.4	0.9-2.0	691
Liver	68	3.0	3.4	2.6-4.2	236	Leukaemia, other	0				-
Skin (NMSC inc. SCC/BCC)	63	2.8	2.7	2.0-3.4	352	Brain	52	3.0	2.8	2.0-3.6	326
Mesothelioma	59	2.6	2.7	2.0-3.4	314	Myeloma	46	2.7	1.8	1.2-2.4	583
Kidney	54	2.4	2.6	1.9-3.3	383	Stomach	43	2.5	1.7	1.1-2.2	678
Leukaemia	54	2.4	2.5	1.8-3.3	450	Uterus	40	2.3	1.8	1.2-2.4	510
Leukaemia NOS	<5	NR	NR	0 - 0.3	5189	Melanoma (skin)	38	2.2	1.6	1.1-2.2	580
Lymphoid leukaemia	19	0.8	0.8	0.4-1.1	2381	Bladder & urinary tract	34	2.0	1.1	0.7-1.5	1221
Myeloid leukaemia	32	1.4	1.6	1.0-2.2	621	Gallbladder / bile ducts	31	1.8	1.2	0.8-1.7	1057
Leukaemia, other	<5	NR	NR	0 - 0.3	*	Liver	26	1.5	1.1	0.6-1.6	766
Myeloma	44	1.9	1.9	1.3-2.5	543	Myelodysplastic diseases	23	1.3	0.8	0.4-1.1	2053
Myelodysplastic diseases	36	1.6	1.6	1.0-2.1	617	Kidney	18	1.0	0.7	0.3-1.0	2062
Gallbladder / bile ducts	28	1.2	1.2	0.7-1.7	996	Skin (NMSC inc. SCC/BCC)	17	1.0	0.5	0.2-0.7	2987
Pharynx	26	1.1	1.5	0.9-2.0	576	Oesophagus	16	0.9	0.6	0.3-1.0	1762
Lip, gum & mouth	14	0.6	0.7	0.3-1.1	1551	Vulva	15	0.9	0.5	0.2-0.8	2826
All cancer deaths	2273	100.0	105.4	101-110	10	All cancer deaths	1729	100.0	72.7	68.9-76.5	13

(NHL - Non-Hodgkin lymphoma; Refer to *Statistical Methods, Section 1.4*, for other terms & abbreviations used)

2.3 Cancer in different age groups

2.3.1 Cancer in children

Incidence: In children under the age of 15 years, there were 79 cases of cancer diagnosed in 2012, 51 males and 28 females. The most common types were leukaemias (24 cases), brain tumours (17) and neuroblastomas (10). Incidence rates were similar to those reported for 2011.

Numbers and rates by age group are in Appendix 3A and Appendix 3B. An International Classification of Childhood Cancer (Version 3) table based on major diagnostic groups is found in Appendix 3C. That classification includes a further 5 “uncertain malignant potential” brain tumours not included in the statistics above.

2.3.2 Cancer in the 15-39 years age range

In the 15 to 39 years age range, there were 646 cancer diagnoses in 2012, 7% more than in 2011. There were 63 cancer-related deaths in this age group in 2011, similar to the 2011 number, but there were more deaths in males and fewer in females. The most common types are shown in summary form in Figures 3 and 4, with the detailed statistics in Table 2 and 3.

Figure 3. Cancer incidence, Western Australia, 2012: common cancers in the 15 to 39 years age group

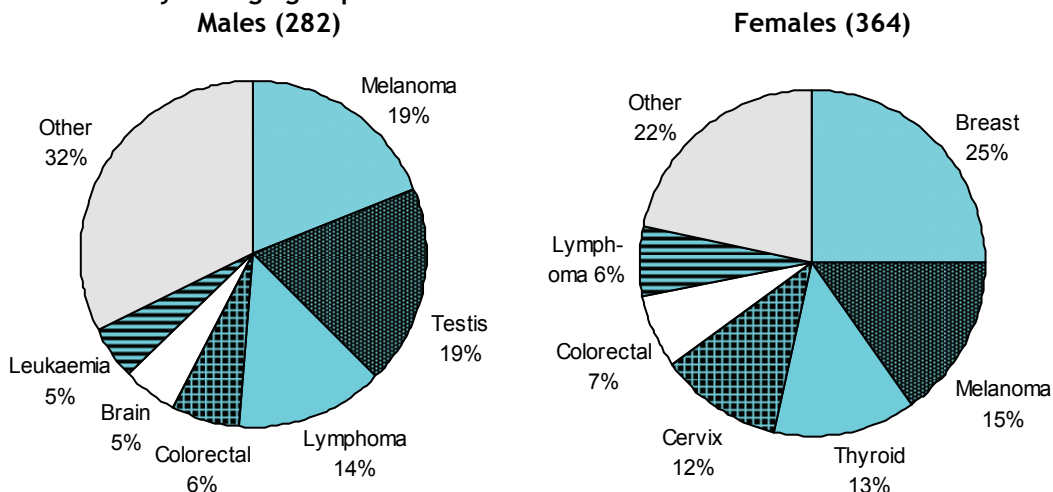
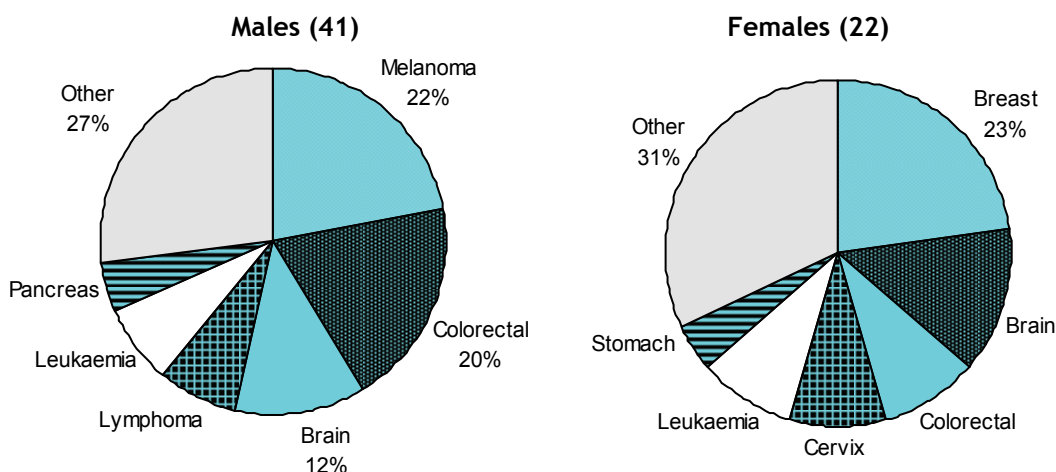


Figure 4. Cancer mortality, Western Australia, 2012: common cancers in the 15 to 39 years age group



2.3.3 Cancer in the 40-64 years age range

There were 4775 new cancer cases in the age range 40 to 64 years, prostate and breast being most common, with an overall risk of cancer occurring in this age range of 1 in 7 for both males and females, with a significant reduction in male incidence and a non-significant increase among females. There were 1015 cancer-related deaths in this age range, with mortality rates relatively unchanged in males and females.

The most common types are shown in summary form in Figures 5 and 6, with the detailed statistics in Table 2 and 3.

Figure 5. Cancer incidence, Western Australia, 2012: common cancers in the 40 to 64 years age group

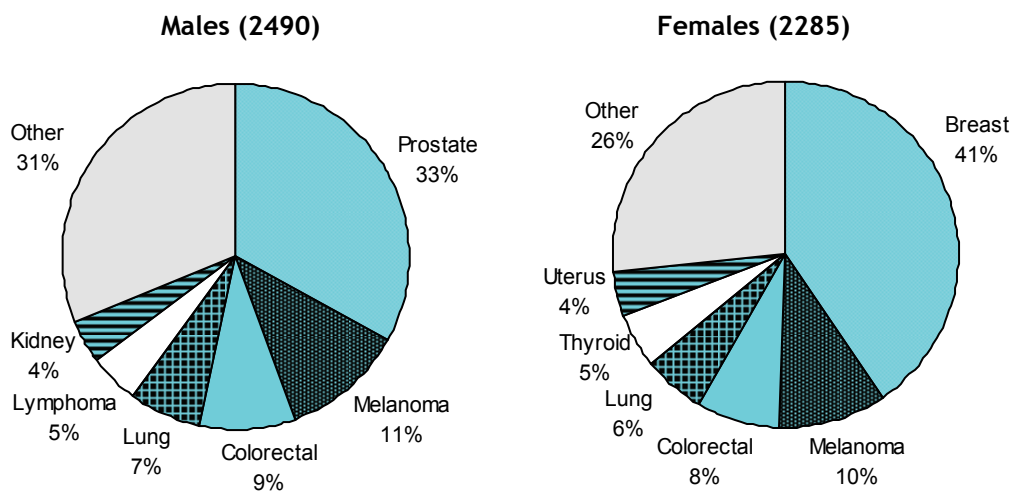
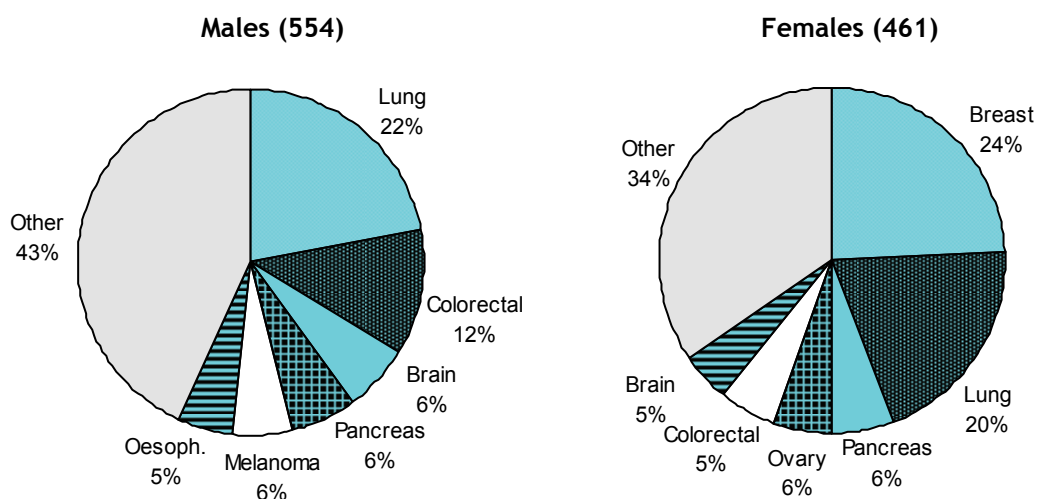


Figure 6. Cancer mortality, Western Australia, 2012: common cancers in the 40 to 64 years age group



2.3.4 Cancer in persons aged 65 and over

There were 6439 new cancer diagnoses in persons over the age of 65 years in 2012. In this age range, prostate cancer (1284 cases) outnumbered any other specific cancer type in either sex (Table 2) and accounted for 33% of diagnoses in males. Overall male incidence rates in this age group were significantly lower than in 2011, with minimal change in females. Among females, breast cancer predominated (590 cases, 23%).

There were 2917 cancer-related deaths in this age range in 2012, showing a marginally-significant reduction in males but little change in females since 2011. In persons over the age of 65 years, lung cancer was the most common cause of cancer-related death, causing 634 deaths, 15% more than in 2011, the increase being more marked among females.

The most common types are shown in summary form in Figures 7 and 8, with the detailed statistics in Table 2 and 3.

Figure 7. Cancer incidence, Western Australia, 2012: common cancers in the 65 years & over age group

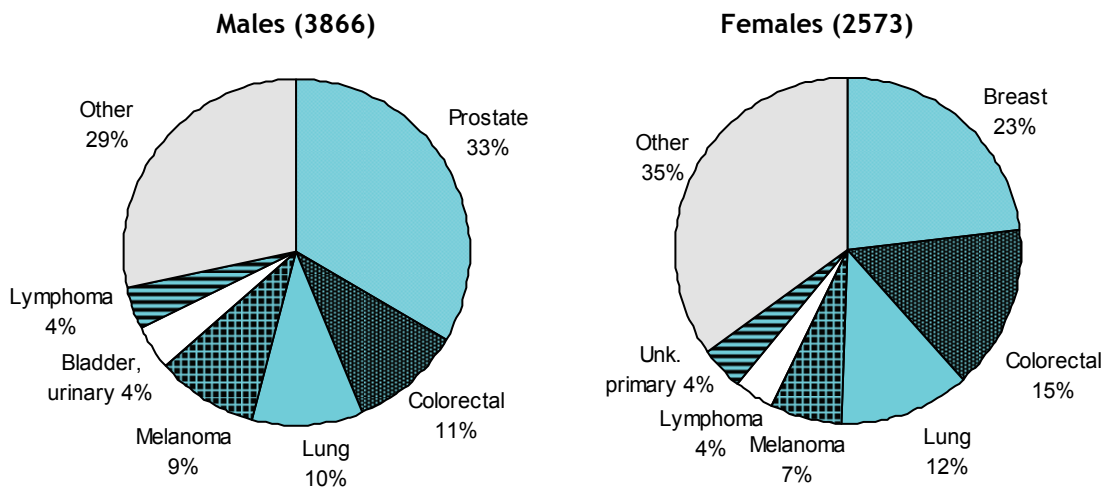


Figure 8. Cancer mortality, Western Australia, 2012: common cancers in the 65 years & over age group

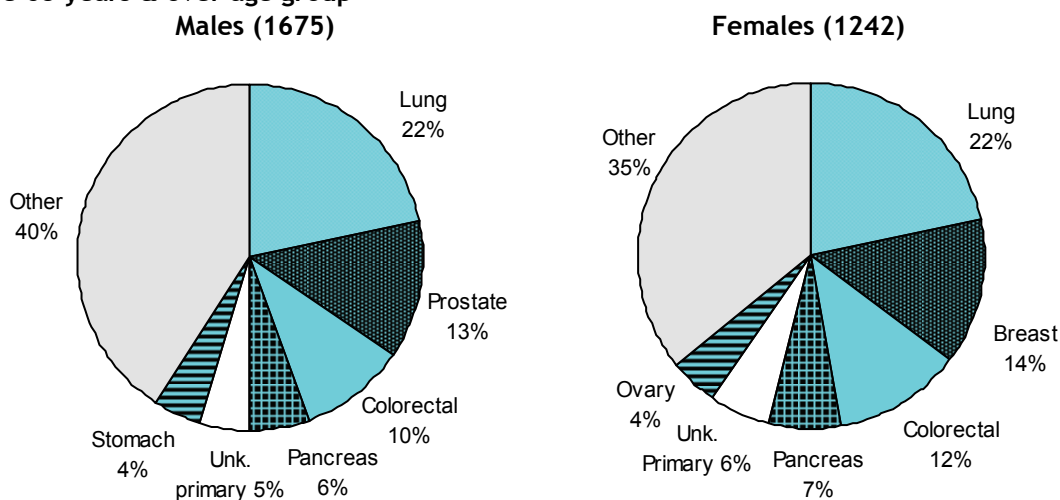


Table 2. Cancer incidence, Western Australia, 2012: leading types by sex and age group (ASR: age-adjusted rate)

15 to 39 years

Males

	Cases	%	ASR	95%c.i.	Risk
Melanoma (skin)	53	18.8	10.5	7.7-13.4	351
Testis	53	18.8	10.9	7.9-13.8	356
Lymphoma	39	13.8	8.1	5.5-10.7	467
Lymphoma NOS	<5	NR	NR	0 - 1.0	9057
Hodgkin lymphoma	21	7.4	4.6	2.6-6.5	876
NHL	NR	NR	NR	1.6-4.7	1124
Colorectal	18	6.4	3.4	1.8-4.9	1029
Colon	12	4.3	2.3	1.0-3.5	1552
Rectum	6	2.1	1.1	0.2-2.0	3049
Brain	14	5.0	2.8	1.3-4.3	1300
Leukaemia	14	5.0	2.9	1.4-4.4	1318
Leukaemia NOS	<5	NR	NR		
Lymphoid leukaemia	<5	NR	NR	0.0-1.6	4614
Myeloid leukaemia	10	3.5	2.1	0.8-3.4	1845
Leukaemia, other	0				
Lip, gum & mouth	12	4.3	2.3	1.0-3.6	1509
Bone	10	3.5	2.5	0.9-4.1	1750
All cancers	282	100.0	57.2	50.5-64.0	66

Females

	Cases	%	ASR	95%c.i.	Risk
Breast	91	25.0	17.8	14.1-21.5	189
Melanoma (skin)	56	15.4	11.4	8.4-14.5	306
Thyroid gland	48	13.2	10.1	7.2-13.0	361
Cervix	42	11.5	8.8	6.1-11.5	414
Colorectal	25	6.9	5.2	3.2-7.3	686
Colon	13	3.6	2.8	1.3-4.4	1318
Rectum	11	3.0	2.2	0.9-3.5	1556
Lymphoma	23	6.3	5.3	3.1-7.5	736
Lymphoma NOS	0				
Hodgkin lymphoma	14	3.8	3.4	1.6-5.2	1212
NHL	9	2.5	1.9	0.6-3.2	1873
Brain	16	4.4	3.5	1.8-5.3	1083
Leukaemia	12	3.3	2.6	1.1-4.1	1422
Leukaemia NOS	<5	NR	NR		
Lymphoid leukaemia	<5	NR	NR	0 - 1.8	5383
Myeloid leukaemia	9	2.5	1.8	0.6-3.0	1931
Leukaemia, other	0				
All cancers	364	100.0	75.7	67.8-83.6	48

40 to 64 years

Males

	Cases	%	ASR	95%c.i.	Risk
Prostate	820	32.9	191.8	179-205	18
Melanoma (skin)	286	11.5	68.8	60.8-76.8	53
Colorectal	220	8.8	52.4	45.5-59.4	69
Colon	132	5.3	31.5	26.1-36.9	115
Rectum	88	3.5	20.9	16.6-25.3	170
Lung	170	6.8	40.0	34.0-46.0	86
Lymphoma	113	4.5	27.4	22.3-32.4	137
Lymphoma NOS	0				
Hodgkin lymphoma	8	0.3	2.0	0.6-3.4	2027
NHL	105	4.2	25.4	20.5-30.2	147
Kidney	106	4.3	25.5	20.6-30.3	145
Lip, gum & mouth	61	2.4	15.1	11.3-18.9	260
Leukaemia	51	2.0	12.3	8.9-15.7	293
Leukaemia NOS	0				
Lymphoid leukaemia	30	1.2	7.3	4.7-9.9	497
Myeloid leukaemia	21	0.8	5.1	2.9-7.2	711
Leukaemia, other	0				
All cancers	2490	100.0	592.0	569-615	7

Females

	Cases	%	ASR	95%c.i.	Risk
Breast	927	40.6	231.2	216-246	17
Melanoma (skin)	228	10.0	56.8	49.4-64.2	68
Colorectal	179	7.8	43.6	37.2-50.1	82
Colon	117	5.1	28.7	23.5-33.9	125
Rectum	61	2.7	14.7	11.0-18.5	238
Lung	134	5.9	32.3	26.9-37.8	108
Thyroid gland	113	4.9	28.3	23.1-33.6	137
Uterus	93	4.1	22.6	18.0-27.2	158
Lymphoma	90	3.9	22.4	17.8-27.0	169
Lymphoma NOS	0				
Hodgkin lymphoma	5	0.2	1.3	0.2-2.4	3007
NHL	85	3.7	21.1	16.6-25.6	179
Ovary	56	2.5	13.8	10.2-17.4	268
Leukaemia	49	2.1	12.1	8.7-15.5	303
Leukaemia NOS	0				
Lymphoid leukaemia	24	1.1	6.0	3.6-8.5	606
Myeloid leukaemia	25	1.1	6.1	3.7-8.4	606
All cancers	2285	100.0	566.3	543-590	7

65 years and over

Males

	Cases	%	ASR	95%c.i.	Risk
Prostate	1284	33.2	883.0	834-932	11
Colorectal	409	10.6	264.1	238-290	41
Colon	297	7.7	187.6	166-210	63
Rectum	112	2.9	76.5	61.9-91.0	120
Lung	405	10.5	255.0	229-281	48
Melanoma (skin)	356	9.2	234.8	210-260	45
Bladder & urinary tract	164	4.2	101.5	85.3-118	128
Lymphoma	155	4.0	99.3	83.2-115	108
Lymphoma NOS	8	0.2	3.8	1.1-6.5	*
Hodgkin lymphoma	12	0.3	8.2	3.4-12.9	1033
NHL	135	3.5	87.3	72.1-103	121
Unknown primary	115	3.0	67.5	54.7-80.2	250
Kidney	88	2.3	58.7	46.1-71.3	174
Pancreas	87	2.3	56.4	44.2-68.6	196
Leukaemia	87	2.3	58.0	45.5-70.5	188
All cancers	3866	100.0	2531.4	2450-2613	5

Females

	Cases	%	ASR	95%c.i.	Risk
Breast	590	22.9	361.7	331-393	29
Colorectal	398	15.5	213.3	190-236	53
Colon	298	11.6	158.0	138-178	72
Rectum	99	3.8	54.5	42.9-66.2	207
Lung	313	12.2	179.1	158-200	60
Melanoma (skin)	169	6.6	94.2	78.8-110	119
Lymphoma	104	4.0	56.3	44.6-68.0	210
Lymphoma NOS	6	0.2	2.5	0.3-4.7	*
Hodgkin lymphoma	0				
NHL	98	3.8	53.8	42.3-65.3	214
Unknown primary	98	3.8	40.3	31.4-49.2	443
Pancreas	93	3.6	49.1	38.2-59.9	254
Uterus	84	3.3	55.6	43.0-68.1	155
Ovary	70	2.7	40.3	30.1-50.6	271
Bladder & urinary tract	58	2.3	26.8	19.2-34.4	558
Kidney	53	2.1	30.1	21.4-38.8	346
Myeloma	53	2.1	27.8	19.7-36.0	418
All cancers	2573	100.0	1437.8	1378-1498	8

Table 3. Cancer mortality, Western Australia, 2012: leading types by sex and age group (ASR: age-adjusted rate)

15 to 39 years

Males						Females					
	Deaths	%	ASR	95%c.i.	Risk		Deaths	%	ASR	95%c.i.	Risk
Melanoma (skin)	9	22.0	1.8	0.6-3.0	2021	Breast	5	22.7	1.0	0.1-1.8	3379
Colorectal	8	19.5	1.5	0.5-2.5	2284	Brain	<5	NR	NR	0 - 1.5	5477
Colon	<5	NR	NR	0 - 1.1	6033	Colorectal	<5	NR	NR	0 - 0.9	8717
Rectum	NR	NR	NR	0.1-1.8	3674	Colon	<5	NR	NR	0 - 0.9	8717
Brain	5	12.2	1.0	0.1-1.9	3799	Rectum	0				-
Lymphoma	<5	NR	NR	0 - 1.4	5873	Cervix	<5	NR	NR	0 - 1.0	8794
Lymphoma NOS	0				-	Leukaemia	<5	NR	NR	0 - 1.1	8455
Hodgkin lymphoma	<5	NR	NR	0 - 0.5	*	Leukaemia NOS	0				-
NHL	<5	NR	NR	0 - 1.1	8746	Lymphoid leukaemia	0				-
Leukaemia	<5	NR	NR	0 - 1.2	5959	Myeloid leukaemia	<5	NR	NR	0 - 1.1	8455
Leukaemia NOS	0				-	Leukaemia, other	0				-
Lymphoid leukaemia	0				-	Stomach	<5	NR	NR	0 - 0.6	*
Myeloid leukaemia	<5	NR	NR	0 - 1.2	5959	Lung	<5	NR	NR	0 - 0.6	*
Leukaemia, other	0				-	Melanoma (skin)	<5	NR	NR	0 - 0.7	*
Pancreas	<5	NR	NR	0 - 0.9	9581	Connective/ soft tissues	<5	NR	NR	0 - 0.6	*
Testis	<5	NR	NR	0 - 1.1	9527	Uterus	<5	NR	NR	0 - 0.6	*
Lip, gum & mouth	<5	NR	NR	0 - 0.5	*	Kidney	<5	NR	NR	0 - 0.6	*
All cancer deaths	41	100.0	8.3	5.8-10.9	448	All cancer deaths	22	100.0	4.6	2.6-6.6	770

40 to 64 years

Males						Females					
	Deaths	%	ASR	95%c.i.	Risk		Deaths	%	ASR	95%c.i.	Risk
Lung	121	21.8	28.2	23.1-33.2	120	Breast	112	24.3	27.7	22.6-32.9	134
Colorectal	65	11.7	15.6	11.8-19.4	228	Lung	91	19.7	21.8	17.3-26.3	158
Colon	30	5.4	7.2	4.6-9.8	490	Pancreas	27	5.9	6.5	4.1-9.0	530
Rectum	35	6.3	8.5	5.6-11.3	427	Ovary	26	5.6	6.3	3.8-8.7	559
Brain	35	6.3	8.4	5.6-11.2	434	Colorectal	25	5.4	6.1	3.7-8.5	571
Pancreas	34	6.1	7.9	5.2-10.6	440	Colon	20	4.3	4.9	2.7-7.0	715
Melanoma (skin)	32	5.8	7.7	5.0-10.4	480	Rectum	5	1.1	1.2	0.2-2.3	2829
Oesophagus	29	5.2	6.7	4.3-9.2	489	Brain	21	4.6	5.3	3.0-7.5	681
Liver	26	4.7	6.1	3.7-8.4	573	Unknown primary	13	2.8	3.2	1.5-5.0	1150
Stomach	25	4.5	6.0	3.7-8.4	605	Uterus	12	2.6	2.9	1.2-4.5	1178
Lymphoma	23	4.2	5.4	3.2-7.6	654	Stomach	11	2.4	2.7	1.1-4.3	1388
Lymphoma NOS	NR	NR	NR		-	Gallbladder / bile ducts	11	2.4	2.6	1.1-4.1	1335
Hodgkin lymphoma	<5	NR	NR	0 - 0.6	*	Leukaemia	11	2.4	2.7	1.1-4.2	1349
NHL	22	4.0	5.2	3.0-7.4	684	Leukaemia NOS	NR	NR	NR		-
Kidney	19	3.4	4.7	2.6-6.8	806	Lymphoid leukaemia	<5	NR	NR	0 - 1.1	6954
Prostate	18	3.2	4.2	2.2-6.1	784	Myeloid leukaemia	9	2.0	2.2	0.8-3.6	1674
Pharynx	16	2.9	3.8	1.9-5.6	942	Leukaemia, other	0				-
All cancer deaths	554	100.0	131.0	120-142	27	All cancer deaths	461	100.0	112.5	102-123	32

65 years and over

Males						Females					
	Deaths	%	ASR	95%c.i.	Risk		Deaths	%	ASR	95%c.i.	Risk
Lung	365	21.8	214.9	192-238	66	Lung	269	21.7	148.0	129-167	74
Prostate	211	12.6	113.6	97.8-129	213	Breast	168	13.5	83.6	69.6-97.6	154
Colorectal	167	10.0	98.9	83.3-115	146	Colorectal	148	11.9	63.8	52.4-75.2	249
Colon	116	6.9	66.2	53.6-78.7	255	Colon	109	8.8	45.1	35.8-54.4	401
Rectum	51	3.0	32.8	23.5-42.0	338	Rectum	39	3.1	18.7	12.2-25.2	655
Pancreas	93	5.6	58.5	46.2-70.8	202	Pancreas	86	6.9	43.6	33.5-53.7	315
Unknown primary	81	4.8	46.5	36.0-57.0	372	Unknown primary	72	5.8	27.4	20.4-34.4	836
Stomach	73	4.4	43.9	33.5-54.4	299	Ovary	54	4.3	29.5	21.0-38.0	387
Lymphoma	73	4.4	43.4	33.1-53.8	299	Lymphoma	51	4.1	22.0	15.3-28.6	862
Lymphoma NOS	<5	NR	NR	0.0-3.7	*	Lymphoma NOS	<5	NR	NR	0 - 1.3	*
Hodgkin lymphoma	<5	NR	NR	0 - 3.5	*	Hodgkin lymphoma	<5	NR	NR	0 - 0.9	*
NHL	66	3.9	40.0	30.0-49.9	308	NHL	48	3.9	21.1	14.5-27.7	862
Melanoma (skin)	68	4.1	42.2	31.8-52.6	303	Leukaemia	38	3.1	17.7	11.6-23.9	812
Bladder & urinary tract	63	3.8	34.4	25.6-43.1	680	Leukaemia NOS	0				-
Skin (NMSC inc. SCC/BC)	57	3.4	33.4	24.4-42.4	410	Lymphoid leukaemia	16	1.3	7.6	3.6-11.7	2002
Mesothelioma	48	2.9	29.8	21.2-38.5	410	Myeloid leukaemia	22	1.8	10.1	5.5-14.8	1367
Oesophagus	46	2.7	28.4	19.9-37.0	439	Leukaemia, other	0				-
All cancer deaths	1675	100.0	988.2	939-1037	15	All cancer deaths	1242	100.0	604.3	567-641	23

2.4 Cancer incidence trends 2003-2012

Changes in the reported incidence of any disease may be due to a combination of technical issues such as the completeness and timeliness of data provision, and actual disease occurrence which may be due to changes in risk factors in the recent or more distant past, or changes in detection methods.

This section includes line graphs showing how incidence rates for several cancer types have changed over time, and how they differ between males and females. In each, the central line for each sex (bold and solid for males, dashed for females) indicates the trend in the age-standardised rate (ASR) and the associated statistical uncertainty (95% confidence interval) is indicated by a pair of accompanying lines with markers. The relative width of the confidence intervals is generally smaller for the most common conditions - for example, "All cancers" (Figure 9).

Trends that may reflect changes in smoking prevalence include decreasing incidence of lung cancer in males, while incidence increases in females. However, there were increases in bladder and urinary cancers, also commonly linked to smoking, in both males and females.

Prostate cancer incidence rose in 2011 after a fall the previous year, but has fallen again. Colorectal cancer incidence has fallen since 2011 and preliminary data for 2013 suggest this is likely to continue. There is insufficient evidence on hand to suggest whether changes may be related to the National Bowel Cancer Screening Program, but the changes are similar to those seen in recent data from Victoria.⁴ (A screening program may detect increased numbers of "prevalent" cases at the outset, but also prevent future incident cancers via removal of precursor lesions such as benign polyps and *in situ* carcinomas.)

Breast cancer incidence among women appears to be generally increasing since a low point in 2007, while for melanoma the general decrease in incidence over recent years has continued in both males and females.

Figure 9. Cancer incidence, WA, 2003-2012: trends for selected cancers

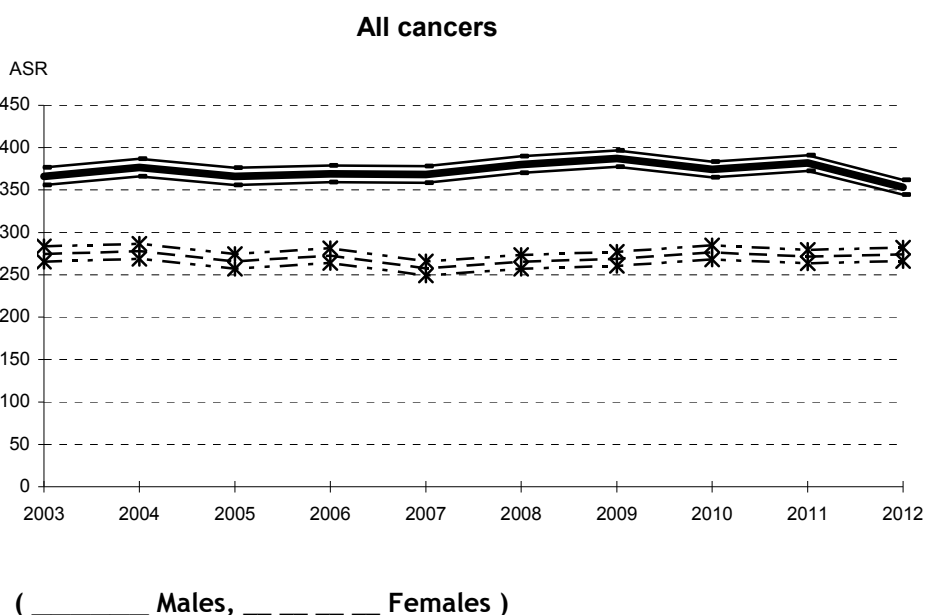


Figure 9 (cont.) Cancer incidence, WA, 2003-2012: trends for selected cancers

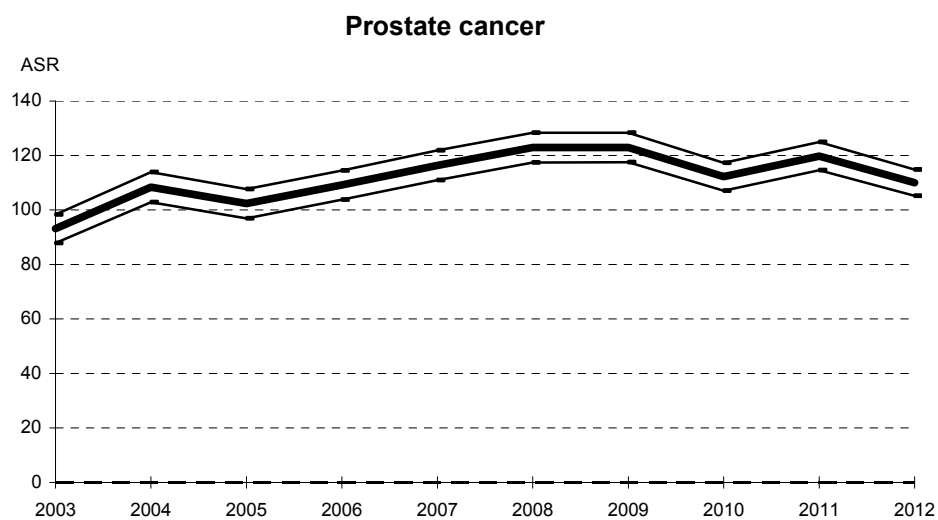
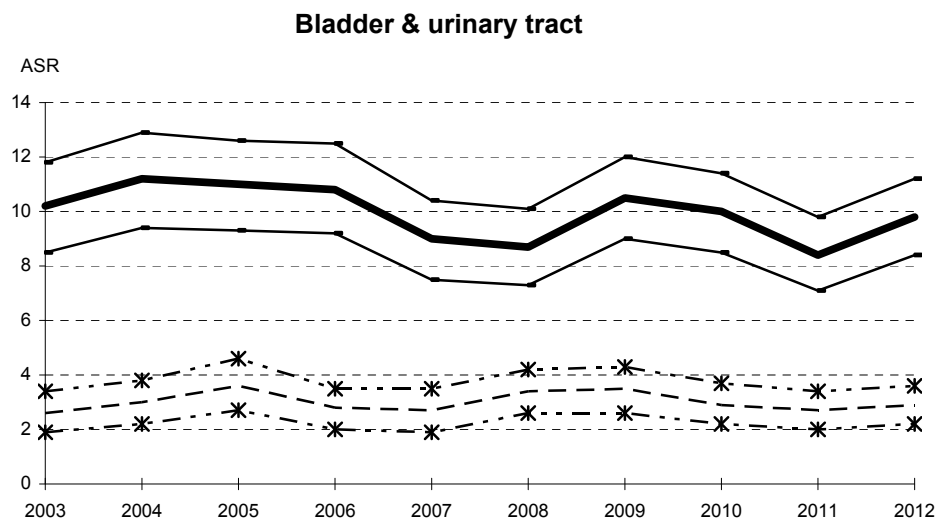
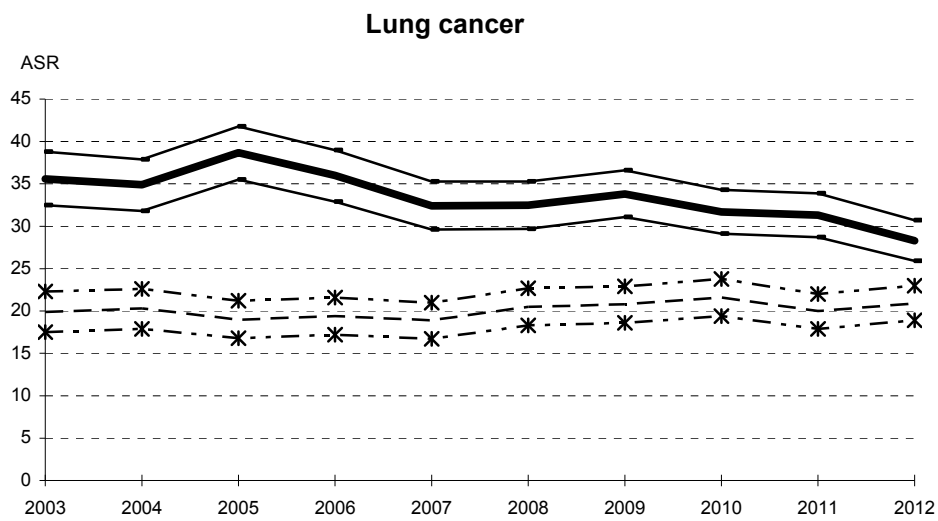
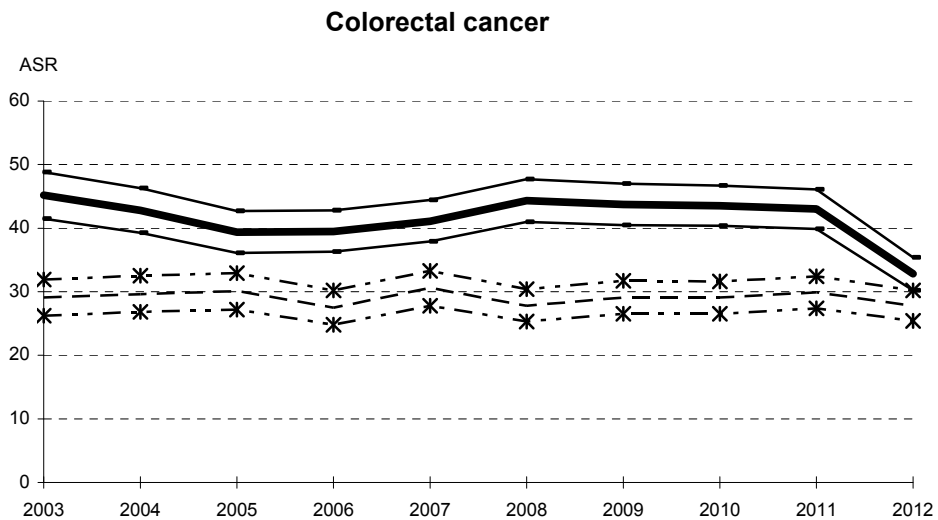
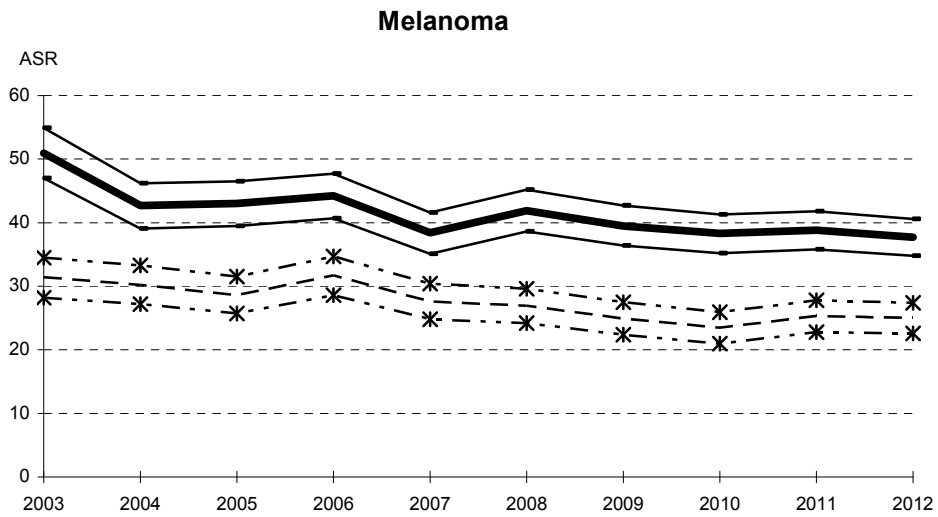
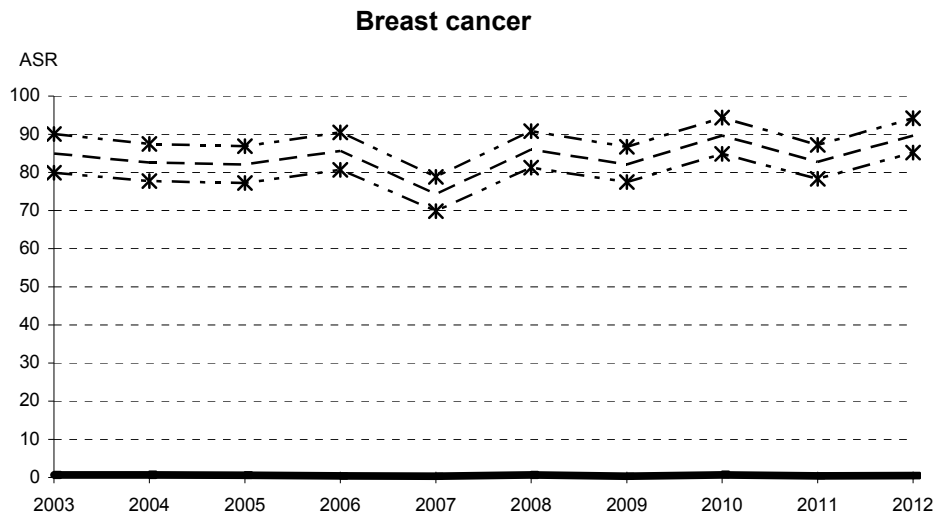


Figure 9 (cont.) Cancer incidence, WA, 2003-2012: trends for selected cancers



2.5 Cancer incidence and mortality in Aboriginals

As numbers of cancer cases among Aboriginal people in Western Australia are low and vary considerably from year to year, Registry statistics are generally presented using several years of pooled data. Table 4 shows incidence and mortality data for the most common cancers, for the period 2008-2012 combined, with annual average case numbers. Lung cancer was the most common incident cancer in Aboriginal males, and the second most common in females. Compared with incidence in the general population, prostate cancer was less common, and melanoma very much less common in both males and females; but primary liver cancer was relatively much more common in both males and in females.

The all-cancers incidence ASRs for Aboriginals were somewhat lower than for the whole population among males, and similar for females. However, cancer mortality among Aboriginals was much higher than in the total population, whether the comparison is based on the "World standard" ASRs as shown in Table 4, or an alternative Australian population standard.

Table 4. Cancer incidence and mortality in Aboriginals, Western Australia, 2008-2012: Most common cancers

INCIDENCE (2008-2012 annual averages)

Males						Females					
Cancer type	Cases		ASR	Risk (1		Cancer type	Cases		ASR	Risk (1	
	per year	%		95% c.i.	in n)		per year	%		95% c.i.	in n)
Lung	9	14.0	50.3	35.2-65.4	16	Breast	17	23.8	68	53.1-82.9	14
Colorectal	7	10.0	28.7	18.2-39.2	35	Lung	7	10.1	32.6	21.7-43.5	22
Prostate	6	9.4	34.2	21.7-46.7	18	Uterus	7	9.0	25.3	16.2-34.3	36
Liver	4	6.7	19.3	10.6-27.9	34	Cervix	4	6.0	11.9	6.8-16.9	99
Unknown primary	3	5.2	18.9	9.6-28.3	60	Leukaemia	4	5.8	15.5	8.5-22.6	53
Tonsil / oropharynx	3	4.9	14.8	6.9-22.7	40	Colorectal	4	5.5	16.4	9.0-23.9	54
Oesophagus	3	4.3	10.3	4.6-16.0	77	Unknown primary	3	3.8	11.2	5.1-17.3	77
Leukaemia	3	4.0	9.3	3.7-14.9	164	Ovary	3	3.6	8.8	3.7-13.8	125
Lip, gum & mouth	2	3.6	10	4.0-16.1	78	Liver	2	3.3	9.2	3.8-14.6	98
Pancreas	2	3.3	10.1	3.9-16.2	88	Pancreas	2	3.3	9.3	3.8-14.9	83
Tongue	2	3.0	7.9	2.7-13.1	133	Oesophagus	2	2.7	7.5	2.7-12.3	115
Stomach	2	2.7	6.1	1.9-10.3	144	Bladder & urinary tract	2	2.2	6.2	1.7-10.7	125
Larynx	2	2.4	7.1	1.9-12.2	207	Thyroid	2	2.2	4.5	1.4-7.7	250
Melanoma (skin)	2	2.4	0	1.4-10.0	126						
Testis	2	2.4	3.8	1.2-6.5	331						
All cancers	66	(100)	301.9	267-337	3	All cancers	73	(100)	275.8	246-305	4

MORTALITY (2008-2012 annual averages)

Males						Females					
Cancer type	Deaths		ASR	Risk (1		Cancer type	Deaths		ASR	Risk (1	
	per year	%		95% c.i.	in n)		per year	%		95% c.i.	in n)
Lung	8	23.0	47.5	32.6-62.3	16	Lung	6	17.9	26.7	16.9-36.4	32
Liver	3	9.3	14.5	7.1-21.8	47	Breast	5	13.9	19.3	11.4-27.3	53
Unknown primary	3	8.2	17.1	8.2-26.1	68	Unknown primary	3	7.5	11	4.7-17.2	70
Oesophagus	2	6.6	8.8	3.6-14.0	128	Pancreas	2	6.4	8.7	3.3-14.1	89
Colorectal	2	6.0	12	4.6-19.3	96	Liver	2	5.8	8.1	2.9-13.3	106
Tonsil / oropharynx	2	5.5	9.7	3.2-16.2	72	Leukaemia	2	5.8	7.2	2.5-11.9	122
Tongue	2	4.4	6.3	1.6-11.0	113	Oesophagus	2	5.2	6.9	2.2-11.5	127
Pancreas	2	4.4	7.4	2.1-12.6	135	Colorectal	2	4.6	6.2	1.7-10.7	189
Prostate	2	4.4	9.7	2.8-16.6	88						
All cancers	37	(100)	184.7	157-213	5	All cancers	35	(100)	137.6	116-159	7

3. Cancer in Western Australia: Data and technical issues

3.1 Basis of diagnosis

Cancers may be diagnosed by a variety of methods, and many methods may be used in the same case. Cancer registries generally record a “best basis of diagnosis” as a guide to the specificity and reliability of the information. Generally “microscopic” methods (histology, cytology, haematology) are regarded as most reliable as compared with clinical findings or imaging. Diagnoses based only on a death certificate (“DCO”) are not generally well-regarded (see below). The Registry also uses hospital discharge data (“Hospital Morbidity Data System” or “HMDS”) to reduce letter-based enquiries and case note review, if data are consistent.

In the Registry’s previous report¹ the basis of diagnosis was shown for “cancers” (invasive malignancies) only. In Table 5, we present the same information for all tumour records including those relating to *in situ*, benign and “uncertain malignant potential” neoplasms. Overall, almost 96% of cases were based on a specific pathology test performed on a specimen of blood or other tissue. Historically, the common cancers least likely to be based on microscopic examination were primary liver cancers, pancreatic cancer and cancers of unknown primary site.

Table 5. Tumour records in Western Australia, 2012: Diagnosis methods

Basis of diagnosis	Cases	%	Basis of diagnosis	Cases	%
Microscopic NOS	19	0.1	Surgery	13	0.1
Histology	15185	85.0	Necropsy	6	0.0
Cytology	1731	9.7	DCO	47	0.3
Haematology	184	1.0	DC & HMDS	15	0.1
Imaging	465	2.6	Unknown	82	0.5
Clinical	94	0.5			
Biochemical/Immunologic test	22	0.1	All "microscopic" bases	17119	95.8
			Total	17863	(100)

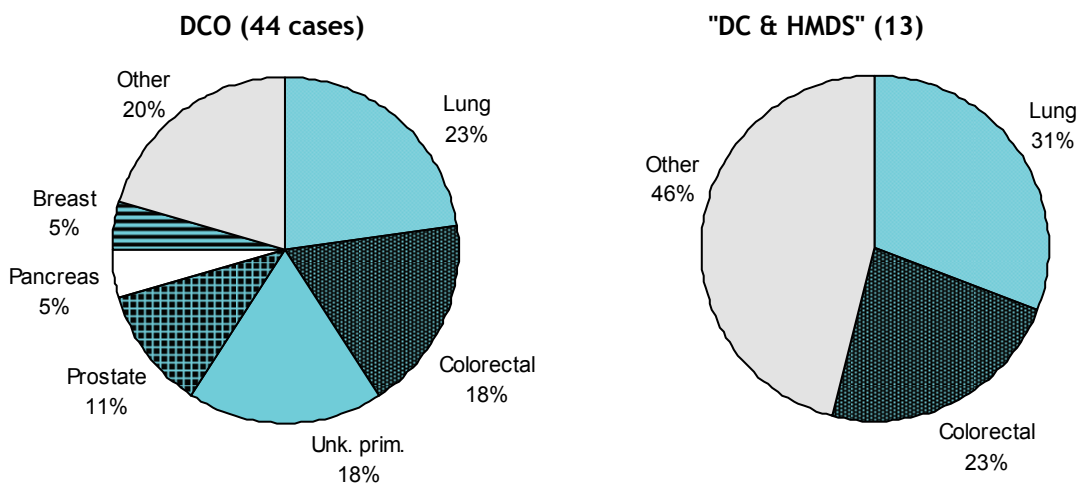
(DC & HMDS - Death certificate and consistent HMDS data only.)

3.2 Death Certificate and Hospital Morbidity Data System cases

“Death certificate only” (DCO) cancer records are those based solely on a death notification’s cause of death text. In Western Australia, there were 44 DCO cancers recorded for 2012 (0.4% of all cases) and 13 “DC and HMDS” cases recorded for 2012 (Figure 10), with a combined total of only 0.5%.

Having a low proportion of DCO cases is widely regarded as an important index of data quality in a Cancer Registry. Although reliability and specificity concerns limit the reliance placed on the “DC & HMDS” records they are preferred over DCOs. The combined total of these two types of records - 0.5% - is an indicator of good quality in the Registry’s data collection by international standards when the North American “gold standard” for DCO cases is 3% or less.⁵

Figure 10. Death Certificate Only (DCO) and "DC & HMDS" cancers 2012: common types



3.3 Registry-initiated enquiries

Among all the invasive tumour records currently on file with 2012 diagnosis dates, there were 458 which were initially recorded on the basis of a death notification alone, and 557 that were initially based only on an HMDS record. Enhancing the quality of these records is part of the result of the hospital file requests and enquiry letters generated by Registry staff. In 2012 there were a total of 1321 individual enquiries initiated about 1184 persons, and 1587 people appeared on a "grouped enquiry" file request list sent to a hospital; the total number of persons about whom some enquiry was initiated in 2012 was 2710.

3.4 "Cancer" in context: summary of all tumour types

The Cancer Registry handles many more tumours than those counted in the incidence tables such as Table 1. The workload includes the recording and following up of reports of tumours that are later determined to have been diagnosed when persons were not WA residents, and of many other tumour types that are legally notifiable including "second primary" cancers, pre-invasive or in situ tumours, neoplasms of borderline malignancy or uncertain malignant potential, and benign tumours of the brain and central nervous system. There are also many cases of skin basal cell and squamous cell carcinoma (BCC and SCC) resulting from pathology reports sent in error, or follow-up of (poorly-coded) radiotherapy and hospital discharge information.

The "Incident cancers" and the additional tumours dealt with for 2012 are shown in Table 6. Where applicable, the different classes of tumours of the same body area, or of similar morphological type, are shown on the same line. Some "classes" are not relevant to some sites or types and are shown as "n/a", for example the term "in situ" has no meaning in the context of a leukaemia and other non-epithelial tumours. Some tumour classes that are technically possible, for example benign colorectal or breast tumours, are not tabulated as there are few cases and notification is not required (shown as "-"). Skin BCC and SCC, though not notifiable, are included as there are large numbers of reports received.

The groupings seen may give a useful indication of the relative neoplasm-related workloads of the various clinical specialties, and of the possible targets for health promotion messages. Overall, the 11939 "cancers" routinely reported in this statistical summary represented only 67% of the 17803 notifiable and commonly-notified neoplasms diagnosed in 2012 in Western Australians.

Table 6. Summary of types of incident neoplasm reported for 2012, Western Australia

Tumour classification (ICD-O-3 Behaviour code/s)	Uncertain malignant potential					Invasive (first)	Invasive (subsequent)	Metastatic	All	(%)
	0	1	2	in situ (first)	in situ (subsequent)					
Site-specific tumours										
Prostate	-	<5**	0	0	0	2108	<5	0	2109	11.8
Breast	-	0	293	19	19	1616	214	0	2142	12.0
Colorectal	-	49	21	0	0	1246	57	0	1373	7.7
Melanoma (skin)	-	52	1368	274	274	1095	216	54	3059	17.2
Lung, bronchus & trachea	-	0	0	0	0	1031	16	0	1047	5.9
SCC & BCC of skin	-	<5	59	<5	<5	806	75	0	943	5.3
Kidney	-	0	0	0	0	304	0	0	304	1.7
Bladder & urinary tract	-	0	403	199	199	285	40	0	927	5.2
Pancreas	-	0	0	0	0	266	0	0	266	1.5
Thyroid gland	-	0	0	0	0	262	<5	<5	263	1.5
Stomach	-	0	0	0	0	195	<5	<5	196	1.1
Lip, gum & mouth	-	0	0	0	0	191	5	0	196	1.1
CNS (Brain & spinal cord)	100	31	0	0	0	186	0	0	317	1.8
Uterus (corpus)	-	0	0	0	0	183	0	0	183	1.0
Liver & intrahepatic bile ducts	-	0	0	0	0	147	0	0	147	0.8
Oesophagus	-	0	0	0	0	143	0	0	143	0.8
Ovary	-	34	<5	<5	<5	133	0	0	168	0.9
Non-melanoma skin cancer (exc. SCC/BCC)	-	31	<5	<5	<5	126	7	0	166	0.9
Cervix	-	<5	951	49	49	97	<5	<5	1099	6.2
Mesothelioma	-	0	0	0	0	109	0	0	109	0.6
Other site-specific tumours	-	278	105	14	14	738	6	0	1141	6.4
Unknown primary site	n/a***	n/a	n/a	n/a	n/a	n/a	n/a	283	283	1.6
Lymphohaematopoietic neoplasms										
Lymphomas	n/a	0	0	0	0	528	24	n/a	552	0.0
Leukaemias	n/a	0	0	0	0	285	19	n/a	304	3.1
Myeloma & plasma cell tumours	n/a	0	<5	0	0	176	<5	n/a	179	1.7
Other lymphohaematopoietic neoplasms	n/a	33	<5	0	0	152	<5	n/a	186	1.0
All tumour types	100 (0.6 %)	509 (2.9 %)	3203 (18.0 %)	557 (3.1 %)	12408 (69.7 %)	688 (3.9 %)	337 (1.9 %)	17802 (100)		

* Actual database uses a modified code. ** <5 indicates number in the range 0 - 4. *** "n/a" means the Behaviour is not a valid concept for the row descriptor.

4. References

- 1 Threlfall TJ, Thompson JR (2013). *Cancer incidence and mortality in Western Australia, 2011*. Department of Health, Western Australia, Perth. Statistical series number 97.
- 2 Segi M (1960) *Cancer mortality for selected sites in 24 countries (1950-1957)*. Sendai, Japan, Tohoku University Press.
- 3 Population by age and sex. 2001 Census Edition - Final. Australian Bureau of Statistics, Canberra, cat. 3201.0
- 4 Thursfield V, et al. *Cancer in Victoria: Statistics & trends 2012*. Cancer Council Victoria, Melbourne 2013.
- 5 Nishri D. The Ontario Cancer Registry and its Data Quality. Cancer Care Ontario, referenced at URL - <http://www.apheo.ca/resources/indicators/OCR%20%20its%20data%20quality%20Nishri%20Feb%202011.pdf>

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Note: Appendix 3A now contains an incidence data summary for the most common cancers on page A3-10.

Appendix 1. About The Western Australian Cancer Registry

Appendix 1A. Overview and technical issues

History and role

The Western Australian Cancer Registry is a population-based cancer registry established in 1981. The Health (Notification of Cancer) Regulations 1981 require the reporting of cancers diagnosed by pathologists, haematologists and radiation oncologists. The Registry was established in recognition of the potential importance of reliable population-based cancer data in the planning of services and in the prevention and treatment of cancer.

Surveillance of cancer extends beyond State and national boundaries and this Registry cooperates with other State registries and the Australian Institute of Health and Welfare (AIHW) which collates State information and manages the Australian Cancer Database in Canberra. Data are also provided to the International Agency for Research on Cancer in Lyon, France, for inclusion in Australian statistics published locally and world-wide.

The Registry is a member of the Australasian Association of Cancer Registries (AACR) which includes all Territory and State cancer registries, and the International Association of Cancer Registries (IACR). The AACR meets regularly to discuss matters such as common coding systems, comparability of data between areas in Australia and involvement in Australia-wide cancer research projects.

Registry scope

The Western Australian Cancer Registry reports on cancers and other neoplasms diagnosed in persons while resident in Western Australia. A separate register is maintained for recording asbestos exposure and other history for all cases of mesothelioma. In practice, the Registry records available information about Western Australians with cancers diagnosed elsewhere, as this is often vital to the interpretation of new reports or mortality information.

As in other Australian cancer registries, information concerning tumours diagnosed in Western Australia in persons ordinarily resident elsewhere in Australia, is sent to the relevant State or Territory cancer registry, and is not included in Western Australian incidence statistics.

Cancer deaths in current or former Western Australian residents are recorded when possible, regardless of place of death or address at diagnosis, to facilitate survival analysis. However, in routine tables of mortality, geographic location is based on place of residence at time of death rather than on the place of death. Accordingly, the Registry's mortality statistics routinely include deaths in Western Australia, of persons resident in Western Australia at the time. In contrast to incidence, mortality reports include deaths due to all non-melanoma skin cancers including basal cell and squamous cell carcinomas (BCC and SCC).

Legislative basis

The Registry acted with the delegated authority of the Executive Director of Public Health with respect to the Health (Notification of Cancer) Regulations 1981, until June 2011 when the new HEALTH (WESTERN AUSTRALIAN CANCER REGISTER) REGULATIONS 2011 took effect.

The Regulations require the notification of *in situ* neoplasms and all non-melanoma skin cancers other than primary BCC and SCC, as well as all invasive malignancies and a variety of other neoplasms. The Regulations and a summary of changes can be seen at -

<http://www.health.wa.gov.au/wacr/home/regulations.cfm>

Sources of data

Most notifications are received from pathology laboratories, which supply pathology reports on paper or computer data files. The electronic notification system relies on the tumour codes or "notify Registry" flags generated by pathologists to select the reports to be sent to the Registry, and it is believed that this has enhanced the completeness of reporting from the larger hospital laboratories. Radiation oncologists also notify the Registry of patients treated for cancer.

In-house linkage routines are used to link pathology and mortality data files to the Registry to permit creation of new records, or the updating of date, place and cause of death information. Additional cancer registrations are obtained from the remaining (unmatched) mortality records after electronically scanning the written cause of death and other fields on a data file. Data are now obtained from the WA Registrar-General's Office via the Data Linkage Branch of the Population Health Division. Where a death notification includes information about a tumour previously unknown to the Registry, records are created and efforts are then made to obtain independent verification of tumour details. Those for which no supporting information can be obtained after research are treated in subsequent reports as "death certificate only" (DCO) tumours.

Additional information, including country of birth and Aboriginality or indigenous status, can often be obtained from extracts of the W.A. Hospital Morbidity Data System (HMDS) files, or via on-line access to clinical information systems.

Data handling and maintenance

Since 2008 when a new SQL Server database was commissioned, Registry staff have converted all paper records into image files that are stored within the database; the process for historical information is now completed. This permits non-Registry users with appropriate permissions and computer access, to find information without making enquiries of other staff, and frees Registry staff from the task of locating paper records for coding or review.

New registrations and updates are made on the custom-designed database, which also manages and stores the case lists and correspondence associated with the "further enquiry" process. In general, cancer cases are recorded with one demographic record for each person with a separate, linked record for each tumour, each of which may have from one to many associated "notifications". Incomplete records, or those found to be inaccurate in the light of new information, are progressively updated, and the data continually enhanced until the time of any final update (such as when adding mortality information). Registry records that are duplicates of existing cases are now handled by cross-referencing to the "valid" case, rather than deletion, minimising the repetition of "detective" work if more information comes to hand later.

Statistics are produced from database extracts using the Registry's own incidence and mortality rates calculation system and a variety of other statistical and graphics software packages. Software for routine statistical reports is constantly being developed and upgraded to reflect changes in coding systems, geographical area boundaries and the types of information requests received. The vast majority of tables in this report are created directly from this in-house software.

Where resources permit, customised tabulations using similar area and age group subdivisions are available to anyone who makes a request.

Coding practices

General

The coding of tumour data is based on the International Classification of Diseases for Oncology (ICD-O) which originated as an extension of Chapter II (Neoplasms) of the Ninth Revision of the International Classification of Diseases (ICD-9); which was superseded by ICD-10.

ICD-O permits separate coding of topography (“site”), morphology (“tissue”) and behaviour, and thus allows a more comprehensive characterisation of some tumours than the single-code ICD-9 and ICD-10 classification system. Topography and morphology codes in this report are from ICD-O third edition (2000) (ICD-O-3),^a following the successful conversion of software, and translation of historical data in 2003.

In general, for incidence reporting, leukaemias, lymphomas and other lymphohaematopoietic malignancies are grouped on the basis of morphology codes, as for cutaneous melanoma, Kaposi sarcoma and mesothelioma, while others are tabulated on the basis of topography, or location. This Registry uses behaviour code “6” to indicate tumours of unknown primary site.

For the sake of consistency in reporting of incidence and mortality data, causes of death are coded to morphology (lymphohaematopoietic malignancies, Kaposi sarcoma and mesothelioma) and topography (others). Melanoma deaths are coded to the ICD-10 code, C43x, to distinguish them from deaths due to non-melanoma skin cancers (C44n). In accordance with IACR guidelines adopted by AACR, deaths due to melanomas of unknown primary site are treated as primary skin melanoma for tabulation purposes.

Diagnoses in non-Western Australian residents are excluded from incidence reporting routines but are recorded for reference. A system of “aliasing” duplicate or otherwise invalid records allows ongoing reconciliation of old and current data, necessary for follow-up studies.

Cancer Registry mortality reporting has been based on death certificate coding performed within the Registry since 1990. Reconciliation with coding by the Australian Bureau of Statistics was once a useful monthly process but ABS has refused to support this since 2005. This exchange was extremely helpful, as annual ABS-coded mortality files are normally not released until well into the year following death, which is, in some cases, a delay of almost 2 years.

Multiple tumours

Two or more discrete tumours of different (3-character) sites in any individual are counted separately for the purposes of incidence statistics. However, in accordance with international practice, similar tumours arising in sites coded with the same first three characters are counted as one.

This, in effect, means that a person who has two similar tumours diagnosed, even many years apart, is reported only once in incidence statistics. This applies even when tumours arise in paired organs, e.g. lung or breast and are regarded as truly separate, unless the tumour types are different enough to permit both to be counted. Groups of types considered to be different, for the purposes of allowing the counting of more than one tumour of the same “site”, are based on an ICD-O-3-based table as promulgated by the International Association of Cancer Registries (refer to http://www.iacr.com.fr/MPrules_july2004.pdf). Using these rules, for example, a squamous cell carcinoma of the lung and an adenocarcinoma of the lung arising at any time will both be counted in incidence statistics. Lymphohaematopoietic malignancies are treated differently, being tabulated by morphology, and their discovery in a

^a World Health Organization (2000) *ICD-O: International classification of diseases for oncology* (Third Edition). WHO, Geneva.

particular site does not preclude the counting of different types of neoplasms in the same site. The urinary tract is treated as a special case of an “extended site”, whereby multiple transitional cell carcinomas of sites C65x to C68x , **including** bladder (C67x), are counted only once in a person.

While these practices govern the reporting of cancers for incidence statistics in accordance with international practice, it is an inescapable conclusion that multiple tumours have separate effects on health, and the best illustration of this is in relation to survival. Cases occur in which a person has a breast carcinoma, and is treated and considered cured, only to die from a second primary breast carcinoma arising many years later. Measuring survival time from the first tumour diagnosis (the “incident” tumour) and ignoring the presence of the second, can lead to a simplistic analysis which falsely overestimates survival times. To allow better analysis, the Registry continues to record all tumours separately, so that statistics counting tumours, rather than cases, can be provided if required.

This Report uses the “multiple-primary” rules based on the ICD-O-3 classification and tumour groupings will differ slightly from those used in some previous publications (see Appendix 2E).

“Death certificate only” cancers

“Death certificate only” (DCO) cancers are those for which no information other than a death certificate is available. From mortality data, records of previously unknown tumours are created on the Cancer Registry, and efforts are made to obtain independent verification of details. Those for which no supporting information can be obtained after research are treated in subsequent reports as DCO tumours. Up to 60 tumours are followed up in this way each month, and supporting information is eventually obtained for the vast majority. Very few tumour records remain in this category. Tumours of unknown primary site have been consistently more common among DCO cases than among cancers in general.

To achieve such a low proportion of DCO cases, reporting of statistics must be delayed until most follow-up is complete. Rapid access to death notifications assists the Registry to commence enquiries while information is still accessible. Due to workload issues, DCO cases are now been treated as “resolved” if a compatible hospital discharge record is found, and a special Basis of Diagnosis code of “H” is used.

Lymphomas

ICD-O codes are used for coding lymphomas, however several “in-house” morphology codes are used when the best ICD-O code is too general; these are shown in the footnote to the table in Appendix 2E(b). These codes are converted, when contributing data to others, to the relevant less-specific ICD-O code.

Basis of diagnosis

Most notifications result from diagnoses made on the basis of tissue examination (histology, cytology, haematology), and these are regarded as the most reliable. Their percentage of the total cases is shown in the “TD%” column of some tables in this report.

Additional data for specific tumour types

A number of additional data items are collected for some tumours. For primary invasive breast cancer, the Registry records, for example, maximum tumour diameter, number of axillary lymph nodes biopsied and the number affected by cancer, whether a tumour is multi-centric, and whether there is associated ductal carcinoma in situ (DCIS) outside the margins of the invasive tumour. For primary skin melanoma, the thickness of the tumour and Clark's

level are recorded (Breslow 1970^a; Clark *et al* 1975^b) and used in many of this Registry's reports.

Quality assurance

Data quality is assessed in various ways, both continuous and occasional. On a continuous basis, all coding on pathology reports, and the details entered on the database, are checked by a second member of the Registry staff, and queries are referred to a Registry medical officer. In addition, the Registry database system incorporates various "unusual case" warnings, based on dates, sex, and age. A case-flagging system, based on site and tissue combinations and the rules encapsulated in a modified version of IARC's "Check" routine, warns of unusual code combinations. A verification code is assigned to records which do not fit the "rules" but which are believed to be correctly coded.

Available external indicators of Registry completeness are all potentially biased in favour of cancers which are more often serious, causing hospitalisation or death. Reports from radiation oncologists supplement the receipt of reports based on previous pathology specimens, and support the recording of those cancers which were not diagnosed histologically. The Hospital Morbidity Data System, which records details of all hospitalisations in Western Australia, is another potential source of information regarding Registry completeness.

If trends in incidence, mortality and migration are constant, then the ratio of the number of new cancer diagnoses registered to the number of cancer deaths (mortality to incidence ratio) serves as a crude indicator of completeness.

Uses of Cancer Registry data

Non-identifying data are available for release to interested parties, subject to time constraints, as data files or as finished tables and figures. Only data which do not identify any patient, care provider or institution can be treated in this manner. Release of named information is strictly controlled (see "Confidentiality guidelines") and data can only be released to persons other than the original providers (or other clinicians involved in ongoing care of the individual) with personal consent, or a formal approval from the Department of Health (WA)'s Human Research Ethics Committee (HREC).

Data are used in a wide variety of research projects, including the recruitment of subjects for descriptive and case-control studies. Specific requests have included data on incidence in specific areas, cancer deaths by location and institution type, melanoma levels and depths, mesothelioma deaths and occupation, teenage cancers, myeloma survival and ocular melanoma. Registry data have been used in a number of studies of cancer incidence, and in a number of national projects, most notably those commissioned by the National Breast Cancer Centre (now part of Cancer Australia).

In addition to technical and statistical enquiries, the Registry receives general and personal enquiries regarding cancer services and medical problems; these are referred when appropriate to other agencies and treating physicians.

The Registry provides support for four hospital-based cancer registries (HBCRs). In the hospital setting, with clinical and pathological staging and treatment data, the availability of mortality data facilitates the assessment of outcomes using survival analysis.

^a Breslow A (1970) Thickness, cross-sectional area and depth of invasion in the prognosis of cutaneous melanoma. *Ann Surg* **172**, 902-908

^b Clark WH *et al* (1975) The developmental biology of primary cutaneous malignant melanoma. *Seminars in Oncology* **2**, 83.

Appendix 1B. Current issues

Registry staffing and workload

In 2003, a long process resulted in reclassification of "Clerical Officers" to a higher level, redesignated "Data Quality Officers". In 2011, one position was converted to a Data Quality Coordinator role. A clerical officer was temporarily attached to the Registry until March 2014. The resources now available to service the needs of a population of 2 million people include -

Principal Medical Officer/Manager	1.0 fte
Medical Officer/coding adviser	0.2 fte
Data Quality Coordinator	1.0 fte
Data Quality Officers	2.5 fte
Mesothelioma research officer	0.25 fte
Analyst/programmer	1.0 fte

Additional resources used include financial/ Human Resources services and Epidemiology Branch advice on some statistical issues. However all reports such as this are produced primarily within the Registry itself.

As noted in previous reports, increases in number of "notifications" and other workload estimates exceed population growth rates, and underscore the need to properly resource disease registries and ensure a continued capacity to deal with the demands of health service planners, researchers, students and the public.

Assessment of current notification system and Regulations

Until 2011, Western Australia was the only Australian State with no legal requirement for the direct notification of cancer diagnoses by hospitals; there is consequently some incompleteness in WA statistics for some cancer types. As a result of two successful "Graduate Officer" placement requests made under a new Department of Health program in 2004, a review and update of a previous assessment of the opportunities for more complete notification based on hospital data for non-pathologically diagnosed cancers, was completed and is summarised in *Cancer incidence and mortality in Western Australia, 2005*.^a

These findings were published in support of a process of seeking changes to the Health (Notification of Cancer) Regulations 1981 so as to require hospital notification, among other things. Current data systems cannot be used satisfactorily for this purpose as there are 3 key data items - basis of diagnosis, date of diagnosis and place of residence at diagnosis - that are not included. The Registry has participated in consultations concerning a replacement of the (public) hospital Patient Administration System (PAS), and a cancer notification module from the currently-favoured replacement system has been demonstrated. New Regulations are now in place, but effective changes in some aspects of notification must await changes in hospital information systems.

^aThrelfall TJ, Thompson JR (2007). Cancer incidence and mortality in Western Australia, 2005. Department of Health, Western Australia, Perth. Statistical Series Number 81.

Appendix 2. Technical and miscellaneous information

Appendix 2A. Glossary

General

AAR	Age-adjusted rate - rate resulting from age-standardisation using only a subset of the entire age range for cases and population, e.g. 0 - 15 years.
ABS	Australian Bureau of Statistics
ASR	Age-standardised rate per 100,000 persons ("World standard" population) (Segi 1960) ^a
ASPR	Age-specific rate per 100,000 persons in a specified age range
BCC	Basal cell carcinoma
CNS	Central Nervous system (meninges, brain, spinal cord, cranial nerves and pituitary gland)
DCO	Death certificate only
d/o	disorder
ICD-O	International Classification of Diseases for Oncology
LHN	Lymphohaematopoietic neoplasms (mainly lymphomas, leukaemias and myeloma)
LR	Lifetime (cumulative) risk (to a particular age, usually 75 years)
NMSC	Non-melanoma skin cancer
NOS	Not otherwise specified
PYLL	Person-years of life lost (before a particular age, usually 75 years)
SCC	Squamous cell carcinoma
SD	Standard deviation
U/S	Unspecified

Additional terms used in headings or cells of incidence and mortality tables:

95%c.i.	Statistical 95% confidence interval
Crude	Crude rate per 100,000 persons
Cum inc	Cumulative incidence (%) (before a particular age, usually 75 years)
Risk	Lifetime risk (usually to age 75; 1 in n). In some tables, "-" indicates no data, "*" indicates a risk of less than 1 in 1,000.
TD%	Percentage of diagnoses made on basis of tissue examination (histology, haematology or cytology).
<5	Case count between 1 and 4 inclusive
NR	Not Reported - an ASPR or a percentage based on a cell "<5"; or a case count suppressed so as to prevent calculation.

^a Segi M (1960) *Cancer mortality for selected sites in 24 countries (1950-1957)*. Sendai, Japan, Tohoku University Press.

Appendix 2B. Statistical methods and formulae

Age groups

The basis for most statistics is a summation of cases by five-year age groups. Age groups are expressed in whole years, i.e. “10-14” means 10.0 to 14.99.... years.

Rates

Rates in this report are calculated separately for males and females and are expressed as cases per 100,000 person-years. (If one year's data are being analysed, this is equivalent to n cases per 100,000 population for that year.)

Age-specific rates are based on five-year age intervals and are calculated by dividing the numbers of cases by the population of the same sex and age group, over the relevant period.

Crude rates are calculated simply as the total cases divided by the total population over a wide age range; they are not suitable as a basis for comparison of rates in different areas if the age-structures of the populations differ.

Age-standardised rates (ASR in Tables) are calculated by the direct method^a and represent a summation of weighted age-specific rates (weighting being determined by the relative proportion of the population in each age group compared with the proportion in the World Standard Population^b). Weightings by other population standards can be used if requested.

The **standard deviation**, or Estimated Standard Error (ESE) is used as a measure of variability for rates in tables; an approximate 95% confidence interval for a rate is (rate \pm 1.96 ESE).

Formulae:

$$\text{ASR} = 10^5 \times \sum_i r_i \times w_i; \quad \text{ESE} = 10^5 / W \times [\sum_i \{ r_i \times (1 - r_i) \times w_i^2 / n_i \}]^{1/2},$$

where w_i is the World Standard Population^b for the i th age group, $W = \sum_i w_i$ and \sum_i denotes summation over all (relevant) age groups.

Subsets of the full age range: where a subset of age groups is considered, the term **age-adjusted rate** is used instead of ASR, to indicate that standardisation has taken only the age groups of interest into account for both cases and population.

Comparison of rates between different areas may be done using indirect standardisation. In this process, for example, the State population and age-specific rates are used to calculate an expected number of cases in different areas, based on their populations; the observed and expected numbers are compared using the Standardised Incidence (or Mortality) Ratio and a 95% confidence interval.

^a Rothman KJ (1986) *Modern epidemiology*. Little, Brown & Company, Boston.

^b Segi M (1960) *Cancer mortality for selected sites in 24 countries (1950-1957)*. Sendai, Japan, Tohoku University Press.

Cumulative Incidence and Cumulative Risk

The **cumulative incidence** of a condition (at a given age) is a measure of the proportion of all persons who have, by that age, been affected by the condition; the Registry calculates this for cancer incidence, and death due to cancer. Cumulative rates are calculated by summing the age-specific rates for specified five year age groups, and are expressed as percentages unless otherwise noted.

In general, a **risk** is derived from the cumulative rate and is interpreted as a “1 in *n*” chance of developing the disease, whereas cumulative rates are commonly presented as percentages affected. In Registry reports, risk is usually presented as cumulative risk derived from the cumulative risk for age groups 0-4 to 70-74. However, in tables restricted to age subgroups, risk is derived from the cumulative rate calculated for the age groups listed - e.g. 15-39 years, 40-64 years and 65 years and older.

The method for risk calculations assumes that the risks at the time of estimation remain the same throughout life, and does not account for the effects of death from other causes or interventions which may reduce the chances of a cancer diagnosis.

Formulae:

The formulae for *CI* and *risk* are:

$$CI = \sum_i r_i \times 5 ; \quad Risk = 1 / (1 - e^{-CI}) .$$

Person years of life lost

Person-years of life lost (PYLL) is an estimate of the number of years of life lost due to specific causes of death, and is calculated up to age 75 years, as an index of premature death. The calculations rely on the use of all-causes mortality data for the whole of Western Australia using the methods of Hakulinen and Teppo as presented in Holman *et al.* ^a

In this report the PYLL is calculated for age 0 to 74 years as a measure of premature death.

Formulae:

For each cause of death, the PYLL lost for the *i*th five-year age group is given by:

$$S_i = 5 \times \{ \sum_{j=0, \dots, i-1} \{ d_j \times p_j^{1/2} \times P_{j+1,i} \times [a_i \times (1 - p_i) + p_i] + d_i \times (1 - a_i) \times (1 + p_i^{1/2}) / 2 \} \}$$

where a_i is the proportion of the *i*th five-year interval that a person dying during that interval lives, on average. The values used are 0.09, 0.46, 0.54, 0.57, 0.49, 0.50, 0.52, 0.54, 0.54, 0.54, 0.53, 0.52, 0.52, 0.52, 0.51, 0.51, 0.48, 0.45 for age groups 0-4, 5-9, ... ,85+, d_i is the number of deaths from the cause of death of interest in the *i*th age group, p_i is the probability of surviving the *i*th age interval after eliminating the cause of death of interest, and

$$P_{j+1,i} = \prod_{k=j+1, \dots, i-1} p_k \quad \text{for } j+1 < i, \quad \text{or } 1 \quad \text{for } j+1 = i .$$

The quantity p_i is calculated as -

$$p_i = \{ (1 - 5 \times a_i \times r_i) / (1 + 5 \times (1 - a_i) \times r_i) \}^{(D_i - d_i) / D_i}$$

where r_i is the death rate and D_i is the total number of deaths for the *i*th age group.

^a Holman CDJ, Hatton WM, Armstrong BK, English DR (1987) *Cancer mortality trends in Australia, volume II, 1910 - 1984*. Health Department of Western Australia, Perth, Occasional Paper number 18.

Appendix 2C. Populations and geographic areas

Populations used for calculation of 2012 rates

Age	Males	(%)	Females	(%)	Total	(%)
0-4	79660	6.6	84165	6.8	163825	6.7
5-9	73120	6.0	77335	6.2	150455	6.1
10-14	73310	6.1	77885	6.3	151195	6.2
15-19	77865	6.4	82700	6.6	160565	6.5
20-24	84620	7.0	91780	7.4	176400	7.2
25-29	91695	7.6	99025	8.0	190720	7.8
30-34	87165	7.2	92785	7.5	179950	7.3
35-39	84470	7.0	89375	7.2	173845	7.1
40-44	86720	7.2	90440	7.3	177160	7.2
45-49	85040	7.0	87995	7.1	173035	7.1
50-54	80430	6.7	82255	6.6	162685	6.6
55-59	74175	6.1	74710	6.0	148885	6.1
60-64	65435	5.4	67110	5.4	132545	5.4
65-69	50730	4.2	51885	4.2	102615	4.2
70-74	37395	3.1	36805	3.0	74200	3.0
75-79	28940	2.4	26244	2.1	55184	2.2
80-84	22805	1.9	18456	1.5	41261	1.7
85 +	25315	2.1	14180	1.1	39495	1.6
TOTAL	1208890	(100)	1245130	(100)	2454020	(100)

(Mid-year data from Australian Bureau of Statistics as collated by Performance Activity & Quality Division, Department of Health, and used for calculation of rates in this Report.)

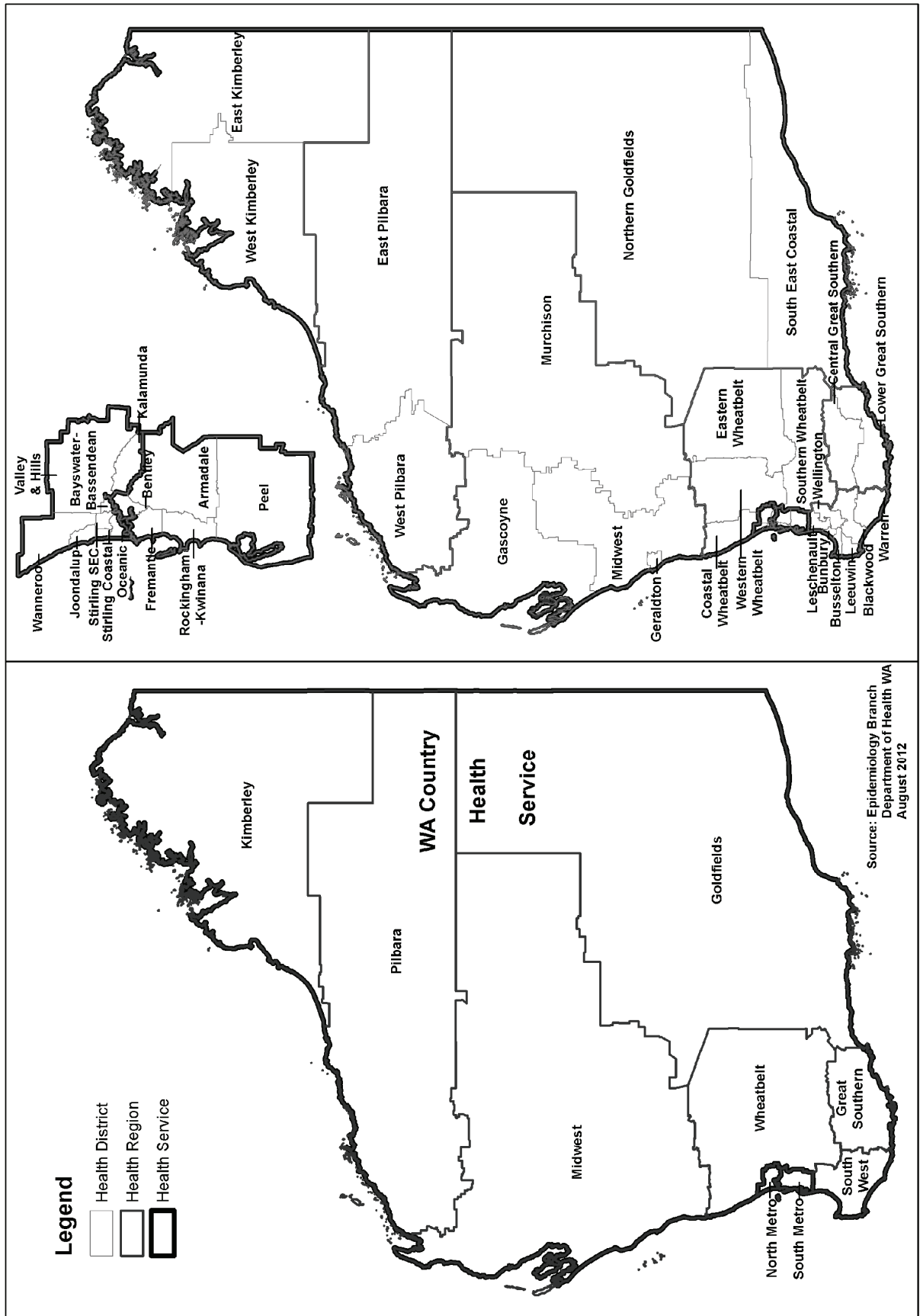
The Department of Health's area of responsibility is administered through two Area Health Services (AHS) (metropolitan) and the WA Country Health Service (WACHS), comprising seven Regions. Overall, the area is divided into 34 Health Districts (HD), each lying entirely within an Area Health Service (AHS) or Health Region (HR). Areas may not match "current" arrangements at any given point in time however data files and population files are synchronised to ensure accurate calculation of incidence and mortality rates in this report. The table and maps below should assist comparison of boundaries and area names with those used in previous reports.

Health District composition of Area Health Services and Regions as used for this Report

CHS Kimberley HR	CHS Goldfields HR	North Metro AHS
East Kimberley HD	Northern Goldfields HD	NMAHS Bayswater-Bassendean HD
West Kimberley HD	South East Coastal HD	NMAHS Joondalup HD
CHS Pilbara HR	CHS Great Southern HR	NMAHS Kalamunda HD
East Pilbara HD	Central Great Southern HD	NMAHS Oceanic HD
West Pilbara HD	Lower Great Southern HD	NMAHS Stirling Coastal HD
CHS Midwest HR	CHS South West HR	NMAHS Stirling SE Coastal HD
Gascoyne HD	Blackwood HD	NMAHS Valley and Hills HD
Geraldton HD	Bunbury HD	NMAHS Wanneroo HD
Midwest HD	Busselton HD	South Metro AHS
Murchison HD	Leeuwin HD	SMAHS Armadale HD
CHS Wheatbelt HR	Leschenault HD	SMAHS Bentley HD
Coastal Wheatbelt HD	Warren HD	SMAHS Fremantle HD
Eastern Wheatbelt HD	Wellington HD	SMAHS Peel HD
Southern Wheatbelt HD		SMAHS Rockingham-Kwinana HD
Western Wheatbelt HD		

* CHS - Country Health Service; AHS - Area Health Service

WA Area Health Service, Region and Health District boundaries



Appendix 2D. Access to Registry information

Release of data may occur at a number of levels:

Summarised statistical information containing no means of identifying any individual patient, doctor, laboratory or hospital will be available for the purposes of general information and education.

More detailed statistical information, which may include “unit record” data files for analysis, but containing no means of identifying any individual patient, doctor, laboratory or hospital, may be released by the Principal Medical Officer.

Identified information will normally be made available to relevant Australian State or Territory Cancer Registries and to the Australian Institute of Health and Welfare, for the purposes of improving data quality and consistency. Data are released to the AIHW subject to a provision that any use of such identified data for other purposes is to be referred to this Registry for approval.

Special information pertaining to identified patients of a particular hospital or doctor may be released by the Principal Medical Officer to the Medical Superintendent of the hospital, or to the doctor, in response to a written request; such requests may be referred to the Department of Health (Western Australia)’s HREC if there is concern regarding the identification of individual service providers.

Applications for further information required for specific areas of research will be referred to the HREC which, subject to formal application, may approve the release of identified information to researchers.

The objectives and functions of the HREC include the following key points -

Objectives -

- Promote the ethical use of health information.
- Promote ethical standards of human research.
- Protect the welfare, rights and dignity of individuals.
- Facilitate ethical research through efficient and effective review processes.

Functions -

- To provide independent, competent and timely ethical review of projects involving the use and disclosure of personal health information and other research projects with respect to their ethical acceptability.
- To review projects involving personal health information and other research projects in accordance with the National Statement on Ethical Conduct in Human Research (National Statement) and the DOH Practice Code for the Use of Personal Health Information.
- To review projects requiring the use and disclosure of personal health information without consent.

The Committee’s details and relevant documentation may be found at <http://www.health.wa.gov.au/healthdata/HREC/index.cfm>.

Appendix 2E. Cancer codes

(a) ICD-O Site codes

Codes(1)	Site/Topography	Codes	Site/Topography
C00 - C06	Lip, gum & mouth (excludes C01-C02)	C49	Connective, subcutaneous & other soft tissues
C01 - C02	Tongue	C50	Breast
C07	Parotid gland	C51	Vulva
C08	Salivary glands	C52	Vagina
C09 - C14	Pharynx (excludes C11)	C53	Cervix uteri
C11	Nasopharynx	C54	Corpus uteri (Uterus)
C15	Oesophagus	C55	Uterus, NOS (rarely used)
C16	Stomach	C56	Ovary
C17	Small intestine	C57	Uterine adnexa & other fem. genital
C18	Colon	C58	Placenta
C19 - C20	Rectosigmoid junction & rectum	C60	Penis
C21	Anus	C61	Prostate gland
C22	Liver & intrahepatic bile ducts	C62	Testis
C23 - C24	Gallbladder & bile ducts	C63	Male genital, other
C25	Pancreas	C64	Kidney (excludes renal pelvis C65)
C30 - C31	Nasal cavity & sinuses, middle & inner ear	C65 - C68	Bladder & urinary tract
C32	Larynx	C69	Eye & lacrimal gland
C33 - C34	Lung, bronchus & trachea	C70	Meninges (cerebral & spinal)
C37	Thymus	C71	Brain
C38	Pleura, heart & mediastinum	C72	Spinal cord & cranial nerves
C40 - C41	Bones, joints & articular cartilages	C73	Thyroid gland
C44	Skin	C74	Adrenal gland
C47	Nervous system, peripheral & autonomic	C75	Endocrine glands, other
C48	Retroperitoneum and peritoneum	C80	Unknown primary site

Notes: (1) Only 1st 3 characters shown. Groupings based on IARC rules governing the reporting of incident cancers for ICDO-3. Using these same rules, non-lymphohaematopoietic neoplasms of primary sites reported as C26 (Intestinal tract NOS), C39 (respiratory tract ill-defined / NOS), C42 (haematopoietic system), C76 (large body regions NOS) and C77 (lymph nodes) are tabulated as cancers of unknown primary site.

(b) Morphology code groups for lymphohaematopoietic malignancies

The tabulation scheme for lymphohaematopoietic neoplasms (LHNs) used in previous WACR reports was based on a combination of groupings used in ICD-O, ICD9 and ICD10, which reflected, to varying degrees, previous well-accepted classification schemes such as the REAL and the Working Formulation. Increasingly, classification of such tumours as used by pathologists and clinicians has changed, and older headings have become somewhat irrelevant to modern medical practice.

The tabulation groupings used in this report are based on those used in the ICD-O-3 classification, which has been influenced by the WHO Classification of Haematopoietic and Lymphoid Neoplasms (2001). In the current report, group headings still retain terms such as lymphoma and leukaemia, for the sake of familiarity. While these names remain in the WHO scheme for individual conditions, group headings have in many cases been replaced by less-specific terms such as "B-Cell neoplasms" and "T-cell neoplasms" which may be unfamiliar to some users of Cancer Registry data. Depending on developments in this area (and on decisions made by other Registries, and by others who are concerned that cancer classification should be compatible with non-cancer disease classifications using ICD10), future reports may eventually follow the WHO classification scheme.

Since 2003, some conditions previously not regarded as malignant (e.g. polycythaemia and myelodysplastic diseases) are now included as "cancers".

Revised multi-level tabulation scheme for reporting of malignant lymphohaematopoietic neoplasms (WACR 2003, updated 2011)

	WACR code	ICD-O-3 M codes
1 All lymphomas	Y**	
1a Lymphomas, NOS/unclassifiable	YUC	9590
1b Hodgkin lymphoma	YHO	9650-9667
1c All NHL	YN*	
1c1 NHL, mature B Cell	YNB	9670-9671, 9673, 9675, 9678-9680, 9684, 9687, 9689-9691, 9695, 9698-9699, 9766
1c2 NHL, mature T / NK cell	YNT	9700-9702, 9705, 9708-9709, 9714, 9716, 9717-9719
1c3 NHL, precursor cell lymphoblastic	YNP	9727-9729
1c4 NHL, other / unclassifiable	YNO	9591, 9596-9599*
1c1x NHL, Burkitt (<i>subset of 1c1</i>)	YNBB	9687
2 Myeloma/Plasma Cell tumours	P*	9731-9734
3 All leukaemias	L**	
3a Leukaemias, NOS/unclassifiable	LUC	9800-9801, 9805
3b Leukaemias, lymphoid, all	LL*	
3b1 Leukaemias, lymphoid, acute	LLA	9836-9837
3b2 Leukaemias, lymphoid, chronic	LLC	9823
3b3 Leukaemias, lymphoid, other/NOS	LLO	9820, 9826, 9827, 9831-9834
3c Leukaemias, myeloid, all	LM*	
3c1 Leukaemias, myeloid, acute	LMA	9840, 9861, 9866-9867, 9870-9874, 9891, 9895-9897, 9910, 9920, 9930-9931
3c2 Leukaemias, myeloid, chronic	LMC	9863, 9875-9876
3c3 Leukaemias, myeloid, other/NOS	LMO	9860
3d Other leukaemias	LOT	9940, 9945-9946, 9948
4 Other lymphohaematopoietic malignancies		
4a Myelodysplastic diseases, all	HM*	
4a1 Refractory anaemias/cytopaenias	HMR	9980-9985
4a2 Myelodysplastic syndromes	HMS	9986-9989
4b Chronic myeloproliferative diseases, all	HC*	
4b1 Chronic MPD, NOS	HCX	9960
4b2 Polycythaemia rubra vera	HCP	9950
4b3 Myelofibrosis/sclerosis	HCS	9961
4b4 Other chronic MPDs	HCO	9962-9964
4c Other immunoproliferative malignancies	HI*	
4c1 Mast cell tumours	HIM	9740-9742
4c2 Malignant histiocytic/dendritic cell neoplasms	HIH	9750, 9754-9758
4c3 Other & unspecified immunoproliferative neoplasms	HII	9760-9764

*9597, *9598 and *9599 are WACR codes for "NOS" NHL which are able to be grouped as low, intermediate or high grade respectively but which could only be otherwise placed in the ICD-O classification as code 9591.

Appendix 2F. WACR publications since 1996

Note: It is strongly recommended that retrospective studies utilise time-series that have been produced using updated versions of historical data, available from the Registry; and that figures from old reports not be used for such purposes. However, various topics of interest may be found in previous publications listed here.

Threlfall TJ, Whitfort MJ, Thompson JR (1996) *Cancer incidence and mortality in Western Australia, 1992-1994*. Health Department of Western Australia, Perth, Statistical Series num. 45.

Threlfall T, Morgan A (1996) *Malignant mesothelioma in Western Australia, 1960 to 1994*. Health Department of Western Australia, Perth, Statistical Series number 46.

Threlfall TJ (1997) *Cancer incidence and mortality projections for Western Australia, 1996-2001*. Health Department of Western Australia, Perth, Statistical Series number 50.

Threlfall TJ, Thompson JR (1997) *Cancer incidence and mortality in Western Australia, 1995*. Health Department of Western Australia, Perth, Statistical Series number 51.

Threlfall TJ, Thompson JR (1998) *Cancer incidence and mortality in Western Australia, 1996*. Health Department of Western Australia, Perth, Statistical Series number 55.

Threlfall TJ, Thompson JR (1999) *Cancer incidence and mortality in Western Australia, 1997*. Health Department of Western Australia, Perth, Statistical Series number 57.

Threlfall TJ, Brameld K (2000) *Cancer survival in Western Australian residents, 1982-1997*. Health Department of Western Australia, Perth, Statistical Series number 60.

Threlfall TJ, Thompson JR (2000) *Cancer incidence and mortality in Western Australia, 1998*. Health Department of Western Australia, Perth, Statistical Series number 61.

Threlfall TJ, Thompson JR (2002) *Cancer incidence and mortality in Western Australia, 1999 and 2000*. Health Department of Western Australia, Perth, Statistical Series number 65.

Threlfall TJ, Thompson JR (2003) *Cancer incidence and mortality in Western Australia, 2001*. Health Department of Western Australia, Perth, Statistical Series number 68.

Threlfall TJ, Thompson JR (2004) *Cancer incidence and mortality in Western Australia, 2002*. Department of Health, Western Australia, Perth. Statistical series number 71.

Threlfall TJ, Thompson JR, Olsen N (2005). *Cancer in Western Australia: Incidence and mortality 2003 and Mesothelioma 1960-2003*. Department of Health, Western Australia, Perth. Statistical series number 74.

Threlfall TJ, Thompson JR (2006). *Cancer incidence and mortality in Western Australia, 2004*. Department of Health, Western Australia, Perth. Statistical series number 76.

Threlfall TJ, Thompson JR (2007). *Cancer incidence and mortality in Western Australia, 2005*. Department of Health, Western Australia, Perth. Statistical Series Number 81.

Threlfall TJ, Thompson JR (2007). *Cancer incidence and mortality in Western Australia, 2006*. Department of Health, Western Australia, Perth. Statistical Series Number 82.

Threlfall TJ, Thompson JR (2009). *Cancer incidence and mortality in Western Australia, 2007*. Department of Health, Western Australia, Perth. Statistical series number 86.

Threlfall TJ, Thompson JR (2010). *Cancer incidence and mortality in Western Australia, 2008*. Department of Health, Western Australia, Perth. Statistical series number 87.

Threlfall TJ, Thompson JR (2011). *Cancer incidence and mortality in Western Australia, 2009*. Department of Health, Western Australia, Perth. Statistical series number 91.

Threlfall TJ, Thompson JR (2012). *Cancer incidence and mortality in Western Australia, 2010*. Department of Health, Western Australia, Perth. Statistical series number 94.

Threlfall TJ, Thompson JR (2013). *Cancer incidence and mortality in Western Australia, 2011*. Department of Health, Western Australia, Perth. Statistical series number 97.

Appendix 2G. Guide to tables in Appendix 3

Note: The order of cancer types in the tables in Appendix 2E is the basis for the wide-format incidence and mortality tables in Appendix 3.

Terms and formatting

Terms used in table headings are explained under “Statistical methods” (Section 1.4) and abbreviations repeated in Appendix 2A.

Age groups are expressed in whole years, i.e. “10-14” means 10.0 to 14.99.... years.

For most cancers in the wide-format tables which follow, there are 2 rows for each sex. The upper one contains total cases, ASR, 95% confidence interval, risk and other summary statistics.

Under the headings for individual age groups, the upper rows also contain counts (cases or deaths) in whole numbers.

The numbers (1 decimal place) shown in the lower rows for each sex are age-specific rates per 100,000 for the relevant age group.

The larger, wide-format tables e.g. Appendices 3A, B and C, contain some sections which are summaries of others within the tables (e.g. “All Lymphomas”), hence the summation of case numbers or rates over all rows of the tables will not match the totals at the end of each table, which were calculated separately.

Order of cancer types within tables

In general, tables follow the order of cancer types as listed in Appendix 2E, with site-specific cancers listed first, then lymphohaematopoietic malignancies - lymphomas, myeloma, mast cell tumours, miscellaneous immunoproliferative tumours, then leukaemias - followed by the Unknown Primary Site and Total Cancers groups.

Note: The mortality appendix table includes deaths due to all non-melanoma skin cancers (NMSC), some of which are not listed in the Incidence tables. Some NMSC, such as Merkel cell or sweat gland carcinomas, are included in incidence statistics in this report, but these do NOT include basal cell carcinoma or squamous cell carcinoma (ICD-O-3 morphology codes 8050 - 8110).

- Notes -

Appendix 3A now contains an incidence data summary for the most common cancer types on page A3-10.

In Appendix 3B, the “Total deaths due to cancer” appears on page A3-19. The “Total deaths (cancer and non-cancer) of Cancer Registry cases” on page A3-20 includes non-cancer and all other deaths in persons with a valid WA tumour record.

Appendix 3A. Cancer incidence, Western Australia, 2012

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+ u/k	Total	ASR	95% c.i.	TD% CumInc	Risk	ASR2	
Lip, gum & mouth (C000-C069) (not C01 C02)																									
M	<5	<5	NR	NR	<5	NR	<5	9	13	12	10	12	14	16	14	10	11	6	131	7.3	6.0-8.6	99.0	0.8	125	10.6 (8.8-12.4)
F	<5	NR	<5	<5	NR	<5	NR	<5	10.1	14.4	13.6	16.1	20.9	30.8	38.0	38.1	59.6	42.3	60	2.8	2.0-3.6	98.0	0.3	335	4.4 (3.3-5.5)
Tongue (C010-C029)																									
M	<5	NR	<5	<5	NR	<5	NR	<5	NR	NR	13	5	10	7	5	<5	<5	<5	54	3.0	2.2-3.8	94.0	0.4	282	4.2 (3.1-5.4)
F	<5	NR	<5	<5	NR	<5	NR	<5	NR	NR	<5	<5	<5	<5	<5	<5	NR	NR	16	0.9	0.5-1.4	100.0	0.1	1025	1.2 (0.6-1.8)
Parotid gland (C070-C079)																									
M	<5	NR	<5	<5	NR	<5	NR	<5	NR	NR	<5	<5	<5	<5	<5	<5	NR	NR	10	0.6	0.2-1.1	100.0	0.1	1502	0.8 (0.3-1.3)
F	<5	NR	<5	<5	NR	<5	NR	<5	NR	NR	<5	<5	<5	<5	<5	<5	NR	NR	9	0.4	0.1-0.7	89.0	0.1	1955	0.6 (0.2-1.0)
Major salivary glands (not parotid) (C080-C089)																									
M	<5	NR	<5	<5	NR	<5	NR	<5	NR	NR	<5	<5	<5	<5	<5	<5	NR	NR	<5	0.1	0-0.2	100.0	0.0	7362	0.2 (0-0.4)
F	<5	NR	<5	<5	NR	<5	NR	<5	NR	NR	<5	<5	<5	<5	<5	<5	NR	NR	NR	0.3	0-0.6	100.0	0.0	3853	0.4 (0.0-0.8)
Pharynx (C090-C149) (not C11')																									
M	<5	NR	<5	<5	NR	<5	NR	<5	NR	NR	<5	<5	<5	<5	<5	<5	NR	NR	61	3.4	2.5-4.3	95.0	0.4	253	4.8 (3.6-6.0)
F	<5	NR	<5	<5	NR	<5	NR	<5	NR	NR	<5	<5	<5	<5	<5	<5	NR	NR	14	0.8	0.4-1.2	100.0	0.1	1080	1.0 (0.5-1.6)
Nasopharynx (C110-C119)																									
M	<5	NR	<5	<5	NR	<5	NR	<5	NR	NR	<5	<5	<5	<5	<5	<5	NR	NR	13	0.7	0.3-1.2	100.0	0.1	1255	1.0 (0.4-1.5)
F	<5	NR	<5	<5	NR	<5	NR	<5	NR	NR	<5	<5	<5	<5	<5	<5	NR	NR	6	0.4	0.1-0.7	100.0	0.0	2233	0.5 (0.1-0.9)
Oesophagus (C150-C159)																									
M	<5	NR	<5	<5	NR	<5	NR	<5	NR	NR	<5	<5	<5	<5	<5	<5	NR	NR	108	5.6	4.6-6.7	97.0	0.7	140	8.4 (6.8-10.0)
F	<5	NR	<5	<5	NR	<5	NR	<5	NR	NR	<5	<5	<5	<5	<5	<5	NR	NR	35	1.6	1.0-2.2	94.0	0.2	516	2.7 (1.8-3.5)
Stomach (C160-C169)																									
M	<5	NR	<5	<5	NR	<5	NR	<5	NR	NR	<5	<5	<5	<5	<5	<5	NR	NR	132	6.6	5.4-7.8	96.0	0.7	138	10.9 (9.0-12.8)
F	<5	NR	<5	<5	NR	<5	NR	<5	NR	NR	<5	<5	<5	<5	<5	<5	NR	NR	63	2.7	2.0-3.5	97.0	0.3	341	4.6 (3.5-5.8)
Small intestine (C170-C179)																									
M	<5	NR	<5	<5	NR	<5	NR	<5	NR	NR	<5	<5	<5	<5	<5	<5	NR	NR	27	1.4	0.9-2.0	100.0	0.2	580	2.1 (1.3-2.9)
F	<5	NR	<5	<5	NR	<5	NR	<5	NR	NR	<5	<5	<5	<5	<5	<5	NR	NR	26	1.3	0.7-1.8	88.0	0.2	584	1.9 (1.2-2.7)

Appendix 3A. Cancer incidence, Western Australia, 2012

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+ u/k	Total	ASR	95% c.i.	TD% CumInc	Risk	ASR2	
Colorectal cancer (C18-C20, C218)																									
M				<5	NR	<5	8	6	16	20	47	56	81	107	104	83	70	45	647	32.8	30.2-35.4	97.0	4.0	25	53.0 (48.9-57.2)
F				6	<5	NR	6	11	15	19	22	49	74	86	78	59	81	94	602	27.8	25.4-30.2	94.0	3.3	31	44.5 (40.9-48.1)
Colon (C180-C189)																									
M				<5	NR	<5	5	<5	11	13	27	35	46	71	68	68	53	37	441	21.8	19.7-23.9	96.0	2.5	40	36.7 (33.3-40.2)
F				5	<5	NR	<5	10	15	13	30	49	64	57	41	56	80		428	19.3	17.3-21.3	93.0	2.3	45	31.3 (28.3-34.3)
Rectosigmoid junction & rectum (C190-C209)																									
M				<5	NR	<5	5	7	20	21	35	36	36	36	36	15	17	8	206	11.0	9.5-12.5	100.0	1.5	69	16.3 (14.0-18.5)
F				<5	NR	<5	7	5	<5	9	18	25	22	20	18	25	14		171	8.3	7.0-9.6	97.0	1.0	104	12.9 (11.0-14.9)
Anus (C210-C219)																									
M				<5	NR	<5	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	<5	9	0.4	0.1-0.7	89.0	0.1	1290	0.8 (0.3-1.3)
F				<5	NR	<5	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	<5	23	1.2	0.7-1.7	96.0	0.2	630	1.7 (1.0-2.4)
Liver & intrahepatic bile ducts (C220-C229)																									
M				<5	NR	<5	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	102	5.3	4.3-6.4	50.0	0.6	163	8.2 (6.6-9.9)
F				<5	NR	<5	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	45	2.0	1.4-2.6	67.0	0.3	398	3.3 (2.3-4.2)
Gallbladder & bile ducts (C230-C249)																									
M				<5	NR	<5	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	33	1.6	1.1-2.2	79.0	0.2	537	2.8 (1.8-3.8)
F				<5	NR	<5	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	41	1.7	1.2-2.3	83.0	0.2	541	3.0 (2.1-3.9)
Pancreas (C250-C259)																									
M				<5	NR	<5	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	138	7.0	5.8-8.2	79.0	0.8	119	11.3 (9.4-13.3)
F				<5	NR	<5	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	128	5.6	4.5-6.6	75.0	0.6	157	9.4 (7.8-11.1)
Nasal cavity/sinuses, middle & inner ear (C300-C319)																									
M				<5	NR	<5	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	11	0.6	0.2-0.9	100.0	0.1	1636	0.9 (0.4-1.5)
F				<5	NR	<5	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	8	0.4	0.1-0.7	100.0	0.0	2588	0.6 (0.2-1.0)
Larynx (C320-C329)																									
M				<5	NR	<5	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	47	2.4	1.7-3.0	100.0	0.3	376	3.7 (2.7-4.8)
F				<5	NR	<5	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	<5	0.2	0.0-0.4	75.0	0.0	2159	0.3 (0.0-0.7)

Appendix 3A. Cancer incidence, Western Australia, 2012

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+ u/k	Total	ASR	95% c.i.	TD% CumInc	Risk	ASR2		
Lung, bronchus & trachea (C330-C349)																										
M	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	11	28	44	86	106	80	92	75	52	580	28.3	25.9-30.7	90.0	3.3	31	47.8 (43.8-51.7)
F	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	12.5	34.0	58.9	128.1	204.3	217.4	350.6	406.4	366.7	451	20.9	18.9-23.0	86.0	2.6	39	33.8 (30.6-37.0)
Thymus (C370-C379)																										
M	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	0.1	0-0.3	100.0	0.0	8517	0.1 (0-0.3)
F	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	<5	0.2	0-0.4	100.0	0.0	5175	0.2 (0-0.5)
Pleura, heart & mediastinum (C380-C389)																										
M	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	6	0.5	0.1-0.9	100.0	0.0	2961	0.5 (0.1-0.9)
F	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	<5	0.1	0-0.2	100.0	0.0	*	0.1 (0-0.2)
Bones, joints & articular cartilages (C400-C419)																										
M	5	<5	<5	<5	<5	<5	<5	<5	<5	<5	32	55	64	104	94	100	66	41	55	17	1.2	0.6-1.9	100.0	0.1	1179	1.4 (0.7-2.1)
F	6.0	NR	NR	NR	NR	NR	NR	NR	NR	NR	36.4	66.9	85.7	155.0	181.2	271.7	251.5	222.1	387.9	11	0.8	0.3-1.3	100.0	0.1	1800	0.9 (0.4-1.4)
Skin (melanoma only) (C440-C449; M-8720 - 8790)																										
M	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	31	55	64	104	94	100	66	41	55	696	37.7	34.8-40.6	100.0	4.4	23	56.1 (51.9-60.3)
F	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	34.3	66.9	85.7	155.0	181.2	271.7	251.5	222.1	387.9	453	25.0	22.6-27.4	100.0	2.7	38	35.1 (31.8-38.3)
Skin (not melanoma/SCC/BCC) (C440-C449)																										
M	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	16	16	16	16	16	16	16	16	16	75	3.6	2.7-4.5	72.0	0.4	272	6.5 (5.0-7.9)
F	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	16.2	17.2	17.2	17.2	17.2	17.2	17.2	17.2	17.2	51	2.4	1.7-3.2	69.0	0.3	328	3.9 (2.8-4.9)
Mesothelioma (M905; ICD10 C45)																										
M	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	16	16	16	16	16	16	16	16	16	88	4.3	3.4-5.2	94.0	0.6	174	7.3 (5.8-8.9)
F	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	16.2	17.2	17.2	17.2	17.2	17.2	17.2	17.2	17.2	21	1.0	0.6-1.5	100.0	0.1	974	1.7 (1.0-2.5)
Kaposi sarcoma (M914; ICD10 C46)																										
M	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	0.1	0-0.3	100.0	0.0	6810	0.1 (0-0.3)
F	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	0						
Nervous system, peripheral/autonomic (C470-C479)																										
M	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	0.2	0-0.4	100.0	0.0	4693	0.2 (0-0.5)
F	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	0						

Appendix 3A. Cancer incidence, Western Australia, 2012

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+ u/k	Total	ASR	95% c.i.	TD% CumInc	Risk	ASR2		
Retropitoneum and peritoneum (C480-C489)																										
M									<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	0.1	0-0.2	0.0	0.0	*	0.1 (0-0.2)	
F									NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	0.6	0.3-1.0	92.0	0.1	1132	1.0 (0.4-1.6)	
Connective, subcutaneous & other soft tissues (C490-C499)																										
M	<5	<5	<5	<5	<5	<5	<5	6	<5	<5	<5	<5	<5	5	<5	<5	<5	<5	<5	2.3	1.5-3.0	97.0	0.2	497	2.9 (1.9-3.8)	
F	NR	NR	NR	NR	NR	NR	NR	7.3	NR	NR	9.6	NR	NR	NR	NR	NR	NR	NR	NR	2.1	1.3-2.8	94.0	0.2	536	2.4 (1.5-3.2)	
Breast (C500-C509)																										
M							<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	0.5	0.1-0.8	100.0	0.1	1567	0.6 (0.2-1.1)	
F	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	89.7	85.2-94.2	99.0	10.2	10	122.9 (117-129)	
Vulva (C510-C519)																										
F									<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	1.3	0.8-1.8	100.0	0.1	728	2.0 (1.2-2.7)	
Vagina (C520-C529)																										
F									<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	0.4	0.1-0.7	90.0	0.0	2990	0.7 (0.3-1.2)	
Cervix uteri (C530-C539)																										
F									12	15	12	8	<5	5	<5	<5	<5	<5	<5	6.5	5.2-7.8	100.0	0.6	175	8.0 (6.4-9.6)	
Corpus uteri (C540-C549)																										
F									11	19	26	34	33	24	6	15	6	6	6	10.0	8.5-11.4	99.0	1.3	76	13.7 (11.7-15.7)	
Uterus, nos (C550-C559)																										
F									12.9	23.6	35.1	52.0	65.1	64.2	20.7	65.8	23.7			0						
Ovary (C560-C569)																										
F									11.8	14.9	20.2	24.5	47.3	26.7	31.1	52.6	59.3			6.8	5.6-8.0	92.0	0.8	128	9.9 (8.2-11.6)	
Uterine adnexa & oth. fem gen. (C570-C579)																										
F									NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	0.6	0.2-0.9	100.0	0.1	1097	0.8 (0.3-1.3)	
Placenta (C580-C589)																										
F																				0.1	0-0.2	100.0	0.0	*	0.1 (0-0.3)	
Penis (C600-C609)																										
M									NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	0.7	0.3-1.1	93.0	0.1	1894	1.3 (0.6-1.9)	
Prostate gland (C610-C619)																										
M									13.3	61.4	139.8	354.7	892.4	934.7	918.3	769.4	662.9			110.0	105-115	98.0	14.8	7	165.9 (159-173)	
Testis (C620-C629)																										
M									8	8	8	<5	<5	<5	<5	<5	<5	<5	<5	5.9	4.6-7.1	100.0	0.5	222	6.3 (5.0-7.7)	

Appendix 3A. Cancer incidence, Western Australia, 2012

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 + u/k	Total	ASR	95% c.i.	TD% CumInc	Risk	ASR2		
Other male genital (C630-C639)																										
M																			<5	0.0	0-0.1	100.0	0.0	*	0.1 (0-0.3)	
Kidney (C640-C649)																										
M	<5																		NR							
																			13	205	11.5	9.8-13.1	93.0	1.3	76	16.2 (14.0-18.5)
F	<5																		7	99	5.2	4.1-6.4	88.0	0.6	169	7.7 (6.2-9.2)
Bladder & urinary tract (C650-C689)																										
M																			30	210	9.8	8.4-11.2	96.0	1.1	92	17.5 (15.1-19.9)
																			211.6							
F																			18	75	2.9	2.2-3.6	92.0	0.3	340	5.5 (4.2-6.8)
Eye & lacrimal gland (C690-C699)																										
M																			<5	15	1.0	0.4-1.6	73.0	0.1	1092	1.2 (0.6-1.8)
																			NR							
F																			<5	10	0.7	0.2-1.1	80.0	0.1	1753	0.8 (0.3-1.3)
Meninges (cerebral & spinal) (C700-C709)																										
M																			0							
F																			<5	<5	0.1	0-0.2	0.0	0.0	*	0.2 (0-0.4)
Brain (C710-C719)																										
M																			5	106	6.9	5.5-8.4	85.0	0.7	149	8.6 (6.9-10.2)
																			35.3							
F																			<5	75	4.7	3.5-5.9	83.0	0.4	230	6.0 (4.6-7.4)
Spinal cord & cranial nerves (C720-C729)																										
M																			<5	<5	0.3	0-0.6	100.0	0.0	3053	0.3 (0.0-0.6)
																			NR							
F																			<5	<5	0.1	0-0.2	100.0	0.0	*	0.1 (0-0.3)
Thyroid gland (C730-C739)																										
M																			<5	74	4.4	3.4-5.5	100.0	0.5	214	5.7 (4.4-7.1)
																			NR							
F																			<5	188	12.1	10.4-13.9	100.0	1.2	84	15.0 (12.9-17.2)
Adrenal gland (C740-C749)																										
M																			<5	9	0.9	0.3-1.6	100.0	0.0	2024	0.7 (0.2-1.2)
																			NR							
F																			<5	6	0.7	0.1-1.3	100.0	0.0	2659	0.5 (0.1-0.9)
Endocrine glands (not adrenal) (C750-C759)																										
M																			<5	<5	0.1	0-0.2	100.0	0.0	*	0.1 (0-0.2)
																			NR							
F																			<5	<5	0.1	0-0.3	50.0	0.0	4760	0.2 (0-0.4)

Appendix 3A. Cancer incidence, Western Australia, 2012

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+ u/k	Total	ASR	95% c.i.	TD% CumInc	Risk	ASR2	
LYMPHOMAS																									
Lymphoma, NOS / unclassifiable																									
M					<5	NR	<5	NR											10	0.4	0.1-0.7	70.0	0.0	9057	0.9 (0.4-1.5)
F					<5	NR	<5	NR											6	0.2	0.0-0.3	50.0	0.0	*	0.4 (0.1-0.7)
Hodgkin lymphoma																									
M			<5	<5	6	<5	<5	<5	<5	<5	<5	<5	<5	<5	5	<5	<5	<5	41	2.8	1.9-3.6	100.0	0.3	385	3.3 (2.3-4.3)
F	<5	NR	NR	NR	6.1	NR	NR	NR	NR	NR	NR	NR	NR	NR	13.6	NR	NR	NR	20	1.7	0.9-2.5	95.0	0.1	816	1.7 (0.9-2.4)
All NHL																									
M	<5	NR	<5	<5	<5	<5	<5	9	9	19	21	27	29	30	40	33	22	10	258	13.9	12.1-15.6	100.0	1.6	62	21.2 (18.6-23.8)
F	NR	NR	<5	NR	NR	NR	NR	10.1	10.0	21.6	25.5	36.1	43.2	57.8	108.7	125.7	119.2	70.5	193	9.9	8.4-11.3	98.0	1.1	92	14.9 (12.8-17.1)
NHL, mature B cell																									
M	<5	NR	<5	<5	<5	<5	<5	NR	8	16	18	26	23	22	32	24	16	8	202	10.8	9.3-12.3	100.0	1.3	78	16.5 (14.2-18.8)
F	NR	NR	<5	NR	NR	NR	NR	6.7	8.8	18.2	21.9	34.8	34.3	42.4	86.9	91.4	86.7	56.4	141	7.3	6.0-8.5	98.0	0.8	118	11.0 (9.2-12.9)
NHL, mature T/NK cell																									
M	<5	NR	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	18	1.1	0.6-1.6	100.0	0.1	856	1.5 (0.8-2.2)	
F	<5	NR	<5	NR	<5	<5	<5	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	11	0.7	0.3-1.1	100.0	0.1	1329	0.8 (0.3-1.3)
NHL, precursor cell lymphoblastic																									
M	<5	NR	<5	NR	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	0.3	0 - 0.7	100.0	0.0	7734	0.3 (0 - 0.6)
F	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	<5	0.1	0 - 0.2	100.0	0.0	*	0.1 (0 - 0.2)
NHL, other/unclassifiable																									
M	<5	NR	<5	NR	<5	<5	<5	<5	9	<5	<5	<5	<5	7	5	5	6	<5	35	1.7	1.1-2.3	100.0	0.2	500	2.9 (1.9-3.9)
F	<5	NR	<5	NR	<5	<5	<5	NR	NR	NR	NR	NR	NR	13.5	13.6	19.1	32.5	NR	40	1.8	1.2-2.5	98.0	0.2	633	3.0 (2.1-3.9)
Lymphomas (all)																									
M	<5	5	5	5	7	7	8	14	11	21	22	29	30	33	45	37	27	13	309	17.1	15.1-19.0	99.0	1.9	53	25.4 (22.5-28.3)
F	NR	6.0	5.4	7.1	8.6	15.7	12.2	23.9	12.2	23.9	26.7	38.8	44.7	63.6	122.3	141.0	146.3	91.7	219	11.8	10.1-13.4	96.0	1.2	82	17.0 (14.7-19.3)
MYELOMA																									
Myeloma/plasma cell tumours																									
M					<5	NR	<5	<5	<5	<5	8	23	10	17	10	10	7	7	97	5.0	4.0-6.0	98.0	0.6	161	7.8 (6.2-9.4)
F					<5	NR	<5	<5	<5	<5	6	6	8	12	11	9	13	13	79	3.6	2.7-4.4	91.0	0.4	245	6.0 (4.6-7.3)

Appendix 3A. Cancer incidence, Western Australia, 2012

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+ u/k	Total	ASR	95% c.i.	TD% CumInc	Risk	ASR2	
LEUKAEMIAS																										
Leukaemias, NOS/unclassifiable																										
M																										
F																										
Leukaemias, lymphoid, all																										
M	7	<5	NR	<5	NR	<5	NR	<5	NR	<5	NR	5	14	15	12	11	11	<5	6	91	5.7	4.4-7.0	100.0	0.6	170	7.3 (5.8-8.8)
F	8.3	<5	NR	<5	NR	<5	NR	<5	NR	<5	NR	5.7	20.9	28.9	32.6	41.9	NR	NR	42.3	57	3.7	2.6-4.8	100.0	0.3	306	4.5 (3.3-5.7)
Leukaemias, lymphoid, acute																										
M	7	<5	NR	<5	NR	<5	NR	<5	NR	<5	NR	<5	NR	<5	NR	<5	NR	<5	NR	18	1.9	0.9-2.8	100.0	0.1	916	1.5 (0.8-2.1)
F	8.3	<5	NR	<5	NR	<5	NR	<5	NR	<5	NR	<5	NR	<5	NR	<5	NR	<5	NR	17	1.7	0.8-2.6	100.0	0.1	853	1.5 (0.8-2.2)
Leukaemias, lymphoid, chronic																										
M																										
F																										
Leukaemias, lymphoid, other/NOS																										
M																										
F																										
Leukaemias, myeloid, all																										
M	<5	NR	<5	NR	<5	NR	<5	NR	<5	NR	<5	NR	5	9	14	6	8	7	<5	74	4.4	3.3-5.5	100.0	0.4	227	5.9 (4.6-7.3)
F	<5	NR	<5	NR	<5	NR	<5	NR	<5	NR	<5	NR	6.7	13.4	27.0	16.3	30.5	37.9	NR	60	3.2	2.3-4.1	100.0	0.3	297	4.7 (3.5-5.9)
Leukaemias, myeloid, acute																										
M	<5	NR	<5	NR	<5	NR	<5	NR	<5	NR	<5	NR	7	7	7	<5	<5	<5	<5	48	3.0	2.1-4.0	100.0	0.3	349	3.9 (2.8-5.0)
F	<5	NR	<5	NR	<5	NR	<5	NR	<5	NR	<5	NR	10.4	13.5	NR	NR	NR	NR	NR	44	2.2	1.5-3.0	100.0	0.2	464	3.4 (2.4-4.5)
Leukaemias, myeloid, chronic																										
M																										
F																										
Leukaemias, myeloid, other/NOS																										
M																										
F																										

Appendix 3A. Cancer incidence, Western Australia, 2012

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+ u/k	Total	ASR	95% c.i.	TD% CumInc	Risk	ASR2		
Leukaemias, other																										
M	0																									
F	0																									
Leukaemias (all)																										
M	10	<5	<5	<5	<5	<5	<5	<5	8	6	10	23	30	18	19	10	10	10	167	10.2	8.5-11.9	100.0	1.0	96	13.4 (11.4-15.5)	
	11-9	NR	NR	NR	NR	NR	NR	NR	9.1	7.3	13.4	34.3	57.8	48.9	72.4	54.2	70.5									
F	<5	<5	<5	<5	<5	<5	<5	6	6	8	12	17	<5	13	13	9	10	10	118	6.9	5.5-8.3	100.0	0.7	151	9.3 (7.6-11.0)	
	NR	NR	NR	NR	NR	NR	NR	6.9	7.1	9.9	16.2	26.0	NR	34.8	44.9	39.5	39.5									
MYELODYSPLASTIC DISEASES																										
Refractory anaemias/cytopaenias																										
M		<5	<5	<5	<5	<5	<5	<5	<5	NR	NR	NR	NR	6	<5	<5	5	<5	25	1.2	0.7-1.7	100.0	0.1	685	2.0 (1.2-2.8)	
		NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	11.6	NR	NR	27.1	NR								
F		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	14	0.6	0.2-0.9	100.0	0.1	1564	1.1 (0.5-1.6)	
		NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR								
Myelodysplastic syndromes																										
M		<5	<5	<5	<5	<5	<5	<5	<5	NR	NR	NR	NR	5	<5	5	<5	17	37	1.5	1.0-2.0	97.0	0.1	871	3.3 (2.3-4.4)	
		NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	7.5	NR	13.6	19.1	NR	119.9							
F		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	14	22	0.6	0.3-0.8	86.0	0.0	3604	1.4 (0.8-2.0)	
		NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	55.3							
Myelodysplastic diseases, all																										
M		<5	<5	<5	<5	<5	<5	<5	<5	NR	NR	NR	NR	7	8	8	9	18	62	2.7	2.0-3.4	98.0	0.3	384	5.4 (4.0-6.7)	
		NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	13.5	21.7	30.5	48.8	126.9								
F		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	5	7	15	36	1.1	0.7-1.6	92.0	0.1	1091	2.5 (1.6-3.3)	
		NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	17.3	30.7	59.3							
CHRONIC MYELOPROLIFERATIVE DISEASES																										
Chronic myeloproliferative disorder, NOS																										
M	0																									
F	0																									
Polycythaemia rubra vera																										
M		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	10	0.4	0.1-0.7	90.0	0.0	4544	0.9 (0.3-1.4)	
		NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR							
F		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	5	0.2	0.0-0.3	80.0	0.0	*	0.4 (0.0-0.7)	
		NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR							
Myelofibrosis/sclerosis																										
M		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	0.2	0 - 0.3	100.0	0.0	5853	0.2 (0 - 0.5)
		NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR							
F		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	5	0.2	0.0-0.3	100.0	0.0	5106	0.3 (0.0-0.6)	
		NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR							
Other chronic myeloproliferative d/o																										
M		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	13	0.7	0.3-1.1	100.0	0.1	1411	1.1 (0.5-1.7)	
		NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR							
F		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	13	0.5	0.2-0.9	100.0	0.0	2048	0.9 (0.4-1.5)	
		NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR							

Appendix 3A. Cancer incidence, Western Australia, 2012

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 + u/k	Total	ASR	95% c.i.	TD% CumInc	Risk	ASR2		
Chronic myeloproliferative d/o, all																										
M										<5	<5	<5	<5	<5	<5	<5	<5	7	26	1.3	0.8-1.8	96.0	0.1	909	2.2 (1.4-3.1)	
F										<5	<5	<5	<5	<5	<5	<5	<5	8	23	0.9	0.5-1.3	96.0	0.1	1340	1.7 (1.0-2.3)	
OTHER CHRONIC IMMUNOPROLIFERATIVE DISEASES																										
Mast cell tumours																										
M																			0							
F																			0							
Histiocytic/dendritic cell malignancies																										
M										<5	<5	NR							<5	0.1	0 - 0.2	100.0	0.0	*	0.1 (0 - 0.2)	
F															<5	NR			<5	0.1	0 - 0.2	100.0	0.0	7480	0.1 (0 - 0.3)	
Other & U/S immunoproliferative neoplasms																										
M												<5	<5	<5	<5	<5	<5		<5	0.2	0 - 0.4	100.0	0.0	3261	0.2 (0 - 0.5)	
F																			0							
Other chronic immunoproliferative d/o, all																										
M										<5	<5	NR	<5	<5	<5	<5			<5	0.2	0.0-0.4	100.0	0.0	2677	0.3 (0.0-0.6)	
F																			<5	0.1	0 - 0.2	100.0	0.0	7480	0.1 (0 - 0.3)	
Unknown primary site (C26, C39, C76, C80; Behaviour 6/9)																										
M										<5	<5	NR	<5	<5	<5	<5	<5	30	156	7.3	6.1-8.5	71.0	0.7	149	13.5 (11.3-15.6)	
F										NR	NR	NR	NR	NR	NR	NR	NR	52	127	4.7	3.7-5.6	60.0	0.4	239	8.7 (7.2-10.3)	
All cancers																										
M	27	11	13	23	27	67	68	97	142	267	428	686	967	1121	946	761	566	472	6689	353.2	344-362	95.0	42.2	3	539.4 (526-552)	
F	32.1	14.2	16.7	27.8	29.4	67.7	73.3	108.5	157.0	303.4	520.3	918.2	1440.9	2161	2570	2900	3067	3329	5250	274.1	266-282	94.0	30.6	4	398.4 (388-409)	
	15.1	10.9	10.9	20.5	39.0	58.9	111.3	194.2	281.4	413.9	609.2	730.7	1004.0	1232	1388	1579	1899	2129								

Appendix 3A. Cancer incidence, Western Australia, 2012

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 + u/k	Total	ASR	95% c.i.	TD% CumInc	Risk	ASR2										
Summary of most common cancer types 2012																																		
Prostate gland (C610-C619)																																		
M								<5	<5	12	54	115	265	374	463	344	241	142	94		2108	110.0	105-115	98.0	14.8	7	165.9 (159-173)							
								NR	NR	13.3	61.4	139.8	354.7	557.3	892.4	934.7	918.3	769.4	662.9															
Breast (C500-C509)																																		
M								<5	<5	NR	NR	NR	NR	NR	<5	NR				8	0.5	0.1-0.8	100.0	0.1	1567	0.6 (0.2-1.1)								
								NR	NR	NR	NR	NR	NR	NR	NR	NR																		
F								<5	NR	21	60	112	156	215	203	241	208	113	84	85	1608	89.7	85.2-94.2	99.0	10.2	10	122.9 (117-129)							
								NR	9.8	24.1	71.0	129.2	183.4	267.3	273.7	368.3	410.0	302.2	345.5	368.3														
Colorectal cancer (C18-C20, C218)																																		
M								<5	NR	8	6	16	20	47	56	81	107	104	83	70	647	32.8	30.2-35.4	97.0	4.0	25	53.0 (48.9-57.2)							
								NR	NR	8.6	6.7	17.7	22.7	57.1	75.0	120.7	206.2	282.6	316.3	379.3														
F								<5	NR	6	11	15	19	22	49	74	86	78	59	81	602	27.8	25.4-30.2	94.0	3.3	31	44.5 (40.9-48.1)							
								NR	7.1	6.9	13.0	17.3	22.3	27.4	66.1	113.1	169.5	208.6	203.9	355.2														
Skin (melanoma only) (C440-C449; M-8720 - 8774)																																		
M								<5	NR	16	16	31	32	55	64	104	94	100	66	41	696	37.7	34.8-40.6	100.0	4.4	23	56.1 (51.9-60.3)							
								NR	NR	16.2	17.2	17.9	34.3	36.4	66.9	85.7	155.0	181.2	271.7	251.5														
F								<5	NR	7	NR	15	28	35	57	54	49	38	35	36	453	25.0	22.6-27.4	100.0	2.7	38	35.1 (31.8-38.3)							
								NR	8.3	5.5	17.2	33.1	38.1	41.2	70.9	72.8	74.9	74.9	93.6	124.4														
Lung, bronchus & trachea (C330-C349)																																		
M								<5	NR	<5	NR	12.5	34.0	58.9	128.1	204.3	217.4	350.6	406.4	366.7	560	28.3	25.9-30.7	90.0	3.3	31	47.8 (43.8-51.7)							
								NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR														
F								<5	NR	<5	NR	11	25	37	57	74	71	64	45	59	451	20.9	18.9-23.0	86.0	2.6	39	33.8 (30.6-37.0)							
								NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR														
Lymphomas (all)																																		
M								<5	NR	5	5	7	8	14	11	21	22	29	30	33	309	17.1	15.1-19.0	99.0	1.9	53	25.4 (22.5-28.3)							
								NR	NR	6.0	5.4	7.1	8.6	15.7	12.2	23.9	26.7	38.8	44.7	63.6														
F								<5	NR	<5	NR	7	16	26	19	22	20	21	23	22	219	11.8	10.1-13.4	96.0	1.2	82	17.0 (14.7-19.3)							
								NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR														
Unknown primary site (C26, C39, C76, C80; Behaviour 6/9)																																		
M								<5	NR	<5	NR	5	7	10	14	19	16	31	19	30	156	7.3	6.1-8.5	71.0	0.7	149	13.5 (11.3-15.6)							
								NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR														
F								<5	NR	<5	NR	5	7	9	8	11	11	11	16	52	127	4.7	3.7-5.6	60.0	0.4	239	8.7 (7.2-10.3)							
								NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR														
All cancers																																		
M								<5	NR	27	11	13	23	27	67	68	97	142	267	428	686	967	1121	946	761	566	472	6689	353.2	344-362	95.0	42.2	3	539.4 (526-552)
								NR	NR	32.1	14.2	16.7	27.8	29.4	67.7	73.3	108.5	157.0	303.4	520.3	918.2	1440.9	2161	2570	2900	3067	3329							
F								<5	NR	12	8	16	33	54	97	164	244	352	490	542	657	625	519	457	433	539	5250	274.1	266-282	94.0	30.6	4	398.4 (388-409)	
								NR	NR	15.1	10.9	10.9	20.5	39.0	58.9	111.3	194.2	281.4	413.9	609.2	730.7	1004.0	1232	1388	1579	1899	2129							

Appendix 3B. Cancer mortality, Western Australia, 2012

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	ASR	95% c.i.	PYLL	CumInc	Risk	ASR2	
Lip, gum & mouth (C000-C069) (not C01 C02)																										
M							1	1.1			1	2	4	1		2	7.6		3	14	0.7	0.3-1.1	142.0	0.1	1551	1.1 (0.5-1.7)
F									<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	6	0.3	0.0-0.6	95.2	0.0	3974	0.5 (0.1-0.8)
Tongue (C010-C029)																										
M									<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	11	0.6	0.2-0.9	104.7	0.1	1856	0.9 (0.4-1.5)
F									<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	9	0.4	0.1-0.7	85.8	0.0	2231	0.6 (0.2-1.1)
Parotid gland (C070-C079)																										
M									<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	0.2	0-0.4	25.7	0.0	3511	0.3 (0.0-0.6)
F																				0						
Major salivary glands (not parotid) (C080-C089)																										
M																				0						
F																				0						
Pharynx (C090-C149) (not C11)																										
M									<5	<5	<5	5	5	7		<5	<5	<5	<5	26	1.5	0.9-2.0	327.9	0.2	576	1.9 (1.2-2.7)
F									<5	<5	<5	6.7	7.5	13.5		<5	<5	<5	<5	<5	0.1	0-0.3	4.8	0.0	3740	0.3 (0-0.6)
Nasopharynx (C110-C119)																										
M									<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	0.1	0-0.3	9.4	0.0	4307	0.2 (0-0.4)
F																				0						
Oesophagus (C150-C159)																										
M									<5	<5	<5	8	17	11	9	11	10	5	5	75	3.7	2.8-4.5	510.7	0.4	232	6.0 (4.6-7.4)
F									<5	<5	<5	10.7	25.3	21.2	24.5	41.9	54.2	35.3	<5	16	0.6	0.3-1.0	97.7	0.1	1762	1.2 (0.6-1.8)
Stomach (C160-C169)																										
M									<5	<5	<5	6	9	15	14	12	17	15	15	99	4.7	3.7-5.7	642.1	0.5	198	8.4 (6.7-10.1)
F									<5	<5	<5	8.0	13.4	28.9	38.0	45.7	92.1	105.8	<5	43	1.7	1.1-2.2	286.3	0.1	678	3.1 (2.2-4.1)
Small intestine (C170-C179)																										
M									<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	11	0.6	0.3-1.0	181.3	0.1	1467	0.8 (0.3-1.3)
F									<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	11	0.5	0.2-0.8	114.2	0.0	2548	0.8 (0.3-1.3)

Appendix 3B. Cancer mortality, Western Australia, 2012

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	ASR	95% c.i.	PYLL	CumInc	Risk	ASR2
Lung, bronchus & trachea (C330-C349)																									
M	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	20.2-24.3	2566.5	2.4	43	41.4 (37.7-45.1)
F	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	14.1-17.6	2026.5	2.0	51	27.5 (24.6-30.3)
Thymus (C370-C379)																									
M	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	0.2	0-0.3	14.1	0.0	5189	0.2 (0-0.5)
F	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	0	-	-	-	-	-
Pleura, heart & mediastinum (C380-C389)																									
M	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	0.3	0.0-0.6	84.6	0.0	2912	0.5 (0.1-0.9)
F	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	0	-	-	-	-	-
Bones, joints & articular cartilages (C400-C419)																									
M	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	0.3	0.0-0.6	120.6	0.0	5177	0.4 (0.0-0.8)
F	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	0	-	-	-	-	-
Skin (melanoma only) (C430-C439)																									
M	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	5.5	4.5-6.6	1117.7	0.6	170	9.1 (7.4-10.8)
F	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	1.6	1.1-2.2	284.6	0.2	580	2.9 (1.9-3.8)
Skin (non-melanoma; includes SCC-BCC) (C440-C449)																									
M	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	2.7	2.0-3.4	187.4	0.3	352	5.6 (4.2-7.0)
F	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	0.5	0.2-0.7	21.5	0.0	2987	1.1 (0.6-1.7)
Mesothelioma (M805; ICD10 C45)																									
M	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	2.7	2.0-3.4	254.6	0.3	314	5.2 (3.8-6.5)
F	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	0.6	0.3-1.0	126.2	0.1	1424	0.9 (0.4-1.4)
Kaposi sarcoma (M814; ICD10 C46)																									
M	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	0	-	-	-	-	-
F	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	0	-	-	-	-	-
Nervous system, peripheral/autonomic (C470-C479)																									
M	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	0.0	0-0.1	0.0	0.0	*	0.1 (0-0.3)
F	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	0.1	0-0.2	21.4	0.0	*	0.1 (0-0.2)

Appendix 3B. Cancer mortality, Western Australia, 2012

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	ASR	95% c.i.	PYLL	CumInc	Risk	ASR2	
Retropitoneum and peritoneum (C480-C489)																										
M																				<5	0.1	0 - 0.2	0.0	0.0	*	0.2 (0 - 0.5)
F																				7	0.3	0.1-0.5	16.7	0.0	3023	0.5 (0.1-0.9)
Connective, subcutaneous & other soft tissues (C490-C499)																										
M																				7	0.3	0.1-0.5	30.3	0.0	3852	0.6 (0.1-1.0)
F																				<5	0.2	0 - 0.4	69.2	0.0	5057	0.3 (0.0-0.6)
Breast (C500-C509)																										
M																				<5	0.0	0 - 0.1	0.0	0.0	*	0.1 (0 - 0.3)
F																				285	13.1	11.5-14.8	2613.6	1.4	70	21.0 (18.5-23.4)
Vulva (C510-C519)																										
F																				15	0.5	0.2-0.8	42.9	0.0	2826	1.2 (0.6-1.7)
Vagina (C520-C529)																										
F																				<5	0.1	0 - 0.3	23.8	0.0	6544	0.2 (0 - 0.4)
Cervix uteri (C530-C539)																										
F																				14	0.8	0.3-1.2	236.7	0.1	1302	1.0 (0.5-1.6)
Corpus uteri (C540-C549)																										
F																				40	1.8	1.2-2.4	284.0	0.2	510	2.9 (2.0-3.8)
Uterus, nos (C550-C559)																										
F																				0					-	
Ovary (C560-C569)																										
F																				80	3.6	2.8-4.5	539.4	0.4	229	6.0 (4.7-7.3)
Uterine adnexa & oth. fem gen. (C570-C579)																										
F																				6	0.3	0.0-0.5	35.7	0.0	3857	0.5 (0.1-0.9)
Placenta (C580-C589)																										
F																				0					-	
Penis (C600-C609)																										
M																				<5	0.1	0 - 0.2	7.0	0.0	*	0.1 (0 - 0.2)
Prostate gland (C610-C619)																										
M																				230	9.1	7.9-10.3	501.7	0.6	166	20.8 (18.1-23.5)
Testis (C620-C629)																										
M																				<5	0.2	0 - 0.5	94.5	0.0	9527	0.2 (0 - 0.5)

Appendix 3B. Cancer mortality, Western Australia, 2012

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	ASR	95% c.i.	PYLL	CumInc	Risk	ASR2	
Other male genital (C630-C639)	0																									
M																										
Kidney (C640-C649)																										
M																				54	2.6	1.9-3.3	390.9	0.3	383	4.6 (3.4-5.9)
F																				18	0.7	0.3-1.0	105.0	0.0	2062	1.4 (0.7-2.0)
Bladder & urinary tract (C650-C689)																										
M																				70	2.8	2.1-3.5	151.8	0.2	511	6.4 (4.9-7.9)
F																				34	1.1	0.7-1.5	117.0	0.1	1221	2.3 (1.5-3.1)
Eye & lacrimal gland (C690-C699)																										
M																				5	0.2	0.0-0.4	11.8	0.0	2717	0.4 (0.1-0.8)
F																				<5	0.2	0 - 0.4	45.3	0.0	3735	0.3 (0.0-0.6)
Meninges (cerebral & spinal) (C700-C709)																										
M																				0						
F																				5	0.2	0.0-0.5	26.2	0.0	3656	0.3 (0.0-0.7)
Brain (C710-C719)																										
M																				77	4.2	3.2-5.2	967.2	0.5	210	6.1 (4.7-7.4)
F																				52	2.8	2.0-3.6	617.3	0.3	326	3.9 (2.9-5.0)
Spinal cord & cranial nerves (C720-C729)																										
M																				0						
F																				0						
Thyroid gland (C730-C739)																										
M																				9	0.4	0.1-0.7	60.6	0.1	1651	0.8 (0.3-1.3)
F																				<5	0.1	0 - 0.3	14.3	0.0	5074	0.2 (0 - 0.4)
Adrenal gland (C740-C749)																										
M																				<5	0.2	0 - 0.4	86.6	0.0	5740	0.2 (0 - 0.5)
F																				0						
Endocrine glands (not adrenal) (C750-C759)																										
M																				<5	0.1	0 - 0.2	25.5	0.0	*	0.1 (0 - 0.2)
F																				0						

Appendix 3B. Cancer mortality, Western Australia, 2012

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	ASR	95% c.i.	PYLL	CumInc	Risk	ASR2	
LYMPHOMAS																										
Lymphoma, NOS / unclassifiable																										
M																				<5	0.1	0.0-0.3	0.0	0.0	*	0.4 (0.0-0.8)
F																				<5	0.0	0 - 0.1	0.0	0.0	*	0.1 (0 - 0.3)
Hodgkin lymphoma																										
M								<5												5	0.2	0.0-0.4	58.3	0.0	4562	0.4 (0.0-0.8)
F																				<5	0.2	0 - 0.4	72.1	0.0	7598	0.2 (0 - 0.5)
All NHL																										
M																				90	4.3	3.4-5.2	570.0	0.5	207	7.8 (6.2-9.4)
F																				57	2.0	1.4-2.6	212.2	0.2	566	4.1 (3.0-5.2)
NHL, mature B cell																										
M																				67	3.2	2.4-4.0	448.1	0.4	277	5.8 (4.4-7.2)
F																				47	1.7	1.1-2.2	171.7	0.2	654	3.4 (2.4-4.4)
NHL, mature T/NK cell																										
M																				12	0.6	0.3-1.0	107.5	0.1	1416	1.0 (0.4-1.6)
F																				<5	0.1	0 - 0.2	21.4	0.0	*	0.2 (0 - 0.5)
NHL, precursor cell lymphoblastic																										
M																				<5	0.1	0 - 0.2	7.0	0.0	*	0.1 (0 - 0.2)
F																				0					-	
NHL, other/unclassifiable																										
M																				10	0.4	0.1-0.7	7.2	0.0	2454	1.0 (0.4-1.5)
F																				7	0.3	0.1-0.5	19.1	0.0	5716	0.5 (0.1-0.9)
Lymphomas (all)																										
M																				99	4.6	3.7-5.6	628.4	0.5	198	8.6 (6.9-10.3)
F																				62	2.3	1.6-2.9	284.4	0.2	527	4.5 (3.3-5.6)
MYELOMA																										
Myeloma/plasma cell tumours																										
M																				44	1.9	1.3-2.5	209.8	0.2	543	3.8 (2.7-4.9)
F																				46	1.8	1.2-2.4	257.4	0.2	583	3.3 (2.3-4.3)

Appendix 3B. Cancer mortality, Western Australia, 2012

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	ASR	95% c.i.	PYLL	CumInc	Risk	ASR2	
LEUKAEMIAS																										
Leukaemias, NOS/unclassifiable																										
M																										
F																										
Leukaemias, lymphoid, all																										
M																										
F																										
Leukaemias, lymphoid, acute																										
M																										
F																										
Leukaemias, lymphoid, chronic																										
M																										
F																										
Leukaemias, lymphoid, other/NOS																										
M																										
F																										
Leukaemias, myeloid, all																										
M																										
F																										
Leukaemias, myeloid, acute																										
M																										
F																										
Leukaemias, myeloid, chronic																										
M																										
F																										
Leukaemias, myeloid, other/NOS																										
M																										
F																										

Appendix 3B. Cancer mortality, Western Australia, 2012

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	ASR	95% c.i.	PYLL	CumInc	Risk	ASR2		
Leukaemias, other																											
M																				0							
F																				0							
Leukaemias (all)																											
M																				54	2.5	1.8-3.3	392.7	0.2	450	4.7 (3.4-5.9)	
F																				54	2.5	1.7-3.3	526.9	0.2	437	4.0 (2.9-5.1)	
MYELODYSPLASTIC DISEASES																											
Refractory anaemias/cytopaenias																											
M																				19	0.9	0.5-1.3	77.2	0.1	885	1.6 (0.9-2.3)	
F																				8	0.3	0.1-0.5	31.0	0.0	3397	0.6 (0.2-1.0)	
Myelodysplastic syndromes																											
M																				17	0.7	0.3-1.0	53.6	0.0	2034	1.5 (0.8-2.3)	
F																				15	0.5	0.2-0.7	69.1	0.0	5185	1.0 (0.5-1.5)	
Myelodysplastic diseases, all																											
M																				36	1.6	1.0-2.1	130.8	0.2	617	3.1 (2.1-4.2)	
F																				23	0.8	0.4-1.1	100.1	0.0	2053	1.6 (0.9-2.3)	
CHRONIC MYELOPROLIFERATIVE DISEASES																											
Chronic myeloproliferative disorder, NOS																											
M																				<5	0.1	0-0.2	11.6	0.0	*	0.1 (0-0.2)	
F																				0							
Polycythaemia rubra vera																											
M																				<5	0.1	0-0.2	7.0	0.0	*	0.2 (0-0.4)	
F																				0							
Myelofibrosis/sclerosis																											
M																				NR	0.2	0.0-0.4	23.3	0.0	6124	0.4 (0.0-0.8)	
F																				7	0.3	0.1-0.5	14.4	0.0	2002	0.5 (0.1-0.9)	
Other chronic myeloproliferative d/o																											
M																				<5	0.1	0-0.3	4.8	0.0	3681	0.3 (0-0.6)	
F																				5	0.2	0.0-0.4	23.8	0.0	6544	0.3 (0.0-0.6)	

Appendix 3B. Cancer mortality, Western Australia, 2012

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	ASR	95% c.i.	PYLL	CumInc	Risk	ASR2		
Chronic myeloproliferative d/o, all																											
M																				11	0.5	0.2-0.8	46.7	0.1	1651	0.9 (0.4-1.5)	
F																				12	0.5	0.2-0.8	38.2	0.1	1533	0.8 (0.4-1.3)	
OTHER CHRONIC IMMUNOPROLIFERATIVE DISEASES																											
Mast cell tumours																											
M																				0							
F																				0							
Histiocytic/dendritic cell malignancies																											
M																				<5	0.0	0-0.1	0.0	0.0	*	0.1 (0-0.3)	
F																				<5	0.0	0-0.1	0.0	0.0	*	0.1 (0-0.3)	
Other & U/S immunoproliferative neoplasms																											
M																				<5	0.0	0-0.1	0.0	0.0	*	0.1 (0-0.3)	
F																				0							
Other chronic immunoproliferative d/o, all																											
M																				<5	0.1	0-0.2	0.0	0.0	*	0.2 (0-0.5)	
F																				<5	0.0	0-0.1	0.0	0.0	*	0.1 (0-0.3)	
Unknown primary site (C80 or Behaviour 6/9)																											
M																											
F																				98	4.3	3.4-5.2	383.9	0.4	258	8.6 (6.9-10.3)	
Total deaths due to cancer																											
M																											
F																				85	2.7	2.1-3.4	288.5	0.2	485	5.7 (4.4-6.9)	
Total deaths due to cancer																											
M																				2273	105.4	101-110	14132.9	10.8	10	194.0 (186-202)	
F																				1729	72.7	68.9-76.5	11373.0	7.7	13	126.8 (121-133)	

Appendix 3. Childhood cancer, Western Australia, 2012 (WHO International Classification, version 3)

	Males										Females										All									
	Age Group			Total	ASR	95%c.i.	TD%	Age Group			Total	ASR	95%c.i.	TD%	Age Group			Total	ASR	95%c.i.	TD%									
	0	1-4	5-9					10-14	0	1-4					5-9	10-14	0					1-4	5-9	10-14						
I. LEUKAEMIAS, MYELOPROLIFERATIVE AND MYELODYSPLASTIC DISEASES																														
All	<5	7	<5	<5	15	6.5	3.2-9.8	100	<5	<5	<5	9	3.9	1.4-6.5	100	<5	9	<5	7	24	5.2	3.1-7.4	100							
	NR	10.5	NR	NR					NR	NR	NR					NR	7.0	NR	4.6											
Lymphoid leukaemia	<5	6	<5	<5	10	4.4	1.6-7.1	100	<5	<5	<5	8	3.5	1.1-5.9	100	<5	8	<5	6	18	3.9	2.1-5.8	100							
	NR	9.0	NR	NR					NR	NR	NR					NR	6.2	NR	4.0											
Acute myeloid leukaemia	<5	<5	<5	<5	NR		0.3-4.0	100	<5	<5	<5	<5	<5	0 - 1.3	100	<5	<5	<5	<5	6	1.3	0.3-2.4	100							
	NR	NR	NR	NR					NR	NR	NR					NR	NR	NR	NR											
Chronic MPDs					0							0																		
MDS & other MPDs					0							0																		
Unspecified/other leukaemia					0							0																		
II. LYMPHOMAS																														
All	<5		<5	<5	<5		0 - 2.0	100	<5	<5	<5	<5	<5	0 - 2.0	100	<5	<5	<5	<5	<5	<5	<5	0.0-1.7	100						
	NR		NR	NR					NR	NR	NR					NR	NR	NR	NR											
Hodgkin lymphoma					0				<5	<5	<5	<5	<5	0 - 1.3	100	<5	<5	<5	<5	<5	<5	<5	<5	0 - 0.6	100					
									NR	NR	NR					NR	NR	NR	NR											
Non-Hodgkin lymphoma exc Burkitt	<5		<5	<5	<5		0 - 2.0	100	<5	<5	<5	<5	<5	0 - 1.2	100	<5	<5	<5	<5	<5	<5	<5	<5	0 - 1.3	100					
	NR		NR	NR					NR	NR	NR					NR	NR	NR	NR											
Burkitt lymphoma					0							0																		
Misc. lymphoreticular neoplasms					0							0																		
Unspecified lymphoma					0							0																		
III. CNS AND INTRACRANIAL/SPINAL																														
All	NR	<5	5	13	5.4	2.5-8.4	62	<5	5	<5	8	3.5	1.1-6.0	63	<5	NR	8	8	6	21	4.5	2.6-6.4	62							
	NR	NR	6.4					NR	6.8	NR					NR	NR	5.3	NR	4.0											
Ependymoma/choroid plexus	<5		<5	<5	<5		0 - 1.4	100	<5	<5	0				<5	<5	<5	<5	<5	<5	<5	<5	0 - 0.7	100						
	NR		NR						NR	NR					NR	NR	NR	NR	NR											
Astrocytoma	<5	<5	<5	<5	<5		0 - 2.5	100	<5	<5	<5	<5	<5	0.0-3.5	50	<5	5	5	<5	<5	<5	<5	<5	0.4-2.5	71					
	NR	NR	NR						NR	NR						3.3	NR	NR	NR											
Embryonal tumours	<5	<5	<5	<5	<5		0.0-3.7	100	<5	<5	<5	<5	<5	0 - 2.8	100	<5	<5	<5	<5	<5	<5	<5	<5	0.4-2.8	100					
	NR	NR	NR						NR	NR						NR	NR	NR	NR											
Other gliomas	<5	<5	<5	5	2.0	0.2-3.7			<5	<5	<5	<5	<5	0 - 1.3		<5	<5	<5	<5	<5	<5	<5	<5	0.2-2.2	0					
	NR	NR	NR						NR	NR						NR	NR	NR	NR											
Other intracranial/spinal					0							0																		
Unspecified					0							0																		

Appendix 3. Childhood cancer, Western Australia, 2012 (WHO International Classification, version 3)

	All															
	Males					Females										
	Age Group 0	1-4	5-9	10-14	Total	ASR	95% <i>c.i.</i>	TD%	Age Group 0	1-4	5-9	10-14	Total	ASR	95% <i>c.i.</i>	TD%
IV. NEUROBLASTOMA & PERIPHERAL NERVOUS SYSTEM TUMOURS																
All	<5	<5	<5	6	2.7	0.5-4.8	100	<5	<5	NR	<5	<5	7	2.3	0.9-3.8	100
Neuroblastoma/ganglioneurobl.	<5	<5	<5	6	2.7	0.5-4.8	100	4	4	2.0	0.0-3.9	100	<5	2.3	0.9-3.8	100
Other	NR	NR	NR	0	0			6.4	0				NR	0		
V. RETINOBLASTOMA																
All	<5	<5	<5	<5	<5	0 - 2.2	100	<5	<5	NR	<5	<5	<5	<5	0 - 1.5	100
VI. RENAL TUMOURS																
All	<5	<5	<5	<5	<5	<5	100	<5	<5	NR	<5	<5	<5	6	1.3	0.3-2.4
Nephroblastoma/oth non-epithel.	<5	<5	<5	<5	<5	0 - 2.9	100	<5	2	0.9	0 - 2.2	100	<5	1.2	0.1-2.2	100
Renal carcinoma	NR	NR	NR	0	0			NR	<5	NR	0 - 1.2	100	<5	<5	0 - 0.6	100
Unspecified	NR	NR	NR	0	0			NR	0				NR	0		
VII. HEPATIC TUMOURS																
All	<5	<5	<5	<5	<5	0 - 1.4	100	<5	0	0	0 - 1.4	100	<5	<5	0 - 0.7	100
Hepatoblastoma	NR	NR	NR	<5	<5	0 - 1.4	100	NR	0	0	0 - 1.4	100	<5	<5	0 - 0.7	100
Hepatic carcinoma	NR	NR	NR	0	0			NR	0	0			NR	0		
Unspecified	NR	NR	NR	0	0			NR	0	0			NR	0		
VIII. BONE																
All	<5	<5	<5	<5	<5				0	0			<5	0		
Osteosarcoma	NR	NR	NR	0	0				0	0			NR	0		
Chondrosarcoma	NR	NR	NR	0	0				0	0			NR	0		
Ewing & related sarcoma	NR	NR	NR	0	0				0	0			NR	0		
Other specified	NR	NR	NR	0	0				0	0			NR	0		
Unspecified	NR	NR	NR	0	0				0	0			NR	0		

Appendix 3. Childhood cancer, Western Australia, 2012 (WHO International Classification, version 3)

	Males			Females			All							
	Age Group			Age Group			Age Group							
	0	1-4	5-9 10-14	0	1-4	5-9 10-14	0	1-4	5-9 10-14	Total	ASR	95%c.i.	TD%	
IX. SOFT TISSUE SARCOMA														
All	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	7	1.5	0.4-2.6	100
	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR				
Rhabdomyosarcoma	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5		0.0-1.7	100
	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR				
Fibrosarcoma/Neurofibrosarc.	0	0	0	<5	<5	<5	<5	<5	<5	<5	<5		0 - 0.6	100
				NR	NR	NR	NR	NR	NR	NR	0			
Kaposi sarcoma	0	0	0	0	0	0	0	0	0	0	0			
Other specified	<5	<5	<5	0	0	0	<5	<5	<5	<5	<5		0 - 0.6	100
	NR	NR	NR				NR	NR	NR	NR				
Unspecified	0	0	0	<5	<5	<5	<5	<5	<5	<5	<5		0 - 0.7	100
				NR	NR	NR	NR	NR	NR	NR				
X. GONADAL AND GERM CELL														
All	<5	<5	<5	0	0	0	0	0	<5	<5	<5		0 - 0.6	100
	NR	NR	NR						NR	NR				
Intracranial/spinal	<5	<5	<5	0	0	0	0	0	<5	<5	<5		0 - 0.6	100
	NR	NR	NR						NR	NR				
Other/unspecified non-gonadal	0	0	0	0	0	0	0	0	0	0	0			
Gonadal germ cell	0	0	0	0	0	0	0	0	0	0	0			
Gonadal carcinoma	0	0	0	0	0	0	0	0	0	0	0			
Other and unspecified	0	0	0	0	0	0	0	0	0	0	0			
XI. OTHER EPITHELIAL / MELANOMA														
All	<5	<5	NR	NR	NR	<5	<5	<5	<5	<5	6	1.2	0.2-2.2	100
	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR				
Adrenocortical carcinoma	0	0	0	0	0	0	0	0	0	0	0			
Thyroid carcinoma	<5	<5	<5	0	0	0	0	0	<5	<5	<5		0 - 0.6	100
	NR	NR	NR						NR	NR				
Nasopharyngeal carcinoma	0	0	0	0	0	0	0	0	0	0	0			
Malignant melanoma	<5	<5	<5	0	0	0	0	0	<5	<5	<5		0 - 0.7	100
	NR	NR	NR						NR	NR				
Skin carcinomas	0	0	0	0	0	0	0	0	0	0	0			
Other/unspecified carcinoma	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5		0.0-1.6	100
	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR				

Appendix 3. Childhood cancer, Western Australia, 2012 (WHO International Classification, version 3)

XII. OTHER	Males										Females										All											
	Age Group			Total	ASR	95% <i>c.i.</i>	TD%	Age Group			Total	ASR	95% <i>c.i.</i>	TD%	Age Group			Total	ASR	95% <i>c.i.</i>	TD%											
	0	1-4	5-9					10-14	0	1-4					5-9	10-14	0					1-4	5-9	10-14								
All	<5	NR	<5	0	<5	0 - 1.2	0	0	0	0	0	<5	NR	<5	NR	<5	0 - 0.6	0	<5	NR	<5	NR	<5	0 - 0.6	0							
Other specified malignancy			0	0															0							0						
Other unspecified malignancy			<5	NR	<5	0 - 1.2	0					<5	NR	<5	NR	<5	0 - 0.6	0	<5	NR	<5	NR	<5	0 - 0.6	0							
Total	7	20	12	14	53	22.6	16.5-28.7	89	2	10	11	8	31	13.9	9.0-18.8	90	9	30	23	22	84	18.4	14.4-22.3	89	39.4	30.1	15.5	18.0	26.0	23.2	15.3	14.6

Appendix 3D. Cancer incidence, Western Australia, 2012: Leading types by sex and geographic area

CHS Kimberley Region

Males						Females					
	Cases	%	ASR	95%c.i.	Risk		Cases	%	ASR	95%c.i.	Risk
Prostate	15	22.4	67.8	33.1-103	12	Breast	14	28.6	72.1	33.1-111	12
Lung	8	11.9	35.4	10.5-60.2	24	Melanoma (skin)	8	16.3	38.9	11.0-66.8	22
Colorectal	5	7.5	20.2	2.0-38.4	34	Uterus	6	12.2	35.4	6.1-64.7	18
Colon	<5	NR	NR	0 - 23.7	80	Cervix	<5	NR	NR	0 - 24.2	116
Rectum	<5	NR	NR	0 - 22.2	58	Kidney	<5	NR	NR	0 - 37.2	72
Melanoma (skin)	<5	NR	NR	0.3-27.3	78	Pancreas	<5	NR	NR	0 - 25.7	271
Leukaemia	<5	NR	NR	0.4-42.2	49	Lung	<5	NR	NR	0 - 22.7	85
Leukaemia NOS	0					Leukaemia	<5	NR	NR	0 - 22.0	104
Lymphoid leukaemia	<5	NR	NR	0 - 26.9	88	Leukaemia NOS	0				
Myeloid leukaemia	<5	NR	NR	0 - 24.0	112	Lymphoid leukaemia	<5	NR	NR	0 - 14.1	169
Leukaemia, other	0					Myeloid leukaemia	<5	NR	NR	0 - 13.2	271
Lip, gum & mouth	<5	NR	NR	0 - 28.3	67	Leukaemia, other	0				
Liver	<5	NR	NR	0 - 27.7	47	Myeloma	<5	NR	NR	0 - 17.8	146
Pancreas	<5	NR	NR	0 - 30.8	45						
All cancers	67	100.0	297.9	226-370	3	All cancers	49	100.0	246.5	175-318	4

CHS Pilbara Region

Males						Females					
	Cases	%	ASR	95%c.i.	Risk		Cases	%	ASR	95%c.i.	Risk
Prostate	18	27.3	62.5	31.4-93.6	14	Breast	8	19.5	25.2	7.7-42.8	42
Melanoma (skin)	7	10.6	21.1	2.9-39.2	34	Colorectal	6	14.6	27.2	3.4-51.1	33
Lymphoma	5	7.6	9.8	1.2-18.4	113	Colon	<5	9.8	14.1	0 - 29.6	69
Lymphoma NOS	0					Rectum	<5	NR	NR	0 - 31.3	62
Hodgkin lymphoma	<5	NR	NR	0 - 5.3	669	Melanoma (skin)	5	12.2	14.5	1.7-27.4	87
NHL	<5	NR	NR	0.1-15.8	136	Lymphoma	<5	NR	NR	0.1-25.6	75
Colorectal	<5	NR	NR	0 - 33.1	118	Lymphoma NOS	0				
Colon	<5	NR	NR	0 - 33.1	118	Hodgkin lymphoma	0				
Rectum	0					NHL	<5	NR	NR	0.1-25.6	75
Lung	<5	NR	NR	0.0-28.1	57	Thyroid gland	<5	NR	NR	0 - 21.3	96
Kidney	<5	NR	NR	0.2-17.4	117	Lung	<5	NR	NR	0 - 31.4	52
Unknown primary	<5	NR	NR	0 - 30.5	128	Cervix	<5	NR	NR	0 - 16.2	209
Lip, gum & mouth	<5	NR	NR	0 - 12.4	207	Uterus	<5	NR	NR	0 - 25.2	78
						Brain	<5	NR	NR	0 - 14.5	224
All cancers	66	100.0	207.6	151-264	5	All cancers	41	100.0	157.1	105-209	6

CHS Midwest Region

Males						Females					
	Cases	%	ASR	95%c.i.	Risk		Cases	%	ASR	95%c.i.	Risk
Prostate	47	21.8	76.6	54.2-99.0	10	Breast	50	35.2	106.2	76.3-136	7
Colorectal	25	11.6	44.1	26.5-61.8	15	Colorectal	18	12.7	33.4	17.4-49.4	25
Colon	13	6.0	21.7	9.6-33.7	32	Colon	14	9.9	25.7	11.7-39.8	33
Rectum	12	5.6	22.5	9.6-35.4	29	Rectum	<5	NR	NR	0 - 15.5	93
Lung	25	11.6	40.5	24.3-56.7	22	Lung	13	9.2	26.6	11.6-41.5	38
Melanoma (skin)	21	9.7	41.0	22.8-59.2	24	Melanoma (skin)	9	6.3	21.3	6.8-35.8	49
Leukaemia	12	5.6	28.3	10.7-45.9	41	Lymphoma	6	4.2	14.5	2.2-26.9	68
Leukaemia NOS	0					Lymphoma NOS	<5	NR	NR		
Lymphoid leukaemia	5	2.3	14.4	0.1-28.7	168	Hodgkin lymphoma	<5	NR	NR	0 - 12.5	476
Myeloid leukaemia	7	3.2	13.9	3.5-24.3	54	NHL	5	3.5	10.3	1.1-19.5	80
Leukaemia, other	0					Pancreas	5	3.5	6.7	0.4-12.9	347
Bladder & urinary tract	10	4.6	16.7	6.0-27.4	60	Thyroid gland	5	3.5	11.0	1.2-20.8	109
Lip, gum & mouth	9	4.2	15.5	5.0-25.9	52	Liver	<5	NR	NR	0 - 15.2	86
Unknown primary	7	3.2	12.1	2.8-21.4	82	Ovary	<5	NR	NR	0 - 16.4	104
All cancers	216	100.0	384.8	331-438	3	All cancers	142	100.0	290.4	241-340	3

Appendix 3D. Cancer incidence, Western Australia, 2012: Leading types by sex and geographic area

CHS Wheatbelt Region

Males						Females					
	Cases	%	ASR	95%c.i.	Risk		Cases	%	ASR	95%c.i.	Risk
Prostate	88	29.1	110.4	87.0-134	7	Breast	59	29.8	92.9	68.0-118	10
Colorectal	40	13.2	46.0	31.1-60.8	18	Colorectal	25	12.6	31.5	18.2-44.8	29
Colon	30	9.9	33.6	21.1-46.1	25	Colon	16	8.1	19.1	8.8-29.3	46
Rectum	10	3.3	12.4	4.3-20.4	62	Rectum	9	4.5	12.4	3.9-20.9	76
Lung	35	11.6	38.5	25.4-51.5	24	Lung	18	9.1	19.7	10.1-29.3	43
Melanoma (skin)	20	6.6	24.5	13.3-35.7	35	Melanoma (skin)	18	9.1	26.6	13.6-39.6	35
Lymphoma	13	4.3	17.4	6.4-28.5	79	Uterus	10	5.1	13.5	4.5-22.6	58
Lymphoma NOS	<5	NR	NR	0 - 14.7	249	Lymphoma	8	4.0	10.3	2.6-18.1	89
Hodgkin lymphoma	<5	NR	NR	0 - 4.1	584	Lymphoma NOS	0				
NHL	9	3.0	9.7	2.9-16.5	144	Hodgkin lymphoma	0				
Kidney	10	3.3	13.6	5.0-22.1	58	NHL	8	4.0	10.3	2.6-18.1	89
Stomach	9	3.0	12.3	3.9-20.7	74	Leukaemia	7	3.5	13.9	2.1-25.7	108
Pancreas	8	2.6	9.6	2.9-16.4	60	Leukaemia NOS	<5	NR	NR		
Bladder & urinary tract	8	2.6	9.1	2.6-15.6	93	Lymphoid leukaemia	5	2.5	10.2	0 - 20.7	178
Leukaemia	8	2.6	10.0	3.0-17.0	65	Myeloid leukaemia	<5	NR	NR	0 - 9.0	271
Lymphoid leukaemia	6	2.0	7.4	1.4-13.4	93	Leukaemia, other	0				
Myeloid leukaemia	<5	NR	NR	0 - 6.2	212						
All cancers	302	100.0	371.5	328-415	3	All cancers	198	100.0	294.9	250-340	4

CHS Goldfields Region

Males						Females					
	Cases	%	ASR	95%c.i.	Risk		Cases	%	ASR	95%c.i.	Risk
Prostate	37	25.9	105.9	71.5-140	8	Breast	26	27.7	85.8	52.5-119	10
Lung	28	19.6	81.2	50.9-112	11	Colorectal	13	13.8	40.7	17.8-63.5	25
Colorectal	13	9.1	38.4	17.4-59.4	21	Colon	NR	NR	NR	15.8-60.3	25
Colon	8	5.6	24.2	7.3-41.1	33	Rectum	<5	NR	NR	0 - 7.8	*
Rectum	5	3.5	14.1	1.6-26.6	54	Melanoma (skin)	10	10.6	33.3	12.4-54.1	28
Melanoma (skin)	11	7.7	33.1	13.3-52.9	30	Lung	7	7.4	23.5	5.5-41.4	37
Leukaemia	7	4.9	19.7	5.0-34.3	61	Ovary	5	5.3	14.9	1.4-28.4	61
Leukaemia NOS	NR	NR	NR			Leukaemia	5	5.3	16.9	0.8-33.1	83
Lymphoid leukaemia	<5	NR	NR	0 - 10.1	177	Leukaemia NOS	0				
Myeloid leukaemia	6	4.2	16.3	3.2-29.3	93	Lymphoid leukaemia	<5	NR	NR	0 - 24.8	190
Leukaemia, other	0					Myeloid leukaemia	<5	NR	NR	0 - 14.4	146
Stomach	5	3.5	14.9	1.7-28.0	47	Leukaemia, other	0				
Pancreas	<5	NR	NR	0.1-24.2	168	Cervix	<5	NR	NR	0 - 21.4	66
Lymphoma	<5	NR	NR	0.2-24.7	42	Thyroid gland	<5	NR	NR	0 - 21.6	89
NHL	<5	NR	NR	0.2-24.7	42						
Myeloma	<5	NR	NR	0.1-23.8	46						
All cancers	143	100.0	415.2	347-483	3	All cancers	94	100.0	308.7	245-373	3

CHS Great Southern Region

Males						Females					
	Cases	%	ASR	95%c.i.	Risk		Cases	%	ASR	95%c.i.	Risk
Prostate	87	37.2	131.6	103-160	6	Breast	54	30.2	98.4	70.9-126	9
Colorectal	23	9.8	37.1	21.3-53.0	20	Colorectal	24	13.4	38.9	21.1-56.8	25
Colon	13	5.6	19.1	8.3-29.9	37	Colon	18	10.1	29.9	13.8-46.1	35
Rectum	10	4.3	18.0	6.4-29.7	42	Rectum	6	3.4	9.0	1.5-16.6	79
Melanoma (skin)	16	6.8	26.2	12.0-40.4	30	Lung	17	9.5	25.9	12.8-39.1	29
Lung	15	6.4	19.4	9.2-29.7	72	Melanoma (skin)	11	6.1	19.3	7.5-31.0	44
Bladder & urinary tract	11	4.7	14.0	5.5-22.5	77	Lymphoma	8	4.5	14.9	4.0-25.9	68
Lymphoma	9	3.8	13.6	4.5-22.8	44	Lymphoma NOS	<5	NR	NR		
Lymphoma NOS	<5	NR	NR			Hodgkin lymphoma	<5	NR	NR	0 - 6.4	465
Hodgkin lymphoma	<5	NR	NR	0 - 2.3	*	NHL	7	3.9	12.8	2.7-22.9	79
NHL	8	3.4	12.9	3.9-21.8	44	Leukaemia	8	4.5	15.4	2.7-28.1	68
Leukaemia	7	3.0	14.9	1.8-27.9	86	Leukaemia NOS	<5	NR	NR		
Leukaemia NOS	0					Lymphoid leukaemia	5	2.8	12.0	0 - 24.0	94
Lymphoid leukaemia	6	2.6	13.2	0.6-25.8	114	Myeloid leukaemia	<5	NR	NR	0 - 7.5	242
Myeloid leukaemia	<5	NR	NR	0 - 5.0	355	Cervix	7	3.9	21.1	5.3-36.9	60
Leukaemia, other	0					Uterus	7	3.9	11.4	2.3-20.6	77
Myeloma	7	3.0	8.9	1.8-16.0	111	Ovary	7	3.9	10.5	2.1-18.9	97
All cancers	234	100.0	354.3	306-402	3	All cancers	179	100.0	317.2	266-368	3

Appendix 3D. Cancer incidence, Western Australia, 2012: Leading types by sex and geographic area

CHS South West Region

Males

	Cases	%	ASR	95%c.i.	Risk
Prostate	171	31.3	115.4	97.9-133	7
Melanoma (skin)	79	14.5	57.2	43.9-70.5	19
Colorectal	41	7.5	26.3	18.0-34.6	29
Colon	29	5.3	18.4	11.5-25.4	44
Rectum	12	2.2	7.9	3.3-12.4	84
Lung	34	6.2	20.8	13.5-28.0	42
Lymphoma	23	4.2	15.9	9.1-22.6	55
Lymphoma NOS	<5	NR	NR	0 - 2.8	*
Hodgkin lymphoma	<5	NR	NR	0 - 4.4	653
NHL	18	3.3	12.7	6.7-18.8	60
Unknown primary	17	3.1	11.3	5.6-17.1	86
Kidney	16	2.9	11.5	5.8-17.2	71
Leukaemia	16	2.9	12.7	5.8-19.5	86
Leukaemia NOS	0				
Lymphoid leukaemia	10	1.8	7.5	2.6-12.5	132
Myeloid leukaemia	6	1.1	5.1	0.4-9.9	241
Leukaemia, other	0				
Mesothelioma	12	2.2	7.8	3.3-12.3	80
Lip, gum & mouth	10	1.8	7.8	2.6-13.0	132
Pancreas	10	1.8	5.5	1.9-9.1	237
Testis	10	1.8	9.6	3.6-15.7	116
Oesophagus	9	1.6	6.3	2.1-10.4	116
Liver	9	1.6	5.8	1.9-9.7	126
Brain	9	1.6	6.9	2.1-11.7	149
Thyroid gland	9	1.6	6.7	2.0-11.4	151
Stomach	8	1.5	4.2	1.2-7.2	287
Bladder & urinary tract	8	1.5	5.7	1.7-9.7	131
Myeloma	7	1.3	5.3	1.4-9.3	132

Females

	Cases	%	ASR	95%c.i.	Risk
Breast	113	31.6	84.9	68.9-101	11
Melanoma (skin)	43	12.0	33.0	22.9-43.1	28
Colorectal	39	10.9	25.5	17.1-33.9	29
Colon	28	7.8	17.1	10.4-23.9	41
Rectum	11	3.1	8.3	3.3-13.4	91
Lung	31	8.7	21.2	13.5-28.8	31
Thyroid gland	14	3.9	11.8	5.6-18.1	76
Unknown primary	12	3.4	6.0	2.2-9.7	161
Uterus	11	3.1	7.7	3.0-12.4	97
Pancreas	10	2.8	5.3	1.8-8.8	165
Lip, gum & mouth	9	2.5	6.2	1.9-10.4	130
Lymphoma	9	2.5	6.8	2.2-11.4	174
Lymphoma NOS	<5	NR	NR		
Hodgkin lymphoma	<5	NR	NR	0 - 2.8	1289
NHL	8	2.2	5.8	1.6-10.1	201
Leukaemia	8	2.2	5.8	1.3-10.4	168
Leukaemia NOS	<5	NR	NR		
Lymphoid leukaemia	<5	NR	NR	0 - 5.8	389
Myeloid leukaemia	5	1.4	3.3	0.2-6.4	294
Leukaemia, other	0				
Kidney	7	2.0	4.4	1.0-7.8	238
Anus	6	1.7	4.2	0.7-7.6	154
Bladder & urinary tract	6	1.7	2.4	0.3-4.5	779
Myeloma	6	1.7	4.6	0.8-8.3	180
Stomach	<5	NR	NR	0 - 4.8	463
Brain	<5	NR	NR	0 - 8.3	397

All cancers 546 100.0 375.3 343-408 3

All cancers 358 100.0 251.5 224-279 4

WA Country - all

Males

	Cases	%	ASR	95%c.i.	Risk
Prostate	463	29.4	106.5	96.7-116	7
Melanoma (skin)	158	10.0	37.9	31.8-44.0	26
Colorectal	151	9.6	34.0	28.5-39.5	22
Colon	100	6.4	22.0	17.6-26.4	36
Rectum	51	3.2	12.0	8.6-15.3	57
Lung	149	9.5	32.3	27.0-37.6	28
Lymphoma	60	3.8	13.8	10.2-17.4	63
Lymphoma NOS	6	0.4	1.3	0.1-2.5	1960
Hodgkin lymphoma	5	0.3	1.2	0.1-2.3	980
NHL	49	3.1	11.3	8.0-14.5	70
Leukaemia	56	3.6	15.1	10.9-19.4	67
Leukaemia NOS	0				
Lymphoid leukaemia	31	2.0	8.7	5.4-12.1	123
Myeloid leukaemia	25	1.6	6.4	3.8-9.0	145
Leukaemia, other	0				
Kidney	42	2.7	10.0	6.9-13.0	87
Bladder & urinary tract	40	2.5	8.7	6.0-11.5	103
Unknown primary	40	2.5	8.9	6.0-11.7	105
Lip, gum & mouth	35	2.2	8.5	5.6-11.4	117
Pancreas	33	2.1	7.4	4.8-9.9	118
Stomach	32	2.0	7.3	4.7-9.9	128
Mesothelioma	29	1.8	6.6	4.2-9.1	103
Oesophagus	26	1.7	5.9	3.6-8.2	121
Brain	24	1.5	5.9	3.4-8.4	188
Myeloma	24	1.5	5.5	3.2-7.7	131
Liver	23	1.5	5.3	3.1-7.5	138
Thyroid gland	21	1.3	5.3	3.0-7.7	176
Testis	19	1.2	5.9	3.2-8.6	205
Pharynx	18	1.1	4.2	2.2-6.2	230
Skin (NMSC exc. SCC/BCC)	18	1.1	3.8	2.0-5.6	196

Females

	Cases	%	ASR	95%c.i.	Risk
Breast	324	30.5	86.9	77.3-96.5	10
Colorectal	125	11.8	30.0	24.5-35.5	28
Colon	92	8.7	21.7	17.0-26.4	40
Rectum	33	3.1	8.3	5.4-11.3	96
Melanoma (skin)	104	9.8	28.5	22.9-34.2	33
Lung	90	8.5	21.8	17.1-26.4	35
Uterus	41	3.9	10.5	7.2-13.8	70
Lymphoma	38	3.6	10.1	6.7-13.4	101
Lymphoma NOS	<5	NR	NR		
Hodgkin lymphoma	<5	NR	NR	0 - 2.5	1232
NHL	35	3.3	9.0	5.9-12.0	110
Thyroid gland	35	3.3	9.9	6.6-13.2	92
Leukaemia	32	3.0	9.0	5.6-12.5	127
Leukaemia NOS	0				
Lymphoid leukaemia	17	1.6	5.4	2.6-8.3	239
Myeloid leukaemia	15	1.4	3.6	1.7-5.5	270
Leukaemia, other	0				
Ovary	26	2.5	6.3	3.8-8.8	145
Unknown primary	24	2.3	5.3	3.0-7.6	166
Pancreas	22	2.1	4.6	2.6-6.6	191
Cervix	22	2.1	7.2	4.1-10.3	170
Myeloma	21	2.0	5.2	2.9-7.6	142
Kidney	20	1.9	5.3	2.8-7.8	199
Brain	16	1.5	4.8	2.3-7.3	228
Lip, gum & mouth	14	1.3	3.3	1.5-5.2	266
Skin (NMSC exc. SCC/BCC)	11	1.0	2.4	0.9-3.9	313
Bladder & urinary tract	11	1.0	2.3	0.9-3.8	374
Liver	10	0.9	2.7	1.0-4.4	257
Vulva	9	0.8	1.9	0.6-3.2	518
Gallbladder / bile ducts	8	0.8	1.5	0.4-2.6	555

All cancers 1574 100.0 365.2 347-384 3

All cancers 1061 100.0 274.8 258-292 4

Appendix 3D. Cancer incidence, Western Australia, 2012: Leading types by sex and geographic area

North Metro AHS

Males						Females					
	Cases	%	ASR	95%c.i.	Risk		Cases	%	ASR	95%c.i.	Risk
Prostate	807	31.6	107.6	100-115	7	Breast	680	31.0	91.0	83.9-98.1	11
Melanoma (skin)	280	11.0	38.7	34.1-43.3	21	Colorectal	223	10.2	25.1	21.6-28.7	33
Colorectal	238	9.3	30.6	26.6-34.5	28	Colon	149	6.8	16.1	13.3-18.9	50
Colon	165	6.5	20.6	17.4-23.9	44	Rectum	72	3.3	8.7	6.6-10.9	102
Rectum	73	2.9	9.9	7.6-12.3	80	Melanoma (skin)	201	9.2	26.3	22.5-30.1	36
Lung	221	8.7	27.1	23.4-30.8	32	Lung	179	8.2	20.0	16.9-23.1	41
Lymphoma	123	4.8	17.5	14.3-20.7	51	Lymphoma	98	4.5	13.2	10.4-16.0	68
Lymphoma NOS	<5	NR	NR	0 - 0.5	*	Lymphoma NOS	<5	NR	NR	0 - 0.3	*
Hodgkin lymphoma	<5	NR	NR	2.0-5.3	299	Hodgkin lymphoma	<5	NR	NR	0.7-3.3	688
NHL	99	3.9	13.6	10.8-16.3	62	NHL	87	4.0	11.1	8.7-13.5	76
Bladder & urinary tract	79	3.1	9.7	7.5-11.9	82	Thyroid gland	82	3.7	12.8	10.0-15.7	82
Kidney	67	2.6	9.5	7.2-11.9	97	Uterus	75	3.4	10.3	8.0-12.7	68
Unknown primary	59	2.3	6.6	4.8-8.4	184	Pancreas	60	2.7	6.6	4.8-8.4	135
Pancreas	56	2.2	7.1	5.2-9.0	118	Unknown primary	48	2.2	4.1	2.8-5.4	304
Lip, gum & mouth	51	2.0	7.1	5.1-9.1	120	Leukaemia	48	2.2	6.7	4.6-8.7	147
Stomach	50	2.0	6.4	4.6-8.2	133	Leukaemia NOS	<5	NR	NR	0 - 0.1	*
Liver	47	1.8	6.3	4.4-8.2	149	Lymphoid leukaemia	22	1.0	3.4	1.8-5.0	319
Leukaemia	46	1.8	6.5	4.4-8.5	133	Myeloid leukaemia	25	1.1	3.2	1.9-4.6	272
Leukaemia NOS	<5	NR	NR	0 - 0.3	*	Leukaemia, other	<5	NR	NR		
Lymphoid leukaemia	27	1.1	4.0	2.4-5.6	200	Ovary	47	2.1	5.7	4.0-7.4	147
Myeloid leukaemia	18	0.7	2.4	1.2-3.6	392	Cervix	44	2.0	6.6	4.6-8.7	177
Leukaemia, other	<5	NR	NR			Kidney	37	1.7	4.9	3.2-6.7	165
Oesophagus	43	1.7	5.7	4.0-7.5	146	Myeloma	37	1.7	3.9	2.6-5.3	233
Myeloma	43	1.7	5.4	3.8-7.1	160	Bladder & urinary tract	36	1.6	3.3	2.1-4.5	316
Brain	42	1.6	6.6	4.5-8.8	152	Brain	32	1.5	5.1	3.2-7.1	206
Testis	32	1.3	5.8	3.8-7.9	236	Skin (NMSC exc. SCC/BCC)	25	1.1	3.2	1.9-4.5	232
Skin (NMSC exc. SCC/BCC)	31	1.2	3.9	2.4-5.4	254	Connective/ soft tissues	21	1.0	3.1	1.7-4.6	337
Thyroid gland	29	1.1	4.4	2.8-6.1	218	Liver	20	0.9	1.9	1.0-2.8	497
Myelodysplastic diseases	27	1.1	3.2	1.9-4.4	268						
Mesothelioma	26	1.0	3.0	1.8-4.3	286						
All cancers	2554	100.0	341.6	328-355	3	All cancers	2193	100.0	276.6	264-289	4

South Metro AHS

Males						Females					
	Cases	%	ASR	95%c.i.	Risk		Cases	%	ASR	95%c.i.	Risk
Prostate	838	32.7	114.6	107-122	7	Breast	604	30.3	89.9	82.5-97.4	10
Colorectal	258	10.1	34.5	30.1-38.9	25	Colorectal	254	12.7	29.4	25.4-33.4	30
Colon	176	6.9	23.0	19.4-26.5	38	Colon	187	9.4	21.4	18.0-24.8	42
Rectum	82	3.2	11.5	9.0-14.1	68	Rectum	66	3.3	7.8	5.8-9.9	111
Melanoma (skin)	258	10.1	36.6	32.0-41.3	24	Lung	182	9.1	21.5	18.1-24.8	38
Lung	210	8.2	27.1	23.3-30.9	32	Melanoma (skin)	148	7.4	21.6	17.9-25.3	45
Lymphoma	126	4.9	18.6	15.2-22.0	51	Lymphoma	83	4.2	11.0	8.3-13.6	95
Lymphoma NOS	<5	NR	NR	0 - 0.3	*	Lymphoma NOS	5	0.3	0.4	0 - 0.7	3945
Hodgkin lymphoma	<5	NR	NR	1.3-4.1	367	Hodgkin lymphoma	7	0.4	1.7	0.4-2.9	866
NHL	110	4.3	15.8	12.7-19.0	59	NHL	71	3.6	8.9	6.6-11.3	110
Kidney	96	3.7	14.4	11.4-17.5	58	Thyroid gland	71	3.6	12.6	9.6-15.6	82
Bladder & urinary tract	91	3.6	10.6	8.3-12.8	97	Uterus	67	3.4	9.3	7.0-11.7	92
Leukaemia	65	2.5	11.4	8.3-14.4	93	Ovary	60	3.0	8.3	6.1-10.6	106
Leukaemia NOS	<5	NR	NR	0 - 0.4	3985	Unknown primary	55	2.8	4.8	3.4-6.3	242
Lymphoid leukaemia	33	1.3	5.7	3.6-7.9	180	Pancreas	46	2.3	5.0	3.4-6.6	168
Myeloid leukaemia	31	1.2	5.5	3.4-7.7	203	Kidney	42	2.1	5.5	3.7-7.2	160
Leukaemia, other	0					Stomach	38	1.9	4.4	2.9-5.9	209
Unknown primary	57	2.2	7.0	5.1-8.9	159	Leukaemia	38	1.9	5.9	3.8-8.0	177
Stomach	50	2.0	6.5	4.6-8.4	150	Leukaemia NOS	0				
Pancreas	49	1.9	6.6	4.7-8.6	119	Lymphoid leukaemia	18	0.9	2.9	1.4-4.4	358
Lip, gum & mouth	45	1.8	7.0	4.9-9.1	135	Myeloid leukaemia	20	1.0	3.0	1.5-4.5	348
Brain	40	1.6	8.0	5.3-10.7	130	Leukaemia, other	0				
Oesophagus	39	1.5	5.4	3.6-7.1	147	Cervix	31	1.6	5.9	3.8-8.0	178
Mesothelioma	33	1.3	4.1	2.7-5.6	179	Bladder & urinary tract	28	1.4	2.7	1.6-3.8	353
Liver	32	1.2	4.3	2.8-5.8	207	Lip, gum & mouth	27	1.4	3.4	2.0-4.9	278
Testis	30	1.2	5.9	3.8-8.1	219	Brain	27	1.4	4.1	2.4-5.8	271
Myeloma	30	1.2	4.2	2.6-5.7	189	Myeloma	21	1.1	2.3	1.2-3.4	439
Skin (NMSC exc. SCC/BCC)	26	1.0	3.2	1.9-4.5	392	Oesophagus	17	0.9	2.3	1.1-3.4	340
Thyroid gland	24	0.9	3.8	2.2-5.4	243	Gallbladder / bile ducts	17	0.9	2.0	1.0-3.0	478
Pharynx	22	0.9	3.4	1.9-4.8	241						
All cancers	2561	100.0	358.3	344-373	3	All cancers	1996	100.0	270.6	258-283	4

Appendix 3D. Cancer incidence, Western Australia, 2012: Leading types by sex and geographic area

WA Metro - all

	Males					Females					
	Cases	%	ASR	95%c.i.	Risk	Cases	%	ASR	95%c.i.	Risk	
Prostate	1645	32.2	111.1	106-117	7	Breast	1284	30.7	90.5	85.4-95.6	10
Melanoma (skin)	538	10.5	37.7	34.4-41.0	22	Colorectal	477	11.4	27.2	24.5-29.8	32
Colorectal	496	9.7	32.5	29.6-35.5	26	Colon	336	8.0	18.6	16.5-20.8	46
Colon	341	6.7	21.8	19.4-24.2	41	Rectum	138	3.3	8.3	6.8-9.8	106
Rectum	155	3.0	10.7	9.0-12.5	73	Lung	361	8.6	20.7	18.4-23.0	40
Lung	431	8.4	27.1	24.4-29.7	32	Melanoma (skin)	349	8.3	24.0	21.4-26.7	40
Lymphoma	249	4.9	18.0	15.7-20.4	51	Lymphoma	181	4.3	12.1	10.2-14.0	79
Lymphoma NOS	<5	NR	NR	0.0-0.3	*	Lymphoma NOS	6	0.1	0.2	0.0-0.4	8081
Hodgkin lymphoma	<5	NR	NR	2.1-4.3	329	Hodgkin lymphoma	17	0.4	1.9	1.0-2.8	759
NHL	209	4.1	14.7	12.6-16.8	60	NHL	158	3.8	10.1	8.4-11.7	89
Bladder & urinary tract	170	3.3	10.1	8.6-11.7	89	Thyroid gland	153	3.7	12.7	10.7-14.8	82
Kidney	163	3.2	11.9	10.0-13.8	73	Uterus	142	3.4	9.8	8.2-11.5	78
Unknown primary	116	2.3	6.8	5.5-8.1	171	Ovary	107	2.6	6.9	5.5-8.3	124
Leukaemia	111	2.2	8.7	7.0-10.5	111	Pancreas	106	2.5	5.8	4.6-7.0	149
Leukaemia NOS	<5	NR	NR	0 - 0.3	8022	Unknown primary	103	2.5	4.5	3.5-5.5	269
Lymphoid leukaemia	60	1.2	4.8	3.5-6.1	191	Leukaemia	86	2.1	6.3	4.8-7.8	160
Myeloid leukaemia	49	1.0	3.8	2.7-5.0	273	Leukaemia NOS	<5	NR	NR	0 - 0.1	*
Leukaemia, other	0					Lymphoid leukaemia	40	1.0	3.2	2.1-4.3	336
Pancreas	105	2.1	6.9	5.5-8.2	119	Myeloid leukaemia	45	1.1	3.1	2.1-4.1	305
Stomach	100	2.0	6.4	5.1-7.7	142	Leukaemia, other	<5	NR	NR		
Lip, gum & mouth	96	1.9	7.0	5.5-8.4	128	Kidney	79	1.9	5.2	4.0-6.4	163
Oesophagus	82	1.6	5.6	4.3-6.8	146	Cervix	75	1.8	6.3	4.8-7.8	177
Brain	82	1.6	7.3	5.6-9.0	141	Bladder & urinary tract	64	1.5	3.0	2.2-3.8	332
Liver	79	1.5	5.3	4.1-6.6	172	Brain	59	1.4	4.6	3.3-5.9	232
Myeloma	73	1.4	4.8	3.7-6.0	173	Myeloma	58	1.4	3.1	2.2-4.0	302
Testis	62	1.2	5.9	4.4-7.3	227	Stomach	57	1.4	3.1	2.2-4.0	293
Mesothelioma	59	1.2	3.6	2.6-4.5	220	Lip, gum & mouth	46	1.1	2.7	1.8-3.5	361
Skin (NMSC exc. SCC/BCC)	57	1.1	3.6	2.6-4.6	306	Skin (NMSC exc. SCC/BCC)	40	1.0	2.5	1.7-3.3	330
Thyroid gland	53	1.0	4.1	3.0-5.3	229	Liver	35	0.8	1.8	1.1-2.5	464
Myelodysplastic diseases	47	0.9	2.7	1.9-3.6	368	Gallbladder / bile ducts	33	0.8	1.8	1.1-2.5	534
All cancers	5115	100.0	349.7	340-360	3	All cancers	4189	100.0	273.7	265-283	4

All Western Australia

	Males					Females					
	Cases	%	ASR	95%c.i.	Risk	Cases	%	ASR	95%c.i.	Risk	
Prostate	2108	31.5	110.0	105-115	7	Breast	1608	30.6	89.7	85.2-94.2	10
Melanoma (skin)	696	10.4	37.7	34.8-40.6	23	Colorectal	602	11.5	27.8	25.4-30.2	31
Colorectal	647	9.7	32.8	30.2-35.4	25	Colon	428	8.2	19.3	17.3-21.3	45
Colon	441	6.6	21.8	19.7-23.9	40	Rectum	171	3.3	8.3	7.0-9.6	104
Rectum	206	3.1	11.0	9.5-12.5	69	Melanoma (skin)	453	8.6	25.0	22.6-27.4	38
Lung	580	8.7	28.3	25.9-30.7	31	Lung	451	8.6	20.9	18.9-23.0	39
Lymphoma	309	4.6	17.1	15.1-19.0	53	Lymphoma	219	4.2	11.8	10.1-13.4	82
Lymphoma NOS	10	0.1	0.4	0.1-0.7	9057	Lymphoma NOS	6	0.1	0.2	0.0-0.3	*
Hodgkin lymphoma	41	0.6	2.8	1.9-3.6	385	Hodgkin lymphoma	20	0.4	1.7	0.9-2.5	816
NHL	258	3.9	13.9	12.1-15.6	62	NHL	193	3.7	9.9	8.4-11.3	92
Bladder & urinary tract	210	3.1	9.8	8.4-11.2	92	Thyroid gland	188	3.6	12.1	10.4-13.9	84
Kidney	205	3.1	11.5	9.8-13.1	76	Uterus	183	3.5	10.0	8.5-11.4	76
Leukaemia	167	2.5	10.2	8.5-11.9	96	Ovary	133	2.5	6.8	5.6-8.0	128
Leukaemia NOS	<5	NR	NR	0 - 0.2	*	Pancreas	128	2.4	5.6	4.5-6.6	157
Lymphoid leukaemia	91	1.4	5.7	4.4-7.0	170	Unknown primary	127	2.4	4.7	3.7-5.6	239
Myeloid leukaemia	74	1.1	4.4	3.3-5.5	227	Leukaemia	118	2.2	6.9	5.5-8.3	151
Leukaemia, other	<5	NR	NR			Leukaemia NOS	<5	NR	NR	0 - 0.1	*
Unknown primary	156	2.3	7.3	6.1-8.5	149	Lymphoid leukaemia	57	1.1	3.7	2.6-4.8	306
Pancreas	138	2.1	7.0	5.8-8.2	119	Myeloid leukaemia	60	1.1	3.2	2.3-4.1	297
Stomach	132	2.0	6.6	5.4-7.8	138	Leukaemia, other	<5	NR	NR		
Lip, gum & mouth	131	2.0	7.3	6.0-8.6	125	Kidney	99	1.9	5.2	4.1-6.4	169
Oesophagus	108	1.6	5.6	4.6-6.7	140	Cervix	97	1.8	6.5	5.2-7.8	175
Brain	106	1.6	6.9	5.5-8.4	149	Myeloma	79	1.5	3.6	2.7-4.4	245
Liver	102	1.5	5.3	4.3-6.4	163	Bladder & urinary tract	75	1.4	2.9	2.2-3.6	340
Myeloma	97	1.5	5.0	4.0-6.0	161	Brain	75	1.4	4.7	3.5-5.9	230
Mesothelioma	88	1.3	4.3	3.4-5.2	174	Stomach	63	1.2	2.7	2.0-3.5	341
Testis	81	1.2	5.9	4.6-7.1	222	Lip, gum & mouth	60	1.1	2.8	2.0-3.6	335
Skin (NMSC exc. SCC/BCC)	75	1.1	3.6	2.7-4.5	272	Skin (NMSC exc. SCC/BCC)	51	1.0	2.4	1.7-3.2	328
Thyroid gland	74	1.1	4.4	3.4-5.5	214	Liver	45	0.9	2.0	1.4-2.6	398
Myelodysplastic diseases	62	0.9	2.7	2.0-3.4	384	Gallbladder / bile ducts	41	0.8	1.7	1.2-2.3	541
All cancers	6689	100.0	353.2	344-362	3	All cancers	5250	100.0	274.1	266-282	4

Appendix 3E. Cancer mortality, Western Australia, 2012: Leading types by sex and geographic area

CHS Kimberley Region

Males						Females					
	Cases	%	ASR	95%c.i.	Risk		Cases	%	ASR	95%c.i.	Risk
Lung	8	27.6	33.5	10.0-56.9	27	Liver	<5	NR	NR	0 - 22.0	104
Liver	5	17.2	23.8	2.6-45.0	23	Lung	<5	NR	NR	0 - 27.4	87
Lip, gum & mouth	<5	NR	NR	0 - 16.7	115	Leukaemia	<5	NR	NR	0 - 22.0	104
Pharynx	<5	NR	NR	0 - 21.3	85	Leukaemia NOS	0				-
Prostate	<5	NR	NR	0 - 24.1	73	Lymphoid leukaemia	<5	NR	NR	0 - 14.1	169
Stomach	<5	NR	NR	0 - 14.0	170	Myeloid leukaemia	<5	NR	NR	0 - 13.2	271
Gallbladder / bile ducts	<5	NR	NR	0 - 16.0	112	Leukaemia, other	0				-
Pancreas	<5	NR	NR	0 - 16.0	112	Colorectal	<5	NR	NR	0 - 14.1	*
Nasal cavity & sinuses	<5	NR	NR	0 - 14.0	170	Colon	<5	NR	NR	0 - 14.1	*
Melanoma (skin)	<5	NR	NR	0 - 10.0	357	Rectum	0				-
Testis	<5	NR	NR	0 - 10.3	459	Tongue	<5	NR	NR	0 - 18.9	126
Kidney	<5	NR	NR	0 - 11.2	319	Gallbladder / bile ducts	<5	NR	NR	0 - 18.9	126
Thyroid gland	<5	NR	NR	0 - 16.4	73	Pancreas	<5	NR	NR	0 - 13.2	271
Unknown primary	<5	NR	NR	0 - 13.4	*	Breast	<5	NR	NR	0 - 13.2	225
Myelodysplastic diseases	<5	NR	NR	0 - 10.4	229	Brain	<5	NR	NR	0 - 18.9	126
						Unknown primary	<5	NR	NR	0 - 14.1	169
						Myelodysplastic diseases	<5	NR	NR	0 - 11.2	319
All cancer deaths	29	100.0	127.7	80.6-175	6	All cancer deaths	14	100.0	71.1	33.3-109	14

CHS Pilbara Region

Males						Females					
	Cases	%	ASR	95%c.i.	Risk		Cases	%	ASR	95%c.i.	Risk
Colorectal	<5	NR	NR	0 - 27.7	43	Lung	<5	NR	NR	0 - 43.0	40
Colon	<5	NR	NR	0 - 11.6	205	Brain	<5	NR	NR	0 - 16.1	162
Rectum	<5	NR	NR	0 - 21.9	55	Melanoma (skin)	<5	NR	NR	0 - 8.3	431
Lung	<5	NR	NR	0 - 20.5	353	Breast	<5	NR	NR	0 - 26.1	69
Mesothelioma	<5	NR	NR	0 - 19.8	86						
Pharynx	<5	NR	NR	0 - 11.6	205						
Oesophagus	<5	NR	NR	0 - 11.6	205						
Anus	<5	NR	NR	0 - 16.9	106						
Pancreas	<5	NR	NR	0 - 6.7	353						
Brain	<5	NR	NR	0 - 6.9	515						
Unknown primary	<5	NR	NR	0 - 21.9	*						
Lymphoma	<5	NR	NR	0 - 21.9	*						
Lymphoma NOS	0				-						
Hodgkin lymphoma	0				-						
NHL	<5	NR	NR	0 - 21.9	*						
All cancer deaths	13	100.0	60.3	24.8-95.9	17	All cancer deaths	6	100.0	36.3	4.0-68.6	21

CHS Midwest Region

Males						Females					
	Cases	%	ASR	95%c.i.	Risk		Cases	%	ASR	95%c.i.	Risk
Lung	19	24.7	29.9	16.2-43.6	31	Lung	12	20.7	24.2	10.2-38.1	27
Prostate	9	11.7	12.6	4.1-21.1	97	Breast	11	19.0	18.8	7.0-30.7	59
Unknown primary	6	7.8	9.5	1.6-17.4	107	Colorectal	7	12.1	10.9	2.3-19.5	86
Colorectal	5	6.5	8.7	1.0-16.4	79	Colon	<5	NR	NR	0 - 12.8	152
Colon	<5	NR	NR	0 - 11.5	97	Rectum	<5	NR	NR	0 - 10.2	199
Rectum	<5	NR	NR	0 - 8.0	420	Oesophagus	<5	NR	NR	0 - 7.0	*
Pharynx	<5	NR	NR	0.1-16.0	95	Liver	<5	NR	NR	0 - 14.0	86
Pancreas	<5	NR	NR	0.1-14.8	86	Ovary	<5	NR	NR	0 - 7.2	*
Oesophagus	<5	NR	NR	0 - 11.5	229	Unknown primary	<5	NR	NR	0 - 11.4	114
Liver	<5	NR	NR	0 - 14.6	139	Lymphoma	<5	NR	NR	0 - 11.6	100
Myelodysplastic diseases	<5	NR	NR	0 - 9.2	420	Lymphoma NOS	0				-
						Hodgkin lymphoma	0				-
						NHL	<5	NR	NR	0 - 11.6	100
						Pancreas	<5	NR	NR	0 - 8.9	347
						Melanoma (skin)	<5	NR	NR	0 - 7.3	199
All cancer deaths	77	100.0	126.3	97.1-156	8	All cancer deaths	58	100.0	100.5	73.4-128	9

Appendix 3E. Cancer mortality, Western Australia, 2012: Leading types by sex and geographic area

CHS Wheatbelt Region

Males						Females					
	Cases	%	ASR	95%c.i.	Risk		Cases	%	ASR	95%c.i.	Risk
Lung	26	22.6	26.2	15.9-36.5	35	Lung	11	20.0	13.7	5.3-22.2	65
Colorectal	20	17.4	22.8	12.4-33.3	38	Breast	10	18.2	12.5	4.0-20.9	90
Colon	11	9.6	11.1	4.3-17.9	87	Melanoma (skin)	6	10.9	5.7	0.4-11.0	548
Rectum	9	7.8	11.8	3.8-19.7	68	Colorectal	<5	NR	NR	0 - 4.2	*
Lymphoma	10	8.7	10.3	3.6-17.1	95	Colon	<5	NR	NR	0 - 2.0	*
Lymphoma NOS	<5	NR	NR	0 - 1.9	*	Rectum	<5	NR	NR	0 - 3.1	*
Hodgkin lymphoma	0				-	Gallbladder / bile ducts	<5	NR	NR	0 - 5.5	*
NHL	NR	NR	NR	3.1-16.3	95	Pancreas	<5	NR	NR	0 - 7.7	153
Pancreas	7	6.1	6.5	1.5-11.5	122	Ovary	<5	NR	NR	0 - 9.8	158
Melanoma (skin)	7	6.1	9.5	2.4-16.6	71	Unknown primary	<5	NR	NR	0 - 4.1	*
Prostate	7	6.1	7.3	1.8-12.8	193						
Oesophagus	6	5.2	7.2	1.4-13.0	81						
Bladder & urinary tract	5	4.3	5.0	0.6-9.4	333						
Unknown primary	5	4.3	4.7	0.5-9.0	167						
All cancer deaths	115	100.0	124.6	101-148	8	All cancer deaths	55	100.0	64.9	46.4-83.4	17

CHS Goldfields Region

Males						Females					
	Cases	%	ASR	95%c.i.	Risk		Cases	%	ASR	95%c.i.	Risk
Lung	16	28.6	45.8	23.2-68.5	16	Breast	11	28.9	32.7	12.9-52.5	26
Stomach	7	12.5	23.3	6.0-40.5	24	Lung	8	21.1	25.3	7.0-43.6	31
Brain	5	8.9	15.2	1.8-28.6	68	Ovary	5	13.2	14.4	1.4-27.3	86
Pancreas	<5	NR	NR	0.2-25.0	56	Liver	<5	NR	NR	0 - 24.1	69
Pharynx	<5	NR	NR	0 - 19.0	162	Colorectal	<5	NR	NR	0 - 18.7	69
Prostate	<5	NR	NR	0 - 19.5	71	Colon	<5	NR	NR	0 - 11.4	105
Kidney	<5	NR	NR	0 - 18.3	91	Rectum	<5	NR	NR	0 - 11.8	201
Colorectal	<5	NR	NR	0 - 17.3	118	Leukaemia	<5	NR	NR	0 - 16.6	407
Colon	<5	NR	NR	0 - 11.4	*	Leukaemia NOS	0				-
Rectum	<5	NR	NR	0 - 10.1	118	Lymphoid leukaemia	<5	NR	NR	0 - 14.6	407
Oesophagus	<5	NR	NR	0 - 13.3	158	Myeloid leukaemia	<5	NR	NR	0 - 4.6	*
Liver	<5	NR	NR	0 - 13.4	144	Leukaemia, other	0				-
Mesothelioma	<5	NR	NR	0 - 15.5	105						
Unknown primary	<5	NR	NR	0 - 16.3	71						
All cancer deaths	56	100.0	170.0	125-215	5	All cancer deaths	38	100.0	117.0	78.3-156	8

CHS Great Southern Region

Males						Females					
	Cases	%	ASR	95%c.i.	Risk		Cases	%	ASR	95%c.i.	Risk
Lung	12	14.8	15.1	6.2-23.9	59	Lung	10	17.2	11.9	3.9-19.9	53
Prostate	12	14.8	15.0	6.1-23.9	66	Brain	6	10.3	14.5	1.9-27.1	58
Colorectal	8	9.9	12.9	3.6-22.2	60	Colorectal	5	8.6	6.1	0.2-11.9	150
Colon	NR	NR	NR	2.5-18.2	68	Colon	<5	NR	NR	0 - 9.3	392
Rectum	<5	NR	NR	0 - 7.5	474	Rectum	<5	NR	NR	0 - 4.9	242
Skin (NMSC inc. SCC/BCC)	5	6.2	5.0	0.4-9.6	248	Breast	5	8.6	9.9	1.2-18.6	71
Brain	5	6.2	7.6	0.6-14.6	151	Ovary	5	8.6	6.3	0.2-12.4	176
Myeloma	5	6.2	5.1	0.4-9.8	355	Unknown primary	<5	NR	NR	0 - 10.5	150
Melanoma (skin)	<5	NR	NR	0 - 18.7	221	Lymphoma	<5	NR	NR	0 - 8.8	321
						Lymphoma NOS	0				-
						Hodgkin lymphoma	0				-
						NHL	<5	NR	NR	0 - 8.8	321
						Gallbladder / bile ducts	<5	NR	NR	0 - 7.2	429
						Melanoma (skin)	<5	NR	NR	0 - 7.9	121
						Uterus	<5	NR	NR	0 - 6.4	321
						Leukaemia	<5	NR	NR	0 - 3.2	*
All cancer deaths	81	100.0	115.3	87.7-143	9	All cancer deaths	58	100.0	84.0	59.9-108	10

Appendix 3E. Cancer mortality, Western Australia, 2012: Leading types by sex and geographic area

CHS South West Region

Males

	Cases	%	ASR	95%c.i.	Risk
Lung	35	19.7	19.3	12.7-26.0	46
Prostate	25	14.0	11.5	6.8-16.2	221
Unknown primary	14	7.9	8.8	3.8-13.7	130
Colorectal	13	7.3	8.1	3.5-12.8	111
Colon	NR	NR	NR	1.7-9.1	174
Rectum	<5	NR	NR	0 - 5.5	309
Stomach	10	5.6	6.1	2.1-10.1	147
Melanoma (skin)	9	5.1	7.1	2.2-12.0	152
Lymphoma	9	5.1	5.0	1.6-8.5	233
Lymphoma NOS	<5	NR	NR	0 - 2.0	*
Hodgkin lymphoma	0				-
NHL	NR	NR	NR	1.0-7.5	233
Pancreas	7	3.9	3.6	0.8-6.4	468
Skin (NMSC inc. SCC/BCC)	7	3.9	4.2	1.0-7.4	134
Brain	7	3.9	4.4	1.1-7.8	206
Oesophagus	6	3.4	3.4	0.6-6.2	287
Liver	6	3.4	3.3	0.5-6.0	232
Mesothelioma	<5	NR	NR	0 - 4.3	381
Kidney	<5	NR	NR	0 - 4.7	400
Bladder & urinary tract	<5	NR	NR	0 - 4.5	346
Leukaemia	<5	NR	NR	0 - 5.3	579
Leukaemia NOS	0				-
Lymphoid leukaemia	<5	NR	NR	0 - 2.9	1070
Myeloid leukaemia	<5	NR	NR	0 - 3.5	1263
Leukaemia, other	0				-
Myelodysplastic diseases	<5	NR	NR	0 - 4.3	411
Small intestine	<5	NR	NR	0 - 2.9	1070
Myeloma	<5	NR	NR	0 - 2.0	*

Females

	Cases	%	ASR	95%c.i.	Risk
Lung	31	20.7	19.7	12.5-27.0	35
Breast	20	13.3	12.3	6.7-18.0	62
Colorectal	19	12.7	9.3	4.7-13.8	109
Colon	NR	NR	NR	4.2-13.2	109
Rectum	<5	NR	NR	0 - 1.4	*
Pancreas	10	6.7	5.1	1.7-8.4	232
Brain	9	6.0	7.5	1.9-13.1	129
Ovary	8	5.3	4.3	1.1-7.5	205
Unknown primary	7	4.7	3.9	0.8-7.0	190
Leukaemia	7	4.7	6.4	0.8-12.1	166
Leukaemia NOS	0				-
Lymphoid leukaemia	<5	NR	NR	0 - 9.4	292
Myeloid leukaemia	<5	NR	NR	0 - 4.4	383
Leukaemia, other	0				-
Melanoma (skin)	5	3.3	2.8	0.2-5.5	233
Skin (NMSC inc. SCC/BCC)	5	3.3	1.6	0.2-3.1	*
Myeloma	5	3.3	2.5	0.1-4.9	477
Bladder & urinary tract	<5	NR	NR	0 - 4.4	395
Anus	<5	NR	NR	0 - 3.6	392
Liver	<5	NR	NR	0 - 3.5	331
Gallbladder / bile ducts	<5	NR	NR	0 - 1.5	*
Mesothelioma	<5	NR	NR	0 - 3.8	477
Vulva	<5	NR	NR	0 - 1.8	*
Uterus	<5	NR	NR	0 - 1.9	*

All cancer deaths 178 100.0 102.0 86.3-118 11

All cancer deaths 150 100.0 90.8 74.8-107 10

WA Country - all

Males

	Cases	%	ASR	95%c.i.	Risk
Lung	118	21.5	24.6	20.1-29.1	36
Prostate	58	10.6	10.8	7.9-13.7	126
Colorectal	50	9.1	11.1	7.9-14.2	73
Colon	32	5.8	6.8	4.4-9.2	123
Rectum	18	3.3	4.2	2.3-6.2	179
Unknown primary	32	5.8	6.7	4.3-9.1	153
Pancreas	27	4.9	5.6	3.4-7.7	156
Stomach	26	4.7	5.9	3.6-8.2	125
Melanoma (skin)	24	4.4	6.1	3.5-8.6	161
Lymphoma	24	4.4	4.6	2.7-6.6	226
Lymphoma NOS	<5	NR	NR	0 - 0.9	*
Hodgkin lymphoma	<5	NR	NR	0 - 0.4	*
NHL	20	3.6	4.1	2.2-5.9	226
Brain	23	4.2	5.3	3.1-7.5	184
Skin (NMSC inc. SCC/BCC)	19	3.5	3.6	1.9-5.3	244
Oesophagus	18	3.3	4.0	2.1-5.9	198
Liver	18	3.3	4.2	2.2-6.2	157
Bladder & urinary tract	15	2.7	2.9	1.4-4.4	454
Pharynx	13	2.4	3.1	1.4-4.8	281
Kidney	12	2.2	2.6	1.1-4.1	393
Leukaemia	12	2.2	2.7	1.1-4.3	648
Leukaemia NOS	0				-
Lymphoid leukaemia	5	0.9	1.0	0.1-1.9	3153
Myeloid leukaemia	7	1.3	1.7	0.3-3.1	816
Leukaemia, other	0				-
Mesothelioma	11	2.0	2.4	1.0-3.9	297
Myelodysplastic diseases	10	1.8	2.1	0.8-3.5	406
Myeloma	9	1.6	1.5	0.5-2.4	2357

Females

	Cases	%	ASR	95%c.i.	Risk
Lung	76	20.1	17.8	13.6-21.9	40
Breast	59	15.6	13.8	10.1-17.5	62
Colorectal	37	9.8	6.9	4.5-9.3	143
Colon	27	7.1	5.3	3.1-7.4	188
Rectum	10	2.6	1.7	0.5-2.8	593
Ovary	24	6.3	5.1	2.9-7.2	206
Pancreas	18	4.7	3.8	2.0-5.7	248
Brain	18	4.7	5.5	2.8-8.1	161
Unknown primary	18	4.7	3.5	1.8-5.3	225
Melanoma (skin)	17	4.5	3.6	1.8-5.4	229
Leukaemia	16	4.2	4.4	2.0-6.8	268
Leukaemia NOS	0				-
Lymphoid leukaemia	7	1.8	2.6	0.5-4.7	472
Myeloid leukaemia	9	2.4	1.8	0.5-3.0	622
Leukaemia, other	0				-
Liver	10	2.6	2.9	1.1-4.7	230
Lymphoma	10	2.6	2.1	0.7-3.5	340
Lymphoma NOS	0				-
Hodgkin lymphoma	0				-
NHL	10	2.6	2.1	0.7-3.5	340
Myeloma	9	2.4	1.7	0.5-2.9	585
Gallbladder / bile ducts	8	2.1	1.4	0.4-2.5	1464
Uterus	8	2.1	1.7	0.4-2.9	566
Oesophagus	7	1.8	1.5	0.3-2.8	628
Skin (NMSC inc. SCC/BCC)	5	1.3	0.6	0.1-1.2	*
Bladder & urinary tract	5	1.3	1.2	0.1-2.4	515
Mesothelioma	<5	NR	NR	0 - 2.0	953
Vulva	<5	NR	NR	0 - 1.4	3181

All cancer deaths 549 100.0 117.1 107-127 8

All cancer deaths 379 100.0 85.7 76.5-94.9 11

Appendix 3E. Cancer mortality, Western Australia, 2012: Leading types by sex and geographic area

North Metro AHS

Males						Females					
	Cases	%	ASR	95%c.i.	Risk		Cases	%	ASR	95%c.i.	Risk
Lung	180	21.9	20.7	17.5-23.8	47	Lung	152	21.8	16.1	13.3-18.8	50
Colorectal	94	11.4	11.0	8.7-13.3	96	Breast	109	15.7	11.5	9.1-13.9	89
Colon	56	6.8	6.0	4.3-7.6	217	Colorectal	69	9.9	6.1	4.5-7.7	169
Rectum	38	4.6	5.0	3.4-6.6	171	Colon	54	7.8	4.6	3.2-6.0	230
Prostate	78	9.5	7.4	5.7-9.1	350	Rectum	15	2.2	1.5	0.7-2.3	632
Pancreas	48	5.8	6.0	4.2-7.7	135	Pancreas	56	8.0	5.7	4.1-7.3	174
Melanoma (skin)	45	5.5	5.6	3.9-7.3	160	Ovary	28	4.0	3.2	1.9-4.4	242
Stomach	41	5.0	4.7	3.2-6.3	239	Unknown primary	28	4.0	1.9	1.1-2.8	992
Unknown primary	34	4.1	3.7	2.4-5.0	308	Lymphoma	27	3.9	2.5	1.4-3.6	563
Lymphoma	34	4.1	4.4	2.9-5.9	173	Lymphoma NOS	NR	NR	NR	-	-
Lymphoma NOS	<5	NR	NR	0 - 0.3	*	Hodgkin lymphoma	<5	NR	NR	0 - 0.8	6462
Hodgkin lymphoma	<5	NR	NR	0 - 0.4	5987	NHL	26	3.7	2.2	1.2-3.1	616
NHL	32	3.9	4.2	2.7-5.7	178	Stomach	19	2.7	1.8	0.9-2.8	603
Oesophagus	28	3.4	3.5	2.2-4.9	240	Leukaemia	19	2.7	1.8	0.9-2.7	651
Liver	27	3.3	3.2	1.9-4.4	316	Leukaemia NOS	0	-	-	-	-
Mesothelioma	23	2.8	2.6	1.5-3.7	382	Lymphoid leukaemia	7	1.0	0.6	0.1-1.1	1744
Brain	23	2.8	3.1	1.8-4.4	301	Myeloid leukaemia	12	1.7	1.2	0.4-2.0	1039
Leukaemia	21	2.6	2.4	1.4-3.5	403	Leukaemia, other	0	-	-	-	-
Leukaemia NOS	<5	NR	NR	0 - 0.6	4038	Myeloma	19	2.7	1.7	0.9-2.5	821
Lymphoid leukaemia	6	0.7	0.6	0.1-1.2	1847	Bladder & urinary tract	18	2.6	1.3	0.6-2.0	1167
Myeloid leukaemia	13	1.6	1.6	0.7-2.4	590	Brain	15	2.2	1.9	0.9-2.9	390
Leukaemia, other	0	-	-	-	-	Uterus	14	2.0	1.3	0.6-2.1	842
Bladder & urinary tract	19	2.3	2.0	1.1-2.9	815	Melanoma (skin)	13	1.9	1.5	0.6-2.4	840
Myelodysplastic diseases	18	2.2	2.0	1.0-2.9	601	Gallbladder / bile ducts	12	1.7	1.3	0.5-2.1	784
Skin (NMSC inc. SCC/BCC)	16	1.9	1.9	0.9-2.8	439	Liver	11	1.6	0.7	0.2-1.1	3014
Myeloma	16	1.9	1.8	0.9-2.8	513	Kidney	11	1.6	1.1	0.4-1.8	1167
Kidney	14	1.7	1.7	0.8-2.7	541	Skin (NMSC inc. SCC/BCC)	9	1.3	0.6	0.2-1.0	1507
Pharynx	9	1.1	1.3	0.4-2.1	614	Cervix	8	1.1	1.0	0.3-1.7	952
Gallbladder / bile ducts	9	1.1	1.0	0.3-1.7	986						
Tongue	6	0.7	0.7	0.1-1.3	1719						
All cancer deaths	821	100.0	95.6	88.8-102	11	All cancer deaths	696	100.0	68.7	63.1-74.3	15

South Metro AHS

Males						Females					
	Cases	%	ASR	95%c.i.	Risk		Cases	%	ASR	95%c.i.	Risk
Lung	190	21.0	22.7	19.3-26.1	44	Lung	133	20.3	14.8	12.0-17.5	59
Colorectal	96	10.6	12.0	9.5-14.6	85	Breast	117	17.9	14.4	11.6-17.3	61
Colon	61	6.8	7.2	5.3-9.1	154	Colorectal	69	10.6	5.8	4.2-7.3	191
Rectum	35	3.9	4.9	3.2-6.5	187	Colon	50	7.6	4.0	2.8-5.3	337
Prostate	94	10.4	9.8	7.8-11.9	124	Rectum	19	2.9	1.8	0.9-2.7	438
Pancreas	54	6.0	6.9	5.0-8.8	128	Pancreas	39	6.0	4.1	2.7-5.5	205
Lymphoma	41	4.5	4.9	3.3-6.5	213	Unknown primary	39	6.0	3.1	2.0-4.3	515
Lymphoma NOS	0	-	-	-	-	Ovary	28	4.3	3.4	2.1-4.8	227
Hodgkin lymphoma	<5	NR	NR	0 - 0.9	2425	Lymphoma	25	3.8	2.1	1.2-3.1	667
NHL	38	4.2	4.5	3.0-6.0	233	Lymphoma NOS	<5	NR	NR	0 - 0.2	*
Melanoma (skin)	40	4.4	5.2	3.5-6.9	189	Hodgkin lymphoma	<5	NR	NR	0 - 0.5	5588
Bladder & urinary tract	36	4.0	3.6	2.3-4.8	395	NHL	21	3.2	1.8	0.9-2.7	757
Stomach	32	3.5	3.9	2.5-5.3	240	Stomach	21	3.2	2.0	1.0-2.9	603
Unknown primary	32	3.5	3.5	2.2-4.8	343	Brain	19	2.9	2.3	1.2-3.4	531
Brain	31	3.4	4.8	3.1-6.4	170	Leukaemia	19	2.9	2.0	1.0-3.0	453
Oesophagus	29	3.2	3.6	2.2-4.9	250	Leukaemia NOS	0	-	-	-	-
Skin (NMSC inc. SCC/BCC)	28	3.1	3.1	1.9-4.3	371	Lymphoid leukaemia	7	1.1	0.5	0.1-0.9	2951
Kidney	28	3.1	3.5	2.1-4.9	287	Myeloid leukaemia	12	1.8	1.5	0.6-2.4	535
Mesothelioma	25	2.8	3.0	1.8-4.2	275	Leukaemia, other	0	-	-	-	-
Liver	23	2.5	3.1	1.8-4.4	245	Uterus	18	2.8	2.4	1.2-3.5	346
Leukaemia	21	2.3	2.6	1.4-3.8	421	Myeloma	18	2.8	2.0	1.0-3.0	444
Leukaemia NOS	<5	NR	NR	0 - 0.4	3985	Myelodysplastic diseases	14	2.1	1.1	0.4-1.7	1310
Lymphoid leukaemia	8	0.9	0.8	0.2-1.4	2691	Gallbladder / bile ducts	11	1.7	1.0	0.3-1.7	1357
Myeloid leukaemia	12	1.3	1.6	0.7-2.6	570	Bladder & urinary tract	11	1.7	0.6	0.2-1.1	5588
Leukaemia, other	NR	NR	NR	-	-	Melanoma (skin)	8	1.2	0.8	0.2-1.3	1182
Myeloma	19	2.1	2.4	1.3-3.5	383	Tongue	6	0.9	0.7	0.1-1.3	1279
Gallbladder / bile ducts	16	1.8	1.8	0.8-2.7	824	Vulva	6	0.9	0.5	0.1-0.9	2951
Myelodysplastic diseases	8	0.9	0.8	0.2-1.4	956						
Lip, gum & mouth	7	0.8	0.8	0.2-1.4	2504						
All cancer deaths	903	100.0	108.9	101-116	10	All cancer deaths	654	100.0	69.8	63.8-75.7	14

Appendix 3E. Cancer mortality, Western Australia, 2012: Leading types by sex and geographic area

WA Metro - all

Males						Females					
	Cases	%	ASR	95%c.i.	Risk		Cases	%	ASR	95%c.i.	Risk
Lung	370	21.5	21.6	19.3-23.9	45	Lung	285	21.1	15.4	13.5-17.3	54
Colorectal	190	11.0	11.5	9.8-13.2	90	Breast	226	16.7	12.9	11.1-14.8	73
Colon	117	6.8	6.6	5.3-7.8	181	Colorectal	138	10.2	5.9	4.8-7.1	179
Rectum	73	4.2	4.9	3.8-6.1	179	Colon	104	7.7	4.3	3.4-5.3	272
Prostate	172	10.0	8.6	7.3-10.0	183	Rectum	34	2.5	1.6	1.0-2.2	518
Pancreas	102	5.9	6.4	5.1-7.7	132	Pancreas	95	7.0	4.9	3.8-6.0	188
Melanoma (skin)	85	4.9	5.4	4.2-6.6	173	Unknown primary	67	5.0	2.5	1.8-3.2	687
Lymphoma	75	4.4	4.6	3.5-5.7	191	Ovary	56	4.1	3.3	2.4-4.2	236
Lymphoma NOS	<5	NR	NR	0 - 0.1	*	Lymphoma	52	3.9	2.3	1.6-3.0	608
Hodgkin lymphoma	<5	NR	NR	0 - 0.5	3495	Lymphoma NOS	<5	NR	NR	0 - 0.1	*
NHL	70	4.1	4.3	3.3-5.4	202	Hodgkin lymphoma	<5	NR	NR	0 - 0.6	5958
Stomach	73	4.2	4.3	3.3-5.4	240	NHL	47	3.5	2.0	1.4-2.7	677
Unknown primary	66	3.8	3.6	2.7-4.5	324	Stomach	40	3.0	1.9	1.3-2.6	599
Oesophagus	57	3.3	3.6	2.6-4.5	244	Leukaemia	38	2.8	1.9	1.2-2.6	537
Bladder & urinary tract	55	3.2	2.8	2.0-3.5	531	Leukaemia NOS	0				-
Brain	54	3.1	3.9	2.8-5.0	219	Lymphoid leukaemia	14	1.0	0.5	0.2-0.9	2178
Liver	50	2.9	3.1	2.2-4.0	277	Myeloid leukaemia	24	1.8	1.3	0.7-1.9	712
Mesothelioma	48	2.8	2.8	2.0-3.6	320	Leukaemia, other	0				-
Skin (NMSC inc. SCC/BCC)	44	2.6	2.5	1.7-3.2	404	Myeloma	37	2.7	1.8	1.2-2.5	582
Kidney	42	2.4	2.6	1.8-3.4	380	Brain	34	2.5	2.1	1.3-2.8	451
Leukaemia	42	2.4	2.5	1.7-3.3	414	Uterus	32	2.4	1.8	1.2-2.5	497
Leukaemia NOS	<5	NR	NR	0 - 0.4	4011	Bladder & urinary tract	29	2.1	1.0	0.6-1.4	1902
Lymphoid leukaemia	14	0.8	0.7	0.3-1.1	2223	Gallbladder / bile ducts	23	1.7	1.2	0.7-1.7	983
Myeloid leukaemia	25	1.5	1.6	0.9-2.2	583	Melanoma (skin)	21	1.6	1.2	0.6-1.7	965
Leukaemia, other	0				-	Myelodysplastic diseases	20	1.5	0.7	0.4-1.1	2139
Myeloma	35	2.0	2.1	1.4-2.8	441	Liver	16	1.2	0.6	0.3-1.0	1956
Myelodysplastic diseases	26	1.5	1.4	0.8-2.0	732	Kidney	16	1.2	0.8	0.3-1.2	1625
Gallbladder / bile ducts	25	1.5	1.4	0.8-1.9	905	Skin (NMSC inc. SCC/BCC)	12	0.9	0.4	0.2-0.7	2375
Pharynx	13	0.8	1.0	0.4-1.5	846	Cervix	12	0.9	0.8	0.3-1.3	1224
All cancer deaths	1724	100.0	102.0	97.0-107	10	All cancer deaths	1350	100.0	69.1	65.1-73.2	14

All Western Australia

Males						Females					
	Cases	%	ASR	95%c.i.	Risk		Cases	%	ASR	95%c.i.	Risk
Lung	488	21.5	22.3	20.2-24.3	43	Lung	361	20.9	15.9	14.1-17.6	51
Colorectal	240	10.6	11.4	9.9-12.9	86	Breast	285	16.5	13.1	11.5-14.8	70
Colon	149	6.6	6.6	5.5-7.7	163	Colorectal	175	10.1	6.1	5.1-7.1	170
Rectum	91	4.0	4.8	3.8-5.8	180	Colon	131	7.6	4.5	3.6-5.4	250
Prostate	230	10.1	9.1	7.9-10.3	166	Rectum	44	2.5	1.6	1.1-2.1	532
Pancreas	129	5.7	6.2	5.1-7.3	137	Pancreas	113	6.5	4.7	3.7-5.6	198
Melanoma (skin)	109	4.8	5.5	4.5-6.6	170	Unknown primary	85	4.9	2.7	2.1-3.4	485
Stomach	99	4.4	4.7	3.7-5.7	198	Ovary	80	4.6	3.6	2.8-4.5	229
Lymphoma	99	4.4	4.6	3.7-5.6	198	Lymphoma	62	3.6	2.3	1.6-2.9	527
Lymphoma NOS	<5	NR	NR	0.0-0.3	*	Lymphoma NOS	<5	NR	NR	0 - 0.1	*
Hodgkin lymphoma	NR	NR	NR	0.0-0.4	4562	Hodgkin lymphoma	<5	NR	NR	0 - 0.4	7598
NHL	90	4.0	4.3	3.4-5.2	207	NHL	57	3.3	2.0	1.4-2.6	566
Unknown primary	98	4.3	4.3	3.4-5.2	258	Leukaemia	54	3.1	2.5	1.7-3.3	437
Brain	77	3.4	4.2	3.2-5.2	210	Leukaemia NOS	0				-
Oesophagus	75	3.3	3.7	2.8-4.5	232	Lymphoid leukaemia	21	1.2	1.1	0.5-1.6	1187
Bladder & urinary tract	70	3.1	2.8	2.1-3.5	511	Myeloid leukaemia	33	1.9	1.4	0.9-2.0	691
Liver	68	3.0	3.4	2.6-4.2	236	Leukaemia, other	0				-
Skin (NMSC inc. SCC/BCC)	63	2.8	2.7	2.0-3.4	352	Brain	52	3.0	2.8	2.0-3.6	326
Mesothelioma	59	2.6	2.7	2.0-3.4	314	Myeloma	46	2.7	1.8	1.2-2.4	583
Kidney	54	2.4	2.6	1.9-3.3	383	Stomach	43	2.5	1.7	1.1-2.2	678
Leukaemia	54	2.4	2.5	1.8-3.3	450	Uterus	40	2.3	1.8	1.2-2.4	510
Leukaemia NOS	<5	NR	NR	0 - 0.3	5189	Melanoma (skin)	38	2.2	1.6	1.1-2.2	580
Lymphoid leukaemia	19	0.8	0.8	0.4-1.1	2381	Bladder & urinary tract	34	2.0	1.1	0.7-1.5	1221
Myeloid leukaemia	32	1.4	1.6	1.0-2.2	621	Gallbladder / bile ducts	31	1.8	1.2	0.8-1.7	1057
Leukaemia, other	<5	NR	NR	0 - 0.3	-	Liver	26	1.5	1.1	0.6-1.6	766
Myeloma	44	1.9	1.9	1.3-2.5	543	Myelodysplastic diseases	23	1.3	0.8	0.4-1.1	2053
Myelodysplastic diseases	36	1.6	1.6	1.0-2.1	617	Kidney	18	1.0	0.7	0.3-1.0	2062
Gallbladder / bile ducts	28	1.2	1.2	0.7-1.7	996	Skin (NMSC inc. SCC/BCC)	17	1.0	0.5	0.2-0.7	2987
Pharynx	26	1.1	1.5	0.9-2.0	576	Oesophagus	16	0.9	0.6	0.3-1.0	1762
Lip, gum & mouth	14	0.6	0.7	0.3-1.1	1551	Vulva	15	0.9	0.5	0.2-0.8	2826
All cancer deaths	2273	100.0	105.4	101-110	10	All cancer deaths	1729	100.0	72.7	68.9-76.5	13

Delivering a **Healthy WA**