Cancer in Western Australia:

Incidence and mortality 2003
and
Mesothelioma 1960-2003

A report of the Western Australian Cancer Registry

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Summary

The Western Australian Cancer Registry has since 1981 provided population-based cancer data for use in the planning of health care services and the support of cancer-related research, at both State and Australia-wide levels. Most of this report is concerned with invasive tumours, or "cancers", using standardized reporting practices as used in other cancer registries in Australia and overseas. Sections 2 and 3 of this report deal primarily with cancer incidence and cancer-related mortality in Western Australian residents, who comprise approximately 10% of the Australian population. All statistics are based on the ICDO-3 coding system, implemented and applied retrospectively to all historical data during 2003.

New cases of cancer, 2003

There were 8653 new cases of cancer recorded in Western Australians in 2003, 55% occurring in males. Age-standardized rates were 354 per 100,000 males, and 268 per 100,000 females. The estimated lifetime risk of cancer to age 75 years was 1 in 3 for males, and 1 in 4 for females, essentially unchanged in the last 5 years.

Cancer-related deaths

Among Western Australian residents, there were 3318 deaths due to cancer in 2003 (55% males). Mortality rates for 2003 were 126 deaths per 100,000 males and 87 per 100,000 females. The most common causes of cancer-related death in males were lung, colorectal and prostate cancers, while breast, lung and colorectal cancers were the most common in females; both rankings as in 2002 data. In 2000, lung cancer caused more deaths than breast cancer in women. However, as anticipated in a previous report,[6] breast cancer has again in recent years, been the leading cause of cancer-related death in women.

Common cancers

The most common cancers in males in 2003 were prostate cancer, melanoma of the skin, colorectal cancer and lung cancer. Breast cancer predominated among females, followed by colorectal cancer, melanoma and lung cancer; these patterns have changed very little in recent years.

There were 74 children under the age of 15 years diagnosed with cancer in 2003 (ASR 18.7 per 100,000), compared to 55 in 2002 (ASR 15). Cancer at this age is a rare disease and annual variation in numbers and types is considerable. Acute lymphoblastic leukaemia accounted for 26% of the childhood cancers, followed by tumours of the CNS and lymphomas.

Malignant melanoma of the skin was - as in most years since 1982 - the most common cancer in both males and females in the 15-39 years 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.

Based on data for 2003, 1 in 11 women could be expected to develop breast cancer before the age of 75, and one in 9 men would be expected to have a diagnosis of prostate cancer. One in 60 women could be expected to die from breast cancer before age 75, and one in 110 men to die of prostate cancer before the same age.

Historical trends and projections of incidence rates

Historical trends in incidence and mortality rates are presented for many cancer types, and projections of incidence rates and case numbers have been updated. Based on data for 1994-2003, there was a significant reduction in the all-cancers incidence rate for males, and no significant change for females. Projections suggest ongoing declines in the incidence rates for

males and for females, but continuing increases in actual case numbers due to population growth. In males, rates of prostate cancer, lung cancer and melanoma are predicted to decline, while in females lung cancer is expected to continue to rise by 1.6% per year. There are no significant changes predicted in the incidence of colorectal cancer, however screening programmes can affect such findings, and all projections must be regarded with caution.

Mesothelioma, 2003 and 1960-2003

The Western Australian Mesothelioma Register Committee continues to review the history and findings concerning each reported case of mesothelioma, and a large section of this report is devoted to updated information based on the last 43 years.

There were 69 cases of malignant mesothelioma diagnosed in Western Australians in 2003, continuing the trend of decreasing rates in recent years; the majority originated in the pleura. In males, 56 cases represented an age-standardized rate of 4.0 cases per 100,000. In females, 13 cases represented an ASR of 0.7 per 100,000. Mesothelioma cases have been diagnosed at progressively increasing ages in recent years; in males, the median age has increased from 59 to 70 years since the period 1960-1987, and in females from 57 to 73 years.

Over the period 1960-2003, there have been major changes in the patterns of asbestos exposure presumed to cause mesothelioma cases. For diagnoses in the period 1994 – 2003, exposure to processed asbestos in building materials predominated over exposure to raw asbestos during mining and transport. While cases of Wittenoom- associated mesothelioma among non-mining company workers continue to occur at between 1 and 6 cases per year, they are progressively forming a smaller proportion of total cases.

Acknowledgments

This report is based on data recorded and maintained by the staff of the Western Australian Cancer Registry, to whom we are particularly grateful.

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 organizations who supply additional information in response to our enquiries. Members of the Registry's Scientific Advisory Committee have given valuable advice concerning a wide range of issues. Members of the WA Mesothelioma Register Committee have contributed significantly to the content of this particular report.

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

The Registry relies on a variety of supporting services in order to produce reports on cancer; these include population figures and projections, mapping, hospitalization data, legal advice, computing services and general support and encouragement. Thanks are due to other staff of Epidemiology & Analytical Services who have provided assistance, and to staff of the Health Promotion Branch for assistance with cover design and printing arrangements.

1 Overview and Methods

1.1 This Report

Overview of this report

This report is the latest in this Registry's series of annual all-cancers incidence and mortality reports, and comprises a summary of Registry activities and topical issues, and details of cancer incidence and mortality for 2003. Sections concerning coding and other Registry practices and statistical methods include relevant material for recent years. This year a large section is devoted to mesothelioma, using data from the WA Mesothelioma Register from 1960 to the present time.

The Western Australian Cancer Registry (WACR) is a population-based cancer registry that was established in 1981. Records are based on notification of cancers from pathologists, haematologists and radiation oncologists, and cancer information from death records. The Registry works to collect and disseminate reliable population-based cancer data to assist in the planning of services and in the prevention and treatment of cancer.

The WA Mesothelioma Register is a separate database which is maintained within the WA Cancer Registry, reconciled frequently with "mainstream" WACR data. It incorporates specific information for mesothelioma cases concerning occupational, residential and asbestos exposure history, and the most significant asbestos exposure.

The WACR acts with the delegated authority of the Executive Director of Public Health with respect to the Health (Notification of Cancer) Regulations 1981. Last amended in 1996, these require the notification of *in situ* neoplasms and all non-melanoma skin cancers other than basal cell and squamous cell carcinomas, and all other invasive malignancies and benign CNS tumours (see Appendix 2E). Further changes are currently being sought in order to maintain the relevance of the registry's data collection.

1.2 General structure; how to find information

The major statistical sections are based on cancers diagnosed, and deaths due to cancer, in 2003. Data for the more common forms of cancer are presented under headings based on incidence, mortality and age, while data for common cancers in selected geographic areas are presented in Appendices 3D. Special topics concerned with selected cancer types or aspects of Registry operations, in Section 4, may be based on data from other years as well.

Detailed data for all types of cancers for 2003 are found in the tables of Appendices 3A and 3B. The layout of those tables follows the coding system summarized in Appendix 2F. Readers seeking detailed information for a particular cancer type which does not appear among the tables of more common cancers, should refer to Appendix 2H.

1.3 Interpretation of changes and differences

Western Australia is particularly polarized into metropolitan and rural areas, 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, statistics are presented in various ways and some comparisons are made in an attempt to demonstrate that assessing the importance of changes in cancer incidence and mortality is complex and depends on the underlying population sizes and

their age structures. As in previous years, caution is required in assessing changes on the basis of single rate comparisons.

The Cancer Registry database is dynamic, and data are continually updated in the light of the most recent available information. Accordingly, numbers quoted for previous years may vary slightly from those in previous publications. As a guide, while total cancers for 2002 were quoted at 8464 in our previous report, the total currently recorded for 2002 is 8623 cases, an increase of 2%. Ongoing data-reconciliation processes result in some Western Australian cases being recorded as having been diagnosed elsewhere, or in earlier years, and such case-counts necessarily rise and fall as new information arrives.

1.4 Statistical methods

Statistics from the Registry commonly fall into one of two major groups: incidence (all malignancies except specific non-melanoma skin cancers) and mortality (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 in this report are calculated separately for males and females and are expressed as events (diagnoses or deaths) per 100,000 person-years.

Age-specific rates (ASPR) 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.

Age-standardized rates (ASR in Tables) are calculated by the direct method and represent a summation of weighted age-specific rates. Tables in this report now show the 95% confidence interval for ASRs, instead of the standard deviation (SD). The 95% c.i. is approximately (ASR ± 1.96 * SD).

The **World Standard Population 1960** [1] 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)[2] population standard, labelled "ASR2". These ASRs are usually quite different and comparisons need to take note of which "standard" is being used.

When a subset of age groups is considered, the term **age-adjusted rate** is used instead of ASR, as standardization has considered only some age groups, for both cases and population.

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

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 as an index of premature death (see Appendix 2B).

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

2. Cancer in Western Australia, 2003

2.1 All cancers

Incidence

In 2003, there were 8653 new diagnoses of cancer in Western Australia, an increase of 0.3% over a "current" figure for 2002 (8623 cases). There were 4796 cancers dignosed in males (55%) and 3857 (45%) in females. Corresponding age-standardized incidence rates were 354 per 100,000 (males) and 268 per 100,000 (females), both slightly lower than updated rates for 2002.

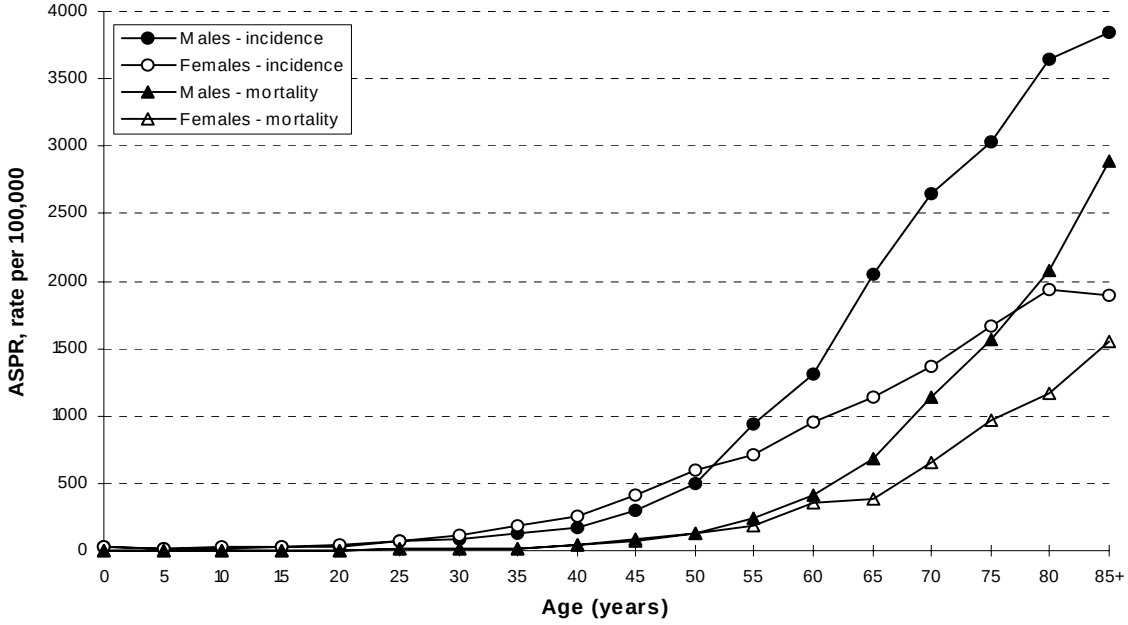
The estimated lifetime risk of cancer to age 75 years was 1 in 3 for males and 1 in 4 for females. The cumulative incidence of cancer - the proportion of persons in whom cancer had been diagnosed by age 75 years - was 41.5% for males, 29.6% for females, slightly lower than in 2002.

In 2003, rates for both sexes aged 15-34 years were similar, followed by a marked predominance of women between 35 and 54 years, and of males at older ages (Figure 1). Differences in the youngest age groups, indistinct on the linear-scale graph, are inconsistent.

Most of the excess cancer risk in females between ages 35 and 54 was due to ovarian and breast cancers, while prostate cancer and lung cancer were responsible for the high male/female rate ratio (approximately 2) at ages over 55 years.

The proportion of all cancers with a microscopic diagnosis was high (94% in males and in females, stable over the last 5 years). Among the most common cancer types, pancreatic cancer was the most often diagnosed by non-histological methods (54% in males, 53% in females, both markedly higher than in 2002. Cancers of unknown primary site and primary liver cancer were also commonly diagnosed by non-microscopic methods.

Figure 1. Age-specific all-cancers incidence and mortality rates, Western Australia, 2003.



Mortality

Among Western Australian residents in 2003, there were 1835 deaths due to cancer in males and 1483 in females. Mortality ASRs were 126 deaths per 100,000 males and 87 per 100,000 females. The estimated lifetime risk of death due to cancer before age 75 years was 1 in 8 for males and 1 in 11 for females. These rates and risks are statistically similar to those for 2002.

These deaths include 20 cases due to non-melanocytic skin cancers of the types (squamous and basal cell carcinomas) that are not included in incidence data (11 males, 9 females; 19 SCCs and one BCC).

In 2003, there were 19 cancer-related deaths in persons not normally resident in Western Australia (14 Australian, 5 from overseas); these are not included in mortality statistics in this report.

Other 2003 deaths recorded by the Cancer Registry included:

Deaths due to benign tumours - none

Deaths due to "uncertain malignant potential" lymphohaematopoietic neoplasms - 1

Deaths due to "uncertain malignant potential" non-lymphohaematopoietic neoplasms - 3

Deaths due to non-tumour-related causes among persons with a Registry tumour record - 759 males (increased since 2002), 565 females (also increased).

Deaths of unresolved cause among persons with a tumour record - 9 (2 males, 7 females).

Before the age of 75 years, a total of 12169 person-years of life were lost due to cancer among males (similar to 2002 data) and 11049 in females (also similar).

There was no significant change in the age-pattern of cancer mortality in 2003. Cancer death rates generally increased for both males and females from age 20 (Fig. 1), with low case numbers at earlier ages. All-cancers death rates among males were consistently higher than in females at ages greater than 45 years.

Mortality to incidence ratios

Except in situations where incidence and/or mortality are changing rapidly, or notification of cancer is incomplete, the ratio of mortality to incidence for a cancer gives a crude indication of its impact. The 2003 mortality/incidence (M/I) rate ratio for prostate cancer was 0.14, similar to the 2002 figure, and the mortality/incidence ratio for breast cancer in females was unchanged at 0.19. However, lung cancer has a far higher impact, with 2003 M/I ratios of 0.85 in males and 0.81 in females. All-cancers mortality/incidence ratios for 2003 were higher for males than for females (0.36 and 0.32, similar to 2002 data).

2.2 Common cancers

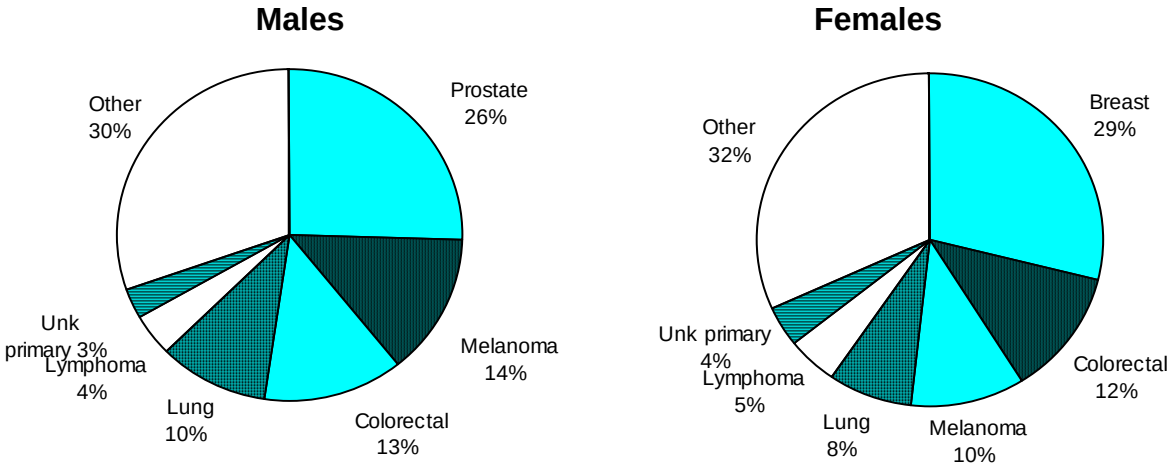
Incidence

In females, breast cancer continued to be the most common incident cancer (1119 cases, 29% of all cancers in females; ASR 83 per 100,000). This was followed by colorectal cancer (12%), melanoma of the skin (10%) and lung cancer (8%). These most-common cancers in females are unchanged over the last 5 years. There were an additional 214 newly-diagnosed cases of *in situ* breast carcinoma reported, increased by 10% from 2002.

The most common cancers in males were prostate cancer (1230 cases; 26%), melanoma (650 cases; 14%), colorectal cancer (13%), and lung cancer (11%) (Table 1; Fig. 2). The age-standardized incidence rate of prostate cancer was 90.2 per 100,000, increased from 73 in 2001, but slightly lower than in 2002. For all the major cancers affecting both males and females, males had a higher incidence than females. For lung cancer, the ASRs were 34 in males and 19 in females; for colorectal cancer, ASRs were 45 and 28. Melanoma ASRs were 49 in males, 30 in females.

Lymphomas, collectively the next most common cancer in both sexes, accounted for 4-5% of cancers in males and in females, with ASRs of 15 and 12 per 100,000. Cancers of unknown primary site were recorded in 138 males (3% of all cancers, ASR 10) and 151 females (4%, ASR 8). While figures for males were similar to those for 2002, data for females may indicate an increase.

Figure 2. Cancer incidence, Western Australia, 2003: common cancers



Other common specific cancer types diagnosed included:

Leukaemias - 110 cases in men (ASR 9.6), 77 in women (ASR 6.5)
(essentially unchanged since 2002)
Bladder - 131 cases in men (ASR 8.8), 41 in women (ASR 2.2)
Kidney - 133 cases in men (ASR 10.0), 80 in women (ASR 5.5)
Stomach - 104 cases in men (ASR 7.3), 40 in women (ASR 2.3)

Other common cancer types in women were ovarian cancer (120 cases, ASR 8.2), uterine cancer (114 cases, ASR 8.0) and cervical cancer (82 cases, ASR 6.4).

Mortality

The most common causes of cancer-related death in males were lung cancer (23%), colorectal cancer (14%) and prostate cancer (11%) (Table 1; Fig. 3). Breast (17.3%), lung (17.0%) and colorectal cancer deaths (12%) were the most common in females. In 2000, lung cancer outranked breast cancer as a cause of death among women, however this was unusual. Nevertheless, in 2003, there were only 4 more deaths due to breast cancer than to lung cancer, and while early detection may continue to prevent mortality due to breast cancer, lung cancer remains a significant problem in Western Australian women.

Other major causes of cancer-related mortality included tumours of unknown primary site and pancreas in both sexes, lymphomas and brain cancers in males, and ovarian cancer, leukaemia and lymphoma in females. With minor changes, including an increasing prominence of deaths due to lymphoma, these are consistent with the usual common causes of cancer-related death in recent years.

In 2003, lung cancer was responsible for 680 deaths (428 males, ASR 29 per 100,000; 252 females, ASR 15). Prostate cancer mortality was essentially unchanged since 2001 (202 deaths, ASR 12). In women, the breast cancer death rate was similar to that of 2001 and 2002 (256 cases, ASR 16 per 100,000 females). Among causes of cancer-related death, colorectal cancer again ranked second in males and third in females: 258 deaths in males (ASR 18) and 184 females (ASR 10).

Tumours of unknown primary site were again the fourth most common cause of cancer death in both sexes (94 males, 105 females), and accounted for 5% of all cancer deaths in males and 7% in females.

Figure 3. Cancer mortality, Western Australia, 2003: common cancers

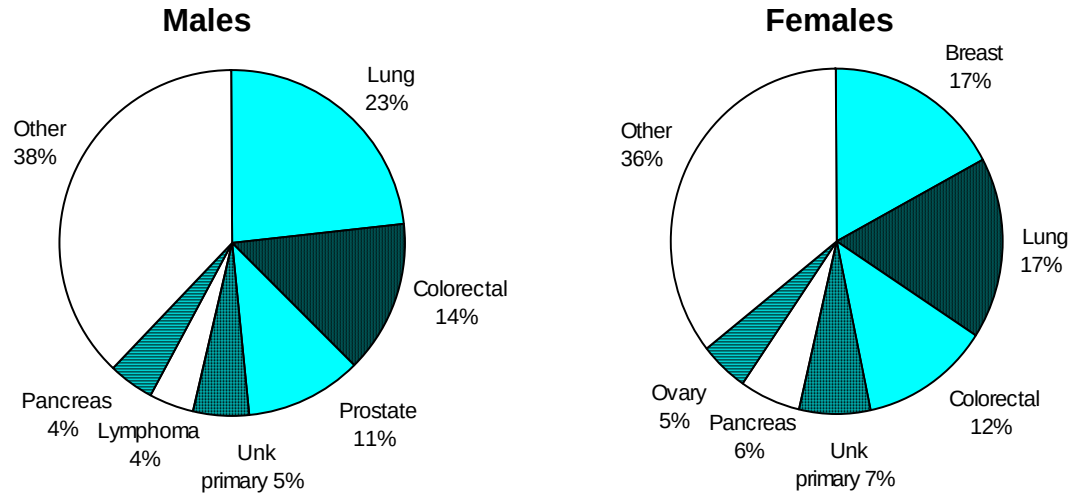


Table 1. Cancer incidence and mortality, Western Australia, 2003: leading types in males and females

Incidence

Males	Cases	%	ASR	95%c.i.	Risk
Prostate	**1230**	25.6	**90.2**	85.0-95.4	9
Melanoma (skin)	**650**	13.6	**49.4**	45.5-53.3	19
Colorectal	**621**	12.9	**44.8**	41.2-48.4	19
Colon	**363**	7.6	**25.6**	22.9-28.3	33
Rectum	**256**	5.3	**19.0**	16.7-21.4	42
Lung	**503**	10.5	**34.5**	31.4-37.7	24
Lymphoma	**198**	4.1	**15.2**	13.0-17.4	65
Lymphoma NOS	**7**	0.1	**0.5**	0.1-0.9	3793
Hodgkin lymphoma	**19**	0.4	**1.7**	0.9-2.5	770
NHL	**172**	3.6	**13.0**	11.0-15.0	72
Unknown primary	**134**	2.8	**9.6**	7.9-11.3	94
Kidney	**133**	2.8	**10.0**	8.2-11.8	85
Bladder	**131**	2.7	**8.8**	7.2-10.3	111
Leukaemia	**110**	2.3	**9.6**	7.7-11.6	118
Leukaemia NOS	**3**	0.1	**0.2**	0 - 0.4	*
Lymphoid leukaemia	**57**	1.2	**5.3**	3.8-6.8	228
Myeloid leukaemia	**38**	0.8	**3.3**	2.2-4.4	294
Leukaemia, other	**12**	0.3	**0.8**	0.3-1.3	1550
Stomach	**104**	2.2	**7.3**	5.8-8.7	127
Pancreas	**91**	1.9	**6.4**	5.0-7.8	134
Oesophagus	**85**	1.8	**6.0**	4.7-7.3	151
Lip	**82**	1.7	**6.0**	4.7-7.3	155
Brain	**74**	1.5	**6.1**	4.6-7.5	155
Testis	**73**	1.5	**6.8**	5.2-8.4	190
Mesothelioma	**56**	1.2	**4.0**	3.0-5.1	195
Skin (NMSC exc. SCC/BCC	**51**	1.1	**3.7**	2.7-4.8	250
Myeloma	**48**	1.0	**3.3**	2.3-4.2	288
Larynx	**46**	1.0	**3.3**	2.4-4.3	251
Myelodysplastic diseases	**44**	0.9	**2.9**	2.0-3.8	359
All cancers	**4796**	100.0	**354.3**	344-365	3

Females	Cases	%	ASR	95%c.i.	Risk
Breast	**1119**	29.0	**83.4**	78.4-88.5	11
Colorectal	**467**	12.1	**28.5**	25.7-31.4	31
Colon	**310**	8.0	**18.5**	16.3-20.8	48
Rectum	**154**	4.0	**9.8**	8.1-11.5	87
Melanoma (skin)	**403**	10.4	**30.5**	27.3-33.6	32
Lung	**301**	7.8	**18.8**	16.5-21.1	45
Lymphoma	**180**	4.7	**12.5**	10.6-14.5	75
Lymphoma NOS	**8**	0.2	**0.4**	0.1-0.7	3232
Hodgkin lymphoma	**18**	0.5	**1.7**	0.9-2.5	731
NHL	**154**	4.0	**10.4**	8.7-12.2	86
Unknown primary	**151**	3.9	**8.4**	6.9-9.8	109
Ovary	**120**	3.1	**8.2**	6.6-9.7	117
Uterus	**114**	3.0	**8.0**	6.4-9.5	100
Thyroid gland	**100**	2.6	**8.4**	6.7-10.1	127
Cervix	**82**	2.1	**6.4**	4.9-7.8	163
Kidney	**80**	2.1	**5.5**	4.2-6.8	158
Leukaemia	**77**	2.0	**6.5**	4.8-8.1	176
Leukaemia NOS	**4**	0.1	**0.2**	0 - 0.4	6716
Lymphoid leukaemia	**30**	0.8	**3.1**	1.8-4.3	401
Myeloid leukaemia	**37**	1.0	**3.0**	1.9-4.0	354
Leukaemia, other	**6**	0.2	**0.3**	0.0-0.6	4631
Pancreas	**75**	1.9	**4.5**	3.4-5.6	176
Lip	**58**	1.5	**4.0**	2.9-5.1	226
Brain	**56**	1.5	**4.7**	3.4-6.0	185
Myeloma	**44**	1.1	**2.8**	1.9-3.7	268
Bladder	**41**	1.1	**2.2**	1.5-3.0	469
Stomach	**40**	1.0	**2.3**	1.5-3.1	350
Gallbladder / bile ducts	**40**	1.0	**2.1**	1.4-2.8	555
All cancers	**3857**	100.0	**267.9**	259-277	4

Mortality

Males	Deaths	%	ASR	95%c.i.	Risk
Lung	**428**	23.3	**29.3**	26.5-32.2	29
Colorectal	**258**	14.1	**17.6**	15.3-19.8	54
Colon	**159**	8.7	**10.6**	8.9-12.3	98
Rectum	**99**	5.4	**7.0**	5.6-8.4	118
Prostate	**202**	11.0	**12.4**	10.6-14.1	110
Unknown primary	**94**	5.1	**6.5**	5.2-7.9	139
Lymphoma	**79**	4.3	**5.4**	4.1-6.6	210
Lymphoma NOS	**3**	0.2	**0.2**	0 - 0.4	8403
Hodgkin lymphoma	**1**	0.1	**0.1**	0 - 0.3	8403
NHL	**75**	4.1	**5.1**	3.9-6.3	221
Pancreas	**74**	4.0	**5.2**	3.9-6.4	149
Brain	**69**	3.8	**5.3**	4.0-6.6	148
Oesophagus	**68**	3.7	**4.6**	3.5-5.8	181
Stomach	**67**	3.7	**4.5**	3.4-5.6	208
Leukaemia	**63**	3.4	**4.4**	3.3-5.6	235
Leukaemia NOS	**3**	0.2	**0.2**	0 - 0.4	8403
Lymphoid leukaemia	**22**	1.2	**1.6**	0.9-2.4	641
Myeloid leukaemia	**32**	1.7	**2.2**	1.4-2.9	462
Leukaemia, other	**6**	0.3	**0.4**	0.1-0.8	2365
Melanoma (skin)	**58**	3.2	**4.3**	3.2-5.4	196
Mesothelioma	**58**	3.2	**4.0**	2.9-5.0	229
Bladder	**57**	3.1	**3.6**	2.7-4.6	362
Myeloma	**44**	2.4	**3.0**	2.1-3.9	325
Kidney	**38**	2.1	**2.6**	1.7-3.4	352
Liver	**37**	2.0	**2.6**	1.8-3.5	300
Skin (not melanoma)	**24**	1.3	**1.8**	1.0-2.5	460
Myelodysplastic diseases	**24**	1.3	**1.4**	0.8-1.9	1366
Gallbladder / bile ducts	**19**	1.0	**1.4**	0.8-2.0	533
Larynx	14	0.8	0.9	0.4-1.4	943
All cancer deaths	1835	100.0	125.8	120-132	8

Females	Deaths	%	ASR	95%c.i.	Risk
Breast	**256**	17.3	**16.2**	14.1-18.4	60
Lung	**252**	17.0	**15.3**	13.3-17.4	55
Colorectal	**184**	12.4	**9.5**	8.0-11.1	104
Colon	**122**	8.2	**6.3**	5.0-7.5	167
Rectum	**62**	4.2	**3.2**	2.4-4.1	274
Unknown primary	**105**	7.1	**5.5**	4.3-6.7	157
Pancreas	**83**	5.6	**4.9**	3.8-6.1	188
Ovary	**71**	4.8	**4.3**	3.2-5.4	213
Leukaemia	**57**	3.8	**3.3**	2.3-4.3	337
Leukaemia NOS	**2**	0.1	**0.1**	0 - 0.1	*
Lymphoid leukaemia	**20**	1.3	**1.2**	0.6-1.8	947
Myeloid leukaemia	**28**	1.9	**1.8**	1.1-2.6	522
Leukaemia, other	**7**	0.5	**0.2**	0.1-0.4	*
Lymphoma	**51**	3.4	**2.9**	2.0-3.7	304
Lymphoma NOS	**4**	0.3	**0.2**	0 - 0.3	*
Hodgkin lymphoma	**1**	0.1	**0.1**	0 - 0.2	*
NHL	**46**	3.1	**2.6**	1.8-3.5	317
Brain	**42**	2.8	**3.2**	2.1-4.2	258
Myeloma	**37**	2.5	**1.9**	1.3-2.6	423
Stomach	**34**	2.3	**2.2**	1.4-3.0	353
Kidney	**34**	2.3	**2.2**	1.4-3.0	305
Oesophagus	**31**	2.1	**1.5**	0.9-2.1	768
Gallbladder / bile ducts	**30**	2.0	**1.7**	1.0-2.4	698
Melanoma (skin)	**28**	1.9	**1.9**	1.2-2.7	446
Uterus	**25**	1.7	**1.2**	0.7-1.8	993
Cervix	**24**	1.6	**1.8**	1.0-2.5	511
Bladder	**24**	1.6	**0.9**	0.5-1.4	3225
Myelodysplastic diseases	**20**	1.3	**0.8**	0.4-1.2	1614
Skin (not melanoma)	16	1.1	0.6	0.3-0.9	2877
All cancer deaths	1483	100.0	87.0	82.1-91.8	11

Notes: - no data; * no data <75 years or risk less than 1 in 10,000

Other specific cancers of particular prominence in cancer mortality in 2003 included:

Lymphomas - 130 deaths (79 males, 51 females; decreased in females)
Leukaemia - 120 deaths (63 males, 57 females; decreased in males, increased in females)
Malignant brain tumours - 111 deaths (69 males, 42 females; increased in males)
Stomach cancer - 101 deaths (67 males, 34 females; both decreased)
Melanoma - 86 deaths (58 males, 28 females)
Kidney - 72 deaths (38 males, 34 females; decreased in males)

In females: Cancer of the ovary - 71 deaths (similar to 2002 data)

In males: Mesothelioma - 58 deaths; similar to 2002 data.

2.3 Cancer in different age groups

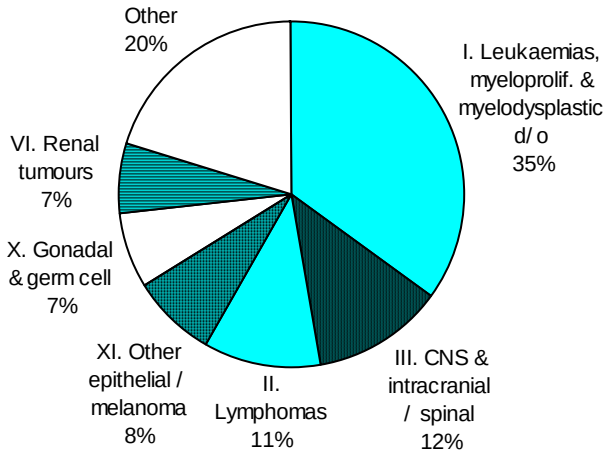
2.3.1 Cancer in children

In children under the age of 15 years, there were 74 cases of cancer diagnosed in 2003, 39 males and 35 females. The corresponding ASRs were 19.2 per 100,000 males, 18.1 per 100,000 females. (**Appendix 3C**). The estimated 0-14 years population in Western Australia in 2003 was 398,348 children (204,059 males and 194,289 females).

Diagnoses are routinely coded and reported using ICD-O 3rd edition,[3] but are also tabulated using the WHO-sponsored International Classification of Childhood Cancer, into 12 major diagnostic groups based primarily on tumour morphology; these are shown in **Appendix 3C**. This report uses the draft 3rd revision of this classification as current in March 2005.

The most common tumours diagnosed in children in 2003 are shown in Figure 4. The leukaemias and lymphomas accounted for 46% of all diagnoses as in 2002. The most common individual tumour type was lymphoblastic leukaemia, with 20 children newly diagnosed (ASR 5.5 in males, 5.1 in females). There were 2 melanoma cases reported in Western Australian children in 2003 (1 male, 1 female); both were high-level tumours with a depth of over 1.5mm.

Figure 4. Cancer in children under 15 years of age, Western Australia, 2003: most common types.



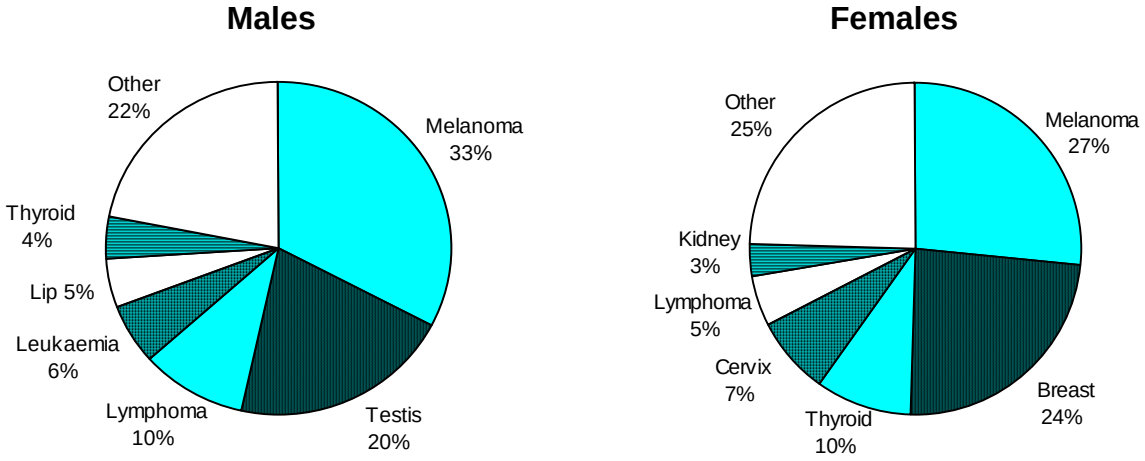
Although cancer incidence was higher than in 2002, there were only 9 cancer-related deaths (3 males, 6 females) in children in 2003, fewer than the 15 deaths in 2002. Age-adjusted death

rates were 1.4 per 100,000 in males and 3.1 per 100,000 in females. The estimated risk of death due to cancer before the age of 15 was 1 in 4575 for males, and 1 in 2156 for females.

2.3.2 Cancer in the 15-39 years age range

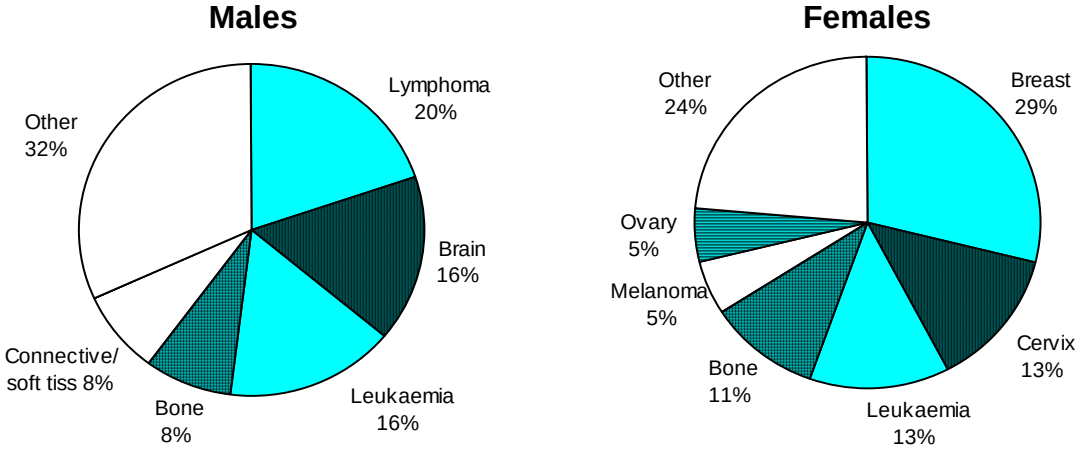
Incidence: In the 15 to 39 years age range, there were 551 cancer diagnoses in 2003 (250 males, ASR 65, 301 females, ASR 76). Melanoma of the skin was most common in both sexes (82 males, 80 females). Second-ranked cancers were testicular cancer in males (51 cases, 20% of all cancers) and breast cancer in females (71 cases, 24% of all cancers) (Fig. 5). Thyroid and cervical cancers were the next most common in females (as in recent years), with lymphoma (25 cases) and leukaemia (15 cases) following next in males. Colorectal cancer in males and females continued to be less common than in previous years in this age group.

Figure 5. Cancer incidence, Western Australia, 2003: common cancers in the 15 to 39 years age group



Mortality: Among persons aged 15 to 39 years, there were 63 cancer-related deaths in 2003, slightly fewer than in 2001 and 2002 (Table 3). Among males, lymphomas, brain cancers and leukaemias were the leading causes of cancer-related death in this age group (Fig. 6). In females, breast cancer was the leading cause of cancer death (11 deaths, 29% of female deaths), followed by cervical cancer (5 deaths) and leukaemia (5 deaths). As cancer-related death in this age group is relatively uncommon, these 'rankings' are very variable from year to year.

Figure 6. Cancer mortality, Western Australia, 2003: common cancers in the 15 to 39 years age group

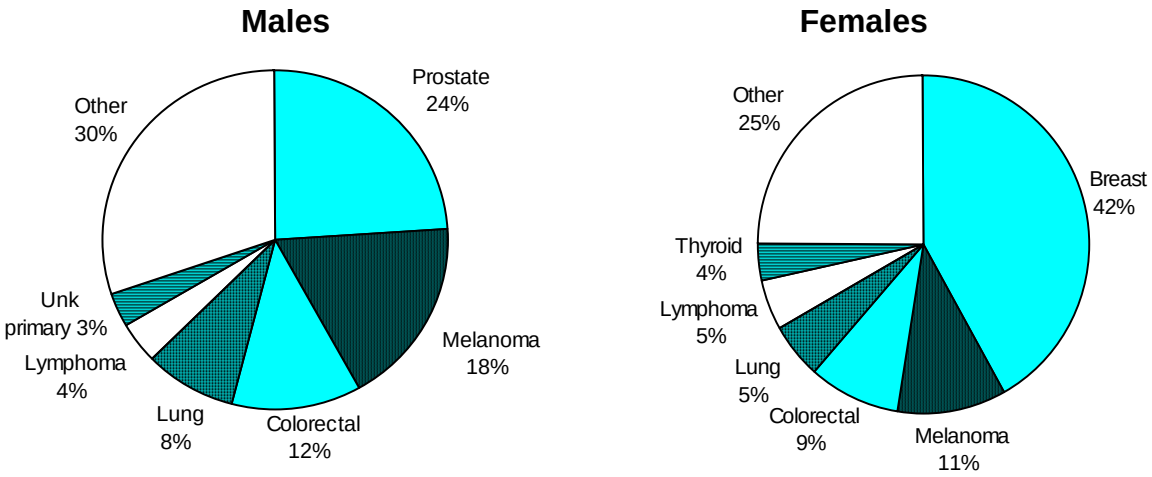


2.3.3 Cancer in the 40-64 years age range

Incidence: In the age range 40 to 64 years, breast cancer continued to dominate reported incident cancers (695 cases, 42% of all female cancers in this age group, similar to 2001 and 2002 data) (Table 2; Fig. 7). The risk of cancer occurring in this age range was 1 in 7 for males, and 1 in 7 for females, similar to the risks in 2002. Over half (51%) of all new cancer diagnoses in this age range occurred in males. In males, prostate cancer (24%) was most common, followed by melanoma (18%) and colorectal cancer (12%).

As in the previous 4 years, melanoma cases (177, 11%) outnumbered colorectal cancers (145, 9%) in this age group in females. Also in common with data from recent years, lung cancer was the fourth most common type in both sexes: 148 cases in males (8%), 90 in females (5%).

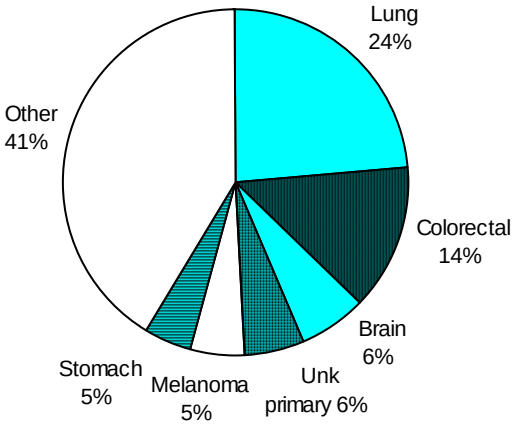
Figure 7. Cancer incidence, Western Australia, 2003: common cancers in the 40 to 64 years age group

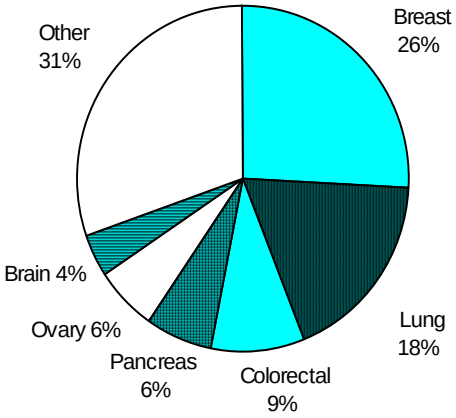


Mortality: In the age range 40 to 64 years, lung cancer was, as in 2002, the most common cause of cancer-related death in 2003 among males (113 deaths, age-adjusted rate of 38 per 100,000 males; little change since 2001) (Table 3; Figure 8). Other leading causes of death in males were colorectal cancer (65 deaths) and brain cancers (30 deaths), and cancers of unknown primary site (27 deaths). Major causes among females were breast cancer (106 deaths), lung cancer (74 deaths) and colorectal cancer (38 deaths). Cancers of unknown primary site were the 4th most common cause of death in males (27 deaths) and 7th in females (15 deaths).

Figure 8. Cancer mortality, Western Australia, 2003: common cancers in the 40 to 64 years age group

Males **Females**


Lung
24%
Other
41%
Colorectal
14%
Brain
6%
Stomach
5%
Melanoma
5%
Unk
primary 6%

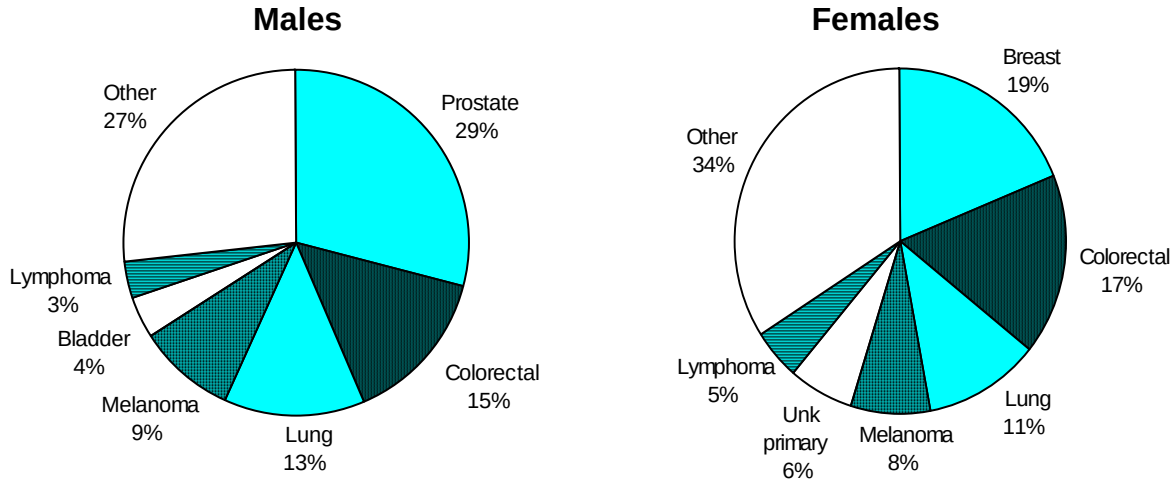

Other
31%
Breast
26%
Brain 4%
Ovary 6%
Pancreas
6%
Colorectal
9%
Lung
18%

2.3.4 Cancer in persons aged 65 and over

Incidence: Over the age of 65 years, prostate cancer (802 cases) outnumbered any other specific cancer type in either sex (Table 2; Fig. 9) and accounted for 29% of diagnoses in males. Although rates have fluctuated, this represents a considerable increase since 2001. Among females, breast cancer predominated (353 cases, 19% of all cancers, somewhat reduced since 2002). Other common cancer types in this age range were colorectal cancer (15% in males, 17% in females) and lung cancer (13%, 11%) (both similar to 2001 and 2002 data).

Melanoma of the skin was the fourth most common cancer type in males and in females. While incidence of cancers of unknown primary site has been higher in males than in females in recent years, rates for 2003 were higher in females (76.9 per 100,000) than in males (65.4) (Table 2).

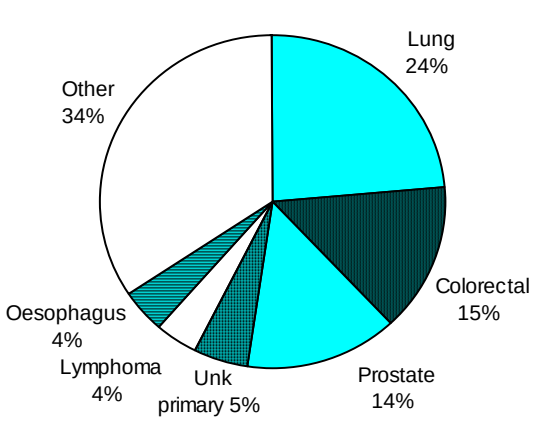
Figure 9. Cancer incidence, Western Australia, 2003: common cancers in the 65 years & over age group



Mortality: Over the age of 65 years, lung cancer was, as in recent years, the most common cause of cancer-related death in both sexes: in males, 314 deaths, ASR 283 per 100,000; in females, 177 deaths, rate 127 - decreased in males, but increased in females. Colorectal cancer ranked second in males (193 deaths, rate 174) and in females (145 deaths, rate 90). Deaths due to prostate cancer ranked third in males (187 deaths, rate 158). Cancers of unknown primary site were a major cause of death in this age range (157 deaths, 60% of them in males) (Figure 10).

Figure 10. Cancer mortality, Western Australia, 2003: common cancers in the 65 years & over age group

Males **Females**


Lung
24%
Other
34%
Colorectal
15%
Oesophagus
4%
Lymphoma
4%
Unk
primary 5%
Prostate
14%

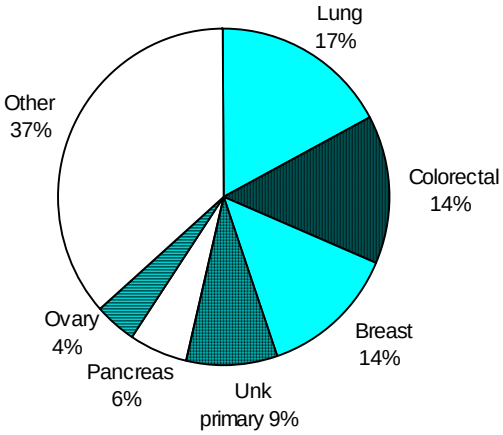

Lung
17%
Other
37%
Colorectal
14%
Ovary
4%
Breast
14%
Pancreas
6%
Unk
primary 9%

Table 2. Cancer incidence, Western Australia, 2003: leading types by sex and age group (ASR: age-adjusted rate)

15 to 39 years

Males

	Total	%	ASR	95%c.i.	Risk
Melanoma (skin)	**82**	32.8	**20.9**	16.3-25.5	176
Testis	**51**	20.4	**13.6**	9.8-17.4	279
Lymphoma	**25**	10.0	**6.4**	3.9-9.0	580
Lymphoma NOS	**1**	0.4	**0.3**	0 - 1.0	*
Hodgkin lymphoma	**9**	3.6	**2.5**	0.8-4.1	1594
NHL	**15**	6.0	**3.6**	1.8-5.5	978
Leukaemia	**15**	6.0	**4.5**	2.2-6.8	949
Leukaemia NOS	**1**	0.4	**0.2**	0 - 0.7	*
Lymphoid leukaemia	**7**	2.8	**2.1**	0.5-3.7	2054
Myeloid leukaemia	**7**	2.8	**2.2**	0.5-3.8	2006
Leukaemia, other	**0**				
Lip	**12**	4.8	**2.8**	1.2-4.3	1212
Thyroid gland	**10**	4.0	**2.5**	0.9-4.1	1425
Colorectal	**8**	3.2	**2.1**	0.6-3.5	1763
Colon	**2**	0.8	**0.5**	0 - 1.3	6982
Rectum	**6**	2.4	**1.5**	0.3-2.8	2358
All cancers	**250**	100.0	**64.6**	56.4-72.7	58

Females

	Total	%	ASR	95%c.i.	Risk
Melanoma (skin)	**80**	26.6	**20.7**	16.1-25.3	178
Breast	**71**	23.6	**16.5**	12.6-20.4	204
Thyroid gland	**29**	9.6	**7.4**	4.7-10.1	490
Cervix	**22**	7.3	**5.5**	3.2-7.9	649
Lymphoma	**15**	5.0	**4.4**	2.2-6.7	931
Lymphoma NOS	**0**				
Hodgkin lymphoma	**6**	2.0	**1.9**	0.4-3.4	2324
NHL	**9**	3.0	**2.5**	0.8-4.2	1553
Kidney	**10**	3.3	**2.4**	0.9-4.0	1428
Brain	**10**	3.3	**2.6**	1.0-4.3	1404
Leukaemia	**9**	3.0	**2.4**	0.8-4.1	1582
Leukaemia NOS	**0**				
Lymphoid leukaemia	**2**	0.7	**0.6**	0 - 1.4	7146
Myeloid leukaemia	**7**	2.3	**1.9**	0.5-3.3	2031
Leukaemia, other	**0**				
Colorectal	**8**	2.7	**1.9**	0.6-3.2	1799
All cancers	**301**	100.0	**75.9**	67.1-84.6	48

40 to 64 years

Males

	Total	%	ASR	95%c.i.	Risk
Prostate	**426**	24.2	**139.8**	126-153	24
Melanoma (skin)	**311**	17.7	**98.0**	87.0-109	39
Colorectal	**212**	12.1	**69.7**	60.2-79.1	51
Colon	**106**	6.0	**34.9**	28.2-41.6	101
Rectum	**104**	5.9	**34.2**	27.5-40.8	102
Lung	**148**	8.4	**48.8**	40.9-56.8	71
Lymphoma	**72**	4.1	**23.3**	17.9-28.7	158
Lymphoma NOS	**2**	0.1	**0.7**	0 - 1.7	5282
Hodgkin lymphoma	**5**	0.3	**1.6**	0.2-3.0	2402
NHL	**65**	3.7	**20.9**	15.8-26.1	175
Unknown primary	**58**	3.3	**18.8**	13.9-23.7	191
Kidney	**54**	3.1	**17.7**	12.9-22.5	203
Brain	**39**	2.2	**12.6**	8.6-16.6	311
Oesophagus	**38**	2.2	**12.0**	8.1-15.8	298
Stomach	**32**	1.8	**10.6**	6.9-14.3	323
Pancreas	**32**	1.8	**10.3**	6.7-13.9	341
Lip	**31**	1.8	**9.9**	6.4-13.4	378
All cancers	**1759**	100.0	**570.0**	543-597	7

Females

	Total	%	ASR	95%c.i.	Risk
Breast	**695**	41.9	**227.4**	210-244	17
Melanoma (skin)	**177**	10.7	**58.1**	49.5-66.7	68
Colorectal	**145**	8.7	**49.1**	41.0-57.1	73
Colon	**90**	5.4	**30.8**	24.4-37.3	114
Rectum	**53**	3.2	**17.6**	12.8-22.4	203
Lung	**90**	5.4	**30.6**	24.2-37.0	116
Lymphoma	**77**	4.6	**25.2**	19.5-30.8	149
Lymphoma NOS	**4**	0.2	**1.2**	0.0-2.4	3232
Hodgkin lymphoma	**6**	0.4	**1.9**	0.4-3.5	2129
NHL	**67**	4.0	**22.0**	16.7-27.3	168
Thyroid gland	**61**	3.7	**19.7**	14.7-24.7	205
Ovary	**54**	3.3	**17.5**	12.8-22.2	215
Uterus	**49**	3.0	**16.5**	11.8-21.1	219
Cervix	**40**	2.4	**13.3**	9.2-17.5	289
Unknown primary	**28**	1.7	**9.4**	5.9-12.9	383
Lip	**23**	1.4	**7.7**	4.5-10.8	478
Kidney	**22**	1.3	**6.9**	4.0-9.9	516
All cancers	**1660**	100.0	**547.2**	521-574	7

65 years and over

Males

	Total	%	ASR	95%c.i.	Risk
Prostate	**802**	29.2	**787.2**	731-843	14
Colorectal	**400**	14.6	**378.5**	340-417	30
Colon	**255**	9.3	**238.3**	208-269	49
Rectum	**145**	5.3	**140.2**	117-164	74
Lung	**353**	12.8	**316.8**	282-351	36
Melanoma (skin)	**256**	9.3	**243.2**	212-274	43
Bladder	**105**	3.8	**94.9**	76.2-114	152
Lymphoma	**95**	3.5	**86.9**	68.6-105	142
Lymphoma NOS	**4**	0.1	**2.8**	0.0-5.6	0
Hodgkin lymphoma	**4**	0.1	**3.1**	0.0-6.3	5378
NHL	**87**	3.2	**80.9**	63.2-98.6	146
Unknown primary	**73**	2.7	**65.4**	49.9-81.0	193
Kidney	**71**	2.6	**66.6**	50.5-82.7	158
Stomach	**68**	2.5	**61.0**	45.8-76.1	222
Pancreas	**57**	2.1	**52.3**	38.2-66.4	226
Leukaemia	**51**	1.9	**48.2**	34.5-61.9	259
All cancers	**2748**	100.0	**2599.4**	2500-2699	5

Females

	Total	%	ASR	95%c.i.	Risk
Breast	**353**	19.0	**291.9**	259-325	35
Colorectal	**313**	16.8	**220.7**	194-248	55
Colon	**217**	11.7	**150.6**	128-173	84
Rectum	**95**	5.1	**69.7**	54.4-84.9	160
Lung	**209**	11.2	**156.7**	133-180	75
Melanoma (skin)	**145**	7.8	**116.5**	95.7-137	85
Unknown primary	**117**	6.3	**76.9**	61.6-92.3	163
Lymphoma	**86**	4.6	**62.2**	47.7-76.7	187
Lymphoma NOS	**4**	0.2	**1.6**	0.0-3.2	0
Hodgkin lymphoma	**4**	0.2	**3.4**	0 - 7.0	3099
NHL	**78**	4.2	**57.1**	43.2-71.1	199
Uterus	**61**	3.3	**49.7**	36.1-63.2	193
Pancreas	**58**	3.1	**44.1**	31.5-56.6	239
Ovary	**57**	3.1	**42.2**	30.0-54.3	306
Kidney	**46**	2.5	**36.6**	25.1-48.1	280
Leukaemia	**37**	2.0	**27.0**	17.4-36.5	443
All cancers	**1861**	100.0	**1390.9**	1322-1460	8

Notes: - no data; * no data <75 years or risk less than 1 in 10,000

Table 3. Cancer mortality, Western Australia, 2003: leading types by sex and age group (ASR: age-adjusted rate)

15 to 39 years

Males

	Total	%	ASR	95%c.i.	Risk
Lymphoma	**5**	20.0	**1.3**	0.1-2.5	2828
Lymphoma NOS	**0**				-
Hodgkin lymphoma	**0**				-
NHL	**5**	20.0	**1.3**	0.1-2.5	2828
Brain	**4**	16.0	**1.1**	0.0-2.2	3615
Leukaemia	**4**	16.0	**1.2**	0.0-2.3	3470
Leukaemia NOS	**0**				-
Lymphoid leukaemia	**2**	8.0	**0.6**	0 - 1.5	6899
Myeloid leukaemia	**2**	8.0	**0.5**	0 - 1.3	6982
Leukaemia, other	**0**				-
Bone	**2**	8.0	**0.5**	0 - 1.3	7258
Connective/ soft tissues	**2**	8.0	**0.5**	0 - 1.3	7068
All cancers	**25**	100.0	**6.7**	4.0-9.4	570

Females

	Total	%	ASR	95%c.i.	Risk
Breast	**11**	28.9	**2.7**	1.1-4.2	1305
Cervix	**5**	13.2	**1.3**	0.1-2.5	2804
Leukaemia	**5**	13.2	**1.3**	0.1-2.5	2816
Leukaemia NOS	**0**				-
Lymphoid leukaemia	**2**	5.3	**0.6**	0 - 1.6	6656
Myeloid leukaemia	**3**	7.9	**0.7**	0 - 1.4	4880
Leukaemia, other	**0**				-
Bone	**4**	10.5	**1.2**	0.0-2.4	3394
Melanoma (skin)	**2**	5.3	**0.4**	0 - 1.1	7331
Ovary	**2**	5.3	**0.4**	0 - 1.1	7331
Brain	**2**	5.3	**0.4**	0 - 1.1	7298
Lymphoma	**2**	5.3	**0.4**	0 - 1.1	7366
Lymphoma NOS	**0**				-
Hodgkin lymphoma	**0**				-
NHL	**2**	5.3	**0.4**	0 - 1.1	7366
All cancers	**38**	100.0	**9.6**	6.5-12.7	375

40 to 64 years

Males

	Total	%	ASR	95%c.i.	Risk
Lung	**113**	23.7	**37.8**	30.8-44.8	93
Colorectal	**65**	13.6	**21.5**	16.2-26.7	167
Colon	**37**	7.8	**12.6**	8.5-16.6	279
Rectum	**28**	5.9	**8.9**	5.6-12.3	414
Brain	**30**	6.3	**9.4**	6.0-12.8	401
Unknown primary	**27**	5.7	**9.3**	5.8-12.8	367
Melanoma (skin)	**23**	4.8	**7.6**	4.5-10.7	503
Stomach	**22**	4.6	**6.8**	3.9-9.7	522
Pancreas	**22**	4.6	**7.1**	4.1-10.1	492
Leukaemia	**18**	3.8	**6.0**	3.2-8.8	632
Leukaemia NOS	**1**	0.2	**0.4**	0 - 1.1	8403
Lymphoid leukaemia	**7**	1.5	**2.4**	0.6-4.2	1698
Myeloid leukaemia	**9**	1.9	**2.9**	1.0-4.7	1320
Leukaemia, other	**1**	0.2	**0.4**	0 - 1.1	8403
Kidney	**17**	3.6	**5.5**	2.9-8.1	622
Liver	**16**	3.4	**5.1**	2.6-7.7	647
All cancers	**477**	100.0	**156.6**	142-171	23

Females

	Total	%	ASR	95%c.i.	Risk
Breast	**106**	25.8	**35.5**	28.7-42.3	103
Lung	**74**	18.0	**25.5**	19.7-31.4	139
Colorectal	**38**	9.2	**12.7**	8.6-16.7	289
Colon	**27**	6.6	**9.2**	5.7-12.7	390
Rectum	**11**	2.7	**3.5**	1.4-5.5	1106
Pancreas	**26**	6.3	**8.7**	5.3-12.1	399
Ovary	**25**	6.1	**8.8**	5.3-12.3	382
Brain	**16**	3.9	**5.4**	2.7-8.0	687
Unknown primary	**15**	3.6	**5.3**	2.6-8.0	641
Lymphoma	**13**	3.2	**4.2**	1.9-6.6	869
Lymphoma NOS	**1**	0.2	**0.3**	0 - 0.9	*
Hodgkin lymphoma	**1**	0.2	**0.3**	0 - 0.9	*
NHL	**11**	2.7	**3.6**	1.5-5.8	990
Gallbladder / bile ducts	**11**	2.7	**3.9**	1.6-6.2	881
Leukaemia	**11**	2.7	**3.6**	1.5-5.8	995
All cancers	**411**	100.0	**139.1**	126-153	26

65 years and over

Males

	Total	%	ASR	95%c.i.	Risk
Lung	**314**	23.6	**283.0**	250-316	43
Colorectal	**193**	14.5	**174.0**	149-200	79
Colon	**122**	9.2	**106.2**	86.6-126	150
Rectum	**71**	5.3	**67.9**	51.5-84.3	165
Prostate	**187**	14.1	**158.5**	135-182	132
Unknown primary	**67**	5.0	**59.9**	45.0-74.7	223
Lymphoma	**57**	4.3	**47.8**	35.0-60.7	353
Lymphoma NOS	**2**	0.2	**1.4**	0 - 3.3	*
Hodgkin lymphoma	**0**				-
NHL	**55**	4.1	**46.5**	33.7-59.2	353
Oesophagus	**54**	4.1	**50.6**	36.6-64.7	230
Pancreas	**51**	3.8	**47.2**	33.7-60.7	216
Mesothelioma	**48**	3.6	**44.6**	31.5-57.7	296
Bladder	**46**	3.5	**39.3**	27.6-51.1	581
Stomach	**44**	3.3	**38.4**	26.7-50.1	353
Leukaemia	**41**	3.1	**35.8**	24.4-47.2	417
All cancers	**1330**	100.0	**1196.7**	1130-1263	12

Females

	Total	%	ASR	95%c.i.	Risk
Lung	**177**	17.2	**126.6**	106-147	91
Colorectal	**145**	14.1	**89.7**	73.6-106	164
Colon	**95**	9.2	**57.0**	44.3-69.6	290
Rectum	**50**	4.9	**32.7**	22.8-42.7	373
Breast	**139**	13.5	**91.0**	74.2-108	156
Unknown primary	**90**	8.8	**59.6**	46.1-73.1	207
Pancreas	**57**	5.5	**39.5**	28.1-51.0	354
Ovary	**44**	4.3	**27.6**	18.5-36.7	510
Leukaemia	**39**	3.8	**23.2**	15.0-31.3	683
Leukaemia NOS	**2**	0.2	**0.9**	0 - 2.0	*
Lymphoid leukaemia	**13**	1.3	**7.7**	3.1-12.4	2015
Myeloid leukaemia	**17**	1.7	**11.5**	5.3-17.7	1033
Leukaemia, other	**7**	0.7	**3.1**	0.8-5.3	*
Lymphoma	**36**	3.5	**23.7**	15.2-32.2	498
Lymphoma NOS	**3**	0.3	**1.2**	0 - 2.6	*
Hodgkin lymphoma	**0**				-
NHL	**33**	3.2	**22.5**	14.1-30.9	498
All cancers	**1028**	100.0	**681.6**	636-728	20

Notes: - no data; * no data <75 years or risk less than 1 in 10,000

3. Cancer in Western Australia: special topics

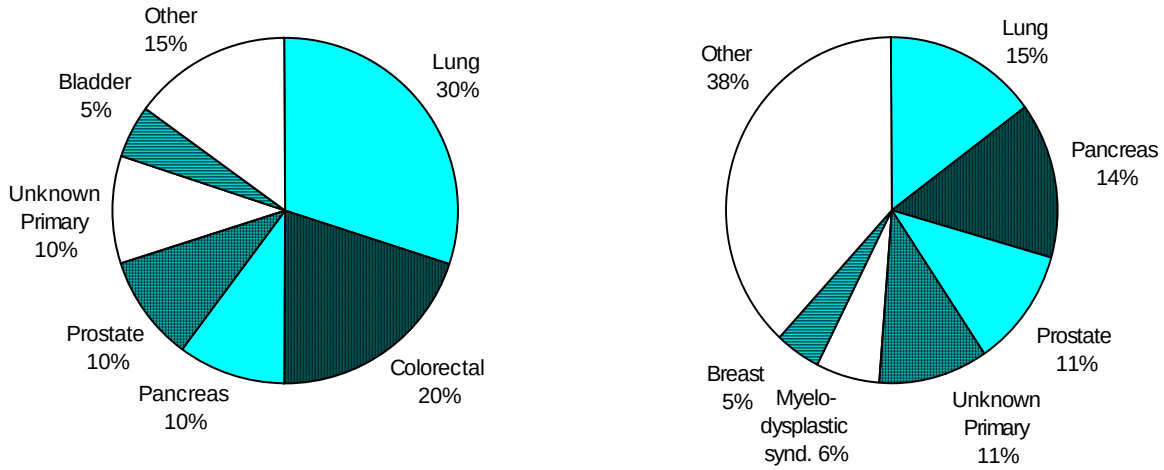
3.1 Death Certificate Only cancers

"Death certificate only" (DCO) cancers are those for which no information other than a death certificate is available. Having a low proportion of DCO cases is widely regarded as an important index of data quality in a Cancer Registry. In Western Australia, there were 20 DCO cancers recorded for 2003, slightly fewer than in 2002 , representing only 0.2% of all cancers. These included lung cancer (6 cases), colorectal cancers (4), pancreatic cancer (2), prostate cancer (2) and cancers of unknown primary site (2) (Fig. 11).

The Registry continues to use computerized hospital discharge data to eliminate some letter-based enquiries, and an additional 133 were recorded on the basis of a death certificate and a coded hospital discharge record alone, with the date of diagnosis taken from the hospital discharge date. These cases totalled only 65% of the 2002 figure, reflecting a combination of better response to enquiries, and continuing active monitoring of the electronic pathology notification systems. Most common types were lung (20), pancreas (19), prostate (15), cancers of unknown primary site (14), and myelodysplastic syndromes (8). These are shown as "DC & HMDS" cases in Fig. 11 below.

As the discharge data lack a true diagnosis date or address, and basis of diagnosis, these data are treated as being less reliable than those sourced from clinical notes and pathology reports. However, the process appears cost-effective in improving timeliness. As noted in our recent reports, an audit is needed - and is currently under way on a small scale (see **Appendix 1B**).

Figure 11. DCO and "DC & HMDS" cancers, 2003: common cancers



3.2 Historical trends in cancer incidence and mortality

Large changes in the apparent incidence of cancer, or cancer-related mortality, have been apparent in Western Australia at various times, the best example being changes in prostate cancer incidence. Smaller changes are more common, and may result from changes in detection, real changes in the occurrence of disease, completeness of notification or, in the case of mortality, improvements in cancer treatment. Assessment of the significance of changes is made difficult when numbers of cases or deaths are small. In this section, five-year trends for the most common cancer types are presented in graphical form (Figure 12).

Rates are used for trend assessment, rather than numbers of cases, as the population is growing. In the graphs which follow, both sexes are shown where applicable; the ASRs are the age-standardized rates per 100,000 persons of the relevant sex.

Figure 12. Selected cancers, Western Australia, 1999-2003: trends in incidence and mortality rates for males (——) and females (- - - -)

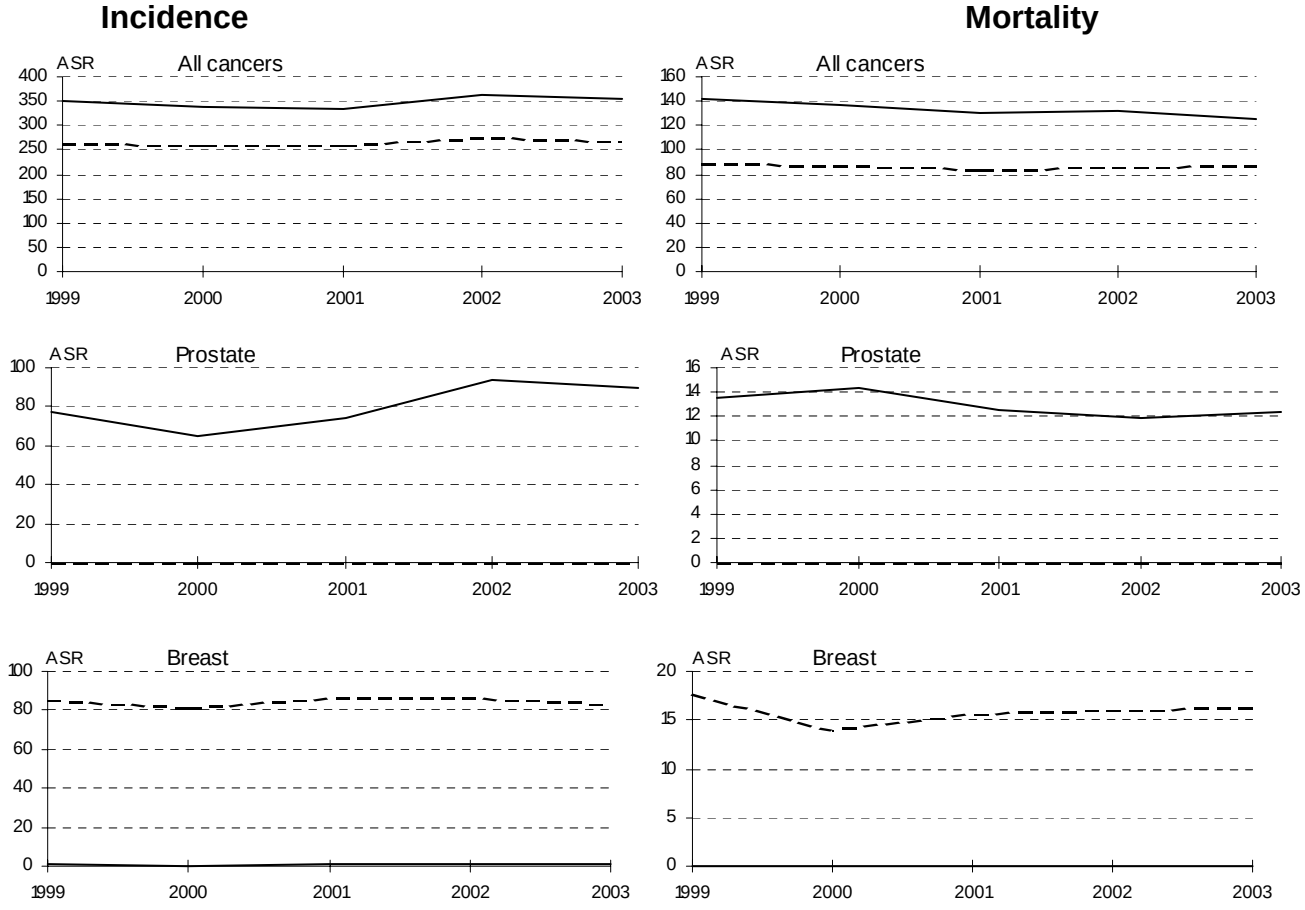


Figure 12 (cont.). Selected cancers, Western Australia, 1999-2003: trends in incidence and mortality rates for males (——) and females (- - - -)

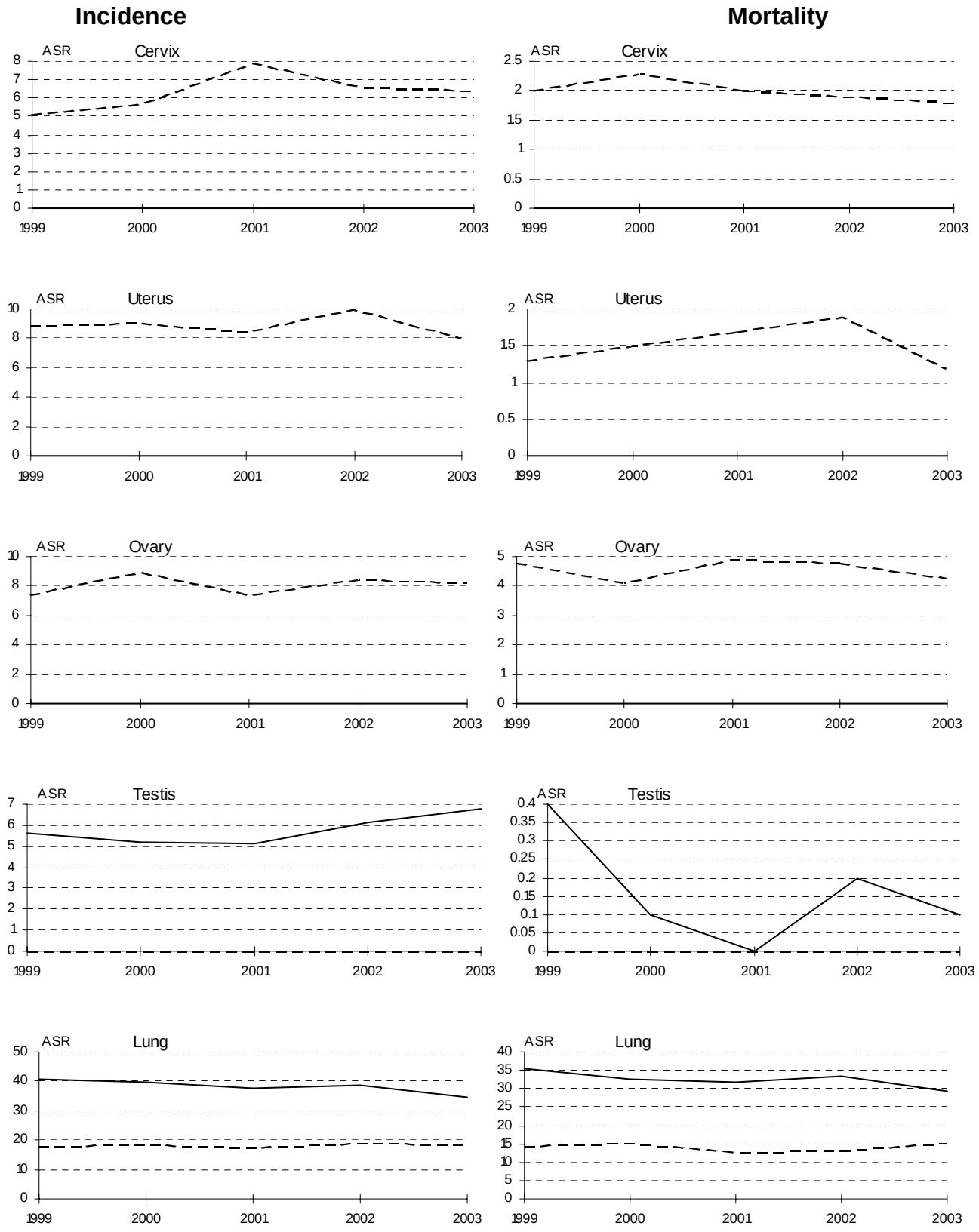


Figure 12 (cont.). Selected cancers, Western Australia, 1999-2003: trends in incidence and mortality rates for males (——) and females (- - - -)

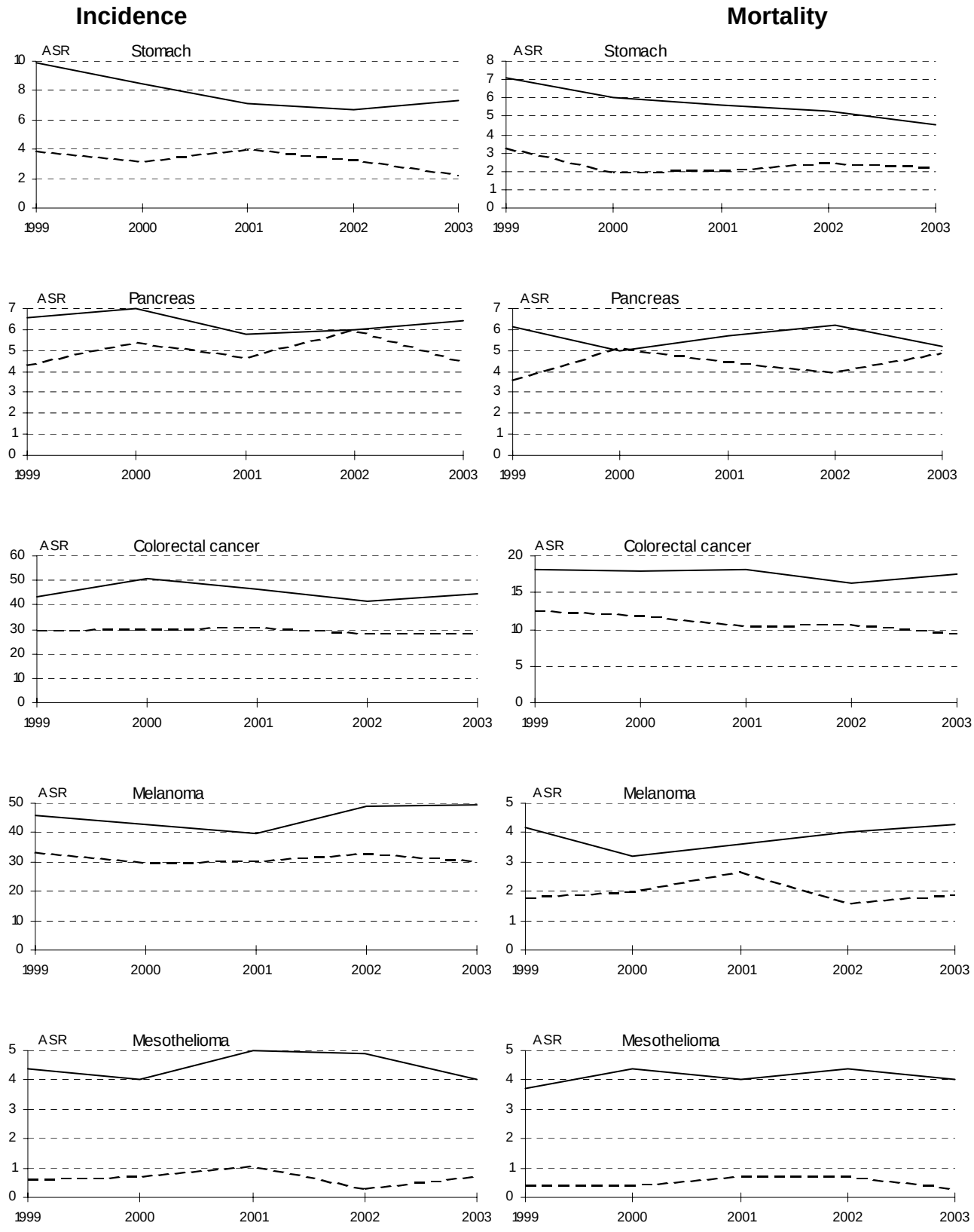


Figure 12 (cont.). Selected cancers, Western Australia, 1999-2003: trends in incidence and mortality rates for males (——) and females (- - - -)

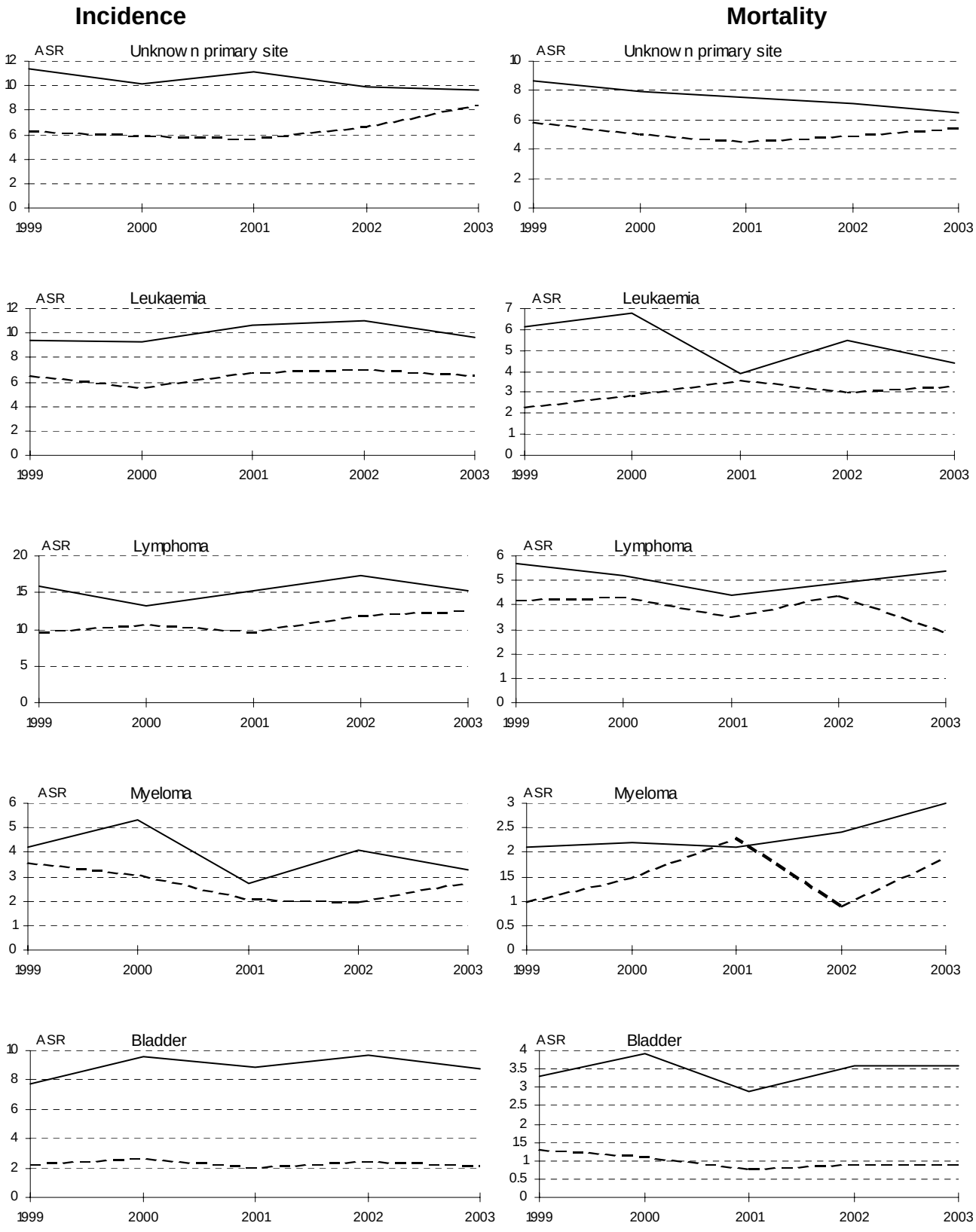
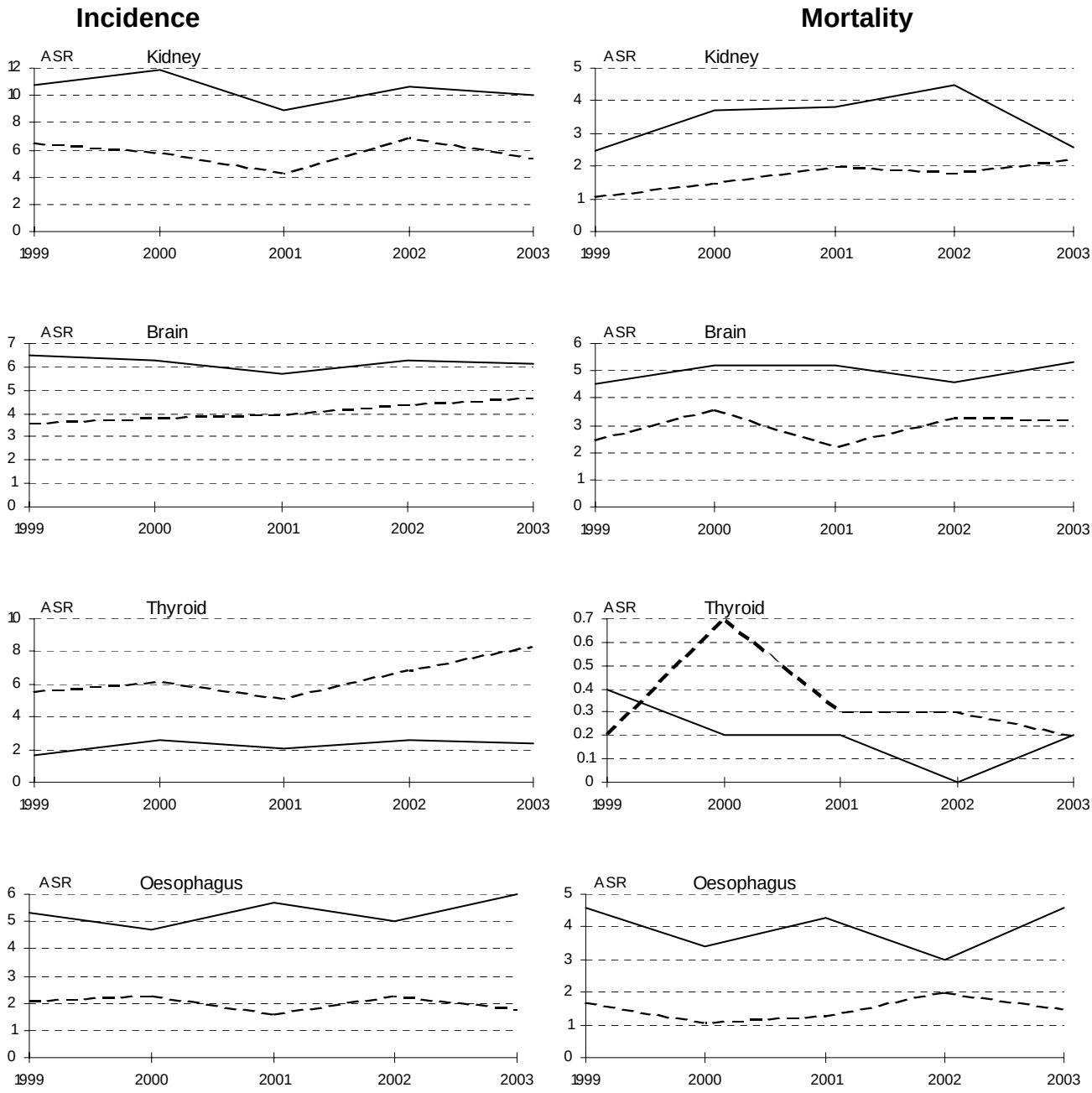


Figure 12 (cont.). Selected cancers, Western Australia, 1999-2003: trends in incidence and mortality rates for males (——) and females (- - - -)



3.3 Revised projections of cancer incidence

3.3.1 Need for projections

There have been many influences which combine to make projections of cancer case numbers and rates somewhat unreliable, as discussed in previous reports. However, such projections are requested and are presented here as the best available basis for prediction of future need for medical services. These do not take into account unknown changes in risk factors or diagnostic practices, and can be adversely affected by past events, and should be used with some caution.

3.3.2 Methods

Using an exponentially-weighted moving average method as described in *Cancer incidence and mortality in Western Australia 2002*,[4] updated projections for several cancer types have been revised and are presented here in Tables 4 to 8. Time trend assessment has been conducted using Poisson regression for the calculation of a rate ratio and 95% confidence interval.

3.3.3 Statistical trends 1994-2003

Statistically-significant changes were: decreases in incidence of lung cancer (2.5% per year), melanoma (2.4%), prostate cancer (4.2%) and all-cancers combined (1.3%) in males. There was a significant upward trend in lung cancer incidence in females (1.6% per year); however other changes were not statistically significant.

3.3.4 Newest projections: "all cancers"

Males: On the basis of recent years, a decline in cancer incidence is projected, from an ASR of 354 cases per 100,000 in 2003, to 327 per 100,000 by 2008 (Table 4). However, excessive numbers of prostate cancers marked the beginning of this time period, and data for the most recent years suggest increases in total cancers will occur again.

Females: On the basis of recent years, a non-significant decline in cancer incidence is projected, from an ASR of 268 per 100,000 to 263 per 100,000 by 2008 (Table 4).

3.3.5 Newest projections: other cancers

Prostate cancer in males: A decline in cancer incidence is projected, however as for all-cancers in males, most recent data suggest an increasing trend will return (Table 5).

Breast cancer in females: No significant change is projected on the basis of recent information (Table 5).

Lung cancer: Despite significant 1994-2003 trends for both males (decrease) and females (increase) - no marked change is projected for the period 2004-2008 (Table 6).

Colorectal cancer: No significant change in the rate of colorectal cancer is projected, for males or for females, over the period 2004 to 2008 (Table 7). As previously noted,[4] numbers may be expected to rise in the short term at least, if Commonwealth plans for establishment of screening programs are implemented.

Melanoma: Despite an increasing incidence trend in males, no significant change in the rate of melanoma cancer is projected, for males or for females, between 2003 and 2008 (Table 8).

Table 4. Cancer incidence, Western Australia, 1994-2003, and projections to 2008: All cancers (males and females)

All cancers - males					All cancers - females			
Year	**Cases**	**95% c.i.**	**ASR**	**95% c.i.**	**Cases**	**95% c.i.**	**ASR**	**95% c.i.**
1994	4250		418.7	406-431	2945		266.1	256-276
1995	4097		396.5	384-408	3239		285.2	274-295
1996	3917		364.9	353-376	3054		259.1	249-268
1997	3569		319.8	309-330	3124		257.5	247-267
1998	3655		316.3	305-326	3183		252.5	243-261
1999	4192		351.1	340-361	3408		263.0	253-272
2000	4170		338.7	328-349	3408		257.8	248-266
2001	4247		333.9	323-344	3598		260.1	251-269
2002	4755		362.3	351-372	3868		274.6	265-283
2003	4796		354.3	344-364	3857		267.8	258-276
2004	4874	4673-5076	346.6	336-356	3929	3866-3993	264.1	255-272
2005	4973	4764-5181	341.8	332-351	4040	3975-4105	263.9	255-272
2006	5076	4860-5292	336.9	327-346	4155	4088-4221	263.7	255-272
2007	5181	4955-5408	332.0	322-341	4273	4205-4340	263.5	255-271
2008	5280	5044-5516	327.2	318-336	4391	4322-4460	263.3	254-271
Trend 1994-2003: decrease by 1.3% per year (significant).					Trend 1994-2003: NS			

Table 5. Cancer incidence, Western Australia, 1994-2003, and projections to 2008: Prostate cancer (males) and breast cancer (females)

Prostate cancer - males					Breast cancer - females			
Year	**Cases**	**95% c.i.**	**ASR**	**95% c.i.**	**Cases**	**95% c.i.**	**ASR**	**95% c.i.**
1994	1425		139.0	131-146	845		81.9	76-87
1995	1250		121.1	114-128	945		88.4	82-94
1996	949		89.1	83-94	879		79.3	73-84
1997	722		63.9	59-68	918		80.6	75-86
1998	716		61.7	57-66	926		79.1	73-84
1999	934		77.4	72-82	1023		85.1	79-90
2000	817		65.1	60-69	1013		81.6	76-86
2001	953		74.6	69-79	1091		86.3	81-91
2002	1225		93.9	88-99	1139		86.8	81-92
2003	1230		90.2	85-95	1119		83.4	78-88
2004	1156	990-1321	80.9	76-85	1162	1130-1194	83.7	78-88
2005	1144	972-1315	77.2	72-81	1198	1165-1232	84.0	79-88
2006	1130	952-1308	73.5	69-77	1235	1200-1270	84.3	79-89
2007	1113	927-1299	69.7	65-73	1272	1237-1308	84.6	79-89
2008	1091	898-1285	66.0	62-70	1310	1274-1346	84.9	80-89
Trend 1994-2003: decrease by 4.2% per year (significant)					Trend 1994-2003: NS			

Table 6. Cancer incidence, Western Australia, 1994-2003, and projections to 2008: Lung cancer (males and females)

Lung cancer - males					Lung cancer - females			
Year	**Cases**	**95% c.i.**	**ASR**	**95% c.i.**	**Cases**	**95% c.i.**	**ASR**	**95% c.i.**
1994	494		47.8	43-52	188		16.2	13-18
1995	465		43.9	39-47	224		19.2	16-21
1996	485		44.4	40-48	209		16.9	14-19
1997	455		40.0	36-43	238		18.9	16-21
1998	475		40.7	36-44	247		18.3	15-20
1999	509		40.8	37-44	259		18.2	15-20
2000	494		39.5	35-43	264		18.5	16-20
2001	496		37.5	34-40	259		17.4	15-19
2002	528		38.9	35-42	299		19.3	17-21
2003	503		34.5	31-37	301		18.8	16-21
2004	565	526-604	38.4	35-41	298	276-319	18.4	16-20
2005	573	532-614	37.6	34-40	312	290-334	18.7	16-21
2006	580	538-622	36.6	33-39	327	305-350	19.0	16-21
2007	587	543-632	35.6	32-38	343	320-367	19.3	17-21
2008	594	548-640	34.5	31-37	359	335-384	19.5	17-21
Trend 1994-2003: decrease by 2.5% per year (significant)					Trend 1994-2003: increase by 1.6% per year (significant)			

Table 7. Cancer incidence, Western Australia, 1994-2003, and projections to 2008: Colorectal cancer (males and females)

Colorectal cancer - males					Colorectal cancer - females			
Year	**Cases**	**95% c.i.**	**ASR**	**95% c.i.**	**Cases**	**95% c.i.**	**ASR**	**95% c.i.**
1994	453		44.4	40-48	369		30.5	27-33
1995	464		44.1	40-48	416		32.8	29-36
1996	523		48.5	44-52	373		28.6	25-31
1997	520		46.4	42-50	411		31.6	28-34
1998	516		44.5	40-48	425		31.8	28-35
1999	519		43.1	39-46	428		29.6	26-32
2000	630		50.8	46-54	440		30.1	27-33
2001	607		46.7	42-50	490		30.9	27-33
2002	562		41.3	37-44	454		28.2	25-31
2003	621		44.8	41-48	467		28.5	25-31
2004	649	634-664	45.0	41-48	497	472-521	29.5	26-32
2005	672	657-687	45.0	41-48	509	484-534	29.3	26-32
2006	697	681-712	44.9	41-48	522	496-547	29.0	26-31
2007	723	707-739	44.8	41-48	535	509-562	28.8	26-31
2008	751	734-768	44.9	41-48	549	522-576	28.6	26-31
Trend 1994-2003: NS					Trend 1994-2003: NS			

Table 8. Cancer incidence, Western Australia, 1994-2003, and projections to 2008: Melanoma (males and females)

Melanoma- males					Melanoma- females			
Year	**Cases**	**95% c.i.**	**ASR**	**95% c.i.**	**Cases**	**95% c.i.**	**ASR**	**95% c.i.**
1994	405		40.8	36-44	344		32.9	29-36
1995	461		46.2	41-50	343		32.3	28-35
1996	402		38.3	34-42	302		28.4	25-31
1997	384		35.1	31-38	286		25.4	22-28
1998	408		35.7	32-39	316		26.9	23-30
1999	531		46.0	42-49	390		33.4	29-36
2000	506		42.7	38-46	361		30.0	26-33
2001	486		39.5	35-43	384		30.4	27-33
2002	616		49.0	45-52	428		33.2	30-36
2003	650		49.4	45-53	403		30.5	27-33
2004	586	541-632	43.9	40-47	409	377-440	30.5	27-33
2005	616	569-662	44.7	41-48	421	388-453	30.6	27-33
2006	647	598-695	45.5	41-49	433	399-466	30.7	27-33
2007	679	630-728	46.3	42-49	445	411-480	30.8	27-33
2008	713	662-763	47.2	43-50	459	423-494	30.8	27-33
Trend 1994-2003: increase by 2.4% per year (significant)					Trend 1994-2003: NS			

3.4 Melanoma of the skin (cutaneous melanoma) 1994-2003

Melanoma is relatively common in Western Australia, and again in 2003 ranked second in males and third in females among the most common major cancer types in either sex (Table 1). There were 650 new invasive melanoma diagnoses in males (ASR 49 per 100,000) and 403 in females (ASR 30). In the same year, there were 58 melanoma-related deaths in males and 28 in females. Melanoma was the most common cancer type diagnosed in persons aged between 15 and 39 years, and the second most common type in both sexes in age range 40 - 64 years (Table 2).

Melanoma is less often fatal than many other cancers, and as a cause of cancer-related death, ranked only 11th in males and 15th in females in 2003 (Table 1).

Many melanomas are now diagnosed at a time when they have not invaded deeply into the skin. In addition to the persons with invasive melanoma reported for 2003, there were 672 additional registrations of *in situ*, or pre-invasive, melanoma. These represent 39.0% of all melanomas recorded. The proportion of all melanomas that are diagnosed at this early stage has generally increased over time since 1994-1996, when it was only 21.9% of the total.

The Registry records the thickness (Breslow[5]) and level of invasion (Clark[6]) of histologically-diagnosed melanomas. These two measures are correlated to some degree but vary with location on the body, as described in the Registry's report on 1997 data.[7] Summarized data for the period 1994-2003 are shown in Table 9. The thickness distribution between the categories shown in this table has remained relatively stable over the last 10 years, with almost 70% of invasive melanomas being less than 1mm thick. Mean and median thickness have not changed in any consistent fashion. However, the proportion of cases with unknown or un-assessed thickness has continued to decrease, from 4.5% in 1994-1996 to 1.8% in 2002-2003.

Table 9. Cutaneous melanoma, Western Australia, 1994-2003: Breslow thickness (invasive histologically-confirmed cases only)

	Year of diagnosis							
Thickness	**1994-1996**		**1997-1999**		**2000-2001**		**2002-2003**	
(mm)	**Cases**	**(%)**	**Cases**	**(%)**	**Cases**	**(%)**	**Cases**	**(%)**
0.01 - 0.49	778	34.6	793	34.4	609	35.3	750	35.8
0.50 - 0.99	731	32.5	750	32.5	570	33.0	668	31.9
1.00 - 1.99	333	14.8	365	15.8	281	16.3	345	16.5
>= 2.00	305	13.6	336	14.6	229	13.3	292	14.0
Unknown/ not assessed	101	4.5	63	2.7	38	2.2	38	1.8
Total	2248	(100)	2307	(100)	1727	(100)	2093.0	(100)
Median (mm)	0.6		0.6		0.6		0.6	
Mean (mm)	1.12		1.19		1.10		1.20	

As an alternative to Breslow thickness, proportions of melanomas with various Clark levels are shown in Table 10, for males and females combined (data for males and females were shown separately in *Cancer incidence and mortality in Western Australia, 1999 and 2000*,[8] and were very similar). The 2003 data are very similar to those of previous years. Thus, considering both level and thickness, the only change in recent years has been an improvement in data quality, with no indication that melanomas are being diagnosed at an earlier stage of their development.

Table 10. Cutaneous melanoma, Western Australia, 2003: Clark level (invasive and *in situ* histologically-confirmed cases only)

Clark level	Cases	%	% of invasive cases
I *(in situ)*	658	38.5	-
II	404	23.6	38.4
III	245	14.3	23.3
IV	337	19.7	32.0
V	39	2.3	3.7
Unknown/ not assessed	27	1.6	2.6
Total	1710	(100)	(100)

This registry has previously reported that melanoma in older persons tended to be thicker and have a higher Clark level, than in younger persons. This situation persists, and gives cause for continuing concern. In persons aged 75 or more, 26% of tumours were more than 2mm deep at diagnosis, compared with only 4% in the 15-39 years age range. The proportion with melanomas less than 1mm thick decreased from 78% at ages 15-39, to 54% over the age of 75 years (Table 11). These changes with age are similar in males and females. Coexisting illness and other physical factors may limit treatment options in the elderly. Accordingly, increased efforts at earlier melanoma detection in the elderly may be justified.

Table 11. Cutaneous melanoma, Western Australia, 2003: thickness by age group, for males and females (invasive histologically-confirmed cases only)

Tumour	Age at diagnosis				
thickness	15-39	40-59	60-74	75 +	All
	(%)	(%)	(%)	(%)	(%)
0-0.49mm	40.9	36.5	35.4	31.6	35.9
0.5-0.99mm	37.1	36.5	29.6	22.5	32.0
1.0-1.99mm	17.6	15.5	20.3	19.8	18.0
>=2.0mm	4.4	11.4	14.8	26.2	14.0
Total	(100)	(100)	(100)	(100)	(100)
Mean (mm)	0.73	1.12	1.31	1.87	

3.5 Incidence of *in situ* neoplasms

In situ neoplasms are those detected at a stage such that neoplastic cells, although cytologically abnormal and morphologically similar to those seen in invasive cancers, are still confined to the tissue layer of origin, and have not penetrated beyond a basement membrane. This terminology is most appropriately restricted to neoplasms of "epithelial" surfaces such as the skin (external) or mucosal surface of internal organs - i.e. carcinomas - and has no real meaning in the context of the lymphomas/leukaemias, nor for soft-tissue tumours such as sarcomas.

The most commonly-reported *in situ* neoplasm affecting both males and females was melanoma of the skin (Table 12), with 672 cases, higher than the 640 cases reported for 2002. Other common *in situ* tumour types were cervical cancer (866 cases), bladder cancer (299 cases) and breast cancer (214 cases).

These data include only the first *in situ* tumour of any particular type in a person. There are large numbers of second or subsequent *in situ* melanomas, breast and cervical neoplasms and transitional cell carcinomas of the bladder and urinary system, recorded but not presented here, indicating a significant burden of morbidity.

Most *in situ* neoplasms are seen as an indicator of risk for the development of invasive cancer, and screening programs which detect *in situ* neoplasms such as those of the breast or cervix, are thought to do far more for the reduction of long-term morbidity than the number of detected invasive cancers alone would suggest.

Table 12. *In situ* tumours, Western Australia, 2003: incidence

Males				Females			
Tumour type	**Cases**	**%**	**ASR**	**Tumour type**	**Cases**	**%**	**ASR**
Melanoma	391	53.9	30.1	Cervix	866	56.6	85.0
Bladder	235	32.4	16.3	Melanoma	281	18.4	21.5
Colon	21	2.9	1.4	Breast	214	14.0	16.7
Rectum	16	2.2	1.1	Bladder	64	4.2	4.0
Kidney	12	1.7	0.7	Vulva/vagina	30	2.0	2.4
NMSC	10	1.4	0.7	NMSC	25	1.6	1.7
Eye	9	1.2	0.7	Colon	13	0.8	0.7
Larynx	7	1.0	0.5	Rectum	13	0.8	0.9
Lip	5	0.7	0.4	Lip	9	0.6	0.6
Oesophagus	5	0.7	0.4	Eye	3	0.2	0.1
Other	15	1.3	0.8	Other	12	1.3	0.9
All *in situ* tumours	726	(100)	53.4	All *in situ* tumours	1530	(100)	134.6

*NMSC - skin (non-melanoma/ SCC/ BCC)

3.6 Impact of coding scheme changes on cancer data: update

As in our report for 2002,[4] several conditions are now tabulated as "cancers", including polycythaemia rubra vera, refractory anaemias and myelodysplastic syndromes. The reporting of persons with leukaemia, with a prior diagnosis of one of these new "cancers", may be problematic for Registries without access to historical records.

Reporting rules promoted by the International Association of Cancer Registries (IACR) have been discussed but may not yet have been implemented Australia-wide. In WACR databases, the current IACR rules have been implemented, and at the time of writing, in addition to the 187 leukaemias reported for 2003 (Table 1) there were 31 further leukaemias not "counted" due to a prior myelodysplasia or similar condition, reported separately. These will now appear in the appropriate year whenever updated historical trends are presented.

3.7 Cancer in Aboriginal Australians, 1999-2003

Cancer incidence

Although Aboriginal males do not demonstrate the high rate of prostate cancer seen in the State as a whole, WACR data continue to show they have a greater relative incidence of lung cancers and cancers of unknown primary site in particular. Melanoma is relatively uncommon, but other cancers - in males mesothelioma, and in females cervical cancer - continue to occur at rates well above those in the W.A. population as a whole.

It is unlikely that treatment offered by clinicians depends upon indigenous status - but late presentation and social disadvantage must at least be considered as possible reasons why cancers of unknown primary site in 2003 are so much more common among Aboriginal people, in males (ASR 18.5 *vs* 9.6 for the whole population) and in females (24.8 *vs* 8.4). More remains to be done, to address this discrepancy. Table 13 shows the most common incident cancers by sex, based on data for 2003.

Variation with age

As in the general population, incidence and mortality rates in Aboriginal Australians rise with age after early childhood (Fig. 13). However, the rates for males and females after the age of about 50 years appear more similar to each other, than in the whole population, in which there is a general predominance among males (largely due to prostate cancer) in older people. Improving screen-detection of pre-invasive or *in situ* cervical cancer may address some of this imbalance: in 1999-2003, the average incidence of invasive cervical cancer in Aboriginal women was 4 times higher than in the general population (ASR 28.5 per 100,000 compared with 6.4).

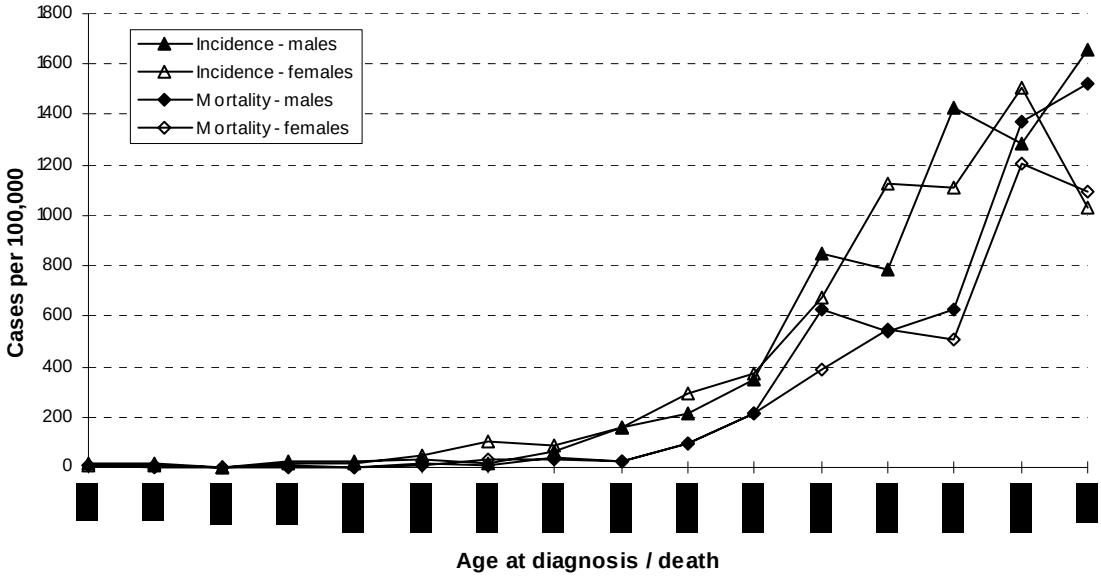
Table 13. Common cancers in Aboriginal Australians, Western Australia 2003.

Cancer type	Cases	ASR	95%c.i.	Risk*	ASR2**
Males					
Lung	7	39.4	9.1-69.8	20	62.8 (10.9-115)
Unknown primary	4	18.5	0.3-36.7	50	23.7 (0.3-47.1)
Oesophagus	3	22.4	0 - 47.8	38	37.0 (0 - 81.0)
Liver	3	19.5	0 - 41.8	51	34.2 (0 - 76.2)
Prostate	3	22.1	0 - 47.1	28	27.8 (0 - 59.9)
Lymphoma	3	13.0	0 - 30.2	62	13.3 (0 - 32.5)
Floor of mouth	2	9.0	0 - 21.6	104	11.2 (0 - 26.9)
Stomach	2	10.0	0 - 25.4	88	11.2 (0 - 27.9)
Thyroid	2	7.1	0 - 17.1	152	9.3 (0 - 22.6)
Other	8	41.6	-	-	-
All cancers	37	202.6	134-272	4	278.2 (177-380)
Females	Cases	ASR	95%c.i.	Risk*	
Cervix	8	28.5	7.6-49.3	37	32.3 (8.5-56.2)
Breast	5	27.3	3.0-51.6	24	35.4 (3.6-67.1)
Unknown primary	4	24.8	0.5-49.0	28	42.0 (0 - 85.8)
Leukaemia	4	15.1	0 - 31.3	59	16.3 (0 - 34.8)
Lung	3	13.9	0 - 30.1	71	15.5 (0 - 33.4)
Thyroid	3	7.7	0 - 16.5	171	8.7 (0 - 18.6)
Oesophagus	2	8.6	0 - 20.5	103	11.3 (0 - 27.0)
Gallbladder & bile ducts	2	12.7	0 - 30.3	54	14.2 (0 - 33.8)
Skin (not melanoma/SCC/BCC)	2	6.8	0 - 16.4	198	7.2 (0 - 17.4)
Uterus	2	6.9	0 - 17.0	131	8.8 (0 - 21.9)
Other	7	31.1	-	-	-
All cancers	42	183.4	125-242	5	228.2 (151-305)

* Lifetime risk to age 75, expressed as 1 in *n*

** ASR using Aust. 2001 population standard

Figure 13. Age-specific all-cancers incidence and mortality rates in Aboriginal Australians, Western Australia, 1999-2003.

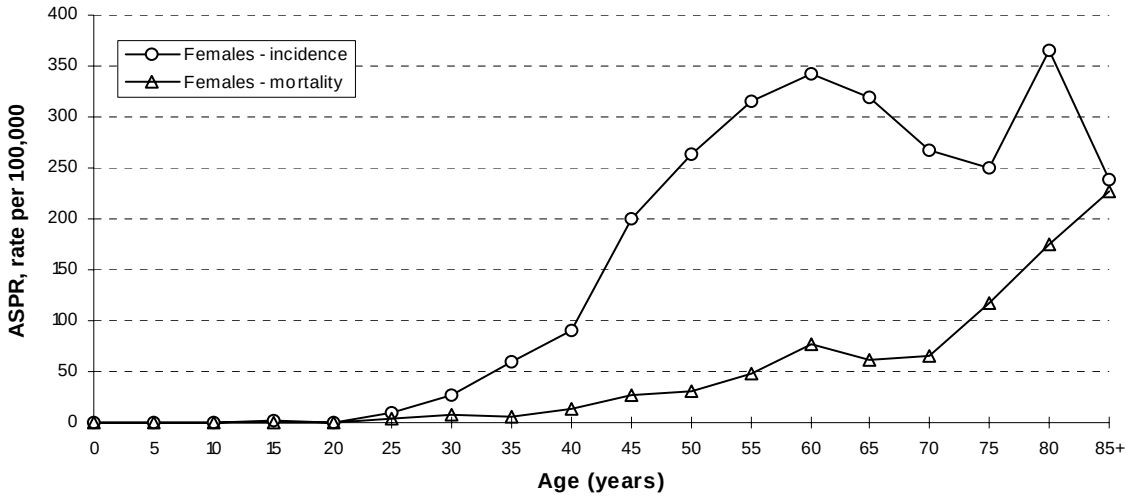


3.8 Breast cancer and breast cancer screening in Western Australian women

In 2003, there were 1119 cases of breast cancer recorded in Western Australian women. Of these, 98.7% were confirmed microscopically (histology or cytology), 0.6% were diagnosed clinically, and 0.5% were known to the Registry only from death and/or hospital information. Breast cancer was the most common cancer and the most common cause of cancer-related death in females (Table 1). Breast cancer incidence has been relatively stable in the last five years to 2003 and neither incidence nor mortality showed any significant change in the period 1999-2003 (Fig. 12). Based on data for 2003, 1 in 11 women could be expected to develop breast cancer before the age of 75, and 1 in 60 could be expected to die as a result of breast cancer (Table 1).

The variation in incidence and mortality rates with age is shown in Fig. 14. A "dip" in the incidence rate graph at the 70-79 years age group is a common feature in recent Western Australian data. This pattern was not seen in any year prior to the commencement of breast screening activity in Western Australia in 1989.

Figure 14. Breast cancer, Western Australia, 2003: age-specific incidence and mortality rates in females



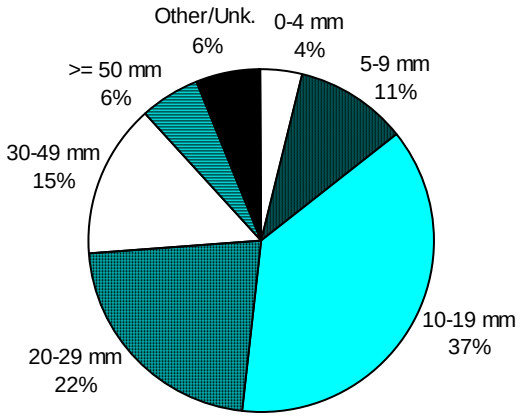
Breast cancer tumour size and lymph node status

Since 1997 the registry has recorded, where possible, primary tumour size and numbers of affected lymph nodes, for histologically-confirmed breast cancer cases. These measures are thought to give some guide to the likely outcome, and do influence choice of surgical procedure.

As noted in previous reports,[4] there are persisting difficulties with the collection of data about negative axillary lymph node biopsies (i.e. those in which no nodes were found to be affected). In some of the charts which follow, the "Unknown" and "Not applicable" (not assessed) categories may contain some cases in which no lymph nodes were assessed, despite histological assessment of the (presumed) primary tumour.

Approximately 52% of tumours were less than 20mm in diameter at diagnosis, and only 6% larger than 50mm (Fig. 15). The distribution is essentially the same as seen since 1997. The median size, for tumours where data were available, was 18mm for 2003, unchanged over the last 5 years. Correlation with lymph node status is shown in Table 14.

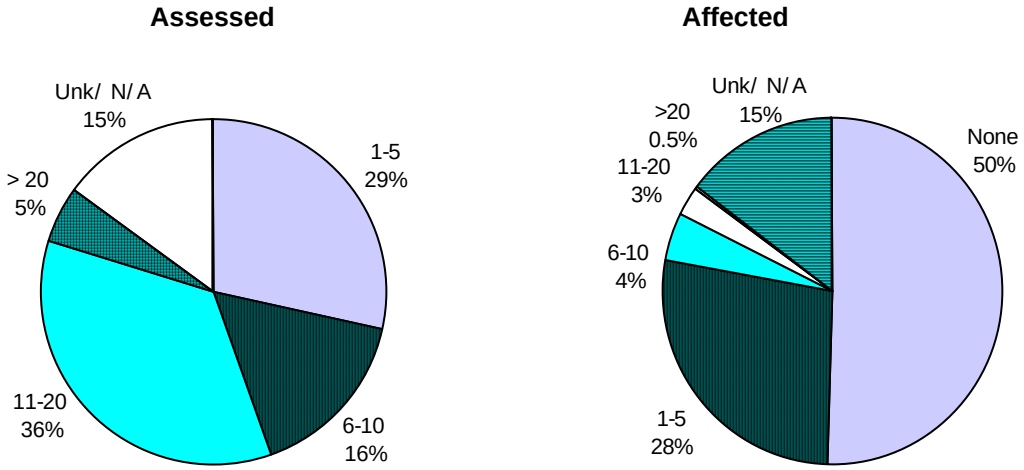
Figure 15. Breast cancer, Western Australia, 2003: size of histologically-confirmed invasive tumours.



Information about numbers of affected lymph nodes was available for 85% of histologically-confirmed invasive breast cancer cases in 2003. In 50% of cases, no nodes were found to be affected. Of the cases for which data were available, 43% had 10 or more nodes assessed, decreased from 69% in 2000, and further reduced from 48% in 2002.

Based on pathology reports, there appears to have been a reduction in the numbers of lymph nodes assessed since 1999, when the mean number of nodes reported was 13.8, to 2003, when the mean was 7.9 (the median was 13 in 1999, and 7 in 2003). Cases for whom only 1-5 nodes were assessed have increased from 4.5% in 1998 to 29% in 2003 (Fig. 16). Advice from clinicians suggests these changes are due to an increasing use of sentinel lymph node biopsy and a decline in axillary dissection.

Figure 16. Breast cancer, Western Australia, 2003: number of lymph nodes assessed, and number of affected nodes, for histologically-confirmed tumours.



Western Australian data for previous years confirm earlier suggestions that the detection of breast cancer while the tumour is small reduces the risk that lymph nodes will already be affected at the time of diagnosis. Surgeons may rely on such tumour size data when deciding whether to perform sentinel node biopsy only, or axillary dissection.

Numbers of tumour-affected lymph nodes were higher for tumours of larger diameter (Table 14). Most small tumours 0-4mm in size had no affected nodes (92%), while 84% of cases with tumours 50mm or larger had some cancer-affected nodes.

Table 14. Breast cancer, Western Australia, 2003: tumour size and number of tumour-affected lymph nodes

	Lymph nodes affected by cancer											
Tumour	**None**		**1-5**		**6-10**		**11-20**		**> 20**		**Total**	
size (mm)	Cases	**%**	Cases	**%**	Cases	**%**	Cases	**%**	Cases	**%**	Cases	**(%)**
0-4	24	**92.3**	2	**7.7**	0	**-**	0	**-**	0	**-**	26	**(100)**
5-9	78	**83.0**	15	**16.0**	1	**1.1**	0	**-**	0	**-**	94	**(100)**
10-19	245	**67.9**	111	**30.7**	3	**0.8**	2	**0.6**	0	**-**	361	**(100)**
20-29	119	**54.1**	81	**36.8**	12	**5.5**	8	**3.6**	0	**-**	220	**(100)**
30-49	64	**41.8**	62	**40.5**	19	**12.4**	8	**5.2**	0	**-**	153	**(100)**
50 or more	9	**15.8**	24	**42.1**	12	**21.1**	10	**17.5**	2	**3.5**	57	**(100)**
All	539	**59.2**	295	**32.4**	47	**5.2**	28	**3.1**	2	**0.2**	911	**(100)**

(Includes **only** cases for which both size and node information were available)

Breast cancer screening: comparison of BreastScreen WA and WACR data

In 2003, the Cancer Registry and BreastScreen WA carried out a data reconciliation process covering the years 1999-2002, which resulted in some improvement being made to 82 WACR records (about 2%); these included basis of diagnosis, tumour size and lymph node data changes. This has been extended to include 2003 data, in order to determine the proportion of breast cancer diagnoses resulting from BreastScreen activities, and to compare the characteristics of BreastScreen-detected cases with others.

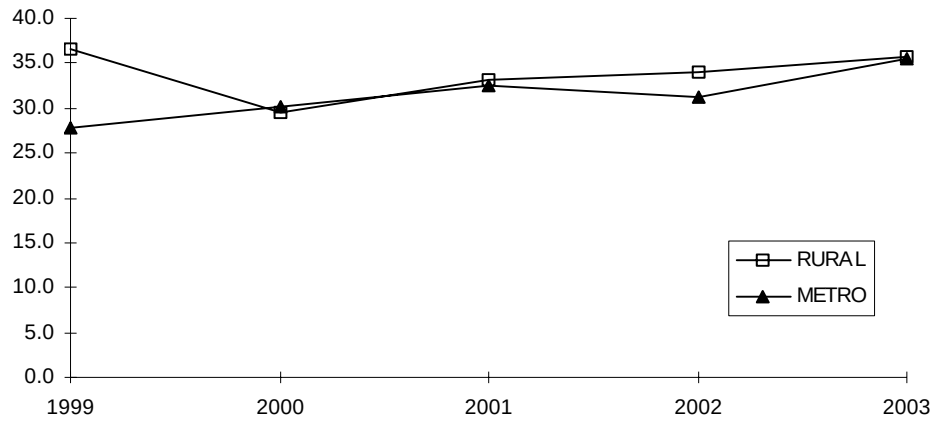
Over the period 1999-2003, BreastScreen was responsible for the detection of 28% of all invasive breast cancers in Western Australian women, and 55% of *in situ* tumours. For the whole period 1999-2003, proportions of breast cancers detected by BreastScreen in rural and metropolitan areas were compared. For both invasive and in situ tumours, the proportion that were BreastScreen-detected was higher in rural areas than in the Perth metropolitan area (Table 15) - presumably related to the documented higher screening participation rates in rural areas.[9]

Table 15. BreastScreen-detected breast cancers in rural and metropolitan areas, as a percentage of all Western Australian cases, 1999-2003

Cancer type	Rural	Metro	All
Invasive	30	28	28
In situ	57	54	55
All	34	32	32

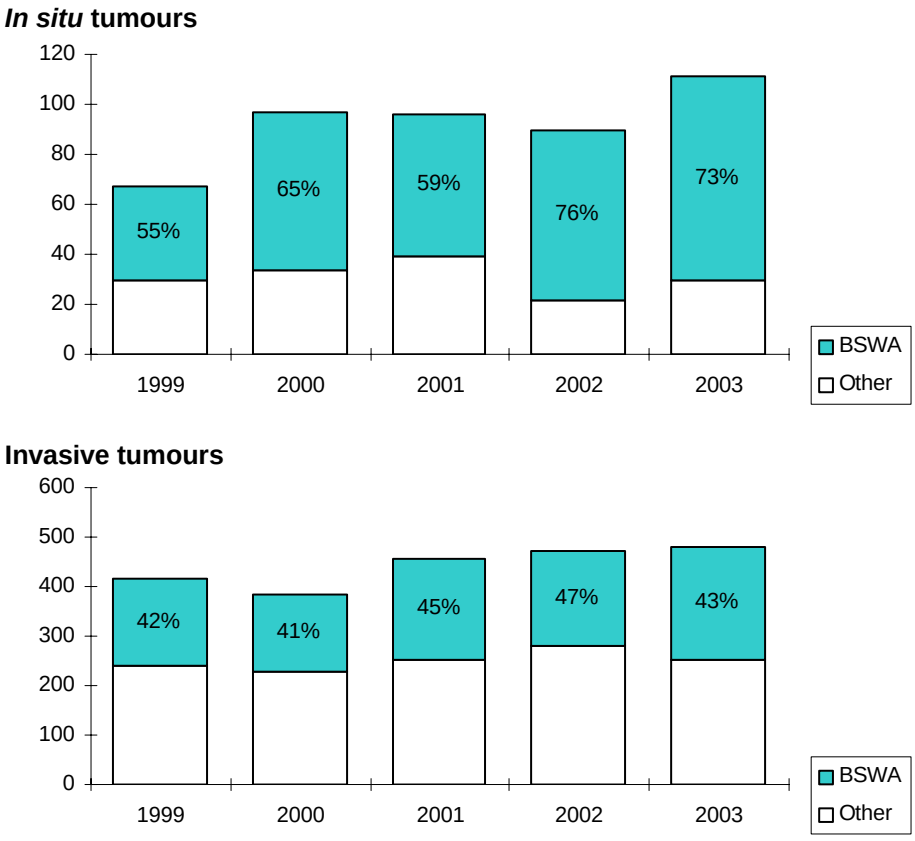
For invasive and *in situ* tumours combined, the proportion that were BreastScreen-detected in the metropolitan area has risen steadily over the period, while rural figures have varied more (Fig 17).

Figure 17. BreastScreen-detected breast tumours by year and region, as percentage of all W.A. breast tumours (*in situ* and invasive) - 1999-2003



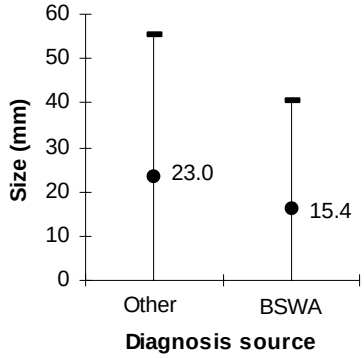
Active recruitment for screening mammography is usually limited to women aged 50-69 years, and the proportion of BreastScreen-detected tumours is higher in this age range than it is overall. Changes with time are shown separately for invasive and *in situ* tumours in Fig. 18

Figure 18. BreastScreen (BSWA)-detected breast tumours by year: women aged 50-69 years at diagnosis, 1999-2003



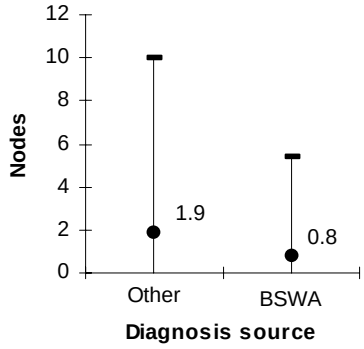
In 2003, as in previous analyses, BreastScreen-detected invasive cancers were smaller (mean 16.5mm, median 15mm) than others (mean 23.7mm, median 20mm). These differences were even greater for the 50-69 year age range (Fig. 19). For these analyses, assumptions of statistical normality are not satisfied; however the non-parametric Kruskal-Wallis test indicates the difference to be statistically-significant ($p < 0.00001$).

Figure 19. Size of primary invasive breast cancers, Western Australia, 2003: BreastScreen-detected tumours and others (ages 50 - 69 years).



Throughout the period 1999-2003, BreastScreen-detected invasive tumours were less likely to have tumour-affected lymph nodes (31.7%) than others (47.5%), and the average number of affected lymph nodes was smaller ($p < 0.00001$) (Fig. 20). The total numbers of lymph nodes assessed was similar ($p = 0.99$) for BSWA cases (mean 11.5) and others (mean 11.8).

Figure 20. Number of tumour-affected lymph nodes - BreastScreen-detected tumours and others, 1999-2003 (ages 50 - 69 years).



In summary, BreastScreen WA continues to detect a significant proportion of WA-diagnosed breast cancers, and in particular accounts for a greater proportion of the *in-situ* tumours. For invasive tumours, BSWA-detected tumours were smaller, and fewer had tumour-affected lymph nodes. Coverage of the Western Australian population, currently estimated at 56% of the "target" age range of 50-69 years, appears to be stable or increasing, but aims for a 70% coverage.

Service-related data exchange and database reconciliation has been shown to be useful in improving data quality and facilitated this assessment of the impact of the screening programme.

4. Mesothelioma in Western Australia, 1960 to 2003: Data from the W.A. Mesothelioma Register

4.1 Introduction

(Dr A W Musk, Respiratory Physician and Chair, W.A. Mesothelioma Register Committee.)

This section of this report presents an updated overview of mesothelioma statistics for Western Australia, the first in-depth analysis since the 1996 report, *Malignant mesothelioma in Western Australia 1960 to 1994. Data from the WA Mesothelioma Register*.[10]

Malignant mesothelioma is a tumour which arises from the single layer of mesothelial cells which line the pleural cavities of the chest or the peritoneal cavities of the abdomen and cover the viscera within these cavities. When seen in profile in histological section the mesothelium can appear insignificant, yet its area is greater than the external surface of the body. In addition to functioning as a limiting layer, the major role of the mesothelium in health is to provide a frictionless surface that facilitates gliding movements within the cavities. Lubrication is provided by a small amount of fluid. Similar mesothelial surfaces line the cardiac chamber (the pericardium) and the synovial joints, and cover the testicles (tunica vaginalis). Since malignant mesothelioma arises from these cells it may therefore be found in any of these sites although it is rare in the tunica vaginalis and the pericardium, and most common in the pleural cavity.

Patients with malignant pleural mesothelioma usually present with chest pain and breathlessness. Most commonly the diagnosis is suspected from chest radiography which reveals a pleural effusion or pleural mass. Malignant peritoneal mesothelioma most commonly presents as ascites or an abdominal mass, frequently with abdominal pain. The diagnosis of malignant mesothelioma is best established by means of identifying malignant cells of mesothelial origin by cytology or biopsy from these sites (or at post-mortem).

Various treatment modalities for malignant mesothelioma have been tried for many years including radical surgery, chemotherapy and radiation therapy. Only recently have newer chemotherapeutic agents been shown to be more effective in improving survival than symptomatic therapy only. As a result, novel approaches to treatment have been developed. Malignant mesothelioma is uniformly fatal. Characteristically the cancer causes local problems in the chest or abdomen by compression and invasion of local structures rather than distant problems through metastatic disease, although widespread metastases are occasionally seen.

The median duration of survival of patients with mesothelioma is about nine months from presentation. This has been shown in numerous case series. Patients younger at presentation have a better outlook than older patients and patients with peritoneal mesothelioma do not seem to survive as long as patients with pleural mesothelioma although there is great overlap.

As outlined in this review of the WA Mesothelioma Register most patients with mesothelioma have a history of exposure to asbestos of one type or another. The absence of asbestos exposure in the history of some patients raises the possibility that other agents may also cause the disease. In Turkey, mineral fibres similar to asbestos (erionite) are known to cause mesothelioma. In Canada subjects exposed purely to chrysotile (white asbestos) uncontaminated by amphibole (crocidolite, amosite, tremolite etc) do not appear to be at

increased risk of mesothelioma. However many chrysotile deposits around the world are contaminated by amphiboles.

The Western Australian Mesothelioma Register was originally established by Dr James Elder to provide an accurate record of all cases of mesothelioma in Western Australia and identify sources of asbestos exposure in order to better understand the relationship between exposure to asbestos and disease in this State. It was also established to identify more accurately cases in whom there was no exposure to asbestos, but possible exposure to other agents which may be responsible for the disease, and allow understanding of the burden of the disease in the community in the past and in the future.

4.2 Acknowledgments

The preparation of this report has been facilitated by the assistance and cooperation of the past and current members of the W.A. Mesothelioma Register Committee.

Current Committee members are:
Dr N de Klerk, Biostatistics/Epidemiology *(Institute for Child Health Research, University of Western Australia)*
Dr E Lee, Occupational Health *(Sir Charles Gairdner Hospital)*
Dr W Musk, Respiratory Medicine *(Sir Charles Gairdner Hospital)*
Ms N Olsen, Register Research Officer *(Public Health, University of Western Australia)*
Dr K Shilkin, Pathology *(Path Centre)*
Dr T Threlfall, Principal Medical Officer / Manager, Western Australian Cancer Registry (Secretary)

4.3 Mesothelioma: Western Australia in a world context.

There has long been a special interest in mesothelioma in Western Australia because of the operation of an asbestos mine in the north of the state. The earliest published report of an association between asbestos exposure and pleural mesothelioma in 1960[11] was followed in 1962 by the detection of the what was, at the time, thought to be the first non-South African asbestos-related case in a former asbestos miner at Wittenoom, Western Australia.[12,13] Subsequently, a case diagnosed in Victoria has been reported to be the earliest known Australian case.[14] Since early reports of such associations, the numbers of mesothelioma cases detected throughout the world has steadily increased, and it has become one of the best-known examples of a life-threatening occupation-related disease.

Data from Australian studies have long indicated that all States, and Western Australia in particular, have incidence rates which are high in comparison with those reported in other countries.[15,16] A review of all known Australian cases to 1981[14] noted, with some discussion of deficiencies in data quality in previous years, an increase in apparent incidence rates, especially in men since about 1964; prior to this time, rates had been similar in men and women, but by 1980 the male:female rate ratio had risen to seven to one.

Ferguson et al[17] in a 1987 review of the Australian Mesothelioma Surveillance program found Australia-wide rates of 15.1 per million person-years for 1982-1985 to be markedly higher than those in European countries, and marginally higher than reports for the United Kingdom. Their review highlighted the problems in comparing rates based on different age groups and reporting methods, and stressed a need for an adequate surveillance program to be based on a wide network with multiple sources, rather than rely entirely on death notifications as has been the case in some areas in the past.

Annual incidence of mesothelioma in populations without asbestos exposure has generally been reported to be 1 - 2 cases per million.[18] A review of rates from various countries,[19] with re-calculation to enhance comparability, showed the highest incidence figures to be in males in countries where blue asbestos (crocidolite) has been produced (in Australia and South Africa in particular). Rates in Western Australian men (42 per million in 1980 - 1982) were more than double those in any other country for which rates were reported. Population-based rates of mesothelioma in Aboriginals in the Pilbara area of Western Australia, where many of the men were occupationally involved in transport of raw asbestos, have been reported to be one of the highest recorded (250 per million per year for ages 15 years or more).[20]

Occupational cohort studies have reported far higher rates, rising steeply with time since presumed exposure, for at least 30 years.[19] The asbestos mining operations at Wittenoom in Western Australia between 1937 and 1966 have been the source of a number of cohort studies, some of which continue.[21] In one study, a cohort based on an estimated 6,000 former employees of a single company showed rates of up to 7,000 cases per million per year at over 35 years since "exposure".[19] It has been predicted that the cohort would produce a peak of 25 mesothelioma cases per year by the year 2010[22], however there have been differences of opinion expressed in the literature as to the validity of such predictions given the problems of both mathematical modelling and "loss to followup".[23,24]

In addition to considerable attention from researchers, mesothelioma in Western Australia has been the subject of governmental concerns, and controversy in the mass media. This has largely focussed on the occupational nature of the disease and the consequent issue of financial

compensation, and Government moves towards the total closure of the Wittenoom townsite because of a perceived hazard due to the past extensive use of asbestos-contaminated mining tailings in the area. Legal issues have added to the considerable public controversy surrounding predictions concerning the likely ongoing legacy of work-related cases, however these cannot be dealt with in this report.

On the grounds of previously-reported associations of lung cancer and asbestosis with mining work, Western Australian health authorities were already expressing concern about conditions in and around the asbestos mining operation at Wittenoom as early as 1948. [13] The new findings of the 1960s concerning mesothelioma added to efforts which saw the closure of mining operations in 1966, and resulted in the first serious attempts to close the townsite during the period from 1980 - 1983. A number of organizations have, on Government advice, ceased promotion of the Wittenoom townsite as a tourist destination since early 1995. At the time of this Register's last report,[10] closure had only just appeared a reality, and demolition work at Wittenoom was in progress at the time of writing of that report. However, some residents remain and the occasional efforts of journalists to promote the area as a tourist destination continue to arouse public criticism.[25,26]

4.4 Mesothelioma data collection in Western Australia

4.4.1 The W.A. Mesothelioma Register

The W.A. Mesothelioma Register had its beginnings in a number of case lists maintained in various Branches of the Department of Public Health. The register maintained in the Occupational Health, Clean Air and Noise Abatement Branch was the first in Australia. The Register as it is currently known was commenced in June 1976 after amalgamation of the two main sources. At that time, moves towards a national mesothelioma surveillance program highlighted the need for a case review committee in each State, and the first meeting of the W.A. Mesothelioma Register Committee was held in December 1978.

The information collected for each case increased over time, from simple descriptive summary data through various questionnaires administered by persons at the Medical Centre, the Department of Occupational Health, Safety and Welfare of Western Australia (DOHSWA - now Worksafe Western Australia) and the Department of Health (WA). In 1986, responsibility for mesothelioma data collection and the Register was transferred to the Western Australian Cancer Registry.

4.4.2 Notification and recording of malignant mesothelioma cases

In Western Australia, reporting of cancer cases by pathologists is mandatory, and governed by the Health (Notification of Cancer) Regulations 1981 (see Appendix 2E). Many cases are notified by pathologists, but some first come to the Register's attention via death certificates, and some via treating physicians.

4.4.3 Mesothelioma Register Committee

The **Mesothelioma Register Committee** meets periodically to consider collected information about probable mesothelioma cases, with a view to determining whether they should be confirmed as a WA case on the Mesothelioma Register, excluded as non-mesothelioma or non-WA resident, or given "suspected" status when a definitive decision cannot be made and no more information is ever likely to be found. Current members of the Committee include a pathologist, a respiratory physician, an occupational health physician, an epidemiologist, the Register's research officer, and the Principal Medical Officer of the Western Australian Cancer Registry.

4.4.4 Mesothelioma databases

Prior to 1995, separate mesothelioma databases were maintained at the QEII Medical Centre/University of WA Department of Public Health, and at the Health Department of W.A.. Duplicate data entry at these two sites ceased in 1995, and the single Mesothelioma Register was relocated to what is now Information Collection and Management (ICAM) in the Department of Health, where the Western Australian Cancer Registry resides. An extract from the Register database is used by the Research Officer and by researchers in the Department of Respiratory Medicine at the QEII Medical Centre. Formerly, Worksafe WA were also provided with an extract to facilitate the reconciliation of details with their reports received from independent sources however this has not been requested since late in 2001.

Information is collected by the Mesothelioma Register Research Officer who is jointly funded by the Department of Respiratory Medicine at the QEII Medical Centre, and the Department of Health. The Research Officer also performs data entry, organizes case summaries and review lists for Committee meetings, and updates the Register in light of decisions made at the meetings. Technical and privacy considerations dictate that all data entry continues to be carried out in the Cancer Registry, where confidential paper records are stored. Access to named information from the Register for the purposes of research is permitted, subject to approval from the Minister for Health's Confidentiality of Health Information Committee.

4.4.5 Database design issues and changes

The Mesothelioma Register is a database which covers a long time period, during which there have been many changes in data collection and in the degree of detail available; accordingly, some information - e.g. "Occupation: goldminer" - was collected in a way that precluded its merging with more detailed information such as a chronological employment history.
Another difficulty is that as mesothelioma may have an exceptionally long "lead time" of as much as 50 years between exposure and diagnosis, some history will be based on very poor recollection, and "unknown" or vague data have had to be allowed, at the database design stage, in data fields for which one would normally expect precise information, such as a date.

The most recent version of the "standard questionnaire" used was a document of 30 pages, which included detailed questions on all aspects of possible residential and occupational exposure to asbestos and a variety of other substances. However, while such detailed information could be useful, the proportion of cases for which the information could be obtained has declined in recent years, so that incompleteness of the data compromised efforts to do detailed analysis. There was an increasing proportion of people declining to be interviewed at length, and this with pressures on staffing levels contributed to a decision to discontinue attempts at collecting the data from the mesothelioma patients themselves.

Much data is available from treating doctors and is recorded in the Register, but without any attempt to fit it into a detailed tabular personal or occupational history format. One problem with attempting to base asbestos exposure history on personal questionnaire, was the lack of knowledge, common on the part of workers, as to whether materials contained the substance. An attempt was made to interpret the data with the assistance of occupational hygiene expertise but ceased due to lack of ongoing resources.

In 2004, the Register database was revised to remove some of the "discontinued" data items to an archive database, thereby allowing the database structure to be changed so as to address some design issues and incorporate more data integrity safeguards and reconciliation procedures. The older, more detailed, data remain accessible in case a need arises.

4.4.6 Types of cases recorded on the Register

The Mesothelioma Register contains information on persons who were, at some time, considered likely to have malignant mesothelioma. A Confirmation Status field on the Register records the outcome of the case review process at any time, and the workload associated with the investigation of many cases that are not eventually confirmed, is considerable. The confirmation status flags shown in Table 16 determine the handling of cases; only Confirmed cases contribute towards incidence statistics. “Suspected” and “Excluded” cases remain on the Register only for efficiency, in case of new information such as that from a death certificate, which might otherwise lead to duplication of previous investigative work.

Table 16. Mesothelioma Register Confirmation Status codes

Status	Meaning
Confirmed	Confirmed to have malignant mesothelioma diagnosed while resident in Western Australia. Subsequent change of status of these cases is unusual.
Suspected	Cases for which available evidence cannot support either confirmation or exclusion, and for which no further information is likely to become available.
Non-mesothelioma	Cases have been determined after review to have had a more appropriate diagnosis for their condition, which in most cases has been a lung carcinoma.
Unpresented	Cases in the early stages of the case review process, for whom review is planned and for whom data collection is proceeding.
Excluded	Cases with mesothelioma, diagnosed while resident elsewhere than in Western Australia.
Pending	Cases have been reviewed, decision unclear, and better information is being sought. Most are eventually confirmed.

The Mesothelioma Register Committee's work continues to include the resolution of old cases with a "probable" status which have come to its attention in recent years. Consequently, the number of cases confirmed in any one year may be greater than the number of cases diagnosed in that year. For example, in 1993 84 Western Australian malignant mesothelioma cases were confirmed compared to 69 cases diagnosed. More recent figures in Table 17 show variation in workload from year to years, with 2002 being a particularly busy year in terms of earlier-diagnosed cases that were reviewed and confirmed.

Table 17. Mesothelioma cases confirmed and cases diagnosed by year, 1999-2004

YEAR	Cases confirmed in year	New diagnoses in year*
1999	65	63
2000	60	60
2001	57	79
2002	93	73
2003	65	69
2004	32	n/a

*may include cases that were not confirmed until later years

Between 1995 and early 2004, while the number of Confirmed cases on the Register more than doubled, the “Suspected” cases increased by only 25%, and “Non-mesothelioma” numbers increased by a factor of 3.5 – indicating not only more suspicions being reported, but also a higher success rate in resolving the diagnosis, often with newer pathology techniques (Table 18).

Table 18. Status of cases on the WA Mesothelioma Register, 1995 and 2005

Confirmation status	Cases 1995	Cases 2005
Confirmed	565	1260
Suspected	34	42
Not mesothelioma	21	73
Unpresented	16	24
Excluded (non-WA resident)	12	18
Pending	11	13
Total	659	1430

4.4.7 Significant asbestos exposure

The Register database records an assessment of each case's likely source of asbestos exposure leading to their mesothelioma, as determined by the Mesothelioma Register Committee. (Inherent in this process is a generally-accepted *a priori* assumption that mesothelioma is caused by asbestos exposure until shown otherwise.)

These assessments take into account information from all available sources, including duration of various employment and residential situations, and intensity of asbestos exposure. The codes assigned are, in principle, independent of each person's "main" lifetime occupation. In this sense, these assessments differ from some earlier hierarchical case-classification schemes, in which relative duration or intensity of exposure was not taken into account.

A complete list of the working groupings and codes, with explanations, follows in Table 19. However, with a large number of specific exposure categories as in Table 19, providing a coherent summary of changes over time is increasingly difficult. Accordingly, two alternative grouping schemes have been developed and used for presentations in this report.
The first scheme indicates whether mesothelioma resulted from occupational on non-occupational asbestos exposure, as well as whether the "significant" exposure was to raw or post-manufacture asbestos material (Table 20).

Table 20. Significant asbestos exposure groupings: occupational *vs* nonoccupational and raw *vs* processed asbestos exposure

Code	Meaning
W1	Work – asbestos mining company employees, Wittenoom
WR	Work – raw asbestos
WP	Work – processed asbestos (end-use)
WQ	Work – other/unknown
RR	Residential exposure – raw asbestos
RP	Residential exposure- processed asbestos
RQ	Residential exposure – other/unknown
N	No exposure to asbestos
U	Unknown asbestos exposure

The second grouping scheme shown in Table 21 is activity-based, without reference to whether the exposure was occupational or non-occupational.

Table 21. Significant asbestos exposure: activity-based groupings

Code	Meaning
W	Asbestos mining & milling
B	Building construction & supply
I	Insulation / lagging work
M	Asbestos cement manufacture
T	Asbestos transport
O	Other
N	No exposure to asbestos
U	Unknown asbestos exposure

Table 19. "Significant exposure" codes and categories used in the WA Mesothelioma Register

Code	Asbestos exposure history
U	**Unknown exposure:** This includes persons with inadequate history from which to assess the likely risk from their residence or occupational exposures.
N	**No exposure to asbestos:** Persons with a history which appears sufficient to eliminate contact with known sources of possible asbestos exposure.
R1	**Wittenoom resident, not employed:** Residents of Wittenoom who had residential exposure rather than occupational exposure.
R2	**Wittenoom visitor:** Non-occupational exposure while temporarily in Wittenoom.
R3	**Non-Wittenoom resident, family contact with asbestos:** Persons with contact with asbestos through other family members, e.g. contaminated clothing.
R4	**DIY handyman exposure:** This includes those thought to have been exposed during home repair or renovation work.
R5	**Other residential exposure:** Exposure by virtue of place of residence, not related to nature of employment.
W1	**Asbestos mining company employees, Wittenoom:** Exposure as an employee of the company operating the asbestos mine at Wittenoom, whether directly involved in mining operations or not.
W2	**Non-mining company employees at Wittenoom:** Exposure while employed in Wittenoom, including contractors at the asbestos mine.
W3a	**Western Australian railway workers:** Exposure during railway work, including workshop exposure during repair and maintenance of brakes and insulation materials.
W3b	**Non-WA railway workers:** Railways-related exposure outside Western Australia.
W4	**Asbestos cement manufacture:** Exposure during the mixing, moulding and trimming of asbestos cement products.
W5	**Wharf workers, Point Samson:** Exposure during asbestos storage and loading operations at the primary sea terminal for asbestos transport from the mines at Wittenoom.
W6	**Wharf workers, Fremantle:** Asbestos exposure during unloading and general asbestos handling at Fremantle, the main international sea port in Western Australia.
W7	**Wharf workers, other or unspecified:** Exposure during asbestos handling at unspecified locations.
W8/18	**Asbestos insulation & lagging manufacturers/users:** Exposure during manufacture and application of asbestos-containing insulation coatings, including spray-on mixtures.
W9	**Asbestos transport and loading, non-wharf workers:** Includes persons employed in road transport of asbestos, mainly in North-West Western Australia.
W10	**Building, construction and supply workers:** Users and handlers of asbestos as an end-use product for the building trade.
W11	**Armed forces:** Exposure to asbestos, usually as an insulation and fireproofing coating, common especially in naval ships.
W12	**Plumbers:** Exposure to asbestos as used for pipe insulation and gaskets.
W13	**Asbestos mining workers, other:** Exposure to asbestos in asbestos mining situations other than the mine at Wittenoom.
W14	**Non-asbestos mining workers:** Mine workers in gold mines and others where asbestos found as a contaminant rather than as the mineral of economic interest.
W15	**Other occupational exposure:** Thought to have asbestos exposure in occupational settings not included in other categories in this list.
W16	**Automotive or other brake material exposure:** Brake lining exposure in manufacturers or repairers, including maintenance work on mining machinery.
W17	**Pipe fitters:** Pipe-lagging and gasket exposure.
W19	**Boiler makers, cleaners and welders:** Asbestos lagging and insulation exposure during manufacturing or maintenance procedures.
W20	**Shipbuilding industry:** Use of asbestos for heat and sound insulation.
W21	**Power station workers:** Contact with asbestos insulation.
W22	**Electricians and electrical fitters:** Contact with asbestos insulation.

4.5 Background and Methods for this report

The Western Australian Cancer Registry and WA Mesothelioma Register are maintained separately using different types of software, and serving different purposes and with a different range of data users. The handling of mesothelioma is unusual in Western Australia in that while a case reported to the Cancer Registry is recorded, it is not recorded as a "valid" case until it has been passed on and considered to be "confirmed" by the WA Mesothelioma Register Committee. The Mesothelioma Register research officer may discover information in the course of investigating suspected cases of mesothelioma, that has a bearing on other cancers, or related to a death that has not yet been notified. Accordingly, there is a need for on-going reconciliation of the data in the two databases, and computerized routines are in use to ensure that the two databases record information consistently.

Prior to the writing of this report, all inter-register reconciliation processes were performed and any issues were resolved, and a single-table subset of the main mesothelioma register was made, restricted to "Confirmed" cases diagnosed between 1960-2003 inclusive and with a Western Australian address at diagnosis, and labels were added for various age, diagnosis date, and asbestos exposure category groupings.

There are some historical differences between the handling of the issue of "basis of diagnosis" on the two databases. In the Cancer Registry it usually represents the most intensive/specific test type done to confirm a cancer diagnosis, and is intended at indicating the reliability of the diagnosis of malignancy. However, a specific mesothelioma diagnosis is sometimes based more on macroscopic appearance than on microscopic pathology, and in the Mesothelioma Register "basis of diagnosis" has been used more to document the setting of a (mesothelioma) *vs* (another cancer type) decision. For example many Mesothelioma Register cases are coded as "Postmortem" whereas the Cancer Registry would record the specific test, i.e. cytology or histology. For the purposes of this report, the Cancer Registry "specific test" approach has been used.

Rates and projections in this section of this report are based on methods shown in Appendix 2B. Projections of mesothelioma incidence are based on an exponentially-weighted moving average method as described in *Cancer incidence and mortality in Western Australia 2002*,[4] and time-trend assessment has been conducted using Poisson regression for the calculation of a rate ratio and 95% confidence interval.

4.6 Mesothelioma in Western Australia, 1960 to 2003

4.6.1 Anatomical site of mesothelioma

Mesothelioma is most commonly a disease of the pleura, but occurs also in the peritoneum and the (peritoneum-derived) tunic vaginalis of the scrotum in males. There were 1174 confirmed mesothelioma cases diagnosed in Western Australia in the years 1960 - 2003, 1024 (87%) in males, 150 (13%) in females. Over the period, 92% of confirmed mesotheliomas were found to arise in the pleura (Table 22). While proportions of pleural, peritoneal and "other" cases varied, there were no statistically-significant changes over the period considered.

Table 22. Anatomical primary site of mesothelioma, males and females, 1960-2003

Year of diagnosis	Pleura Cases	%	Peritoneum Cases	%	Other Cases	%	Total Cases
1960-1987	231	**93.9**	14	**5.7**	1	**0.4**	246
1988-1993	252	**90.6**	23	**8.3**	3	**1.1**	278
1994-1997	217	**90.0**	24	**10.0**	0	**0.0**	241
1998-2000	172	**91.5**	15	**8.0**	1	**0.5**	188
2001-2003	206	**93.2**	15	**6.8**	0	**0.0**	221
1960-2003	1078	**91.8**	91	**7.8**	5	**0.4**	1174

4.6.2 Incidence and mortality rates

In the years soon after 1960, incidence and mortality rates were particularly variable due to low case numbers, however average age-standardized rates (ASR World 1960) were of the order of 0.5 cases per 100,000 for males (Table 23), with much lower rates for females, with the first Western Australian woman not being diagnosed until 1973 (Table 24). Incidence rates in males have increased to 4-5 cases per 100,000 in the last ten years, while rates in females continue to be much lower at 0.5 - 1 per 100,000. These rates correspond to 50-60 men and 5-15 women per year.

There have been suggestions that malignant mesothelioma might have been under- diagnosed in earlier years because of lack of recognition of the disease by clinicians and pathologists. [15] With this in mind, trend analysis (and projections, in a later section of this report) were based on data from 1984 to 2003 only. The annual rates of increase in incidence for the period 1984-2003 were 2.01% for males ($p = 0.001$) and 2.05% for females (not statistically significant).

Mortality rates for mesothelioma are usually similar to incidence rates as the disease continues to be almost universally fatal. The right-hand columns of Tables 23 and 24 show the mortality data by year for males and females respectively.

Table 23. Mesothelioma, Western Australia: incidence and mortality, males, 1960 - 2003

Males	INCIDENCE					MORTALITY		
Year	Cases	ASR (W 1960)*	95% c.i.*	ASR (Aust 2001)**	95% c.i.**	Deaths	ASR (W 1960)*	95% c.i.*
1960	2	**0.6**	0.0 - 1.4	**0.7**	0.0 - 1.7	0	**-**	-
1961	0	**-**	-	**-**	-	1	**0.3**	0.0 - 0.9
1962	0	**-**	-	**-**	-	0	**-**	-
1963	0	**-**	-	**-**	-	0	**-**	-
1964	2	**0.5**	0.0 - 1.3	**0.7**	0.0 - 1.7	2	**0.5**	0.0 - 1.3
1965	0	**-**	-	**-**	-	1	**0.2**	0.0 - 0.6
1966	1	**0.2**	0.0 - 0.6	**0.2**	0.0 - 0.6	0	**-**	-
1967	0	**-**	-	**-**	-	1	**0.2**	0.0 - 0.6
1968	0	**-**	-	**-**	-	0	**-**	-
1969	3	**0.7**	0.0 - 1.5	**0.9**	0.0 - 1.9	1	**0.2**	0.0 - 0.6
1970	2	**0.4**	0.0 - 1.0	**0.5**	0.0 - 1.3	0	**-**	-
1971	2	**0.4**	0.0 - 1.0	**0.5**	0.0 - 1.3	2	**0.4**	0.0 - 1.0
1972	0	**-**	-	**-**	-	0	**-**	-
1973	5	**1.0**	0.2 - 1.8	**1.1**	0.1 - 2.1	1	**0.2**	0.0 - 0.6
1974	2	**0.4**	0.0 - 1.0	**0.5**	0.0 - 1.1	2	**0.4**	0.0 - 1.0
1975	7	**1.3**	0.3 - 2.3	**1.5**	0.3 - 2.7	1	**0.2**	0.0 - 0.6
1976	3	**0.5**	0.0 - 1.1	**0.7**	0.0 - 1.5	1	**0.2**	0.0 - 0.6
1977	7	**1.2**	0.4 - 2.0	**1.6**	0.4 - 2.8	4	**0.7**	0.1 - 1.3
1978	10	**1.6**	0.6 - 2.6	**2.2**	0.8 - 3.6	5	**0.8**	0.2 - 1.4
1979	8	**1.3**	0.3 - 2.3	**1.5**	0.5 - 2.5	0	**-**	-
1980	15	**2.3**	1.1 - 3.5	**3.2**	1.6 - 4.8	6	**0.9**	0.1 - 1.7
1981	12	**1.8**	0.8 - 2.8	**2.7**	1.1 - 4.3	11	**1.6**	0.6 - 2.6
1982	21	**3.0**	1.6 - 4.4	**4.1**	2.3 - 5.9	10	**1.5**	0.5 - 2.5
1983	17	**2.5**	1.3 - 3.7	**3.2**	1.6 - 4.8	20	**2.7**	1.5 - 3.9
1984	22	**3.1**	1.7 - 4.5	**4.4**	2.6 - 6.2	14	**2.0**	1.0 - 3.0
1985	19	**2.6**	1.4 - 3.8	**4.2**	2.2 - 6.2	18	**2.5**	1.3 - 3.7
1986	27	**3.4**	2.0 - 4.8	**5.1**	3.1 - 7.1	30	**3.7**	2.3 - 5.1
1987	28	**3.5**	2.1 - 4.9	**4.8**	3.0 - 6.6	23	**2.8**	1.6 - 4.0
1988	33	**3.9**	2.5 - 5.3	**6.0**	3.8 - 8.2	29	**3.4**	2.2 - 4.6
1989	34	**4.1**	2.7 - 5.5	**5.5**	3.5 - 7.5	31	**3.7**	2.3 - 5.1
1990	34	**4.0**	2.6 - 5.4	**6.0**	3.8 - 8.2	33	**3.9**	2.5 - 5.3
1991	38	**4.2**	2.8 - 5.6	**6.2**	4.2 - 8.2	30	**3.2**	2.0 - 4.4
1992	44	**4.6**	3.2 - 6.0	**7.0**	4.8 - 9.2	29	**3.2**	2.0 - 4.4
1993	57	**5.8**	4.2 - 7.4	**9.3**	6.8 - 11.8	50	**5.1**	3.7 - 6.5
1994	48	**4.8**	3.4 - 6.2	**7.4**	5.2 - 9.6	52	**5.4**	3.8 - 7.0
1995	57	**5.4**	4.0 - 6.8	**8.7**	6.3 - 11.1	52	**4.9**	3.5 - 6.3
1996	57	**5.5**	4.1 - 6.9	**8.4**	6.2 - 10.6	55	**5.2**	3.8 - 6.6
1997	56	**5.0**	3.6 - 6.4	**8.2**	6.0 - 10.4	52	**4.5**	3.3 - 5.7
1998	58	**5.3**	3.9 - 6.7	**7.9**	5.7 - 10.1	60	**5.3**	3.9 - 6.7
1999	55	**4.4**	3.2 - 5.6	**7.6**	5.4 - 9.8	44	**3.7**	2.5 - 4.9
2000	51	**4.0**	2.8 - 5.2	**7.0**	5.0 - 9.0	56	**4.4**	3.2 - 5.6
2001	65	**5.0**	3.8 - 6.2	**8.6**	6.4 - 10.8	54	**4.0**	2.8 - 5.2
2002	66	**4.9**	3.7 - 6.1	**8.1**	6.1 - 10.1	61	**4.4**	3.2 - 5.6
2003	56	**4.1**	2.9 - 5.3	**6.8**	5.0 - 8.6	58	**4.0**	3.0 - 5.0

* Age-standardized rate per 100,000 and 95% confidence interval based on per Segi (1960) World Standard Population

** Age-standardized rate per 100,000 and 95% confidence interval based on Aust. 2001 population standard

(Mortality rates are similar to incidence rates - only one mortality ASR is shown, for simplicity)

Table 24. Mesothelioma, Western Australia: incidence and mortality, females, 1960 - 2003

Females	INCIDENCE					MORTALITY		
Year	Cases	ASR (W 1960)*	95% c.i.*	ASR (Aust 2001)**	95% c.i.**	Deaths	ASR (W 1960)*	95% c.i.*
1960	0	-	-	-	-	0	-	-
1961	0	-	-	-	-	0	-	-
1962	0	-	-	-	-	0	-	-
1963	0	-	-	-	-	0	-	-
1964	0	-	-	-	-	0	-	-
1965	0	-	-	-	-	0	-	-
1966	0	-	-	-	-	0	-	-
1967	0	-	-	-	-	0	-	-
1968	0	-	-	-	-	0	-	-
1969	0	-	-	-	-	1	**0.2**	0.0 - 0.6
1970	0	-	-	-	-	0	-	-
1971	0	-	-	-	-	0	-	-
1972	0	-	-	-	-	0	-	-
1973	1	**0.2**	0.0 - 0.6	**0.3**	0.0 - 0.9	0	-	-
1974	0	-	-	-	-	0	-	-
1975	2	**0.3**	0.0 - 0.7	**0.4**	0.0 - 1.0	1	**0.1**	0.0 - 0.3
1976	0	-	-	-	-	1	**0.2**	0.0 - 0.6
1977	0	-	-	-	-	0	-	-
1978	1	**0.2**	0.0 - 0.6	**0.2**	0.0 - 0.6	0	-	-
1979	2	**0.3**	0.0 - 0.7	**0.4**	0.0 - 1.0	1	**0.2**	0.0 - 0.6
1980	3	**0.5**	0.0 - 1.1	**0.6**	0.0 - 1.2	2	**0.3**	0.0 - 0.7
1981	2	**0.4**	0.0 - 1.0	**0.4**	0.0 - 1.0	2	**0.3**	0.0 - 0.7
1982	0	-	-	-	-	1	**0.2**	0.0 - 0.6
1983	2	**0.3**	0.0 - 0.7	**0.3**	0.0 - 0.7	1	**0.1**	0.0 - 0.3
1984	3	**0.3**	0.0 - 0.7	**0.5**	0.0 - 1.1	0	-	-
1985	7	**0.8**	0.2 - 1.4	**1.2**	0.2 - 2.2	4	**0.5**	0.0 - 1.1
1986	4	**0.4**	0.0 - 0.8	**0.7**	0.0 - 1.5	4	**0.4**	0.0 - 0.8
1987	4	**0.4**	0.0 - 0.8	**0.6**	0.0 - 1.2	2	**0.2**	0.0 - 0.4
1988	6	**0.6**	0.2 - 1.0	**1.0**	0.2 - 1.8	5	**0.5**	0.1 - 0.9
1989	5	**0.4**	0.0 - 0.8	**0.7**	0.1 - 1.3	2	**0.3**	0.0 - 0.7
1990	6	**0.7**	0.1 - 1.3	**0.9**	0.1 - 1.7	8	**0.7**	0.1 - 1.3
1991	3	**0.3**	0.0 - 0.7	**0.5**	0.0 - 1.1	3	**0.2**	0.0 - 0.6
1992	5	**0.5**	0.1 - 0.9	**0.7**	0.1 - 1.3	5	**0.5**	0.1 - 0.9
1993	13	**1.3**	0.5 - 2.1	**1.8**	0.8 - 2.8	8	**0.8**	0.2 - 1.4
1994	5	**0.4**	0.0 - 0.8	**0.6**	0.0 - 1.2	4	**0.4**	0.0 - 0.8
1995	5	**0.5**	0.1 - 0.9	**0.7**	0.1 - 1.3	5	**0.5**	0.1 - 0.9
1996	7	**0.5**	0.1 - 0.9	**0.9**	0.3 - 1.5	6	**0.5**	0.1 - 0.9
1997	6	**0.5**	0.1 - 0.9	**0.8**	0.2 - 1.4	9	**0.6**	0.2 - 1.0
1998	7	**0.6**	0.2 - 1.0	**0.8**	0.2 - 1.4	5	**0.4**	0.0 - 0.8
1999	8	**0.6**	0.2 - 1.0	**0.9**	0.3 - 1.5	6	**0.4**	0.0 - 0.8
2000	9	**0.7**	0.3 - 1.1	**1.0**	0.4 - 1.6	5	**0.4**	0.0 - 0.8
2001	14	**1.1**	0.5 - 1.7	**1.5**	0.7 - 2.3	11	**0.7**	0.3 - 1.1
2002	7	**0.3**	0.1 - 0.5	**0.7**	0.1 - 1.3	10	**0.7**	0.3 - 1.1
2003	13	**0.7**	0.3 - 1.1	**1.3**	0.5 - 2.1	8	**0.3**	0.1 - 0.5

* Age-standardized rate per 100,000 and 95% confidence interval based on per Segi (1960) World Standard Population

** Age-standardized rate per 100,000 and 95% confidence interval based on Aust. 2001 population standard

(Mortality rates are similar to incidence rates - only one mortality ASR is shown, for simplicity)

4.6.3 Age at exposure and diagnosis

Age at diagnosis

Both mean and median ages at diagnosis have increased since 1960, for both males and females. In males, the median age has increased from 59 years in 1960-1987 to 70.0 in 2001-2003. In females, the median age increased from 57 years to 73 years over the same period (Table 25).

Table 25. Mean and median age at diagnosis of mesothelioma, Western Australia 1960-2003, for males and females

Males

Age at diagnosis	Period of diagnosis				
	1960-1987	1988-1993	1994-1997	1998-2000	2001-2003
Mean	60.0	63.9	66.6	68.4	70.1
Median	59.0	63.5	66.5	69.0	70.0
Cases	215	240	218	164	187

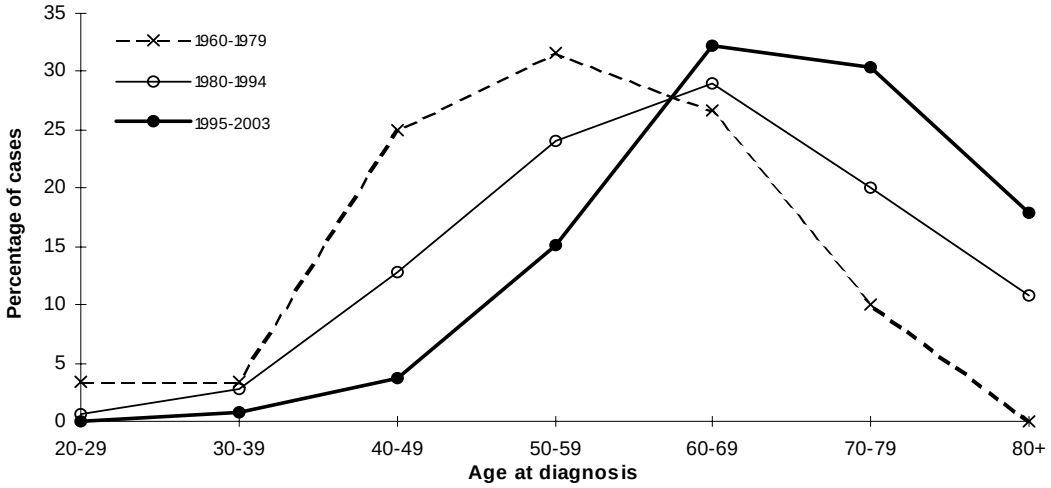
Females

Age at diagnosis	Period of diagnosis				
	1960-1987	1988-1993	1994-1997	1998-2000	2001-2003
Mean	58.1	61.9	65.6	67.6	69.9
Median	57.0	60.0	64.0	70.0	73.0
Cases	31	38	23	24	34

Changes in age distribution over time

The diagnosis year periods in Table 25 were chosen so as to have similar numbers of cases diagnosed in each. However, for the sake of clarity, changes in the age distribution over time are shown using different periods, for ten-year age groups (Figure 21). The curve has shifted towards older ages in recent periods.

Figure 21. Mesothelioma, Western Australia, 1960-2003: age at diagnosis



The move towards later age at diagnosis raise the question as to whether the main sources of asbestos exposure, which once caused mesothelioma in relatively young people, have become less common with time, and that the bulk of the recent cases are those who have had a longer "lead time" between exposure and diagnosis - or whether similar asbestos exposures are still common, but being encountered later in life.

Delay between asbestos exposure and mesothelioma diagnosis

The data available are unable to support a calculation of the time interval between first exposure to asbestos and diagnosis of malignant mesothelioma for all confirmed cases on the Register. However, for cases diagnosed in the period 1960 to 2003, an estimate was available for 867 (74%) of 1174 cases, and ranged from 10 years to 78 years. Mean and median intervals between supposed first exposure and diagnosis were both 40 years for males and 39 years for females. On the basis of longer experience, these data are changing the view of what is normal, as a 1984 Western Australian study reported that of 81 cases with definite asbestos exposure, the average interval between first exposure and diagnosis was 25 years.[15]

Both mean and median lead times have increased consistently since 1960 (Table 26). This does suggest that a large proportion of recently-diagnosed cases are due to asbestos exposure sources which are no longer present, and that the current environment may not give rise to as many cases as did the era when asbestos mining, milling and transport in Western Australia were the dominant causes of mesothelioma.

Table 26. Mean and median "lead time" between first asbestos exposure and mesothelioma diagnosis

Time between exposure and diagnosis (years)	Period of diagnosis				
	1960-1987	1988-1993	1994-1997	1998-2000	2001-2003
Mean	31.4	37.3	42.1	43.1	47.1
Median	31	37	42	43	47
Cases	172	203	185	149	158

* includes only cases for which a "first asbestos exposure" year was available

4.6.4 Presumed source of significant asbestos exposure

Commercial asbestos mining was in progress at Wittenoom from 1943 to 1966, and most cases in earlier years of the period shown were associated with this exposure source. In more recent years however, exposure due to other occupations has contributed more to the total number of cases diagnosed each year, in particular the building and construction industry.

The non-occupational exposure categories include people who were exposed through handyman-type work at home or who were exposed to asbestos as residents of Wittenoom. The latter make up the biggest group within the non-occupational category. For a minority of confirmed cases (73 out of a total of 1174), review of a full occupational and residential history suggested that there has been no exposure to asbestos. For a significant number of cases (122 of 1174, or 10%), there is insufficient information to determine type of exposure, but none was reported.

The most common individual significant asbestos exposure category over the 1960-2003 period remains that relating to ABA (Australian Blue Asbestos) employment at Wittenoom, with 204 male and 10 female cases attributed (Table 27). The building construction/supply industry exposure category was the next most common code, followed by "No known asbestos exposure".

Table 27. Significant asbestos exposure categories and confirmed mesothelioma cases, Western Australia, 1960 - 2003

Code	"Significant exposure" group	Males	Females	All
W1	ABA workers at Wittenoom	204	10	214
W2	Non-ABA workers at Wittenoom	20	5	25
W3a	Western Australian railway workers	69	1	70
W3b	Other (non-WA) railway workers	4	0	4
W4	Asbestos cement product workers	23	0	23
W5	Wharf workers at Point Samson	14	0	14
W6	Wharf workers at Fremantle	34	0	34
W7	Wharf workers, "other" or unspecified	10	0	10
W8/18	Asbestos insulation/lagging workers	38	0	38
W9	Asbestos transport/loading (non-wharf workers)	26	0	26
W10	Building/construction and supply industry workers	165	0	165
W11	Armed forces	41	0	41
W12	Plumbers	29	0	29
W13	Asbestos mining workers, non-ABA	2	0	2
W14	Mining workers, non-asbestos or NOS	2	0	2
W16	Automotive or other brake material exposure	17	0	17
W17	Pipefitters	6	0	6
W19	Boilermakers/cleaners and attendants, welders	32	0	32
W20	Shipbuilding workers	27	0	27
W21	Power station workers	13	0	13
W22	Electricians/electrical fitters	16	0	16
W15	Other occupational grouping	52	9	61
R1	Wittenoom resident, not employed	18	24	42
R2	Wittenoom visitor	7	3	10
R3	Non-Wittenoom resident, family contact asbestos	0	13	13
R4	Do It Yourself/handyman exposure	26	8	34
R5	Other residential exposure	1	10	11
N	No asbestos exposure	41	32	73
U	No known asbestos exposure	87	35	122
	All	1024	150	1174

For the most recent ten years (1994-2003), the most common specific exposure categories are shown in Figures 22 and 23. Among 569 mesothelioma cases occurring in males, those associated with the building and construction industry (20%) now outnumber those directly related to asbestos-related work at Wittenoom (15%). Cases without known asbestos exposure comprised 8% of all cases, and 3% of cases were thought to have had no asbestos exposure.

Among the 81 female cases in the 10 year period, the Unknown exposure (25%) and No exposure cases (22%) were the most common categories. Among females, the four most common specific asbestos exposure categories were all non-occupational: residential exposure in Wittenoom (14%), non-occupational building/handyman exposure (9%), "other" residential exposure, and "family contact" exposure such as washing an asbestos-worker's clothes.

Figure 22. Mesothelioma, Western Australia, males 1994-2003 (569 cases): Most common significant asbestos exposure categories

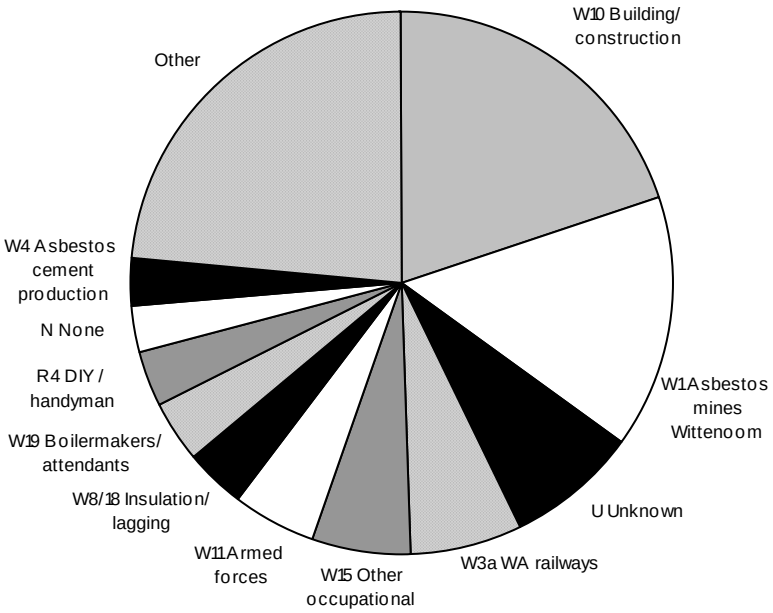
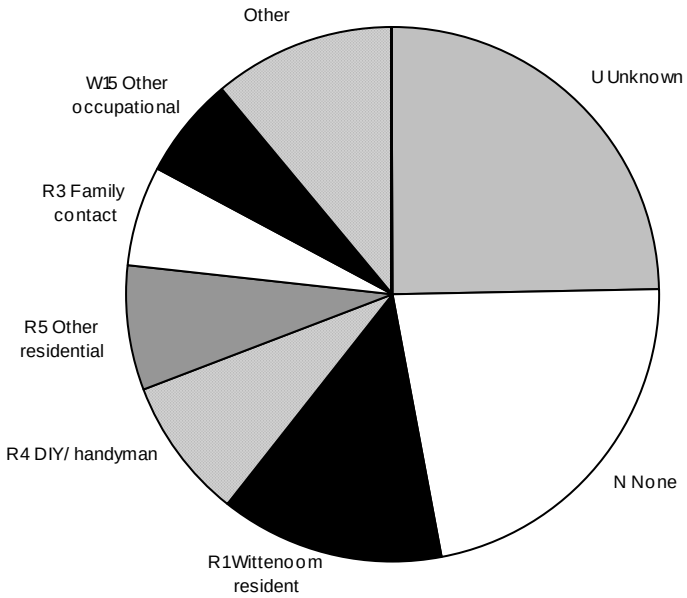


Figure 23. Mesothelioma, Western Australia, females 1994-2003 (81 cases): Most common significant asbestos exposure categories



Over the entire period 1960-2003, 869 mesothelioma cases (74 % of the total) were thought to have been due to occupational asbestos exposure (Table 28). Non-occupational (mostly residential) exposure accounted for 9% of cases, 6% were thought not to have had any asbestos exposure, and 10% of cases lacked sufficient information for a determination. At this level of grouping, there have been no consistent trends over the time periods examined. However, the number of cases associated with asbestos exposures while working for the mining company at Wittenoom, has decreased from 32% in 1960-87 to 11 – 12% since 1998.

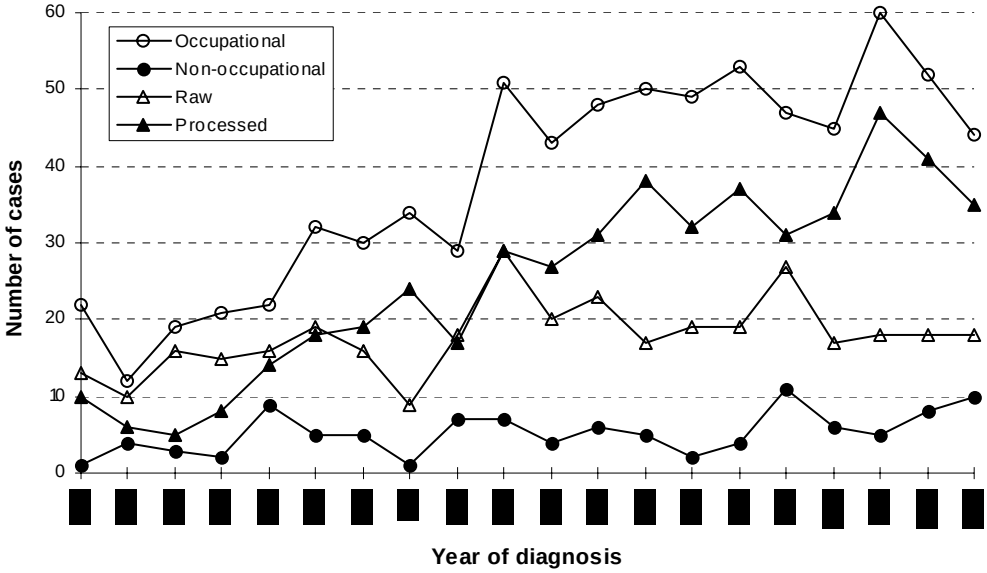
The main changes shown in Table 28 are a decline in the number of cases with exposures thought to be related to raw or unprocessed asbestos, from 51% in 1960-1987, to 24% in 2001-2003 - with a corresponding increase in cases thought to be associated with "end uses" of asbestos products.

Table 28. Significant asbestos exposure, Western Australian mesothelioma cases, 1960-2003: occupational *vs* nonoccupational and raw *vs* processed asbestos exposure

Category	1960-1987 %	1988-1993 %	1994-1997 %	1998-2000 %	2001-2003 %	1960-2003 %	1960-2003 Cases
Residential - Raw asbestos	4.9	7.9	4.1	5.9	3.2	5.3	**62**
Work - ABA employees Wittenoom	32.1	16.5	16.6	11.7	12.2	18.2	**214**
Work - Raw asbestos	13.8	14.0	12.0	16.0	9.0	12.9	**152**
Raw asbestos, all	***50.8***	***38.5***	***32.8***	***33.5***	***24.4***	***36.5***	***428***
Residential - Processed asbestos	1.2	4.0	2.9	5.3	6.8	3.9	**46**
Work - Processed asbestos (end-use)	26.8	39.6	50.2	48.9	48.9	42.3	**497**
Processed asbestos, all	***28.0***	***43.5***	***53.1***	***54.3***	***55.7***	***46.3***	***543***
Residential - other/unknown	0.0	0.4	0.0	0.0	0.5	0.2	**2**
Work - other/unknown	0.4	1.1	0.0	0.5	0.5	0.5	**6**
Other & unknown, all	***0.4***	***1.4***	***0.0***	***0.5***	***0.9***	***0.7***	***8***
No exposure	6.9	7.9	8.3	2.7	4.1	6.2	**73**
Unknown exposure	13.8	8.6	5.8	9.0	14.9	10.4	**122**
All cases	(100)	(100)	(100)	(100)	(100)	(100)	**1174**

While the proportion of cases associated with raw asbestos exposure has declined (Table 28), the actual number of cases per year continues without apparent decline, while the absolute number of cases associated with use of asbestos products increases (Figure 24).

Figure 24. Mesothelioma, Western Australia, 1984-2003: trends in significant asbestos exposure type



Asbestos exposures associated with particular types of activity are shown in Table 29. In the groupings used, there is no occupational content, in that for example "Asbestos mining and milling" includes both the mine/mill workers, and those who were thought to have been exposed to asbestos in or around the Wittenoom townsite and mine workings, including other workers, residents and visitors.

Notable trends are the decline in number of cases attributable to asbestos mining and transport, and the increase in cases thought to be due to the use of asbestos (mainly sheeting) in the construction industry. Use of asbestos in insulation and pipe lagging has been a more constant contributor, but may be in decline, whereas it is too early to suggest whether the small number of cases associated with asbestos cement production will increase in the future. The "Unknown exposure" category has been maintained at a relatively constant level until the most recent time period, averaging about 10% of cases over the period 1960-2003.

Table 29. Mesothelioma, Western Australia 1960-2003: activity-based "significant asbestos exposure" groupings

Category	1960-1987 %	1988-1993 %	1994-1997 %	1998-2000 %	2001-2003 %	1960-2003 %	1960-2003 Cases
Asbestos mining & milling	39.4	25.9	21.2	18.6	17.2	25.0	**293**
Asbestos transport	7.7	9.4	5.4	9.6	3.6	7.2	**84**
Building construction & supply	11.0	21.6	26.1	29.8	35.7	24.3	**285**
Insulation / lagging work	13.4	15.8	21.2	14.9	15.4	16.2	**190**
Asbestos cement production	0.4	2.2	2.5	3.7	1.4	2.0	**23**
Other	7.3	8.6	9.5	11.7	7.7	8.9	**104**
No exposure	6.9	7.9	8.3	2.7	4.1	6.2	**73**
Unknown exposure	13.8	8.6	5.8	9.0	14.9	10.4	**122**
All	(100)	(100)	(100)	(100)	(100)	(100)	**1174**

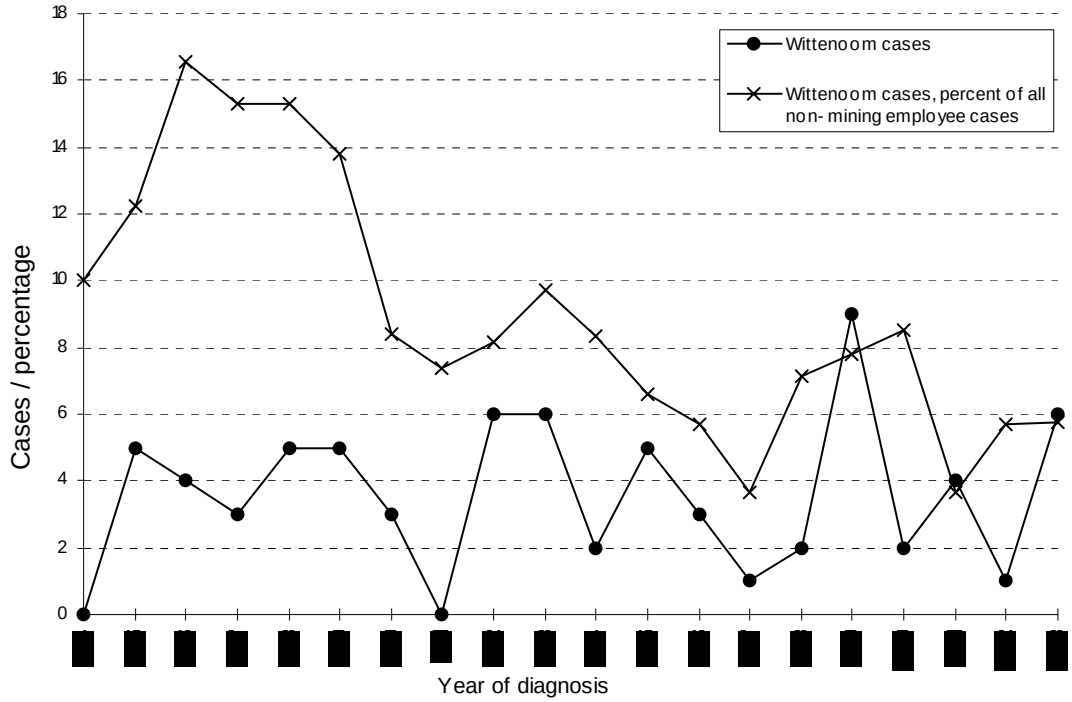
4.6.5 Wittenoom contact

Western Australian Government moves which resulted in the withdrawal of essential services and closure of the Wittenoom townsite in past years had progressed at the time of this Registry's last mesothelioma-specific report,[10] to the demolition and burial of the materials from the old town site. Asbestos contamination had remained considerable in 1978, twelve years after the cessation of asbestos mining operations,[13] and burial of remaining material was expected to reduce what may have otherwise remained significant asbestos contamination of the area.

There continue to be mesothelioma cases diagnosed that are thought to be due to non-mining associated work or contact with Wittenoom (categories W2, R1 and R2 in Table 27). At present, all but 3 of these cases are thought to be due to asbestos exposure prior to the cessation of mining in the area, and the continuing risk to post-mining residents remains unclear but should be considered.

Figure 25 shows annual numbers of Wittenoom-associated cases, from which it can be seen that the case numbers vary widely between years and even with the smoothing effect of the moving average, the "percentage" line in the most recent 10 years does not show a consistent trend.

Figure 25. Mesothelioma, Western Australia, 1984 - 2003, significant asbestos exposure (excluding asbestos mining company employees at Wittenoom): Wittenoom-associated cases, and percentage of total cases (3-year moving average)



4.6.6 Basis of diagnosis

The Mesothelioma Register and WA Cancer Registry record, as the basis of diagnosis, the setting or most complex type of test by which each particular case was confirmed (Table 30). In general, diagnosis has been regarded as most certain when based on a tissue specimen, and on histology rather than cytology. However, cases have been confirmed on the basis of clinical and radiological findings when there was no pathological material available.

Table 30. Mesothelioma, Western Australia: basis of diagnosis for confirmed cases, 1960-2003

	Period of diagnosis					
Basis	**1960-1987**	**1988-1993**	**1994-1997**	**1998-2000**	**2001-2003**	**1960-2003**
Clinical	2.4	1.1	0.8	0.5	0.5	1.1
Imaging	0.0	0.7	0.8	1.1	1.4	0.8
Microscopic						
Cytology	31.7	36.7	31.5	27.7	33.0	32.5
Histology	57.7	57.2	66.8	70.2	65.2	62.9
Other	4.9	1.1	0.0	0.5	0.0	1.4
Other	3.3	3.2	0.0	0.0	0.0	1.4
Total cases	246	278	241	188	221	1174

Note: NOS - Not otherwise specified.

The most significant change over the 43 year period being considered is the increased proportion of diagnoses based on imaging (and clinical findings), from none in1960-1987 to 1.1 - 1.4% in the last 7 years; the number of "clinical" cases has diminished in the same period. There has been an increase in the proportion of cases with histological confirmation from 58% to 65%. Electron microscopy and special stains on cells from fluid in pleural effusions increasingly makes the distinction between mesothelioma and other forms of malignancy.

4.6.7 Mesothelioma incidence: projections

Predictions of future cancer case numbers and incidence rates may be of vital importance to health planners who seek to ensure that health services are able to keep up with demand. Other projections elsewhere in this report deal with the total cancer burden. Mesothelioma predictions have assumed a heightened importance in recent years due to the question of financial compensation for occupation-related disease. The issue could be felt to justify complex statistical methods which might take into account predictions of future asbestos exposures, and detailed data concerning past changes (such as the cessation of mining at Wittenoom in 1966). Such methods are beyond the scope of this report, however some projections are presented here as a guideline. They are based on the calculation of an exponentially-weighted moving average of historical case numbers, and do not take into account any exposure information, however they do take projected population growth into account.

In males, based on data from 1984 to 2003, which show a statistically-significant average annual incidence rate increase of 2.01% per year, annual case numbers are projected to grow to 98 by the year 2010, with the greatest increase in those aged over 70 years. Many of these cases will have been caused by asbestos exposure which has already occurred, and as time goes on the projections may prove too high. Statistical uncertainty indicates, via the 95% confidence interval, that even as soon as 2010, the projected 98 case per year might actually lie in the range 89 to 107, or +/- 9%. These projections are based on the best available local evidence as a guideline only, and should be treated with caution.

Table 31. Mesothelioma in Western Australians: Case numbers cases and rates 1984-2003, and projections to 2016 - males

MALES					**Case numbers by age**		
Year	ASR	95%c.I.	Cases	95%c.I.	**< 50 yrs**	**50 - 69 yrs**	**>= 70 yrs**
1984	3.1	1.7 - 4.5	22		2	15	5
1985	2.6	1.4 - 3.8	19		4	8	7
1986	3.4	2.0 - 4.8	27		2	15	10
1987	3.5	2.1 - 4.9	28		3	20	5
1988	3.9	2.5 - 5.3	33		5	20	8
1989	4.1	2.7 - 5.5	34		5	20	9
1990	4.0	2.6 - 5.4	34		2	22	10
1991	4.2	2.8 - 5.6	38		6	20	12
1992	4.6	3.2 - 6.0	44		8	23	13
1993	5.8	4.2 - 7.4	57		7	22	28
1994	4.8	3.4 - 6.2	48		5	27	16
1995	5.4	4.0 - 6.8	57		4	28	25
1996	5.5	4.1 - 6.9	57		3	32	22
1997	5.0	3.6 - 6.4	56		3	26	27
1998	5.3	3.9 - 6.7	58		1	35	22
1999	4.4	3.2 - 5.6	55		4	22	29
2000	4.0	2.8 - 5.2	51		1	23	27
2001	5.0	3.8 - 6.2	65		1	27	37
2002	4.9	3.7 - 6.1	66		2	31	33
2003	4.1	2.9 - 5.3	56		2	26	28
2004	**4.5**	3.3 - 5.6	**65**	57 - 72	**2**	**31**	**30**
2005	**4.6**	3.5 - 5.7	**69**	61 - 77	**2**	**34**	**34**
2006	**4.7**	3.6 - 5.8	**74**	66 - 82	**2**	**35**	**37**
2007	**4.8**	3.7 - 5.9	**79**	71 - 87	**2**	**37**	**40**
2008	**4.9**	3.8 - 6.0	**85**	76 - 93	**2**	**38**	**44**
2009	**5.0**	4.0 - 6.1	**91**	82 - 99	**1**	**41**	**48**
2010	**5.3**	4.2 - 6.4	**98**	89 - 107	**2**	**42**	**52**
2011	**5.4**	4.3 - 6.5	**105**	95 - 114	**2**	**44**	**57**
2012	**5.5**	4.5 - 6.6	**112**	102 - 123	**2**	**47**	**63**
2013	**5.7**	4.6 - 6.7	**120**	109 - 131	**2**	**49**	**69**
2014	**5.8**	4.8 - 6.9	**128**	117 - 140	**2**	**53**	**75**
2015	**6.0**	4.9 - 7.0	**137**	125 - 149	**2**	**55**	**81**
2016	**6.2**	5.2 - 7.3	**148**	135 - 160	**3**	**57**	**88**

Trend 1984-2003: Increase averaging 2.01% per year (p=0.001)

ASRs and case numbers in bold are projections based on an Exponentially-weighted moving average.

In females, the data from 1984 to 2003 show a statistically non-significant average annual incidence rate increase of 2.05% per year, and annual case numbers are projected to grow to 13 per year (95% confidence interval 8 - 17) by the year 2010. The historical annual case numbers have been very variable, and have already exceeded 13 cases on one occasion. Even more than for males, these projections are based on the best available local evidence as a guideline only, and should be treated with caution.

Table 32. Mesothelioma in Western Australians: Case numbers cases and rates 1984-2003, and projections to 2016 - females

FEMALES

Year	ASR	95% c.i.	Cases	95% c.i.	**< 50 yrs**	**50 - 69 yrs**	**>= 70 yrs**
1984	0.3	0.0 - 0.7	3		0	2	1
1985	0.8	0.2 - 1.4	7		3	1	3
1986	0.4	0.0 - 0.8	4		0	2	2
1987	0.4	0.0 - 0.8	4		1	2	1
1988	0.6	0.2 - 1.0	6		1	1	4
1989	0.4	0.0 - 0.8	5		1	1	3
1990	0.7	0.1 - 1.3	6		2	3	1
1991	0.3	0.0 - 0.7	3		2	0	1
1992	0.5	0.1 - 0.9	5		2	2	1
1993	1.3	0.5 - 2.1	13		3	6	4
1994	0.4	0.0 - 0.8	5		2	1	2
1995	0.5	0.1 - 0.9	5		0	4	1
1996	0.5	0.1 - 0.9	7		1	3	3
1997	0.5	0.1 - 0.9	6		0	3	3
1998	0.6	0.2 - 1.0	7		1	3	3
1999	0.6	0.2 - 1.0	8		0	2	6
2000	0.7	0.3 - 1.1	9		2	3	4
2001	1.1	0.5 - 1.7	14		1	8	5
2002	0.3	0.1 - 0.5	7		0	2	5
2003	0.7	0.3 - 1.1	13		1	4	8
2004	**0.4**	0.1 - 0.8	**8**	4 - 12	**1**	**3**	**4**
2005	**0.5**	0.1 - 0.8	**8**	4 - 12	**0**	**3**	**5**
2006	**0.5**	0.1 - 0.8	**9**	4 - 13	**0**	**3**	**5**
2007	**0.6**	0.2 - 1.0	**10**	6 - 15	**1**	**4**	**6**
2008	**0.6**	0.2 - 1.0	**11**	7 - 15	**1**	**4**	**6**
2009	**0.6**	0.2 - 1.0	**12**	7 - 16	**1**	**4**	**6**
2010	**0.6**	0.3 - 1.0	**13**	8 - 17	**1**	**5**	**6**
2011	**0.7**	0.3 - 1.0	**13**	9 - 18	**1**	**5**	**6**
2012	**0.7**	0.3 - 1.1	**14**	9 - 19	**1**	**5**	**7**
2013	**0.7**	0.3 - 1.1	**15**	10 - 20	**1**	**6**	**7**
2014	**0.7**	0.3 - 1.1	**16**	11 - 21	**1**	**6**	**8**
2015	**0.8**	0.4 - 1.3	**18**	13 - 23	**2**	**7**	**9**
2016	**0.9**	0.4 - 1.3	**19**	14 - 25	**2**	**7**	**9**

Trend 1984-2003: Increase averaging 2.05% per year (not significant)

ASRs and case numbers in bold are projections based on an Exponentially-weighted moving average.

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APPENDICES

- Notes -

Appendix 3A now contains an incidence data summary for the most common cancer types 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 mandatory reporting of cancers diagnosed by pathologists, haematologists and radiation oncologists is underpinned by the Health (Notification of Cancer) Regulations; the most recent version can be found in **Appendix 2E**. 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 National Cancer Statistics Clearing House (NCSCH) (a central cancer data collection for the whole of Australia based at the Australian Institute of Health and Welfare in Canberra). Data are also provided to the Australian Mesothelioma Register in Canberra, and the International Agency for Research on Cancer in Lyon, France, for inclusion in Australian statistics published nationally 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 annually 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 detailed asbestos exposure and other history for all cases of malignant mesothelioma. In practice, the Registry records available information about cancers diagnosed elsewhere, in Western Australians, 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 forwarded 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 only 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.

Legislative basis

The Registry acts with the delegated authority of the Executive Director of Public Health with respect to the Health (Notification of Cancer) Regulations 1981. These, as amended in February 1996, require the notification of *in situ* neoplasms and all non-melanoma skin cancers other than basal cell and squamous cell carcinomas, as well as all invasive malignancies and benign CNS tumours (see **Appendix 2E**).

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 generated by pathologists to select the reports which reach 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 concerning 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 W.A. Registrar-General's Office via the Data Linkage Unit in the Health Information Centre. Records are created on the Cancer Registry for persons with these previously-unrecorded tumours, 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 demographic information including country of birth, Aboriginality or indigenous status, and occupation can often be obtained, either from periodic extracts of the W.A. Hospital Morbidity Data System (HMDS) files (maintained in the Health Information Centre), or via on-line access to a Patient Master Index maintained in Perth Metropolitan Area government hospitals. In 2000, the HMDS was assessed as a potential passive source of cancer notifications for tumours not otherwise reported to the Registry, and a process of assessing the impact of such additional records on Western Australian incidence statistics remains under way. Currently these data are being updated and will be used to support a request for changes in the Health (Notification of Cancer) Regulations.

Data handling and maintenance

The Registry still maintains paper records for individual cases, although as pathology reports are increasingly being received in electronic form, on-screen-only coding is still being considered. A long-awaited computer software re-enginerering process is currently in its early stages.

New registrations and updates are made on a locally-designed computerized multi-user database installed on an IBM-compatible microcomputer network. In general, cancer cases are recorded with one demographic record for each person with a separate, linked, record for each tumour. Records which are incomplete or which are found to be inaccurate in the light of new information are progressively updated, and the data are thus subject to continual enhancement until the time of any final update such as that following confirmation of death information. Registry records that are duplicates of existing cases are now handled by cross-referencing to the "valid" case, rather than deletion, minimizing the repetition of "detective" work if more information later comes to hand.

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 divisions and the types of data requests received. The vast majority of tables in this report are created directly from this in-house software.

Where resources permit, customized tabulations using similar area and age group subdivisions are made available to researchers and students on 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); now related to ICD-10.

ICD-O permits separate coding of topography ("site"), morphology ("tissue") and behaviour, and thus allows a more comprehensive characterization 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) (ICDO-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 other tumours are tabulated on the basis of topography, or location.

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, C43*x*, to distinguish them from deaths due to non-melanoma skin cancers (C44*x*). In accordance with IACR guidelines adopted by AACR, deaths due to melanomas of unknown primary site are now included with deaths due to primary skin melanoma.

Non-Western Australian diagnoses 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 data files with current database information, as 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 is now an established monthly process. This exchange is important, 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 (three-character) sites in any individual are counted separately for the purposes of incidence statistics. However, in accordance with international practice, 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 histology of the tumours concerned is different enough to permit the counting of both.

Groups of histological types considered to be different, for the purposes of allowing the counting of more than one tumour of the same three-character "site", are based on those in Jensen *et al* (1991).[b] Currently the Registry uses the ICDO-2-based table as promulgated by the International Association of Cancer registries. Using these rules, for example, a squamous cell carcinoma of

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

[b] Jensen OM, Parkin DM, MacLennan R *et al* (1991) *Cancer Registration: Principles and methods*. IARC Scientific Publications No. 95, Lyon, France.

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 particular site does not preclude the counting of different types of neoplasms in the same sites. The renal tract is treated as a special case of an "extended site", whereby multiple transitional cell carcinomas of sites C65*x* to C68*x* , except bladder (C67*x*), 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 underestimates cure rates. To allow better analysis, the Registry now separately records all tumours, and statistics counting tumours, rather than cases, can be provided if required.

"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 "death certificate only" (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 are consistently more common among DCO cases than among all cancers (Section 3.1).

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.

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 2F(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 generally regarded as the most reliable. Their percentage of the total cases is shown in the "TissDx" 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 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 maximum thickness of the tumour and Clark's level are recorded (Breslow 1970[a] Clark *et al* 1975[b]), and are used in many of this Registry's reports.

[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.

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,[5] warns of unusual records. 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 hospitalization or death. Reports from radiation oncologists serve as a useful avenue for checking receipt of reports based on previous pathology specimens, and enables recording of a small number of cancers which were not diagnosed histologically. The Hospital Morbidity System, which records details of all hospitalizations 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 Confidentiality of Health Information Committee (CHIC) which is responsible to the Minister for Health.

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.

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. 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.

Appendix 1B. Current issues

Registry staffing and workload

In 2003, a long process seeking reclassification of "Clerical officers" to a higher level, redesignated "Data quality officers", came to a successful conclusion. The resources now available to service the needs of a population of 1.9 million people now include -

Principal Medical Officer/Manager	1.0 fte
Medical Officer/coding adviser	0.2 fte
Data Quality Officers	3.5 fte
Mesothelioma research officer	0.25 fte
Analyst/programmer	1.0 fte

Additional resources used include financial/ Human Resources services, the cooperation of the Epidemiology Branch on some statistical issues, and production/graphic design services from the Health Promotion Branch. However all reports such as this are produced primarily within the Registry itself.

Workload is not adequately represented by cancer totals, as demonstrated by the following data: in 2003 there were 8653 cancer cases as mentioned earlier in this report. However, in the same year there were 13531 pathology records added to the registry databases, and 18096 records were edited in some way by staff.

The increases in these workload estimates exceed population growth rates, and underscore the need to properly resource such disease registries to 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

Western Australia is the only Australian State in which there is 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 a successful "Graduate Oficer" placement request 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, is in progress. The findings are expected to support a process for revising the Health (Notification of Cancer) Regulations 1981 so as to require hospital notification.

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 concerned with a replacement of the (public) hospital Patient Administration System, and these data items are to be considered when choosing potential replacement systems.

Appendix 2. Technical and miscellaneous information

Appendix 2A. Glossary

General

ABS	Australian Bureau of Statistics
Age-adjusted rate	- rate resulting from age-standardization using only a subset of the entire age range for cases and population, e.g. 0 - 15 years.
ASR	Age-standardized 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
CHIC	Confidentiality of Health Information Committee
DCO	Death certificate only
LHN	Lymphohaematopoietic Neoplasms
NMSC	Non-melanoma skin cancer
SCC	Squamous cell carcinoma
SD	Standard deviation
ICD-O	International Classification of Diseases for Oncology
LR	Lifetime risk (to a particular age, usually 75 years)
NOS	Not otherwise specified
PYLL	Person-years of life lost (before a particular age, usually 75 years)

Additional terms used in column headings 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)
SD	Standard deviation
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).

[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, ie "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 analyzed, 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.

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-standardized 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 ± 1.96 ESE).

Formulae:

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

where w_i is the World Standard Population [b] for the ith age group, $W = \Sigma_i \, w_i$ and Σ_i denoted 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 standardization 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 standardization. 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 Standardized Incidence (or Mortality) Ratio and a 95% confidence interval.

Relative survival has been calculated using Relsurv 2.5 (Hedelin[c]) which produces 5-year survival for even most recent cases by mathematical modelling. Detailed methods may be found in Threlfall TJ, Brameld K (2000) *Cancer survival in Western Australian residents, 1982-1997* (*see* WACR Publications) - which used an earlier version of the software.

[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.

[c] Hedelin G (2001) Relsurv A program for relative survival. Laboratory for Epidemiology and Public Health, Faculty of Medicine, 6700 Strasbourg Cedex, France.

Cumulative Incidence and Lifetime 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, while cumulative rates are commonly presented as percentages affected. In Registry reports, risk is usually presented as lifetime 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:

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

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:

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

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

$P_{j+1,i} = \Pi_{k=j+1,\ldots,i-1} p_k$ for $j + 1 < i$, or 1 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

The following W.A. population data were used for calculation of 2003 rates in this report

Age	Males	(%)	Females	(%)	Total	(%)
0- 4	63362	6.5	60954	6.2	124316	6.4
5- 9	68611	7.0	64742	6.6	133353	6.8
10-14	72086	7.4	68593	7.0	140679	7.2
15-19	73471	7.5	69997	7.2	143468	7.3
20-24	70783	7.2	67774	6.9	138557	7.1
25-29	67271	6.9	65370	6.7	132641	6.8
30-34	74450	7.6	73651	7.6	148101	7.6
35-39	72569	7.4	72971	7.5	145540	7.5
40-44	76646	7.8	76994	7.9	153640	7.9
45-49	71108	7.3	71733	7.4	142841	7.3
50-54	66741	6.8	65892	6.8	132633	6.8
55-59	57468	5.9	53922	5.5	111390	5.7
60-64	42010	4.3	40578	4.2	82588	4.2
65-69	32900	3.4	33579	3.4	66479	3.4
70-74	26888	2.8	28768	2.9	55656	2.9
75-79	20562	2.1	24742	2.5	45304	2.3
80-84	12233	1.3	18340	1.9	30573	1.6
85 +	7689	0.8	16792	1.7	24481	1.3
TOTAL	976848	(100)	975390	(100)	1952238	(100)

(Data from Australian Bureau of Statistics as collated by Health Information Centre, Department of Health, and used for calculation of rates in this Report.)

The Department of Health's area of responsibility is administered through 3 Area Health Services (AHS) (2 metro, 1 rural) and the Country Health Service, comprising 6 regions. Overall, the area is divided into 34 Health Districts (HD). Each Health District (HD) lies entirely within an Area Health Service (AHS) or a Health Region (HR) (for Country Area Health Service). Areas have been re-named, and there have been boundary changes. These changes have been incorporated in data files and in the population files used for calculation of incidence and mortality rates in this report.

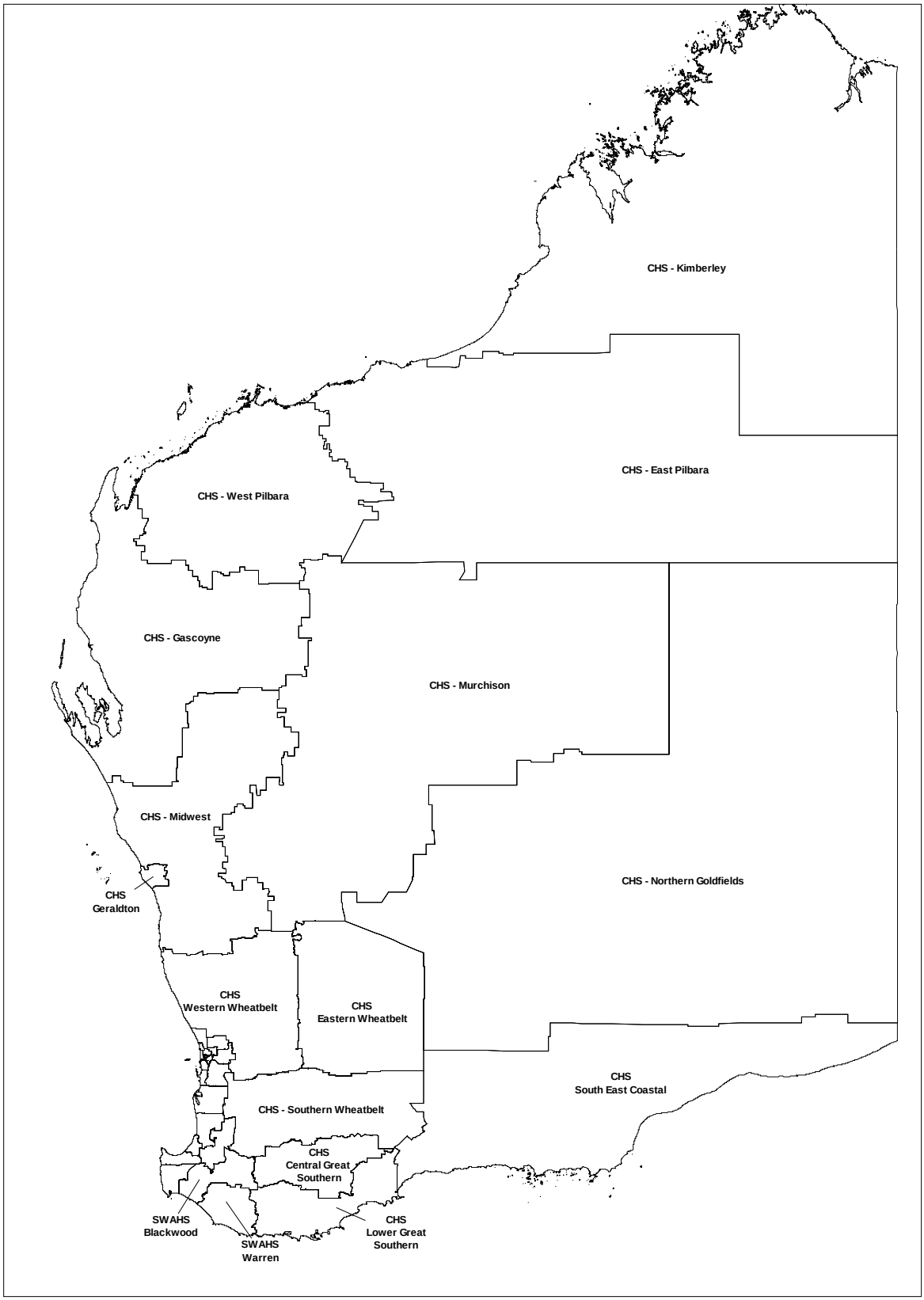
The table and maps below should assist comparison of boundaries and area names with those used in previous reports.

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

CHS Kimberley HR	**CHS Goldfields SE Coastal HR**	**North Metro AHS**
Kimberley HD	Northern Goldfields HD	NMAHS Central HD
CHS Pilbara Gascoyne HR	South East Coastal HD	NMAHS Coastal HD
East Pilbara HD		NMAHS Hills HD
Gascoyne HD	**CHS Great Southern HR**	NMAHS Lower HD
West Pilbara HD	Central Great Southern HD	NMAHS Midlands HD
CHS Midwest Murchison HR	Lower Great Southern HD	NMAHS Perth City HD
Geraldton HD		NMAHS Upper HD
Midwest HD	**South West AHS**	NMAHS Valley HD
Murchison HD	SWAHS Blackwood HD	
CHS Wheatbelt HR	SWAHS Bunbury HD	**South Metro AHS**
CHS Eastern Wheatbelt HD	SWAHS Busselton HD	SMAHS Armadale HD
CHS Southern Wheatbelt HD	SWAHS Leeuwin HD	SMAHS Bentley HD
CHS Western Wheatbelt HD	SWAHS Leschenault HD	SMAHS Fremantle HD
	SWAHS Warren HD	SMAHS Peel HD
	SWAHS Wellington HD	SMAHS Rockingham-Kwinana HD

* CHS - Country Health Service - rural other than South west AHS

W.A. Area Health Service, Region and Health District boundaries (a)



W.A. Area Health Service, Region and Health District boundaries (b)

Appendix 2D. Confidentiality guidelines

1. Responsibility for the confidentiality of data held by the Cancer Registry will ultimately lie with the Director General of Health (hereafter referred to as the Director General).

2. All Cancer Registry staff will be instructed regarding the need for confidentiality. In addition, Cancer Registry staff will be required to sign a confidentiality declaration. The Senior Medical Officer of the Cancer Registry will be responsible to the Commissioner for ensuring that procedures for ensuring confidentiality are maintained.

3. Release of data may occur at a number of levels:

   (a) Summarized 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.

   (b) More detailed statistical information, which may include data files for analysis, but containing no means of identifying any individual patient, doctor, laboratory or hospital, may be released by the Senior Medical Officer.

   (c) Identified information will normally be made available to relevant Australian State or Territory Cancer Registries and to the National Cancer Statistics Clearing House at the Australian Institute of Health and Welfare, for the purposes of improving data quality and consistency. Data are released to the N.C.S.C.H. subject to a provision that any use of such identified data for other purposes is to be referred to this Registry for approval.

   (d) Special information pertaining to identified patients of a particular hospital or doctor may be released by the Senior 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 Confidentiality of Health Information Committee if there is concern regarding the identification of individual service providers.

   (e) Applications for further information required for specific areas of research will be referred to the Confidentiality of Health Information Committee which, subject to formal application, may approve the release of identified information to researchers. Such approval will normally include directions regarding steps which may be taken by the researcher in approaching other persons or bodies for further information with respect to persons so identified.

   (f) Approval for the release of identified information for the purposes of research (i.e. in the case of (e) above) will be subject to the current Code of Practice of the Confidentiality of Health Information Committee. This Code includes requirements for written protocols, signed confidentiality declarations, contact with treating doctors prior to any contact with named individuals, and consent. The approach of the Committee is summarized by the Code's general statement -

   "Names are only released by the Confidentiality of Health Information Committee on behalf of the Commissioner of Health for medical and public health research which is intended to provide important benefit for the health care of the community and which adheres to stringent guidelines for preserving confidentiality and privacy."

Appendix 2E. Cancer notification regulations

HEALTH (NOTIFICATION OF CANCER) REGULATIONS 1981*
(as modified by the Health (Notification of Cancer) Amendment Regulations 1996)**
MADE by His Excellency the Governor in Executive Council.

1. These regulations may be cited as the Health (Notification of Cancer) Regulations 1981. — Citation.

2. These regulations shall come into operation on 1 August 1981 — Commencement.

3. In these regulations, unless the contrary intention appears, the term "cancer" means any malignant growth of human tissue which if unchecked is likely to spread to adjacent tissue and beyond its site of origin and includes - — Interpretation.
(a) all *in situ* neoplasms;
(b) all malignant neoplasms of the skin other than primary basal cell carcinoma and primary squamous cell carcinoma;
(c) all neoplasms of the brain, spinal cord and cranial nerves, and any other intracranial neoplasms, whether benign or malignant.

4. Cancer is prescribed as a condition of health to which Part IXA of the Health Act 1911 applies. — Cancer prescribed as a condition of health.

5. (1) A medical practitioner who undertakes pathological or biochemical examinations of specimens of human origin, including blood, shall, within 30 days of becoming aware that any specimen indicates that the person from whom it is taken suffers from cancer, forward to the Executive Director of Public Health a copy of any report that he may make upon the examination. — Notification by pathologist.

(2) A report made under subregulation (1) of this regulation in respect of any person shall include -
(a) the full name and address of the person;
(aa) the sex and date of birth of the person;
(b) the name of the medical practitioner by whom the person is referred for examination; and
(c) if the person is a patient in a hospital, the name and address of the hospital.

6. A person who is in charge of any place in which cancer is treated by ionising radiation or accelerated atomic particles shall, within 30 days of the first occasion on which any person is so treated, furnish the Executive Director of Public Health with the following information in relation to that person, namely - — Notification by radiation oncologist.
(a) full name and address of the person;
(b) sex and date of birth of the person; and
(c) the type of cancer for which that person is being treated.
(d) the name of the medical practitioner by whom the person is referred for examination; and
(e) if the person is a patient in a hospital, the name and address of the hospital.

7. A fee of $4 for each person in respect of whom notification is made under regulation 5 or 6 is payable to the person who makes the notification to the Executive Director of Public Health. — Fee for notification.

8. (1) Where the Executive Director of Public Health is notified of the name of a person who suffers from cancer or who is treated for cancer the Executive Director of Public Health may request any medical practitioner or person in charge of a hospital to provide him with any information of the kind set out in the Schedule to these regulations that is known to the medical practitioner in relation to that person. — Executive Director of Public Health may require further particulars.

(2) A person to whom a request is made pursuant to subregulation (1) of this regulation shall comply with that request within 30 days of the receipt of the request.

9. (1) A person who contravenes a provision of the regulations specified in the Table to this subregulation commits an offence.

Table
Regulations 5, 6 and 8(2).

(2) A person who commits an offence under subregulation (1) is liable to a penalty which is not more than $1,000 and not less than -
(a) in the case of a first offence, $100;
(b) in the case of a second offence, $200; and
(c) in the case of a third or subsequent offence, $500.

(* *Published in the Gazette of 24 July 1981 at pp. 3056-6. For amendments to 15 January 1996 see 1994 Index to Legislation of Western Australia, Table 4, pp. 130-131.)*

** Presented in good faith as an accurate representation of the content of Regulations and Schedule as amended February 1996.

HEALTH (NOTIFICATION OF CANCER) REGULATIONS 1981*
(as modified by the Health (Notification of Cancer) Amendment Regulations 1996)**

(continued)

Schedule.
NOTIFICATION OF CANCER.

NAME OF PATIENT:
ADDRESS:
SEX:
DATE OF BIRTH:
OCCUPATION:
MARITAL STATUS:
PLACE AND COUNTRY OF BIRTH:
RACE:
DATE OF DIAGNOSIS OF CANCER:
PLACE OF RESIDENCE OF PATIENT AT DIAGNOSIS OF CANCER:
DATE OF ADMISSION OR OUTPATIENT CONSULTATION:
PRIMARY SITE OF CANCER (where known):
MORPHOLOGICAL SUBTYPE OF CANCER (where known):
METHOD OF DIAGNOSIS OF CANCER:

By His Excellency's Command.

Clerk of the Council.

Appendix 2F. Cancer codes

(a) ICD-O Site codes

Codes(1)	Site/Topography	Codes	Site/Topography
C00	Lip	C40 - C41	Bones, joints & articular cartilages
C01 - C02	Tongue	C44	Skin
C03	Gum	C47	Nervous system, peripheral & autonomic
C04	Floor of mouth	C48	Retroperitoneum and peritoneum
C05 - C06	Palate, other & u/s parts of mouth	C49	Connective, subcutaneous & other soft tissues
C07 - C08	Parotid & other major salivary gland	C50	Breast
C09 - C10	Tonsil & oropharynx	C51 - C52	Vulva & Vagina (2)
C11	Nasopharynx	C53	Cervix uteri
C12 - C13	Pyriform sinus & hypopharynx	C54	Corpus uteri (Uterus)
C14	Pharynx, other & ill-def. sites	C55	Uterus, nos *(not used)*
C15	Oesophagus	C56 - C57	Ovary, uterine adnexa & other fem. genital(2)
C16	Stomach	C58	Placenta
C17	Small intestine	C60 & C63	Penis & other male genital organs
C18	Colon	C61	Prostate gland
C19 - C20	Rectosigmoid junction & rectum	C62	Testis
C21	Anus	C64 - C66 & C68	Kidney & other renal tract
C22	Liver & intrahepatic bile ducts	C67	Urinary bladder
C23 - C24	Gallbladder & bile ducts	C69	Eye & lacrimal gland
C25	Pancreas	C70	Meninges (cerebral & spinal)
C30 - C31	Nasal cavity & sinuses, middle & inner ear	C71	Brain
C32	Larynx	C72	Spinal cord & cranial nerves
C33 - C34	Lung, bronchus & trachea	C73	Thyroid gland
C37	Thymus	C74 - C75	Adrenal & other endocrine glands
C38	Pleura, heart & mediastinum	C80	Unknown primary site

Notes: (1) Only 1st 3 characters are shown. Groupings are based on IARC rules governing the reporting of incident cancers for ICDO-3; (2) Groupings implemented for the first time in this report.

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 ICDO-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 will be unfamiliar to many 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 ICD-10), future reports may eventually follow the WHO classification scheme.

The main changes in this report, using ICDO-3, are that 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)

			WACR code	ICDO-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
	1c2	NHL, mature T / N-K 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 *(subset of 1c1)*	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	Malig. histiocytic/dendritic cell neoplasms	HIH	9750, 9754-9758
	4c3	Other & U/S immunoproliferative neoplasms	HII	9760-9764

*9597, *9598 and *9599 are W.A.C.R. 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 ICDO classification as code 9591.

Appendix 2G. WACR publications

Note: *It is strongly recommended that retrospective studies utilize 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.*

FitzGerald P, Thomson N and Thompson J (1994) *Cancer incidence and mortality in Western Australia 1991*. Health Department of Western Australia, Perth, Statistical Series number 39.

Thompson J, FitzGerald P (1995) *Childhood cancer incidence, mortality and survival in Western Australia 1982-1991*. Health Statistics Branch, Health Department of Western Australia, Perth.

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

Appendix 2H. Guide to tables in Appendix 3

Note: The order of cancer types in the tables in Appendix 2F are 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, crude rate, ASR, ESE, 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 2F**, 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 Merckel cell or sweat gland carcinomas, are included in incidence statistics in this report, but these do NOT include basal cell carcinoma and squamous cell carcinoma.

- **Notes –**

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

Appendix 3A. Cancer incidence, Western Australia, 2003

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 (C000-C009)																									
M						1	4	7	3	7	5	10	6	10	8	10	8	3	**82**	**6.0**	4.7-7.3	100	0.6	155	9.2 (7.2-11.3)
						1.5	5.4	9.6	3.9	9.8	7.5	17.4	14.3	30.4	29.8	48.6	65.4	39.0							
F					1	1	2	2	2	2	9	3	7	7	5	4	8	5	**58**	**4.0**	2.9-5.1	100	0.4	226	5.8 (4.3-7.3)
					1.5	1.5	2.7	2.7	2.6	2.8	13.7	5.6	17.3	20.8	17.4	16.2	43.6	29.8							
Tongue (C010-C029)																									
M							1	2	2	3	3	2	5	4	3	1		1	**27**	**2.2**	1.4-3.0	100	0.3	370	2.9 (1.8-4.0)
							1.3	2.8	2.6	4.2	4.5	3.5	11.9	12.2	11.2	4.9		13.0							
F								1	1			1		2	1	3	1	1	**11**	**0.7**	0.2-1.1	100	0.1	1434	1.1 (0.5-1.8)
								1.4	1.3			1.9		6.0	3.5	12.1	5.5	6.0							
Gum (C030-C039)																									
M										1				1			1	1	**4**	**0.3**	0 - 0.6	100	0.0	4499	0.5 (0 - 1.0)
										1.4				3.0			8.2	13.0							
F										1	1	2			1		2		**7**	**0.4**	0.1-0.8	100	0.1	1981	0.7 (0.2-1.2)
										1.4	1.5	3.7			3.5		10.9								
Floor of mouth (C040-C049)																									
M									1	2		4	3	2	1				**13**	**1.1**	0.5-1.7	100	0.1	714	1.3 (0.6-2.0)
									1.3	2.8		7.0	7.1	6.1	3.7										
F														1		1	1	1	**4**	**0.2**	0 - 0.4	100	0.0	6716	0.4 (0.0-0.8)
														3.0		4.0	5.5	6.0							
Palate, other & u/s parts of mouth (C050-C069)																									
M									2	1	1	2	2	3	2				**13**	**1.1**	0.5-1.7	100	0.2	660	1.3 (0.6-2.1)
									2.6	1.4	1.5	3.5	4.8	9.1	7.4										
F							1		1				1			1	1	1	**6**	**0.4**	0.0-0.7	100	0.0	3906	0.6 (0.1-1.1)
							1.4		1.3				2.5			4.0	5.5	6.0							
Parotid & other major salivary gland (C070-C089)																									
M									1		1	2	2	3	1	2	3	2	**17**	**1.2**	0.6-1.8	100	0.1	838	2.1 (1.1-3.1)
									1.3		1.5	3.5	4.8	9.1	3.7	9.7	24.5	26.0							
F					1	1	1			2	2	1		2	1	1		1	**13**	**1.0**	0.4-1.6	92	0.1	932	1.3 (0.6-2.0)
					1.5	1.5	1.4			2.8	3.0	1.9		6.0	3.5	4.0		6.0							
Tonsil & oropharynx (C090-C109)																									
M									1	2	4	3	2	3	4	1			**20**	**1.6**	0.9-2.3	100	0.2	454	2.1 (1.2-3.0)
									1.3	2.8	6.0	5.2	4.8	9.1	14.9	4.9									
F									1		1	1		1					**4**	**0.3**	0.0-0.6	100	0.0	2615	0.4 (0.0-0.8)
									1.3		1.5	1.9		3.0											
Nasopharynx (C110-C119)																									
M								1		2	2			2					**7**	**0.6**	0.2-1.0	86	0.1	1508	0.7 (0.2-1.2)
								1.4		2.8	3.0			6.1											
F																			**0**						
Pyriform sinus & hypopharynx (C120-C139)																									
M										2	2	1	2		3		2		**12**	**0.9**	0.4-1.4	100	0.1	853	1.3 (0.6-2.1)
										2.8	3.0	1.7	4.8		11.2		16.3								
F										1									**1**	**0.1**	0 - 0.2	100	0.0	*	0.1 (0 - 0.3)
										1.4															

Appendix 3A. Cancer incidence, Western Australia, 2003

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
Pharynx, other & ill-def. sites (C140-C149)																									
M											1	3	1	2	1		1		**9**	**0.7**	0.2-1.1	78	0.1	1059	0.9 (0.3-1.6)
											1.5	5.2	2.4	6.1	3.7		8.2								
F															1			1	**2**	**0.1**	0 - 0.2	50	0.0	5754	0.2 (0 - 0.5)
															3.5			6.0							
Oesophagus (C150-C159)																									
M							1		3	2	11	13	9	10	9	15	7	5	**85**	**6.0**	4.7-7.3	98	0.7	151	9.8 (7.7-11.9)
							1.3		3.9	2.8	16.5	22.6	21.4	30.4	33.5	73.0	57.2	65.0							
F										1	2	1	3	2	7	4	4	10	**34**	**1.8**	1.2-2.5	100	0.2	455	3.3 (2.2-4.5)
										1.4	3.0	1.9	7.4	6.0	24.3	16.2	21.8	59.6							
Stomach (C160-C169)																									
M						1	1	2	3	2	3	10	14	15	12	18	15	8	**104**	**7.3**	5.8-8.7	97	0.8	127	12.5 (10.0-14.9)
						1.5	1.3	2.8	3.9	2.8	4.5	17.4	33.3	45.6	44.6	87.5	122.6	104.0							
F											3	3	4	2	9	9	5	5	**40**	**2.3**	1.5-3.1	95	0.3	350	4.1 (2.8-5.4)
											4.6	5.6	9.9	6.0	31.3	36.4	27.3	29.8							
Small intestine (C170-C179)																									
M							1	1			5	1	3	1	2	1	2	2	**19**	**1.4**	0.8-2.0	100	0.1	677	2.2 (1.2-3.2)
							1.3	1.4			7.5	1.7	7.1	3.0	7.4	4.9	16.3	26.0							
F										1	2	4	2	2	2	1	2	2	**18**	**1.2**	0.6-1.8	89	0.1	674	1.8 (1.0-2.6)
										1.4	3.0	7.4	4.9	6.0	7.0	4.0	10.9	11.9							
Colorectal cancer (C18-C20, C218)																									
M			1			3		5	8	20	46	58	80	92	109	88	62	49	**621**	**44.8**	41.2-48.4	97	5.5	19	73.6 (67.7-79.5)
			1.4			4.5		6.9	10.4	28.1	68.9	100.9	190.4	279.6	405.4	428.0	506.8	637.3							
F			1			1		7	11	16	28	38	52	49	63	81	63	57	**467**	**28.5**	25.7-31.4	96	3.3	31	47.1 (42.8-51.4)
			1.5			1.5		9.6	14.3	22.3	42.5	70.5	128.1	145.9	219.0	327.4	343.5	339.4							
Colon (C180-C189)																									
M						1		1	5	10	24	27	40	56	65	57	43	34	**363**	**25.6**	22.9-28.3	96	3.1	33	43.9 (39.3-48.5)
						1.5		1.4	6.5	14.1	36.0	47.0	95.2	170.2	241.7	277.2	351.5	442.2							
F			1					2	7	8	17	21	37	35	39	53	47	43	**310**	**18.5**	16.3-20.8	94	2.1	48	31.1 (27.6-34.6)
			1.5					2.7	9.1	11.2	25.8	38.9	91.2	104.2	135.6	214.2	256.3	256.1							
Rectosigmoid junction & rectum (C190-C209)																									
M			1			2		4	3	9	22	30	40	36	44	31	19	15	**256**	**19.0**	16.7-21.4	98	2.4	42	29.4 (25.8-33.1)
			1.4			3.0		5.5	3.9	12.7	33.0	52.2	95.2	109.4	163.6	150.8	155.3	195.1							
F						1		5	4	7	10	17	15	14	24	28	15	14	**154**	**9.8**	8.1-11.5	99	1.2	87	15.7 (13.2-18.2)
						1.5		6.9	5.2	9.8	15.2	31.5	37.0	41.7	83.4	113.2	81.8	83.4							
Anus (C210-C219)																									
M										2		2		2			1	1	**8**	**0.6**	0.2-1.0	100	0.1	1617	0.9 (0.3-1.6)
										2.8		3.5		6.1			8.2	13.0							
F								1	2	3	2		2	1			1	2	**14**	**1.0**	0.5-1.6	100	0.1	1048	1.4 (0.6-2.1)
								1.4	2.6	4.2	3.0		4.9	3.0			5.5	11.9							
Liver & intrahepatic bile ducts (C220-C229)																									
M			2	1						3	3	8	5	6	4	3	3	1	**39**	**3.1**	2.1-4.1	67	0.4	279	4.2 (2.9-5.6)
			2.8	1.4						4.2	4.5	13.9	11.9	18.2	14.9	14.6	24.5	13.0							
F								1			1	2	1	1	2	5	3		**16**	**0.9**	0.4-1.4	50	0.1	1054	1.7 (0.8-2.5)
								1.4			1.5	3.7	2.5	3.0	7.0	20.2	16.4								

Appendix 3A. Cancer incidence, Western Australia, 2003

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
Gallbladder & bile ducts (C230-C249)																										
M										1		3	1	5	4	2	1	1		**18**	**1.3**	0.7-2.0	78	0.2	512	2.1 (1.1-3.0)
										1.4		5.2	2.4	15.2	14.9	9.7	8.2	13.0								
F										1	4	1	2	5	2	12	6	7		**40**	**2.1**	1.4-2.8	65	0.2	555	4.0 (2.7-5.2)
										1.4	6.1	1.9	4.9	14.9	7.0	48.5	32.7	41.7								
Pancreas (C250-C259)																										
M								2	1	2	9	10	10	12	14	18	8	5		**91**	**6.4**	5.0-7.8	54	0.8	134	10.7 (8.4-12.9)
								2.8	1.3	2.8	13.5	17.4	23.8	36.5	52.1	87.5	65.4	65.0								
F								2	1	2	5	3	4	13	13	9	12	11		**75**	**4.5**	3.4-5.6	53	0.6	176	7.5 (5.8-9.3)
								2.7	1.3	2.8	7.6	5.6	9.9	38.7	45.2	36.4	65.4	65.5								
Nasal cavity & sinuses, middle & inner ear (C300-C319)																										
M							1	1				1	1	3			1			**8**	**0.6**	0.2-1.1	100	0.1	1254	0.9 (0.3-1.5)
							1.3	1.4				1.7	2.4	9.1			8.2									
F								1				1	1							**3**	**0.3**	0 - 0.5	100	0.0	3516	0.3 (0 - 0.7)
								1.4				1.9	2.5													
Larynx (C320-C329)																										
M										6	8	5	6	1	9	7	2	2		**46**	**3.3**	2.4-4.3	100	0.4	251	5.2 (3.7-6.7)
										8.4	12.0	8.7	14.3	3.0	33.5	34.0	16.3	26.0								
F									1				1	1	1	2				**6**	**0.4**	0.1-0.8	100	0.1	1958	0.6 (0.1-1.2)
									1.3				2.5	3.0	3.5	8.1										
Lung, bronchus & trachea (C330-C349)																										
M							2		4	15	27	43	59	59	103	96	71	24		**503**	**34.5**	31.4-37.7	89	4.2	24	60.1 (54.8-65.5)
							2.7		5.2	21.1	40.5	74.8	140.4	179.3	383.1	466.9	580.4	312.1								
F								2	3	13	20	21	33	45	39	59	45	21		**301**	**18.8**	16.5-21.1	84	2.2	45	30.7 (27.2-34.2)
								2.7	3.9	18.1	30.4	38.9	81.3	134.0	135.6	238.5	245.4	125.1								
Thymus (C370-C379)																										
M							1													**1**	**0.1**	0 - 0.2	100	0.0	*	0.1 (0 - 0.3)
							1.3																			
F												1								**1**	**0.1**	0 - 0.2	100	0.0	*	0.1 (0 - 0.3)
												1.9														
Pleura, heart & mediastinum (C380-C389)																										
M				1																**1**	**0.1**	0 - 0.4	100	0.0	*	0.1 (0 - 0.3)
				1.4																						
F																				**0**						
Bones, joints & articular cartilages (C400-C419)																										
M		1							1			2	1		1					**6**	**0.5**	0.1-1.0	100	0.1	1621	0.6 (0.1-1.1)
		1.5							1.3			3.5	2.4		3.7											
F								1	2							1	2			**6**	**0.3**	0.0-0.6	100	0.0	5041	0.6 (0.1-1.1)
								1.4	2.6							4.0	10.9									
Skin (melanoma only) (C440-C449; M-8720 - 8774)																										
M			1	6	10	13	27	26	49	51	59	99	53	58	79	57	39	23		**650**	**49.4**	45.5-53.3	100	5.5	19	71.4 (65.8-77.0)
			1.4	8.2	14.1	19.3	36.3	35.8	63.9	71.7	88.4	172.3	126.2	176.3	293.8	277.2	318.8	299.1								
F			1	4	12	12	31	21	42	38	39	25	33	37	36	24	22	26		**403**	**30.5**	27.3-33.6	100	3.2	32	40.8 (36.8-44.8)
			1.5	5.7	17.7	18.4	42.1	28.8	54.5	53.0	59.2	46.4	81.3	110.2	125.1	97.0	120.0	154.8								

Appendix 3A. Cancer incidence, Western Australia, 2003

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
Skin (not melanoma/SCC/BCC) (C440-C449)																										
M						4		1	2	1	3	4	3	8	7	7	6	5		**51**	**3.7**	2.7-4.8	100	0.4	250	6.1 (4.4-7.9)
						5.9		1.4	2.6	1.4	4.5	7.0	7.1	24.3	26.0	34.0	49.0	65.0								
F			1			1			1	2	3	3	2	2	1	6	4	6		**32**	**1.9**	1.2-2.7	100	0.2	634	3.1 (2.0-4.2)
			1.5			1.5			1.3	2.8	4.6	5.6	4.9	6.0	3.5	24.3	21.8	35.7								
Mesothelioma (M905; ICD10 C45)																										
M									1	1	3	4	4	15	9	8	6	5		**56**	**4.0**	3.0-5.1	96	0.5	195	6.7 (4.9-8.5)
									1.3	1.4	4.5	7.0	9.5	45.6	33.5	38.9	49.0	65.0								
F									1		1		3			3	2	3		**13**	**0.7**	0.3-1.2	100	0.1	1959	1.3 (0.6-2.0)
									1.3		1.5		7.4			12.1	10.9	17.9								
Kaposi sarcoma (M914; ICD10 C46)																										
M																1				**1**	**0.0**	0 - 0.1	100	0.0	0	0.1 (0 - 0.4)
																4.9										
F								1												**1**	**0.1**	0 - 0.2	100	0.0	*	0.1 (0 - 0.3)
								1.4																		
Nervous system, peripheral & autonomic (C470-C479)																										
M																				**0**						
F					1												1			**2**	**0.1**	0 - 0.4	100	0.0	*	0.2 (0 - 0.5)
					1.5												5.5									
Retroperitoneum and peritoneum (C480-C489)																										
M																				**0**						
F											2	3	1	1	2					**9**	**0.7**	0.2-1.2	100	0.1	953	0.9 (0.3-1.5)
											3.0	5.6	2.5	3.0	7.0											
Connective, subcutaneous & other soft tissues (C490-C499)																										
M				1		1	1	2	1	4	3	4	2	2	2	4		1		**28**	**2.2**	1.4-3.0	100	0.2	459	3.0 (1.9-4.2)
				1.4		1.5	1.3	2.8	1.3	5.6	4.5	7.0	4.8	6.1	7.4	19.5		13.0								
F	1			1	1		1			1	1	2		1		1		1		**11**	**1.0**	0.3-1.6	100	0.1	1291	1.1 (0.4-1.7)
	1.6			1.4	1.5		1.4			1.4	1.5	3.7		3.0		4.0		6.0								
Breast (C500-C509)																										
M					1					1			1	2	1	1		1		**8**	**0.7**	0.2-1.1	100	0.1	1334	0.9 (0.3-1.6)
					1.4					1.4			2.4	6.1	3.7	4.9		13.0								
F				1		6	20	44	70	143	173	170	139	107	77	62	67	40		**1119**	**83.4**	78.4-88.5	99	9.5	11	113.0 (106-120)
				1.4		9.2	27.2	60.3	90.9	199.4	262.6	315.3	342.6	318.7	267.7	250.6	365.3	238.2								
Vulva/vagina (C510-C529)																										
F	1						1	1	1	1		3	2	3	6		6	9		**34**	**2.1**	1.3-2.9	91	0.2	423	3.3 (2.2-4.4)
	1.6						1.4	1.4	1.3	1.4		5.6	4.9	8.9	20.9		32.7	53.6								
Cervix uteri (C530-C539)																										
F				1	2	3	5	11	9	8	7	6	10	3	4	5	3	5		**82**	**6.4**	4.9-7.8	99	0.6	163	8.3 (6.5-10.1)
				1.4	3.0	4.6	6.8	15.1	11.7	11.2	10.6	11.1	24.6	8.9	13.9	20.2	16.4	29.8								
Corpus uteri (C540-C549)																										
F						1	1	2	2	7	14	10	16	15	17	11	10	8		**114**	**8.0**	6.4-9.5	99	1.0	100	11.6 (9.5-13.8)
						1.5	1.4	2.7	2.6	9.8	21.2	18.5	39.4	44.7	59.1	44.5	54.5	47.6								
Uterus, nos (C550-C559)																										
F										1	1									**2**	**0.2**	0 - 0.4	100	0.0	6869	0.2 (0 - 0.5)
										1.4	1.5															

Appendix 3A. Cancer incidence, Western Australia, 2003

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
Ovary, uterine adnexa & other female genital (C560-C579)																										
F			2				1	6	5	12	12	16	9	15	6	14	11	11		**120**	**8.2**	6.6-9.7	91	0.9	117	12.0 (9.8-14.1)
			2.9				1.4	8.2	6.5	16.7	18.2	29.7	22.2	44.7	20.9	56.6	60.0	65.5								
Placenta (C580-C589)																										
F																				**0**						
Penis & other male genital organs (C600-C639) (not C61 C62)																										
M									1	2	1		2					2		**8**	**0.6**	0.2-1.1	88	0.1	1928	1.0 (0.3-1.6)
									1.3	2.8	1.5		4.8					26.0								
Prostate gland (C610-C619)																										
M								2	2	20	64	159	181	247	204	170	109	72		**1230**	**90.2**	85.0-95.4	97	11.7	9	142.8 (135-151)
								2.8	2.6	28.1	95.9	276.7	430.8	750.8	758.7	826.8	891.0	936.4								
Testis (C620-C629)																										
M			1	1	8	15	11	16	7	8	2		1	1	1			1		**73**	**6.8**	5.2-8.4	100	0.5	190	7.6 (5.8-9.3)
			1.4	1.4	11.3	22.3	14.8	22.0	9.1	11.3	3.0		2.4	3.0	3.7			13.0								
Kidney & other renal tract (C640-C689) (not C67)																										
M	2	1					3	2	5	9	6	16	18	16	21	17	12	5		**133**	**10.0**	8.2-11.8	91	1.2	85	15.1 (12.5-17.7)
	3.2	1.5					4.0	2.8	6.5	12.7	9.0	27.8	42.8	48.6	78.1	82.7	98.1	65.0								
F		1	1			2	1	7	3	1	5	10	3	10	12	13	7	4		**80**	**5.5**	4.2-6.8	95	0.6	158	8.2 (6.4-10.1)
		1.5	1.5			3.1	1.4	9.6	3.9	1.4	7.6	18.5	7.4	29.8	41.7	52.5	38.2	23.8								
Urinary bladder (C670-C679)																										
M										4	2	11	9	14	24	25	15	27		**131**	**8.8**	7.2-10.3	94	0.9	111	17.1 (14.1-20.0)
										5.6	3.0	19.1	21.4	42.6	89.3	121.6	122.6	351.2								
F			1						1	2	2	1	1	3	6	11	5	8		**41**	**2.2**	1.5-3.0	98	0.2	469	4.1 (2.8-5.4)
			1.5						1.3	2.8	3.0	1.9	2.5	8.9	20.9	44.5	27.3	47.6								
Eye & lacrimal gland (C690-C699)																										
M	2					1	1		2		1	2	2		1		2			**14**	**1.3**	0.5-2.0	100	0.1	907	1.5 (0.7-2.3)
	3.2					1.5	1.3		2.6		1.5	3.5	4.8		3.7		16.3									
F	3				1					1						1				**6**	**0.8**	0.1-1.6	100	0.0	2567	0.6 (0.1-1.1)
	4.9				1.5					1.4						4.0										
Meninges (cerebral & spinal) (C700-C709)																										
M																				**0**						
F																		1		**1**	**0.0**	0 - 0.1	0	0.0	0	0.1 (0 - 0.2)
																		6.0								
Brain (C710-C719)																										
M	2	1	2			1			8	7	11	5	8	11	6	6	5	1		**74**	**6.1**	4.6-7.5	81	0.6	155	8.0 (6.2-9.9)
	3.2	1.5	2.8			1.5			10.4	9.8	16.5	8.7	19.0	33.4	22.3	29.2	40.9	13.0								
F	1		3		1	3	3	3	4	4	2	4	7	5	10	2		4		**56**	**4.7**	3.4-6.0	86	0.5	185	5.8 (4.3-7.3)
	1.6		4.4		1.5	4.6	4.1	4.1	5.2	5.6	3.0	7.4	17.3	14.9	34.8	8.1		23.8								
Spinal cord & cranial nerves (C720-C729)																										
M									1							1				**2**	**0.1**	0 - 0.3	100	0.0	*	0.2 (0 - 0.6)
									1.3							4.9										
F														1		1				**2**	**0.1**	0 - 0.3	100	0.0	6716	0.2 (0 - 0.5)
														3.0		4.0										

Appendix 3A. Cancer incidence, Western Australia, 2003

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
Thyroid gland (C730-C739)																										
M						3	2	5	1	5	3	5		2	2		1			**29**	**2.4**	1.5-3.3	100	0.2	408	3.0 (1.9-4.1)
						4.5	2.7	6.9	1.3	7.0	4.5	8.7		6.1	7.4		8.2									
F			1	1	2	6	7	13	11	17	17	9	7	6		1	1	1		**100**	**8.4**	6.7-10.1	100	0.8	127	10.1 (8.1-12.1)
			1.5	1.4	3.0	9.2	9.5	17.8	14.3	23.7	25.8	16.7	17.3	17.9		4.0	5.5	6.0							
Adrenal & other endocrine glands (C740-C759)																										
M		2		1									1							**4**	**0.5**	0.0-1.0	100	0.0	3005	0.4 (0.0-0.8)
		2.9		1.4									2.4													
F	2			1							1	1			1					**6**	**0.7**	0.1-1.4	100	0.1	1731	0.6 (0.1-1.1)
	3.3			1.4							1.5	1.9			3.5											
LYMPHOMAS																										
Lymphoma, NOS / unclassifiable																										
M						1				1			1			1	2	1		**7**	**0.5**	0.1-0.9	71	0.0	3793	0.9 (0.2-1.6)
						1.5				1.4			2.4			4.9	16.3	13.0								
F									1		2	1					2	2		**8**	**0.4**	0.1-0.7	100	0.0	3232	0.7 (0.2-1.3)
									1.3		3.0	1.9					10.9	11.9								
Hodgkin lymphoma																										
M			1	2	1	2	2	2	1	1	1	1	1		1	3				**19**	**1.7**	0.9-2.5	100	0.1	770	2.0 (1.1-2.9)
			1.4	2.7	1.4	3.0	2.7	2.8	1.3	1.4	1.5	1.7	2.4		3.7	14.6										
F			2	3	2			1	3		2		1	1	1	2				**18**	**1.7**	0.9-2.5	100	0.1	731	1.8 (1.0-2.7)
			2.9	4.3	3.0			1.4	3.9		3.0		2.5	3.0	3.5	8.1										
All NHL																										
M	2	1	2	2	1		6	6	8	10	11	19	17	22	19	19	18	9		**172**	**13.0**	11.0-15.0	98	1.4	72	19.6 (16.6-22.6)
	3.2	1.5	2.8	2.7	1.4		8.1	8.3	10.4	14.1	16.5	33.1	40.5	66.9	70.7	92.4	147.1	117.1								
F				1	2	2	3	1	11	8	14	18	16	14	17	19	14	14		**154**	**10.4**	8.7-12.2	99	1.2	86	15.5 (13.1-18.0)
				1.4	3.0	3.1	4.1	1.4	14.3	11.2	21.2	33.4	39.4	41.7	59.1	76.8	76.3	83.4								
NHL, mature B cell																										
M				2	1		4	4	6	8	6	16	11	10	10	15	13	5		**111**	**8.0**	6.5-9.5	99	0.8	122	12.6 (10.2-15.0)
				2.7	1.4		5.4	5.5	7.8	11.3	9.0	27.8	26.2	30.4	37.2	73.0	106.3	65.0								
F				1		1	2	1	7	7	8	10	12	8	10	13	10	11		**101**	**6.7**	5.3-8.1	99	0.7	139	10.1 (8.2-12.1)
				1.4		1.5	2.7	1.4	9.1	9.8	12.1	18.5	29.6	23.8	34.8	52.5	54.5	65.5								
NHL, mature YT/NK cell																										
M								1	1		1	1	2	1	5	1				**13**	**1.0**	0.5-1.6	100	0.2	619	1.4 (0.7-2.2)
								1.4	1.3		1.5	1.7	4.8	3.0	18.6	4.9										
F					1		1		1		1	2		2	2	1	1			**12**	**0.9**	0.4-1.4	100	0.1	899	1.2 (0.5-1.9)
					1.5		1.4		1.3		1.5	3.7		6.0	7.0	4.0	5.5									
NHL, precursor cell lymphoblastic																										
M	2	1	1				1									1				**6**	**0.8**	0.1-1.5	100	0.0	2724	0.6 (0.1-1.2)
	3.2	1.5	1.4				1.3									4.9										
F						1														**1**	**0.1**	0 - 0.4	100	0.0	*	0.1 (0 - 0.3)
						1.5																				
NHL, other/unclassifiable																										
M			1				1	1	1	2	4	2	4	11	4	2	5	4		**42**	**3.2**	2.2-4.2	95	0.4	265	4.9 (3.4-6.4)
			1.4				1.3	1.4	1.3	2.8	6.0	3.5	9.5	33.4	14.9	9.7	40.9	52.0								
F					1				3	1	5	6	4	4	5	5	3	3		**40**	**2.7**	1.8-3.6	98	0.3	310	4.1 (2.8-5.3)
					1.5				3.9	1.4	7.6	11.1	9.9	11.9	17.4	20.2	16.4	17.9								

Appendix 3A. Cancer incidence, Western Australia, 2003

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 (all)																										
M	2	1	3	4	2	3	8	8	9	12	12	20	19	22	20	23	20	10		**198**	**15.2**	13.0-17.4	97	1.6	65	22.5 (19.3-25.7)
	3.2	1.5	4.2	5.4	2.8	4.5	10.7	11.0	11.7	16.9	18.0	34.8	45.2	66.9	74.4	111.9	163.5	130.1								
F			2	4	4	2	3	2	15	8	18	19	17	15	18	21	16	16		**180**	**12.5**	10.6-14.5	99	1.3	75	18.1 (15.5-20.8)
			2.9	5.7	5.9	3.1	4.1	2.7	19.5	11.2	27.3	35.2	41.9	44.7	62.6	84.9	87.2	95.3								
MYELOMA																										
Myeloma/plasma cell tumours																										
M									1	1	4	4	4	6	7	6	8	7		**48**	**3.3**	2.3-4.2	88	0.3	288	6.0 (4.3-7.7)
									1.3	1.4	6.0	7.0	9.5	18.2	26.0	29.2	65.4	91.0								
F						1			2		4	6	3	5	9	3	3	8		**44**	**2.8**	1.9-3.7	91	0.4	268	4.4 (3.1-5.7)
						1.5			2.6		6.1	11.1	7.4	14.9	31.3	12.1	16.4	47.6								
LEUKAEMIAS																										
Leukaemias, NOS/unclassifiable																										
M								1									1	1		**3**	**0.2**	0 - 0.4	100	0.0	*	0.4 (0 - 0.9)
								1.4									8.2	13.0								
F														1		1		2		**4**	**0.2**	0 - 0.4	100	0.0	6716	0.4 (0.0-0.7)
														3.0		4.0		11.9								
Leukaemias, lymphoid, all																										
M	4	4	3	3	2	1	1			5	3	1	4	8	4	8	3	3		**57**	**5.3**	3.8-6.8	95	0.4	228	6.4 (4.7-8.1)
	6.3	5.8	4.2	4.1	2.8	1.5	1.3			7.0	4.5	1.7	9.5	24.3	14.9	38.9	24.5	39.0								
F	5	3	1	1				1	1		2	2	2	2	4	5	1			**30**	**3.1**	1.8-4.3	100	0.2	401	3.2 (2.0-4.3)
	8.2	4.6	1.5	1.4				1.4	1.3		3.0	3.7	4.9	6.0	13.9	20.2	5.5									
Leukaemias, lymphoid, acute																										
M	4	4	3	3	2					1				1						**18**	**2.5**	1.3-3.7	100	0.1	724	1.8 (1.0-2.6)
	6.3	5.8	4.2	4.1	2.8					1.4				3.0												
F	5	3	1					1			1				1		1			13	**1.8**	0.8-2.9	100	0.1	969	1.4 (0.6-2.1)
	8.2	4.6	1.5					1.4			1.5				3.5		5.5									
Leukaemias, lymphoid, chronic																										
M										4	3	1	4	7	4	8	3	3		**37**	**2.7**	1.8-3.5	92	0.3	348	4.4 (3.0-5.9)
										5.6	4.5	1.7	9.5	21.3	14.9	38.9	24.5	39.0								
F									1		1	2	2	2	3	5				**16**	**1.1**	0.5-1.6	100	0.1	719	1.7 (0.9-2.5)
									1.3		1.5	3.7	4.9	6.0	10.4	20.2										
Leukaemias, lymphoid, other/NOS																										
M						1	1													**2**	**0.2**	0 - 0.5	100	0.0	7068	0.2 (0 - 0.5)
						1.5	1.3																			
F				1																**1**	**0.1**	0 - 0.4	100	0.0	*	0.1 (0 - 0.3)
				1.4																						
Leukaemias, myeloid, all																										
M	1		2	2	1	3		1	2	1	6	4	2	1	7		1	4		**38**	**3.3**	2.2-4.4	100	0.3	294	4.3 (2.9-5.7)
	1.6		2.8	2.7	1.4	4.5		1.4	2.6	1.4	9.0	7.0	4.8	3.0	26.0		8.2	52.0								
F	1	1	1	1	2		1	3	1	2	1	1	5	4	3	4	3	3		**37**	**3.0**	1.9-4.0	97	0.3	354	3.8 (2.5-5.0)
	1.6	1.5	1.5	1.4	3.0		1.4	4.1	1.3	2.8	1.5	1.9	12.3	11.9	10.4	16.2	16.4	17.9								
Leukaemias, myeloid, acute																										
M	1		1	1	1	2		1	1	1	3	3	1	1	5		1	3		**26**	**2.3**	1.3-3.2	100	0.2	430	3.0 (1.8-4.1)
	1.6		1.4	1.4	1.4	3.0		1.4	1.3	1.4	4.5	5.2	2.4	3.0	18.6		8.2	39.0								
F	1	1	1	1	1		1	3	1	2	1	1	4	1	3	3	3	2		**30**	**2.4**	1.4-3.4	97	0.2	458	3.1 (2.0-4.2)
	1.6	1.5	1.5	1.4	1.5		1.4	4.1	1.3	2.8	1.5	1.9	9.9	3.0	10.4	12.1	16.4	11.9								

Appendix 3A. Cancer incidence, Western Australia, 2003

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, myeloid, chronic																									
M			1	1		1			1		3	1			1				**9**	**0.8**	0.3-1.4	100	0.1	1291	0.9 (0.3-1.5)
			1.4	1.4		1.5			1.3		4.5	1.7			3.7										
F					1								1	3		1			**6**	**0.5**	0.1-1.0	100	0.1	1554	0.6 (0.1-1.1)
					1.5								2.5	8.9		4.0									
Leukaemias, myeloid, other/NOS																									
M													1		1			1	**3**	**0.2**	0 - 0.5	100	0.0	3279	0.4 (0 - 0.9)
													2.4		3.7			13.0							
F																		1	**1**	**0.0**	0 - 0.1	100	0.0	0	0.1 (0 - 0.2)
																		6.0							
Leukaemias, other																									
M										1			1	3		2	3	2	**12**	**0.8**	0.3-1.3	100	0.1	1550	1.6 (0.7-2.4)
										1.4			2.4	9.1		9.7	24.5	26.0							
F												1	1				2	2	**6**	**0.3**	0.0-0.6	100	0.0	4631	0.5 (0.1-1.0)
												1.9	2.5				10.9	11.9							
Leukaemias (all)																									
M	5	4	5	5	3	4	1	2	2	7	9	5	7	12	11	10	8	10	**110**	**9.6**	7.7-11.6	97	0.9	118	12.7 (10.3-15.1)
	7.9	5.8	6.9	6.8	4.2	5.9	1.3	2.8	2.6	9.8	13.5	8.7	16.7	36.5	40.9	48.6	65.4	130.1							
F	6	4	2	2	2		1	4	2	2	3	4	8	7	7	10	6	7	**77**	**6.5**	4.8-8.1	99	0.6	176	7.9 (6.1-9.6)
	9.8	6.2	2.9	2.9	3.0		1.4	5.5	2.6	2.8	4.6	7.4	19.7	20.8	24.3	40.4	32.7	41.7							
MYELODYSPLASTIC DISEASES																									
Refractory anaemias/cytopaenias																									
M								1	1	1	1		1	2	3	2	2	3	**17**	**1.2**	0.6-1.8	100	0.1	794	2.2 (1.1-3.2)
								1.4	1.3	1.4	1.5		2.4	6.1	11.2	9.7	16.3	39.0							
F												2		1	3		5	2	**13**	**0.6**	0.3-1.0	85	0.1	1169	1.3 (0.6-2.0)
												3.7		3.0	10.4		27.3	11.9							
Myelodysplastic syndromes																									
M					1							2	1	4	3	5	8	3	**27**	**1.7**	1.0-2.4	78	0.2	654	3.5 (2.1-4.8)
					1.4							3.5	2.4	12.2	11.2	24.3	65.4	39.0							
F							1						2		2	1	4	4	**14**	**0.7**	0.3-1.1	71	0.1	1511	1.3 (0.6-2.1)
							1.4						4.9		7.0	4.0	21.8	23.8							
Myelodysplastic diseases, all																									
M					1			1	1	1	1	2	2	6	6	7	10	6	**44**	**2.9**	2.0-3.8	86	0.3	359	5.6 (3.9-7.3)
					1.4			1.4	1.3	1.4	1.5	3.5	4.8	18.2	22.3	34.0	81.7	78.0							
F							1					2	2	1	5	1	9	6	**27**	**1.3**	0.8-1.9	78	0.2	659	2.6 (1.6-3.6)
							1.4					3.7	4.9	3.0	17.4	4.0	49.1	35.7							
CHRONIC MYELOPROLIFERATIVE DISEASES																									
Chronic myeloproliferative disorder, NOS																									
M														1		2			**3**	**0.2**	0 - 0.4	100	0.0	6581	0.4 (0 - 0.8)
														3.0		9.7									
F											1		2		1			1	**5**	**0.4**	0.0-0.7	80	0.0	2016	0.5 (0.1-1.0)
											1.5		4.9		3.5			6.0							
Polycythaemia rubra vera																									
M								1					1						**2**	**0.2**	0 - 0.4	100	0.0	5322	0.2 (0 - 0.5)
								1.4					2.4												
F												1			1				**2**	**0.1**	0 - 0.3	100	0.0	3752	0.2 (0 - 0.5)
												1.9			3.5										

Appendix 3A. Cancer incidence, Western Australia, 2003

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
Myelofibrosis/sclerosis																										
M											1			1			1	1		**4**	**0.3**	0 - 0.5	100	0.0	4408	0.5 (0 - 1.1)
											1.5			3.0			8.2	13.0								
F																1				**1**	**0.0**	0 - 0.1	100	0.0	0	0.1 (0 - 0.3)
																4.0										
Other chronic myeloproliferative d/o																										
M										1	1							1		**3**	**0.2**	0 - 0.5	100	0.0	6886	0.4 (0 - 0.8)
										1.4	1.5							13.0								
F									1	1		1	1	1		2	1			**8**	**0.5**	0.1-0.9	100	0.0	2003	0.8 (0.2-1.4)
									1.3	1.4		1.9	2.5	3.0		8.1	5.5									
Chronic myeloproliferative d/o, all																										
M								1		1	2		1	2		2	1	2		**12**	**0.9**	0.4-1.4	100	0.1	1405	1.5 (0.6-2.3)
								1.4		1.4	3.0		2.4	6.1		9.7	8.2	26.0								
F									1	1	1	2	3	1	2	3	1	1		**16**	**1.1**	0.5-1.7	94	0.1	793	1.6 (0.8-2.4)
									1.3	1.4	1.5	3.7	7.4	3.0	7.0	12.1	5.5	6.0								
OTHER CHRONIC IMMUNOPROLIFERATIVE DISEASES																										
Mast cell tumours																										
M																				**0**						
F																				**0**						
Histiocytic/dendritic cell malignancies																										
M														1						**1**	**0.1**	0 - 0.3	100	0.0	6581	0.1 (0 - 0.3)
														3.0												
F																				**0**						
Other & U/S immunoproliferative neoplasms																										
M												1	1	1		1		1		**5**	**0.4**	0.0-0.7	100	0.0	2794	0.6 (0.1-1.2)
												1.7	2.4	3.0		4.9		13.0								
F											1	2		1						**4**	**0.3**	0.0-0.6	100	0.0	2438	0.4 (0.0-0.8)
											1.5	3.7		3.0												
Other chronic immunoproliferative d/o, all																										
M												1	1	2		1		1		**6**	**0.5**	0.1-0.8	100	0.1	1961	0.7 (0.1-1.3)
												1.7	2.4	6.1		4.9		13.0								
F											1	2		1						**4**	**0.3**	0.0-0.6	100	0.0	2438	0.4 (0.0-0.8)
											1.5	3.7		3.0												
Unknown primary site (C26, C39, C76, C80; Behaviour 6/9)																										
M	1						1	1	6	5	14	15	18	11	19	15	16	12		**134**	**9.6**	7.9-11.3	76	1.1	94	15.8 (13.1-18.5)
	1.6						1.3	1.4	7.8	7.0	21.0	26.1	42.8	33.4	70.7	73.0	130.8	156.1								
F			1			2	2	1		3	11	5	9	11	26	26	25	29		**151**	**8.4**	6.9-9.8	61	0.9	109	15.1 (12.7-17.5)
			1.5			3.1	2.7	1.4		4.2	16.7	9.3	22.2	32.8	90.4	105.1	136.3	172.7								
All cancers																										
M	14	10	15	20	25	50	67	88	129	212	331	538	549	673	710	623	446	296		**4796**	**354.3**	344-365	94	41.5	3	555.0 (539-571)
	22.1	14.6	20.8	27.2	35.3	74.3	90.0	121.3	168.3	298.1	495.9	936.2	1306.8	2045.6	2640.6	3029.9	3645.9	3849.7								
F	14	5	16	15	28	42	82	134	195	294	397	386	388	384	392	412	354	319		**3857**	**267.9**	259-277	94	29.6	4	389.5 (377-402)
	23.0	7.7	23.3	21.4	41.3	64.2	111.3	183.6	253.3	409.9	602.5	715.8	956.2	1143.6	1362.6	1665.2	1930.2	1899.7								

Appendix 3A. Cancer incidence, Western Australia, 2003

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 2003																										
Prostate gland (C610-C619)																										
M								2	2	20	64	159	181	247	204	170	109	72		**1230**	**90.2**	85.0-95.4	97	11.7	9	142.8 (135-151)
								2.8	2.6	28.1	95.9	276.7	430.8	750.8	758.7	826.8	891.0	936.4								
Breast (C500-C509)																										
M					1					1			1	2	1	1		1		**8**	**0.7**	0.2-1.1	100	0.1	1334	0.9 (0.3-1.6)
					1.4					1.4			2.4	6.1	3.7	4.9		13.0								
F				1		6	20	44	70	143	173	170	139	107	77	62	67	40		**1119**	**83.4**	78.4-88.5	99	9.5	11	113.0 (106-120)
				1.4		9.2	27.2	60.3	90.9	199.4	262.6	315.3	342.6	318.7	267.7	250.6	365.3	238.2								
Colorectal cancer (C18-C20, C218)																										
M			1			3		5	8	20	46	58	80	92	109	88	62	49		**621**	**44.8**	41.2-48.4	97	5.5	19	73.6 (67.7-79.5)
			1.4			4.5		6.9	10.4	28.1	68.9	100.9	190.4	279.6	405.4	428.0	506.8	637.3								
F			1			1		7	11	16	28	38	52	49	63	81	63	57		**467**	**28.5**	25.7-31.4	96	3.3	31	47.1 (42.8-51.4)
			1.5			1.5		9.6	14.3	22.3	42.5	70.5	128.1	145.9	219.0	327.4	343.5	339.4								
Skin (melanoma only) (C440-C449; M-8720 - 8774)																										
M			1	6	10	13	27	26	49	51	59	99	53	58	79	57	39	23		**650**	**49.4**	45.5-53.3	100	5.5	19	71.4 (65.8-77.0)
			1.4	8.2	14.1	19.3	36.3	35.8	63.9	71.7	88.4	172.3	126.2	176.3	293.8	277.2	318.8	299.1								
F			1	4	12	12	31	21	42	38	39	25	33	37	36	24	22	26		**403**	**30.5**	27.3-33.6	100	3.2	32	40.8 (36.8-44.8)
			1.5	5.7	17.7	18.4	42.1	28.8	54.5	53.0	59.2	46.4	81.3	110.2	125.1	97.0	120.0	154.8								
Lung, bronchus & trachea (C330-C349)																										
M							2		4	15	27	43	59	59	103	96	71	24		**503**	**34.5**	31.4-37.7	89	4.2	24	60.1 (54.8-65.5)
							2.7		5.2	21.1	40.5	74.8	140.4	179.3	383.1	466.9	580.4	312.1								
F								2	3	13	20	21	33	45	39	59	45	21		**301**	**18.8**	16.5-21.1	84	2.2	45	30.7 (27.2-34.2)
								2.7	3.9	18.1	30.4	38.9	81.3	134.0	135.6	238.5	245.4	125.1								
Lymphomas (all)																										
M	2	1	3	4	2	3	8	8	9	12	12	20	19	22	20	23	20	10		**198**	**15.2**	13.0-17.4	97	1.6	65	22.5 (19.3-25.7)
	3.2	1.5	4.2	5.4	2.8	4.5	10.7	11.0	11.7	16.9	18.0	34.8	45.2	66.9	74.4	111.9	163.5	130.1								
F			2	4	4	2	3	2	15	8	18	19	17	15	18	21	16	16		**180**	**12.5**	10.6-14.5	99	1.3	75	18.1 (15.5-20.8)
			2.9	5.7	5.9	3.1	4.1	2.7	19.5	11.2	27.3	35.2	41.9	44.7	62.6	84.9	87.2	95.3								
Unknown primary site (C26, C39, C76, C80; Behaviour 6/9)																										
M	1						1	1	6	5	14	15	18	11	19	15	16	12		**134**	**9.6**	7.9-11.3	76	1.1	94	15.8 (13.1-18.5)
	1.6						1.3	1.4	7.8	7.0	21.0	26.1	42.8	33.4	70.7	73.0	130.8	156.1								
F			1			2	2	1		3	11	5	9	11	26	26	25	29		**151**	**8.4**	6.9-9.8	61	0.9	109	15.1 (12.7-17.5)
			1.5			3.1	2.7	1.4		4.2	16.7	9.3	22.2	32.8	90.4	105.1	136.3	172.7								
All cancers																										
M	14	10	15	20	25	50	67	88	129	212	331	538	549	673	710	623	446	296		**4796**	**354.3**	344-365	94	41.5	3	555.0 (539-571)
	22.1	14.6	20.8	27.2	35.3	74.3	90.0	121.3	168.3	298.1	495.9	936.2	1306.8	2045.6	2640.6	3029.9	3645.9	3849.7								
F	14	5	16	15	28	42	82	134	195	294	397	386	388	384	392	412	354	319		**3857**	**267.9**	259-277	94	29.6	4	389.5 (377-402)
	23.0	7.7	23.3	21.4	41.3	64.2	111.3	183.6	253.3	409.9	602.5	715.8	956.2	1143.6	1362.6	1665.2	1930.2	1899.7								

Appendix 3B. Cancer mortality, Western Australia, 2003

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 (C000-C009)																									
M											1								**1**	**0.1**	0 - 0.2	21	0.0	*	0.1 (0 - 0.3)
											1.5														
F																			**0**					-	
Tongue (C010-C029)																									
M										3	2		3	3	1		1		**13**	**1.1**	0.5-1.7	175	0.1	736	1.4 (0.6-2.1)
										4.2	3.0		7.1	9.1	3.7		8.2							
F												1		2	1	1	2	1	**8**	**0.4**	0.1-0.8	33	0.1	1772	0.8 (0.2-1.3)
												1.9		6.0	3.5	4.0	10.9	6.0							
Gum (C030-C039)																									
M																		1	**1**	**0.1**	0 - 0.2	0	0.0	*	0.2 (0 - 0.5)
																		13.0							
F																			**0**					-	
Floor of mouth (C040-C049)																									
M										1		2	1	1	1				**6**	**0.5**	0.1-0.9	78	0.1	1426	0.6 (0.1-1.1)
										1.4		3.5	2.4	3.0	3.7										
F																1		1	**2**	**0.1**	0 - 0.2	0	0.0	*	0.2 (0 - 0.5)
																4.0		6.0							
Palate, other & u/s parts of mouth (C050-C069)																									
M												1		2	2		1		**6**	**0.4**	0.1-0.8	35	0.1	1311	0.7 (0.1-1.2)
												1.7		6.1	7.4		8.2								
F														1				1	**2**	**0.1**	0 - 0.3	7	0.0	6716	0.2 (0 - 0.4)
														3.0				6.0							
Parotid & other major salivary gland (C070-C089)																									
M										1			1			2			**4**	**0.3**	0 - 0.6	37	0.0	5282	0.5 (0.0-0.9)
										1.4			2.4			9.7									
F																			**0**					-	
Tonsil & oropharynx (C090-C109)																									
M													1	1	3				**5**	**0.4**	0.0-0.8	26	0.1	1207	0.6 (0.1-1.1)
													2.4	3.0	11.2										
F												1		1					**2**	**0.2**	0 - 0.4	24	0.0	4139	0.2 (0 - 0.5)
												1.9		3.0											
Nasopharynx (C110-C119)																									
M									1							1			**2**	**0.1**	0 - 0.3	30	0.0	*	0.2 (0 - 0.6)
									1.3							4.9									
F														1					**1**	**0.1**	0 - 0.3	7	0.0	6716	0.1 (0 - 0.3)
														3.0											
Pyriform sinus & hypopharynx (C120-C139)																									
M													2	1	2		1		**6**	**0.5**	0.1-0.9	35	0.1	1313	0.7 (0.1-1.2)
													4.8	3.0	7.4		8.2								
F														1					**1**	**0.1**	0 - 0.3	7	0.0	6716	0.1 (0 - 0.3)
														3.0											

Appendix 3B. Cancer mortality, Western Australia, 2003

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
Pharynx, other & ill-def. sites (C140-C149)																									
M											2			1		1	2		**6**	**0.4**	0.1-0.7	48	0.0	3314	0.7 (0.1-1.3)
											3.0			3.0		4.9	16.3								
F															1	1		1	**3**	**0.1**	0 - 0.3	2	0.0	5754	0.3 (0 - 0.7)
															3.5	4.0		6.0							
Oesophagus (C150-C159)																									
M									1	2	3	6	2	14	12	11	11	6	**68**	**4.6**	3.5-5.8	389	0.6	181	8.3 (6.3-10.3)
									1.3	2.8	4.5	10.4	4.8	42.6	44.6	53.5	89.9	78.0							
F											1	2	2	3	2	7	4	10	**31**	**1.5**	0.9-2.1	105	0.1	768	3.0 (1.9-4.0)
											1.5	3.7	4.9	8.9	7.0	28.3	21.8	59.6							
Stomach (C160-C169)																									
M								1	2	2	4	10	4	4	12	9	10	9	**67**	**4.5**	3.4-5.6	492	0.5	208	8.3 (6.2-10.3)
								1.4	2.6	2.8	6.0	17.4	9.5	12.2	44.6	43.8	81.7	117.1							
F				1						1	2	2	3	4	8	6	3	4	**34**	**2.2**	1.4-3.0	241	0.3	353	3.5 (2.3-4.7)
				1.4						1.4	3.0	3.7	7.4	11.9	27.8	24.3	16.4	23.8							
Small intestine (C170-C179)																									
M											1	2	1	2	1				**7**	**0.6**	0.1-1.0	81	0.1	1166	0.7 (0.2-1.3)
											1.5	3.5	2.4	6.1	3.7										
F															1		2	1	**4**	**0.2**	0 - 0.3	2	0.0	5754	0.4 (0.0-0.8)
															3.5		10.9	6.0							
Colorectal cancer (C18-C20, C218)																									
M									3	12	10	17	23	34	41	47	36	35	**258**	**17.6**	15.3-19.8	1480	1.9	54	32.3 (28.3-36.3)
									3.9	16.9	15.0	29.6	54.7	103.3	152.5	228.6	294.3	455.2							
F							1		5	5	8	9	11	12	25	31	31	46	**184**	**9.5**	8.0-11.1	924	1.0	104	18.0 (15.4-20.6)
							1.4		6.5	7.0	12.1	16.7	27.1	35.7	86.9	125.3	169.0	273.9							
Colon (C180-C189)																									
M									1	7	3	9	17	16	23	31	26	26	**159**	**10.6**	8.9-12.3	778	1.0	98	20.4 (17.2-23.6)
									1.3	9.8	4.5	15.7	40.5	48.6	85.5	150.8	212.5	338.1							
F									3	4	4	6	10	8	13	21	23	30	**122**	**6.3**	5.0-7.5	590	0.6	167	11.9 (9.8-14.0)
									3.9	5.6	6.1	11.1	24.6	23.8	45.2	84.9	125.4	178.7							
Rectosigmoid junction & rectum (C190-C209)																									
M									2	5	7	8	6	18	18	16	10	9	**99**	**7.0**	5.6-8.4	699	0.8	118	11.9 (9.5-14.3)
									2.6	7.0	10.5	13.9	14.3	54.7	66.9	77.8	81.7	117.1							
F							1		2	1	4	3	1	4	12	10	8	16	**62**	**3.2**	2.4-4.1	333	0.4	274	6.1 (4.6-7.6)
							1.4		2.6	1.4	6.1	5.6	2.5	11.9	41.7	40.4	43.6	95.3							
Anus (C210-C219)																									
M															1				**1**	**0.1**	0 - 0.2	2	0.0	5378	0.1 (0 - 0.4)
															3.7										
F												1		2	1	1	1	2	**8**	**0.4**	0.1-0.8	33	0.1	1772	0.8 (0.2-1.3)
												1.9		6.0	3.5	4.0	5.5	11.9							
Liver & intrahepatic bile ducts (C220-C229)																									
M								1			3	7	6	4	6	6	4		**37**	**2.6**	1.8-3.5	321	0.3	300	4.1 (2.8-5.5)
								1.4			4.5	12.2	14.3	12.2	22.3	29.2	32.7								
F											1	2		1		5	1	3	**13**	**0.6**	0.3-1.0	62	0.0	2438	1.3 (0.6-2.0)
											1.5	3.7		3.0		20.2	5.5	17.9							

Appendix 3B. Cancer mortality, Western Australia, 2003

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
Gallbladder & bile ducts (C230-C249)																									
M										1		6	1	4	3	3		1	**19**	**1.4**	0.8-2.0	168	0.2	533	2.1 (1.1-3.1)
										1.4		10.4	2.4	12.2	11.2	14.6		13.0							
F											4	1	6	2		7	3	7	**30**	**1.7**	1.0-2.4	187	0.1	698	2.9 (1.9-4.0)
											6.1	1.9	14.8	6.0		28.3	16.4	41.7							
Pancreas (C250-C259)																									
M								1	1	2	4	8	7	11	16	14	9	1	**74**	**5.2**	3.9-6.4	523	0.7	149	8.6 (6.6-10.6)
								1.4	1.3	2.8	6.0	13.9	16.7	33.4	59.5	68.1	73.6	13.0							
F									1	2	6	8	9	12	6	14	13	12	**83**	**4.9**	3.8-6.1	552	0.5	188	8.3 (6.5-10.0)
									1.3	2.8	9.1	14.8	22.2	35.7	20.9	56.6	70.9	71.5							
Nasal cavity & sinuses, middle & inner ear (C300-C319)																									
M										1					1	1	1	1	**5**	**0.3**	0.0-0.6	28	0.0	3903	0.7 (0.1-1.3)
										1.4					3.7	4.9	8.2	13.0							
F													2			1	1		**4**	**0.3**	0 - 0.6	24	0.0	4058	0.4 (0.0-0.8)
													4.9			4.0	5.5								
Larynx (C320-C329)																									
M										1	1	1	1	1	3	4	2		**14**	**0.9**	0.4-1.4	88	0.1	943	1.7 (0.8-2.5)
										1.4	1.5	1.7	2.4	3.0	11.2	19.5	16.3								
F														1			1	1	**3**	**0.1**	0 - 0.3	7	0.0	6716	0.3 (0 - 0.6)
														3.0			5.5	6.0							
Lung, bronchus & trachea (C330-C349)																									
M							1		5	15	17	28	48	58	80	87	60	29	**428**	**29.3**	26.5-32.2	2540	3.5	29	51.9 (47.0-56.9)
							1.3		6.5	21.1	25.5	48.7	114.3	176.3	297.5	423.1	490.5	377.2							
F								1	5	11	11	16	31	24	43	51	35	24	**252**	**15.3**	13.3-17.4	1628	1.8	55	25.7 (22.5-28.9)
								1.4	6.5	15.3	16.7	29.7	76.4	71.5	149.5	206.1	190.8	142.9							
Thymus (C370-C379)																									
M																			**0**					-	
F																			**0**					-	
Pleura, heart & mediastinum (C380-C389)																									
M																		1	**1**	**0.1**	0 - 0.2	0	0.0	*	0.2 (0 - 0.5)
																		13.0							
F																			**0**					-	
Bones, joints & articular cartilages (C400-C419)																									
M					1		1					1				1			**4**	**0.3**	0 - 0.6	106	0.0	4449	0.4 (0.0-0.8)
					1.4		1.3					1.7				4.9									
F					1	2	1				1					1	2		**8**	**0.6**	0.1-1.1	205	0.0	2699	0.8 (0.3-1.4)
					1.5	3.1	1.4				1.5					4.0	10.9								
Skin (melanoma only) (C430-C439)																									
M									6	2	6	2	7	12	7	5	7	4	**58**	**4.3**	3.2-5.4	569	0.5	196	6.8 (5.0-8.5)
									7.8	2.8	9.0	3.5	16.7	36.5	26.0	24.3	57.2	52.0							
F							1	1	1	3	1		5	3	4	4		5	**28**	**1.9**	1.2-2.7	298	0.2	446	2.8 (1.8-3.9)
							1.4	1.4	1.3	4.2	1.5		12.3	8.9	13.9	16.2		29.8							

Appendix 3B. Cancer mortality, Western Australia, 2003

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
Skin (not melanoma-SCC-BCC) (C440-C449)																									
M						1						2	1	7	4	3	3	3	**24**	**1.8**	1.0-2.5	147	0.2	460	3.0 (1.8-4.2)
						1.5						3.5	2.4	21.3	14.9	14.6	24.5	39.0							
F															2	3	2	9	**16**	**0.6**	0.3-0.9	5	0.0	2877	1.5 (0.7-2.2)
															7.0	12.1	10.9	53.6							
Mesothelioma (M905; ICD10 C45)																									
M											2	3	5	10	10	7	10	11	**58**	**4.0**	2.9-5.0	241	0.4	229	7.5 (5.5-9.5)
											3.0	5.2	11.9	30.4	37.2	34.0	81.7	143.1							
F											1					3	3	1	**8**	**0.3**	0.1-0.5	21	0.0	*	0.8 (0.2-1.3)
											1.5					12.1	16.4	6.0							
Kaposi's sarcoma (M914; ICD10 C46)																									
M																			**0**					-	
F																			**0**					-	
Nervous system, peripheral & autonomic (C470-C479)																									
M																			**0**					-	
F																			**0**					-	
Retroperitoneum and peritoneum (C480-C489)																									
M																			**0**					-	
F													1	1	1				**3**	**0.3**	0 - 0.6	21	0.0	2243	0.3 (0 - 0.7)
													2.5	3.0	3.5										
Connective, subcutaneous & other soft tissues (C490-C499)																									
M						1	1									1			**3**	**0.2**	0 - 0.5	85	0.0	7068	0.3 (0 - 0.7)
						1.5	1.3									4.9									
F		1									1	1	3			1		1	**8**	**0.7**	0.2-1.2	139	0.1	1625	0.8 (0.2-1.4)
		1.5									1.5	1.9	7.4			4.0		6.0							
Breast (C500-C509)																									
M																			**0**					-	
F						2	5	4	10	19	20	26	31	21	19	29	32	38	**256**	**16.2**	14.1-18.4	2680	1.7	60	25.3 (22.2-28.5)
						3.1	6.8	5.5	13.0	26.5	30.4	48.2	76.4	62.5	66.0	117.2	174.5	226.3							
Vulva/vagina (C510-C529)																									
F														1		3	3		**7**	**0.3**	0.1-0.5	7	0.0	6716	0.7 (0.2-1.2)
														3.0		12.1	16.4								
Cervix uteri (C530-C539)																									
F						2	3			2	4	1	2	2	3		2	3	**24**	**1.8**	1.0-2.5	414	0.2	511	2.4 (1.4-3.4)
						3.1	4.1			2.8	6.1	1.9	4.9	6.0	10.4		10.9	17.9							
Corpus uteri (C540-C549)																									
F											3	2	2		2	4	5	7	**25**	**1.2**	0.7-1.8	126	0.1	993	2.4 (1.5-3.3)
											4.6	3.7	4.9		7.0	16.2	27.3	41.7							
Uterus, NOS (C550-C559)																									
F										1	1								**2**	**0.2**	0 - 0.4	47	0.0	6869	0.2 (0 - 0.5)
										1.4	1.5														

Appendix 3B. Cancer mortality, Western Australia, 2003

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
Ovary, uterine adnexa & other female genital (C560-C579)																									
F							1	1		2	3	7	13	5	7	8	15	9	**71**	**4.3**	3.2-5.4	516	0.5	213	7.1 (5.4-8.7)
							1.4	1.4		2.8	4.6	13.0	32.0	14.9	24.3	32.3	81.8	53.6							
Placenta (C580-C589)																									
F																			**0**					-	
Penis & other male genital organs (C600-C639) (not C61 C62)																									
M									1										**1**	**0.1**	0 - 0.2	30	0.0	*	0.1 (0 - 0.3)
									1.3																
Prostate gland (C610-C619)																									
M											1	5	9	12	31	53	33	58	**202**	**12.4**	10.6-14.1	362	0.9	110	28.3 (24.4-32.3)
											1.5	8.7	21.4	36.5	115.3	257.8	269.8	754.3							
Testis (C620-C629)																									
M											1								**1**	**0.1**	0 - 0.2	21	0.0	*	0.1 (0 - 0.3)
											1.5														
Kidney & other renal tract (C640-C689) (not C67)																									
M									1	1	2	7	6	2	5	5	7	2	**38**	**2.6**	1.7-3.4	304	0.3	352	4.4 (3.0-5.9)
									1.3	1.4	3.0	12.2	14.3	6.1	18.6	24.3	57.2	26.0							
F									1			4	3	5	10	4	4	3	**34**	**2.2**	1.4-3.0	193	0.3	305	3.5 (2.3-4.7)
									1.3			7.4	7.4	14.9	34.8	16.2	21.8	17.9							
Urinary bladder (C670-C679)																									
M										1	2	4	4	4	6	11	9	16	**57**	**3.6**	2.7-4.6	219	0.3	362	7.8 (5.7-9.8)
										1.4	3.0	7.0	9.5	12.2	22.3	53.5	73.6	208.1							
F								1				1		1		8	3	10	**24**	**0.9**	0.5-1.4	60	0.0	3225	2.3 (1.4-3.2)
								1.4				1.9		3.0		32.3	16.4	59.6							
Eye & lacrimal gland (C690-C699)																									
M							1								1			1	**3**	**0.2**	0 - 0.5	42	0.0	3951	0.4 (0 - 0.9)
							1.3								3.7			13.0							
F										1						1	1		**3**	**0.2**	0 - 0.3	26	0.0	*	0.3 (0 - 0.6)
										1.4						4.0	5.5								
Meninges (cerebral & spinal) (C700-C709)																									
M														1					**1**	**0.1**	0 - 0.3	7	0.0	6581	0.1 (0 - 0.3)
														3.0											
F																1			**1**	**0.0**	0 - 0.1	0	0.0	*	0.1 (0 - 0.3)
																4.0									
Brain (C710-C719)																									
M			1		1		1	2		5	4	8	8	5	10	13	5	5	1	**69**	**5.3**	4.0-6.6	949	0.7	148	7.6 (5.8-9.4)
			1.5		1.4		1.5	2.7		6.5	5.6	12.0	13.9	11.9	30.4	48.3	24.3	40.9	13.0						
F	1	1							2	3	2	3	3	5	5	8	4	1	4	**42**	**3.2**	2.1-4.2	583	0.4	258	4.3 (3.0-5.6)
	1.6	1.5							2.7	3.9	2.8	4.6	5.6	12.3	14.9	27.8	16.2	5.5	23.8						
Spinal cord & cranial nerves (C720-C729)																									
M				1															**1**	**0.1**	0 - 0.4	54	0.0	*	0.1 (0 - 0.3)
				1.4																					
F					1														**1**	**0.1**	0 - 0.3	51	0.0	*	0.1 (0 - 0.3)
					1.5																				

Appendix 3B. Cancer mortality, Western Australia, 2003

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
Thyroid gland (C730-C739)																									
M													1		1				**2**	**0.2**	0 - 0.4	14	0.0	3279	0.2 (0 - 0.5)
													2.4		3.7										
F											1					1		2	**4**	**0.2**	0 - 0.4	21	0.0	*	0.4 (0.0-0.7)
											1.5					4.0		11.9							
Adrenal & other endocrine glands (C740-C759)																									
M						1													**1**	**0.1**	0 - 0.4	45	0.0	*	0.1 (0 - 0.3)
						1.5																			
F		1										1			1				**3**	**0.3**	0 - 0.7	85	0.0	2910	0.3 (0 - 0.7)
		1.5										1.9			3.5										
LYMPHOMAS																									
Lymphoma, NOS / unclassifiable																									
M													1			2			**3**	**0.2**	0 - 0.4	12	0.0	8403	0.4 (0 - 0.8)
													2.4			9.7									
F									1								2	1	**4**	**0.2**	0 - 0.3	31	0.0	*	0.4 (0.0-0.7)
									1.3								10.9	6.0							
Hodgkin lymphoma																									
M													1						**1**	**0.1**	0 - 0.3	12	0.0	8403	0.1 (0 - 0.3)
													2.4												
F											1								**1**	**0.1**	0 - 0.2	21	0.0	*	0.1 (0 - 0.3)
											1.5														
All NHL																									
M		2				2	1	2		1	4	4	4	4	12	8	17	14	**75**	**5.1**	3.9-6.3	603	0.5	221	9.8 (7.5-12.0)
		2.9				3.0	1.3	2.8		1.4	6.0	7.0	9.5	12.2	44.6	38.9	139.0	182.1							
F							2		1	1	3	3	3	3	9	7	7	7	**46**	**2.6**	1.8-3.5	331	0.3	317	4.6 (3.3-6.0)
							2.7		1.3	1.4	4.6	5.6	7.4	8.9	31.3	28.3	38.2	41.7							
NHL, mature B cell																									
M		2				2	1	1		1	3	1	4	3	7	6	11	6	**48**	**3.4**	2.4-4.4	481	0.3	329	6.1 (4.3-7.8)
		2.9				3.0	1.3	1.4		1.4	4.5	1.7	9.5	9.1	26.0	29.2	89.9	78.0							
F							1		1	1	1	3	2	3	6	6	7	5	**36**	**2.0**	1.3-2.7	229	0.2	437	3.6 (2.4-4.8)
							1.4		1.3	1.4	1.5	5.6	4.9	8.9	20.9	24.3	38.2	29.8							
NHL, mature YT/NK cell																									
M												1			1	1			**3**	**0.2**	0 - 0.4	19	0.0	3664	0.3 (0 - 0.7)
												1.7			3.7	4.9									
F							1								2				**3**	**0.2**	0 - 0.5	46	0.0	2407	0.3 (0 - 0.7)
							1.4								7.0										
NHL, precursor cell lymphoblastic																									
M								1								1			**2**	**0.1**	0 - 0.3	35	0.0	*	0.2 (0 - 0.6)
								1.4								4.9									
F																			**0**					-	
NHL, other/unclassifiable																									
M											1	2		1	4		6	8	**22**	**1.4**	0.8-2.0	69	0.1	874	3.1 (1.8-4.5)
											1.5	3.5		3.0	14.9		49.0	104.0							
F											2		1		1	1		2	**7**	**0.4**	0.1-0.8	57	0.0	2229	0.7 (0.2-1.2)
											3.0		2.5		3.5	4.0		11.9							

Appendix 3B. Cancer mortality, Western Australia, 2003

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 (all)																									
M		2				2	1	2		1	4	4	6	4	12	10	17	14	**79**	**5.4**	4.1-6.6	626	0.5	210	10.2 (7.9-12.6)
		2.9				3.0	1.3	2.8		1.4	6.0	7.0	14.3	12.2	44.6	48.6	139.0	182.1							
F							2		2	1	4	3	3	3	9	7	9	8	**51**	**2.9**	2.0-3.7	384	0.3	304	5.1 (3.7-6.5)
							2.7		2.6	1.4	6.1	5.6	7.4	8.9	31.3	28.3	49.1	47.6							
MYELOMA																									
Myeloma/plasma cell tumours																									
M										1	1	4	6	5	6	8	5	8	**44**	**3.0**	2.1-3.9	228	0.3	325	5.6 (3.9-7.3)
										1.4	1.5	7.0	14.3	15.2	22.3	38.9	40.9	104.0							
F											2	3	2	2	8	5	5	10	**37**	**1.9**	1.3-2.6	150	0.2	423	3.6 (2.5-4.8)
											3.0	5.6	4.9	6.0	27.8	20.2	27.3	59.6							
LEUKAEMIAS																									
Leukaemias, NOS/unclassifiable																									
M													1				1	1	**3**	**0.2**	0 - 0.4	12	0.0	8403	0.4 (0 - 0.9)
													2.4				8.2	13.0							
F																		2	**2**	**0.1**	0 - 0.1	0	0.0	*	0.2 (0 - 0.4)
																		11.9							
Leukaemias, lymphoid, all																									
M					1	1			1	3	1		2	3	2	3	3	2	**22**	**1.6**	0.9-2.4	270	0.2	641	2.6 (1.5-3.7)
					1.4	1.5			1.3	4.2	1.5		4.8	9.1	7.4	14.6	24.5	26.0							
F			1		1	1					2	2		1	2	2	2	6	**20**	**1.2**	0.6-1.8	245	0.1	947	1.9 (1.1-2.8)
			1.5		1.5	1.5					3.0	3.7		3.0	7.0	8.1	10.9	35.7							
Leukaemias, lymphoid, acute																									
M					1	1				3				1	1		1		**8**	**0.7**	0.2-1.2	180	0.1	1442	0.9 (0.3-1.5)
					1.4	1.5				4.2				3.0	3.7		8.2								
F			1		1	1					2			1	1				**7**	**0.7**	0.2-1.2	209	0.1	1434	0.7 (0.2-1.3)
			1.5		1.5	1.5					3.0			3.0	3.5										
Leukaemias, lymphoid, chronic																									
M									1		1		1	2	1	3	2	2	**13**	**0.9**	0.4-1.4	79	0.1	1335	1.7 (0.7-2.6)
									1.3		1.5		2.4	6.1	3.7	14.6	16.3	26.0							
F												1			1	2	2	5	**11**	**0.4**	0.2-0.7	19	0.0	3752	1.0 (0.4-1.6)
												1.9			3.5	8.1	10.9	29.8							
Leukaemias, lymphoid, other/NOS																									
M													1						**1**	**0.1**	0 - 0.3	12	0.0	8403	0.1 (0 - 0.3)
													2.4												
F												1						1	**2**	**0.1**	0 - 0.3	17	0.0	*	0.2 (0 - 0.4)
												1.9						6.0							
Leukaemias, myeloid, all																									
M						1		1	3		2	2	2	1	6	9	2	3	**32**	**2.2**	1.4-2.9	288	0.2	462	3.9 (2.5-5.3)
						1.5		1.4	3.9		3.0	3.5	4.8	3.0	22.3	43.8	16.3	39.0							
F		1					1	2	2		1	1	3	3	3	2	8	1	**28**	**1.8**	1.1-2.6	342	0.2	522	2.8 (1.8-3.9)
		1.5					1.4	2.7	2.6		1.5	1.9	7.4	8.9	10.4	8.1	43.6	6.0							
Leukaemias, myeloid, acute																									
M						1		1	2		2	2	1	1	6	6	2	2	**26**	**1.8**	1.1-2.5	246	0.2	504	3.1 (1.9-4.4)
						1.5		1.4	2.6		3.0	3.5	2.4	3.0	22.3	29.2	16.3	26.0							
F		1					1	1	2		1	1	2	3	3	2	8	1	**26**	**1.6**	0.9-2.3	295	0.2	580	2.6 (1.6-3.6)
		1.5					1.4	1.4	2.6		1.5	1.9	4.9	8.9	10.4	8.1	43.6	6.0							

Appendix 3B. Cancer mortality, Western Australia, 2003

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, myeloid, chronic																									
M									1				1			3			**5**	**0.3**	0.0-0.6	42	0.0	5428	0.6 (0.1-1.1)
									1.3				2.4			14.6									
F								1					1						**2**	**0.2**	0 - 0.4	48	0.0	5216	0.2 (0 - 0.5)
								1.4					2.5												
Leukaemias, myeloid, other/NOS																									
M																		1	**1**	**0.1**	0 - 0.2	0	0.0	*	0.2 (0 - 0.5)
																		13.0							
F																			**0**					-	
Leukaemias, other																									
M													1	2			2	1	**6**	**0.4**	0.1-0.8	25	0.0	2365	0.8 (0.1-1.4)
													2.4	6.1			16.3	13.0							
F																1	2	4	**7**	**0.2**	0.1-0.4	0	0.0	*	0.6 (0.2-1.1)
																4.0	10.9	23.8							
Leukaemias (all)																									
M					1	2		1	4	3	3	2	6	6	8	12	8	7	**63**	**4.4**	3.3-5.6	595	0.4	235	7.7 (5.8-9.7)
					1.4	3.0		1.4	5.2	4.2	4.5	3.5	14.3	18.2	29.8	58.4	65.4	91.0							
F		1	1		1	1	1	2	2		3	3	3	4	5	5	12	13	**57**	**3.3**	2.3-4.3	587	0.3	337	5.5 (4.1-7.0)
		1.5	1.5		1.5	1.5	1.4	2.7	2.6		4.6	5.6	7.4	11.9	17.4	20.2	65.4	77.4							
MYELODYSPLASTIC DISEASES																									
Refractory anaemias/cytopaenias																									
M															2	2	5	1	**10**	**0.5**	0.2-0.8	5	0.0	2689	1.4 (0.5-2.2)
															7.4	9.7	40.9	13.0							
F													1		1		2	2	**6**	**0.3**	0.0-0.5	14	0.0	3367	0.6 (0.1-1.0)
													2.5		3.5		10.9	11.9							
Myelodysplastic syndromes																									
M							1					2	1			2	4	4	**14**	**0.8**	0.4-1.3	84	0.0	2777	1.9 (0.9-2.9)
							1.3					3.5	2.4			9.7	32.7	52.0							
F														1	1	4	3	5	**14**	**0.6**	0.2-0.9	10	0.0	3099	1.3 (0.6-2.0)
														3.0	3.5	16.2	16.4	29.8							
Myelodysplastic diseases, all																									
M							1					2	1		2	4	9	5	**24**	**1.4**	0.8-1.9	88	0.1	1366	3.3 (1.9-4.6)
							1.3					3.5	2.4		7.4	19.5	73.6	65.0							
F													1	1	2	4	5	7	**20**	**0.8**	0.4-1.2	24	0.1	1614	1.9 (1.1-2.7)
													2.5	3.0	7.0	16.2	27.3	41.7							
CHRONIC MYELOPROLIFERATIVE DISEASES																									
Chronic myeloproliferative disorder, NOS																									
M																1	1	1	**3**	**0.2**	0 - 0.3	0	0.0	*	0.4 (0 - 1.0)
																4.9	8.2	13.0							
F																1		1	**2**	**0.1**	0 - 0.2	0	0.0	*	0.2 (0 - 0.5)
																4.0		6.0							
Polycythaemia rubra vera																									
M											1						1		**2**	**0.1**	0 - 0.3	21	0.0	*	0.2 (0 - 0.6)
											1.5						8.2								
F																	1		**1**	**0.0**	0 - 0.1	0	0.0	*	0.1 (0 - 0.3)
																	5.5								

Appendix 3B. Cancer mortality, Western Australia, 2003

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
Myelofibrosis/sclerosis																									
M																1	1		**2**	**0.1**	0 - 0.2	0	0.0	*	0.3 (0 - 0.6)
																4.9	8.2								
F											1					1			**2**	**0.1**	0 - 0.3	21	0.0	*	0.2 (0 - 0.5)
											1.5					4.0									
Other chronic myeloproliferative d/o																									
M												1							**1**	**0.1**	0 - 0.2	16	0.0	*	0.1 (0 - 0.3)
												1.7													
F															1				**1**	**0.1**	0 - 0.2	2	0.0	5754	0.1 (0 - 0.3)
															3.5										
Chronic myeloproliferative d/o, all																									
M											1	1				2	3	1	**8**	**0.4**	0.1-0.7	37	0.0	6176	1.0 (0.3-1.8)
											1.5	1.7				9.7	24.5	13.0							
F											1				1	2	1	1	**6**	**0.3**	0.0-0.5	24	0.0	4006	0.6 (0.1-1.1)
											1.5				3.5	8.1	5.5	6.0							
OTHER CHRONIC IMMUNOPROLIFERATIVE DISEASES																									
Mast cell tumours																									
M																			**0**					-	
F																			**0**					-	
Histiocytic/dendritic cell malignancies																									
M										1				1					**2**	**0.2**	0 - 0.4	32	0.0	4499	0.2 (0 - 0.5)
										1.4				3.0											
F																			**0**					-	
Other & U/S immunoproliferative neoplasms																									
M																		1	**1**	**0.1**	0 - 0.2	0	0.0	*	0.2 (0 - 0.5)
																		13.0							
F																			**0**					-	
Other chronic immunoproliferative d/o, all																									
M										1				1				1	**3**	**0.2**	0 - 0.5	32	0.0	4499	0.4 (0 - 0.8)
										1.4				3.0				13.0							
F																			**0**					-	
Unknown primary site (C80 or Behaviour 6/9)																									
M									1	2	4	5	15	10	16	16	13	12	**94**	**6.5**	5.2-7.9	525	0.7	139	11.7 (9.3-14.1)
									1.3	2.8	6.0	8.7	35.7	30.4	59.5	77.8	106.3	156.1							
F										1	3	3	8	8	21	21	17	23	**105**	**5.5**	4.3-6.7	343	0.6	157	10.5 (8.5-12.5)
										1.4	4.6	5.6	19.7	23.8	73.0	84.9	92.7	137.0							
Total deaths due to cancer																									
M		3		2	2	8	7	6	31	57	82	135	172	225	305	323	255	222	**1835**	**125.8**	120-132	12169	13.7	8	227.6 (217-238)
		4.4		2.7	2.8	11.9	9.4	8.3	40.4	80.2	122.9	234.9	409.4	683.9	1134.3	1570.9	2084.5	2887.2							
F	1	4	1	1	3	7	15	12	30	51	84	101	145	128	188	239	213	260	**1483**	**87.0**	82.1-91.8	11049	9.4	11	147.6 (140-155)
	1.6	6.2	1.5	1.4	4.4	10.7	20.4	16.4	39.0	71.1	127.5	187.3	357.3	381.2	653.5	966.0	1161.4	1548.4							

Appendix 3B. Cancer mortality, Western Australia, 2003

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
Deaths due to benign tumours in CR cases																									
M																			**0**					-	
F																			**0**					-	
Deaths due to lymphohaematopoietic tumours of uncertain malignant potential																									
M																			**0**					-	
F															1				**1**	**0.1**	0 - 0.2	2	0.0	5754	0.1 (0 - 0.3)
															3.5										
Deaths due to non-lymphohaematopoietic tumours of uncertain/unspecified nature																									
M	1																	1	**2**	**0.3**	0 - 0.6	71	0.0	*	0.3 (0 - 0.7)
	1.6																	13.0							
F															1				**1**	**0.1**	0 - 0.2	2	0.0	5754	0.1 (0 - 0.3)
															3.5										
Non-cancer deaths in CR cases																									
M							2	2	3	4	12	9	18	37	84	157	186	245	**759**	**44.9**	41.7-48.2	1405	2.6	39	109.0 (101-117)
							2.7	2.8	3.9	5.6	18.0	15.7	42.8	112.5	312.4	763.5	1520.5	3186.4							
F								1	2	2	3	13	10	22	50	68	113	281	**565**	**22.2**	20.2-24.3	828	1.5	67	51.8 (47.5-56.1)
								1.4	2.6	2.8	4.6	24.1	24.6	65.5	173.8	274.8	616.1	1673.4							
Deaths of undetermined cause in CR cases																									
M															1		1		**2**	**0.1**	0 - 0.3	2	0.0	5378	0.3 (0 - 0.6)
															3.7		8.2								
F						1			1						1		1	3	**7**	**0.4**	0.1-0.7	79	0.0	3173	0.7 (0.2-1.2)
						1.5			1.3						3.5		5.5	17.9							
Total deaths of Cancer Registry cases																									
M	1	3		2	2	8	11	8	35	61	95	147	191	262	391	487	454	476	**2634**	**173.2**	166-180	13969	16.4	7	342.0 (329-355)
	1.6	4.4		2.7	2.8	11.9	14.8	11.0	45.7	85.8	142.3	255.8	454.7	796.4	1454.2	2368.4	3711.3	6190.7							
F	1	4	1	1	3	8	15	13	33	53	88	114	156	151	244	315	333	550	**2083**	**110.9**	106-116	12072	11.0	10	202.9 (194-212)
	4.9	1.5	5.9	2.9	1.5	7.5	16.4	21.7	51.6	77.9	121.0	221.5	363.8	484.4	812.1	1199.1	1771.0	3033.4							

Appendix 3C.Childhood cancer, Western Australia, 2003 (WHO International Classification, version 3)

	Males								Females								All							
	Age Group								Age Group								Age Group							
	0	1-4	5-9	10-14	Total	ASR	95%c.i.	TD%	0	1-4	5-9	10-14	Total	ASR	95%c.i.	TD%	0	1-4	5-9	10-14	Total	ASR	95%c.i.	TD%
I. LEUKAEMIAS, MYELOPROLIFERATIVE AND MYELODYSPLASTIC DISEASES																								
All	5	4	5		**14**	**6.9**	3.2-10.6	100	6	4	2		**12**	**6.6**	2.8-10.4	100	11	8	7		**26**	**6.8**	4.1-9.4	100
	9.8	5.8	6.9						12.2	6.2	2.9						11.0	6.0	5.0					
Lymphoid leukaemia	4	4	3		**11**	**5.5**	2.2-8.8	100	5	3	1		**9**	**5.1**	1.7-8.4	100	9	7	4		**20**	**5.3**	2.9-7.7	100
	7.8	5.8	4.2						10.2	4.6	1.5						9.0	5.2	2.8					
Acute myeloid leukaemia	1		1		**2**	**1.0**	0 - 2.4	100	1	1	1		**3**	**1.6**	0 - 3.3	100	2	1	2		**5**	**1.3**	0.1-2.4	100
	2.0		1.4						2.0	1.5	1.5						2.0	0.7	1.4					
Chronic MPDs			1		**1**	**0.4**	0 - 1.2	100					**0**						1		**1**	**0.2**	0 - 0.6	100
			1.4																0.7					
MDS & other MPDs					**0**								**0**								**0**			
Unspecified/other leukaemia					**0**								**0**								**0**			
II. LYMPHOMAS																								
All	2	1	3		**6**	**2.9**	0.5-5.2	100			2		**2**	**0.8**	0 - 2.0	100	2	1	5		**8**	**1.9**	0.6-3.2	100
	3.9	1.5	4.2								2.9						2.0	0.7	3.6					
Hodgkin lymphoma			1		**1**	**0.4**	0 - 1.2	100			2		**2**	**0.8**	0 - 2.0	100			3		**3**	**0.6**	0 - 1.3	100
			1.4								2.9								2.1					
Non-Hodgkin lymphoma exc Burkit	2	1	2		**5**	**2.5**	0.3-4.7	100					**0**				2	1	2		**5**	**1.3**	0.1-2.4	100
	3.9	1.5	2.8														2.0	0.7	1.4					
Burkitt lymphoma					**0**								**0**								**0**			
Misc. lymphoreticular neoplasms					**0**								**0**								**0**			
Unspecified lymphoma					**0**								**0**								**0**			
III. CNS AND INTRACRANIAL/SPINAL																								
All	2	1	2		**5**	**2.5**	0.3-4.7	40	1		3		**4**	**1.9**	0.0-3.8	75	3	1	5		**9**	**2.2**	0.7-3.7	56
	3.9	1.5	2.8						2.0		4.4						3.0	0.7	3.6					
Ependymoma/choroid plexus					**0**								**0**								**0**			
Astrocytoma					**0**								**0**								**0**			
Embryonal tumours	1				**1**	**0.6**	0 - 1.8	100			2		**2**	**0.8**	0 - 2.0	100	1		2		**3**	**0.7**	0 - 1.6	100
	2.0										2.9						1.0		1.4					
Other gliomas	1	1	2		**4**	**1.9**	0.0-3.8	25	1		1		**2**	**1.1**	0 - 2.5	50	2	1	3		**6**	**1.5**	0.3-2.7	33
	2.0	1.5	2.8						2.0		1.5						2.0	0.7	2.1					
Other intracranial/spinal					**0**								**0**								**0**			
Unspecified					**0**								**0**								**0**			

Appendix 3C.Childhood cancer, Western Australia, 2003 (WHO International Classification, version 3)

	Males								Females								All							
	Age Group								Age Group								Age Group							
	0	1-4	5-9	10-14	Total	ASR	95%c.i.	TD%	0	1-4	5-9	10-14	Total	ASR	95%c.i.	TD%	0	1-4	5-9	10-14	Total	ASR	95%c.i.	TD%
IV. NEUROBLASTOMA & PERIPHERAL NERVOUS SYSTEM TUMOURS																								
All	1		1		**2**	**1.1**	0 - 2.6	100	2				**2**	**1.3**	0 - 3.0	100	1	2	1		**4**	**1.2**	0.0-2.3	100
	8.2		1.5						4.1								4.1	2.0	0.7					
Neuroblastoma/ganglioneurobl.	1		1		**2**	**1.1**	0 - 2.6	100	2				**2**	**1.3**	0 - 3.0	100	1	2	1		**4**	**1.2**	0.0-2.3	100
	8.2		1.5						4.1								4.1	2.0	0.7					
Other					**0**								**0**								**0**			
V. RETINOBLASTOMA																								
All		2			**2**	**1.2**	0 - 2.9	100	3				**3**	**1.9**	0 - 4.0	100		5			**5**	**1.5**	0.2-2.9	100
		3.9							6.1									5.0						
VI. RENAL TUMOURS																								
All		2	1		**3**	**1.7**	0 - 3.6	100			1	1	**2**	**0.9**	0 - 2.2	100		2	2	1	**5**	**1.3**	0.1-2.5	100
		3.9	1.5								1.5	1.5						2.0	1.5	0.7				
Neuroblastoma/other non-epithel.		2	1		**3**	**1.7**	0 - 3.6	100			1	1	**2**	**0.9**	0 - 2.2	100		2	2	1	**5**	**1.3**	0.1-2.5	100
		3.9	1.5								1.5	1.5						2.0	1.5	0.7				
Renal carcinoma					**0**								**0**								**0**			
Unspecified					**0**								**0**								**0**			
VII. HEPATIC TUMOURS																								
All				2	**2**	**0.8**	0 - 1.9	100					**0**							2	**2**	**0.4**	0 - 1.0	100
				2.8																1.4				
Hepatoblastoma					**0**								**0**								**0**			
Hepatic carcinoma				2	**2**	**0.8**	0 - 1.9	100					**0**							2	**2**	**0.4**	0 - 1.0	100
				2.8																1.4				
Unspecified					**0**								**0**								**0**			
VIII. BONE																								
All			1		**1**	**0.5**	0 - 1.4	100					**0**						1		**1**	**0.2**	0 - 0.7	100
			1.5																0.7					
Osteosarcoma					**0**								**0**								**0**			
Chondrosarcoma					**0**								**0**								**0**			
Ewing & related sarcoma			1		**1**	**0.5**	0 - 1.4	100					**0**						1		**1**	**0.2**	0 - 0.7	100
			1.5																0.7					
Other specified					**0**								**0**								**0**			
Unspecified					**0**								**0**								**0**			

Appendix 3C.Childhood cancer, Western Australia, 2003 (WHO International Classification, version 3)

	Males								Females								All							
	Age Group								Age Group								Age Group							
	0	1-4	5-9	10-14	Total	ASR	95%c.i.	TD%	0	1-4	5-9	10-14	Total	ASR	95%c.i.	TD%	0	1-4	5-9	10-14	Total	ASR	95%c.i.	TD%
IX. SOFT TISSUE SARCOMA																								
All					**0**					1 2.0		2 2.9	**3**	**1.5**	0 - 3.2	100		1 1.0		2 1.4	**3**	**0.7**	0 - 1.6	100
Rhabdomyosarcoma					**0**								**0**								**0**			
Fibrosarcoma/Neurofibrosarc.					**0**					1 2.0			**1**	**0.6**	0 - 1.9	100		1 1.0			**1**	**0.3**	0 - 0.9	100
Kaposi sarcoma					**0**								**0**								**0**			
Other specified					**0**							2 2.9	**2**	**0.8**	0 - 2.0	100				2 1.4	**2**	**0.4**	0 - 1.0	100
Unspecified					**0**								**0**								**0**			
X. GONADAL AND GERM CELL																								
All			1 1.5	1 1.4	**2**	**0.9**	0 - 2.1	100	1 8.4			2 2.9	**3**	**1.5**	0 - 3.2	100	1 4.1		1 0.7	3 2.1	**5**	**1.2**	0.1-2.2	100
Intracranial/spinal			1 1.5		**1**	**0.5**	0 - 1.4	100					**0**						1 0.7		**1**	**0.2**	0 - 0.7	100
Other/unspecified non-gonadal					**0**				1 8.4				**1**	**0.6**	0 - 1.9	100	1 4.1				**1**	**0.3**	0 - 0.9	100
Gonadal germ cell				1 1.4	**1**	**0.4**	0 - 1.2	100				1 1.5	**1**	**0.4**	0 - 1.3	100				2 1.4	**2**	**0.4**	0 - 1.0	100
Gonadal carcinoma					**0**							1 1.5	**1**	**0.4**	0 - 1.3	100				1 0.7	**1**	**0.2**	0 - 0.6	100
Other and unspecified					**0**								**0**								**0**			
XI. OTHER EPITHELIAL / MELANOMA																								
All				2 2.8	**2**	**0.8**	0 - 1.9	100				4 5.8	**4**	**1.7**	0.0-3.4	100				6 4.3	**6**	**1.2**	0.2-2.2	100
Adrenocortical carcinoma					**0**								**0**								**0**			
Thyroid carcinoma					**0**							1 1.5	**1**	**0.4**	0 - 1.3	100				1 0.7	**1**	**0.2**	0 - 0.6	100
Nasopharyngeal carcinoma					**0**								**0**								**0**			
Malignant melanoma				1 1.4	**1**	**0.4**	0 - 1.2	100				1 1.5	**1**	**0.4**	0 - 1.3	100				2 1.4	**2**	**0.4**	0 - 1.0	100
Skin carcinomas					**0**							1.0 1.5	**1**	**0.4**	0 - 1.3	100				1.0 0.7	**1**	**0.2**	0 - 0.6	100
Other/unspecified carcinoma				1 1.4	**1**	**0.4**	0 - 1.2	100				1 1.5	**1**	**0.4**	0 - 1.3	100				2 1.4	**2**	**0.4**	0 - 1.0	100

Appendix 3C.Childhood cancer, Western Australia, 2003 (WHO International Classification, version 3)

	Males								Females								All							
	Age Group								Age Group								Age Group							
	0	1-4	5-9	10-14	**Total**	**ASR**	95%c.i.	TD%	0	1-4	5-9	10-14	**Total**	**ASR**	95%c.i.	TD%	0	1-4	5-9	10-14	**Total**	**ASR**	95%c.i.	TD%
XII. OTHER																								
All					**0**								**0**								**0**			
Other specified malignancy					**0**								**0**								**0**			
Other unspecified malignancy					**0**								**0**								**0**			
Total	1	13	10	15	**39**	**19.2**	13.1-25.4	92	1	13	5	16	**35**	**18.1**	12.0-24.2	97	2	26	15	31	**74**	**18.7**	14.4-23.0	95
	8.2	25.4	14.6	20.8					8.4	26.5	7.7	23.3					8.3	26.0	11.2	22.0				

Appendix 3D. Cancer incidence, Western Australia, 2003: Leading types by sex and geographic area

CHS Kimberley Region

Males

	Cases	%	ASR	95%c.i.	Risk
Prostate	**9**	19.1	**78.1**	26.6-130	8
Colorectal	**6**	12.8	**36.3**	6.4-66.1	35
Colon	**2**	4.3	**12.5**	0 - 30.4	79
Rectum	**4**	8.5	**23.8**	0 - 47.7	62
Lung	**6**	12.8	**44.4**	7.9-80.8	15
Oesophagus	**3**	6.4	**20.4**	0 - 44.8	36
Tonsil / oropharynx	**2**	4.3	**10.4**	0 - 24.8	105
Hypopharynx	**2**	4.3	**13.0**	0 - 31.5	71
Larynx	**2**	4.3	**10.4**	0 - 24.8	86
Melanoma (skin)	**2**	4.3	**8.5**	0 - 20.5	109
Kidney	**2**	4.3	**17.9**	0 - 42.8	38
Lymphoma	**2**	4.3	**11.0**	0 - 26.3	164
Lymphoma NOS	**0**				
Hodgkin lymphoma	**0**				
NHL	**2**	4.3	**11.0**	0 - 26.3	164
All cancers	**47**	100.0	**320.4**	226-415	3

Females

	Cases	%	ASR	95%c.i.	Risk
Breast	**10**	27.8	**79.4**	27.1-132	9
Unknown primary	**4**	11.1	**46.1**	0.8-91.4	13
Melanoma (skin)	**3**	8.3	**17.4**	0 - 37.4	60
Cervix	**3**	8.3	**20.9**	0 - 44.6	41
Colorectal	**2**	5.6	**12.2**	0 - 29.3	77
Colon	**1**	2.8	**4.9**	0 - 14.6	243
Rectum	**1**	2.8	**7.2**	0 - 21.4	111
Oesophagus	**2**	5.6	**13.7**	0 - 32.7	65
Lung	**2**	5.6	**13.4**	0 - 32.0	71
Ovary	**2**	5.6	**16.8**	0 - 41.0	55
All cancers	**36**	100.0	**270.1**	178-363	3

CHS Pilbara-Gascoyne Region

Males

	Cases	%	ASR	95%c.i.	Risk
Melanoma (skin)	**10**	15.2	**38.4**	11.6-65.2	21
Lung	**8**	12.1	**40.9**	10.4-71.4	13
Prostate	**7**	10.6	**33.9**	8.0-59.8	32
Oesophagus	**6**	9.1	**31.9**	4.7-59.0	27
Colorectal	**5**	7.6	**33.7**	3.3-64.1	24
Colon	**2**	3.0	**10.9**	0 - 27.3	60
Rectum	**3**	4.5	**22.8**	0 - 48.4	39
Unknown primary	**5**	7.6	**17.2**	0.1-34.2	37
Kidney	**3**	4.5	**12.8**	0 - 27.6	105
Hypopharynx	**2**	3.0	**9.9**	0 - 24.7	49
Liver	**2**	3.0	**10.9**	0 - 27.3	60
Pancreas	**2**	3.0	**13.1**	0 - 31.5	52
Skin (NMSC exc. SCC/BCC)	**2**	3.0	**5.7**	0 - 13.8	247
Testis	**2**	3.0	**7.2**	0 - 17.3	210
Myelodysplastic diseases	**2**	3.0	**10.1**	0 - 25.3	349
All cancers	**66**	100.0	**312.9**	232-394	3

Females

	Cases	%	ASR	95%c.i.	Risk
Breast	**18**	31.6	**77.1**	39.2-115	14
Cervix	**5**	8.8	**26.7**	2.0-51.3	27
Colorectal	**4**	7.0	**26.9**	0 - 54.7	43
Colon	**4**	7.0	**26.9**	0 - 54.7	43
Rectum	**0**				
Lung	**4**	7.0	**27.9**	0 - 56.2	42
Unknown primary	**4**	7.0	**33.5**	0.5-66.5	26
Melanoma (skin)	**3**	5.3	**9.5**	0 - 20.4	126
Uterus	**3**	5.3	**11.7**	0 - 25.4	80
Thyroid gland	**3**	5.3	**8.3**	0 - 17.8	145
Lymphoma	**3**	5.3	**11.6**	0 - 25.3	85
Lymphoma NOS	**0**				
Hodgkin lymphoma	**0**				
NHL	**3**	5.3	**11.6**	0 - 25.3	85
Gum	**2**	3.5	**12.6**	0 - 31.2	40
All cancers	**57**	100.0	**296.9**	213-381	4

CHS Midwest-Murchison Region

Males

	Cases	%	ASR	95%c.i.	Risk
Prostate	**31**	24.4	**84.8**	54.6-115	10
Melanoma (skin)	**20**	15.7	**55.4**	30.5-80.3	15
Colorectal	**14**	11.0	**36.9**	17.4-56.3	16
Colon	**7**	5.5	**18.9**	4.8-33.0	32
Rectum	**7**	5.5	**18.0**	4.6-31.3	30
Lung	**12**	9.4	**32.3**	14.0-50.6	15
Bladder	**8**	6.3	**21.9**	6.5-37.3	34
Testis	**5**	3.9	**19.6**	1.9-37.3	71
Lymphoma	**5**	3.9	**13.7**	1.5-26.0	51
Lymphoma NOS	**0**				
Hodgkin lymphoma	**3**	2.4	**8.6**	0 - 18.6	143
NHL	**2**	1.6	**5.1**	0 - 12.2	78
Small intestine	**4**	3.1	**11.4**	0.1-22.6	104
All cancers	**127**	100.0	**354.6**	292-417	3

Females

	Cases	%	ASR	95%c.i.	Risk
Breast	**20**	22.5	**59.5**	32.8-86.1	17
Melanoma (skin)	**14**	15.7	**50.1**	22.2-78.0	21
Lung	**11**	12.4	**28.4**	10.9-45.9	35
Colorectal	**7**	7.9	**16.8**	3.5-30.1	70
Colon	**4**	4.5	**8.0**	0 - 16.5	174
Rectum	**3**	3.4	**8.8**	0 - 19.1	118
Leukaemia	**6**	6.7	**18.8**	2.4-35.2	92
Leukaemia NOS	**2**	2.2	**5.1**	0 - 12.7	174
Lymphoid leukaemia	**1**	1.1	**5.2**	0 - 15.5	384
Myeloid leukaemia	**3**	3.4	**8.5**	0 - 18.8	403
Leukaemia, other	**0**				
Uterus	**5**	5.6	**15.1**	1.5-28.6	48
Ovary	**4**	4.5	**13.5**	0.3-26.7	55
All cancers	**89**	100.0	**268.8**	210-328	4

Appendix 3D. Cancer incidence, Western Australia, 2003: Leading types by sex and geographic area

CHS Wheatbelt Region

Males

	Cases	%	ASR	95%c.i.	Risk
Prostate	**64**	31.8	**103.8**	78.1-129	7
Colorectal	**33**	16.4	**53.5**	35.0-72.0	14
Colon	**20**	10.0	**33.0**	18.4-47.7	24
Rectum	**13**	6.5	**20.4**	9.2-31.7	33
Melanoma (skin)	**30**	14.9	**49.3**	31.4-67.2	18
Lung	**13**	6.5	**19.2**	8.6-29.8	47
Kidney	**7**	3.5	**12.0**	2.8-21.2	74
Bladder	**7**	3.5	**12.3**	3.2-21.5	57
Unknown primary	**6**	3.0	**9.7**	1.8-17.6	88
Brain	**5**	2.5	**7.8**	0.8-14.8	114
Lymphoma	**5**	2.5	**12.1**	0.5-23.8	101
Lymphoma NOS	**0**				
Hodgkin lymphoma	**0**				
NHL	**5**	2.5	**12.1**	0.5-23.8	101
All cancers	**201**	100.0	**333.9**	287-381	3

Females

	Cases	%	ASR	95%c.i.	Risk
Breast	**44**	30.8	**82.8**	57.6-108	11
Melanoma (skin)	**18**	12.6	**37.9**	19.5-56.3	26
Colorectal	**17**	11.9	**29.1**	14.8-43.3	23
Colon	**15**	10.5	**25.3**	12.1-38.6	25
Rectum	**2**	1.4	**3.7**	0 - 8.9	241
Lung	**9**	6.3	**16.2**	5.3-27.2	43
Lip	**5**	3.5	**11.1**	0.3-21.9	75
Uterus	**5**	3.5	**9.3**	1.1-17.5	59
Ovary	**5**	3.5	**6.6**	0.4-12.8	152
Leukaemia	**5**	3.5	**9.0**	0.8-17.2	98
Leukaemia NOS	**0**				
Lymphoid leukaemia	**3**	2.1	**5.9**	0 - 12.6	135
Myeloid leukaemia	**2**	1.4	**3.1**	0 - 7.7	359
Leukaemia, other	**0**				
Myeloma	**5**	3.5	**8.5**	0.8-16.2	71
Thyroid gland	**4**	2.8	**7.7**	0 - 15.4	150
All cancers	**143**	100.0	**266.2**	220-312	4

CHS Goldfields-SE Coastal Region

Males

	Cases	%	ASR	95%c.i.	Risk
Prostate	**22**	23.2	**82.3**	47.4-117	11
Colorectal	**15**	15.8	**55.2**	27.0-83.3	22
Colon	**8**	8.4	**27.2**	8.3-46.1	93
Rectum	**7**	7.4	**28.0**	7.0-48.9	29
Lung	**11**	11.6	**36.6**	14.6-58.5	32
Melanoma (skin)	**9**	9.5	**31.7**	10.1-53.2	18
Lip	**5**	5.3	**13.9**	1.1-26.7	61
Unknown primary	**5**	5.3	**17.2**	1.6-32.7	42
Testis	**4**	4.2	**9.4**	0.1-18.6	121
All cancers	**95**	100.0	**336.6**	268-406	3

Females

	Cases	%	ASR	95%c.i.	Risk
Breast	**23**	34.8	**91.6**	52.6-130	11
Lung	**9**	13.6	**35.0**	10.9-59.1	37
Melanoma (skin)	**4**	6.1	**15.2**	0 - 31.0	81
Cervix	**4**	6.1	**14.7**	0 - 29.9	69
Unknown primary	**3**	4.5	**12.3**	0 - 26.4	43
All cancers	**66**	100.0	**252.1**	188-316	5

CHS Great Southern Region

Males

	Cases	%	ASR	95%c.i.	Risk
Prostate	**36**	26.5	**76.7**	50.9-103	11
Colorectal	**22**	16.2	**51.4**	29.3-73.4	16
Colon	**12**	8.8	**25.6**	10.6-40.7	32
Rectum	**10**	7.4	**25.7**	9.6-41.9	32
Lung	**13**	9.6	**27.4**	11.9-42.8	31
Bladder	**11**	8.1	**18.2**	7.2-29.2	48
Melanoma (skin)	**8**	5.9	**18.4**	5.2-31.5	54
Pancreas	**5**	3.7	**9.8**	0.9-18.6	74
Brain	**5**	3.7	**13.8**	1.0-26.5	82
Leukaemia	**5**	3.7	**10.6**	0.8-20.3	80
Leukaemia NOS	**0**				
Lymphoid leukaemia	**3**	2.2	**6.5**	0 - 14.0	113
Myeloid leukaemia	**0**				
Leukaemia, other	**2**	1.5	**4.1**	0 - 10.3	275
All cancers	**136**	100.0	**300.9**	248-353	3

Females

	Cases	%	ASR	95%c.i.	Risk
Breast	**22**	19.6	**51.1**	28.8-73.3	17
Melanoma (skin)	**21**	18.8	**60.6**	31.8-89.5	19
Colorectal	**11**	9.8	**19.8**	7.4-32.2	47
Colon	**9**	8.0	**16.5**	5.0-27.9	61
Rectum	**2**	1.8	**3.3**	0 - 8.1	197
Unknown primary	**11**	9.8	**24.4**	8.9-39.9	35
Lung	**6**	5.4	**13.7**	2.3-25.2	76
Pancreas	**4**	3.6	**10.3**	0.1-20.5	57
Uterus	**4**	3.6	**8.6**	0 - 17.5	76
All cancers	**112**	100.0	**266.9**	213-321	4

Appendix 3D. Cancer incidence, Western Australia, 2003: Leading types by sex and geographic area

South West AHS

Males

	Cases	%	ASR	95%c.i.	Risk
Prostate	**73**	23.1	**72.3**	55.2-89.4	12
Colorectal	**46**	14.6	**45.1**	31.6-58.6	18
Colon	**24**	7.6	**22.9**	13.4-32.3	32
Rectum	**22**	7.0	**22.2**	12.6-31.8	40
Melanoma (skin)	**42**	13.3	**47.7**	32.7-62.8	20
Lung	**22**	7.0	**19.6**	11.1-28.0	40
Stomach	**10**	3.2	**9.2**	3.3-15.1	80
Leukaemia	**10**	3.2	**13.6**	4.8-22.3	88
Leukaemia NOS	**0**				
Lymphoid leukaemia	**2**	0.6	**3.2**	0 - 7.7	325
Myeloid leukaemia	**8**	2.5	**10.4**	2.9-17.9	120
Leukaemia, other	**0**				
Bladder	**9**	2.8	**8.0**	2.6-13.3	180
Lymphoma	**9**	2.8	**7.7**	2.3-13.1	209
Lymphoma NOS	**1**	0.3	**0.6**	0 - 1.9	0
Hodgkin lymphoma	**0**				
NHL	**8**	2.5	**7.1**	1.8-12.3	209
Kidney	**8**	2.5	**7.6**	2.1-13.0	87
Unknown primary	**8**	2.5	**10.7**	2.7-18.7	90
Oesophagus	**7**	2.2	**7.5**	1.8-13.1	103
Myeloma	**7**	2.2	**6.5**	1.5-11.5	159
Pancreas	**6**	1.9	**5.3**	1.0-9.6	133
Mesothelioma	**6**	1.9	**6.2**	1.1-11.3	100
Lip	**5**	1.6	**4.6**	0.4-8.8	314
Salivary glands	**5**	1.6	**4.7**	0.5-8.9	170
Testis	**5**	1.6	**7.0**	0.7-13.4	185
Skin (NMSC exc. SCC/BCC)	**4**	1.3	**4.9**	0 - 10.1	170
Brain	**4**	1.3	**4.3**	0.0-8.7	256
Myelodysplastic diseases	**4**	1.3	**3.2**	0 - 6.6	473
All cancers	**316**	100.0	**324.8**	288-362	3

Females

	Cases	%	ASR	95%c.i.	Risk
Breast	**68**	25.3	**74.4**	56.3-92.6	12
Melanoma (skin)	**34**	12.6	**40.7**	26.4-55.0	23
Colorectal	**29**	10.8	**24.6**	14.8-34.3	43
Colon	**20**	7.4	**15.0**	7.7-22.3	74
Rectum	**9**	3.3	**9.6**	3.1-16.0	101
Lung	**24**	8.9	**22.5**	12.9-32.2	41
Lymphoma	**17**	6.3	**19.9**	9.5-30.3	55
Lymphoma NOS	**0**				
Hodgkin lymphoma	**6**	2.2	**9.4**	1.5-17.4	118
NHL	**11**	4.1	**10.5**	3.8-17.1	101
Ovary	**12**	4.5	**11.8**	4.8-18.8	83
Uterus	**10**	3.7	**9.7**	3.3-16.1	82
Kidney	**10**	3.7	**9.8**	3.2-16.5	115
Unknown primary	**10**	3.7	**7.4**	2.4-12.3	162
Thyroid gland	**9**	3.3	**13.2**	4.4-22.1	80
Leukaemia	**7**	2.6	**9.2**	1.6-16.7	138
Leukaemia NOS	**0**				
Lymphoid leukaemia	**4**	1.5	**5.2**	0 - 10.7	268
Myeloid leukaemia	**3**	1.1	**4.0**	0 - 9.2	283
Leukaemia, other	**0**				
Stomach	**5**	1.9	**4.1**	0.3-7.9	159
Skin (NMSC exc. SCC/BCC)	**4**	1.5	**3.1**	0 - 6.3	289
Brain	**4**	1.5	**6.7**	0 - 13.5	157
Oesophagus	**3**	1.1	**2.3**	0 - 5.2	478
Pancreas	**3**	1.1	**2.2**	0 - 5.0	478
Vulva & vagina	**3**	1.1	**1.9**	0 - 4.3	404
All cancers	**269**	100.0	**281.9**	246-318	4

WA Country - all

Males

	Cases	%	ASR	95%c.i.	Risk
Prostate	**242**	24.5	**79.3**	69.1-89.5	10
Colorectal	**141**	14.3	**46.8**	38.9-54.7	17
Colon	**75**	7.6	**24.7**	19.0-30.4	32
Rectum	**66**	6.7	**22.1**	16.7-27.5	35
Melanoma (skin)	**121**	12.2	**40.1**	32.8-47.3	22
Lung	**85**	8.6	**26.9**	21.1-32.7	27
Bladder	**36**	3.6	**11.3**	7.5-15.1	77
Unknown primary	**30**	3.0	**10.3**	6.5-14.1	85
Lymphoma	**27**	2.7	**9.3**	5.6-13.0	118
Lymphoma NOS	**1**	0.1	**0.2**	0 - 0.7	0
Hodgkin lymphoma	**4**	0.4	**1.3**	0.0-2.6	891
NHL	**22**	2.2	**7.8**	4.3-11.2	135
Kidney	**26**	2.6	**8.1**	4.9-11.3	99
Oesophagus	**23**	2.3	**7.9**	4.6-11.2	98
Leukaemia	**22**	2.2	**8.7**	4.9-12.6	134
Leukaemia NOS	**0**				
Lymphoid leukaemia	**8**	0.8	**3.3**	0.9-5.8	323
Myeloid leukaemia	**11**	1.1	**4.5**	1.7-7.2	258
Leukaemia, other	**3**	0.3	**0.9**	0 - 2.0	1962
Stomach	**20**	2.0	**6.4**	3.5-9.2	135
Pancreas	**20**	2.0	**6.4**	3.5-9.2	117
Testis	**19**	1.9	**7.4**	4.0-10.9	164
Brain	**19**	1.9	**6.5**	3.5-9.5	148
Lip	**16**	1.6	**5.0**	2.5-7.5	203
Myeloma	**13**	1.3	**4.4**	1.9-6.8	208
Skin (NMSC exc. SCC/BCC)	**12**	1.2	**4.0**	1.6-6.4	239
Mesothelioma	**11**	1.1	**3.5**	1.4-5.6	220
Myelodysplastic diseases	**10**	1.0	**3.1**	1.1-5.1	427
All cancers	**988**	100.0	**328.4**	308-349	3

Females

	Cases	%	ASR	95%c.i.	Risk
Breast	**205**	26.6	**74.5**	64.0-84.9	13
Melanoma (skin)	**97**	12.6	**36.5**	28.9-44.0	27
Colorectal	**72**	9.3	**22.3**	16.9-27.8	41
Colon	**54**	7.0	**16.2**	11.6-20.8	56
Rectum	**18**	2.3	**6.1**	3.2-9.1	154
Lung	**65**	8.4	**21.7**	16.2-27.3	44
Unknown primary	**37**	4.8	**11.1**	7.3-14.8	74
Uterus	**29**	3.8	**10.4**	6.5-14.3	68
Ovary	**29**	3.8	**9.7**	6.0-13.3	92
Lymphoma	**29**	3.8	**10.6**	6.5-14.6	87
Lymphoma NOS	**1**	0.1	**0.4**	0 - 1.1	2738
Hodgkin lymphoma	**7**	0.9	**3.2**	0.8-5.7	280
NHL	**21**	2.7	**7.0**	3.9-10.1	133
Leukaemia	**24**	3.1	**9.4**	5.3-13.4	138
Leukaemia NOS	**2**	0.3	**0.6**	0 - 1.5	1375
Lymphoid leukaemia	**10**	1.3	**4.4**	1.5-7.3	280
Myeloid leukaemia	**12**	1.6	**4.3**	1.6-7.1	337
Leukaemia, other	**0**				
Thyroid gland	**23**	3.0	**9.2**	5.4-13.0	117
Kidney	**20**	2.6	**6.9**	3.7-10.0	158
Cervix	**19**	2.5	**7.4**	3.9-10.8	140
Brain	**14**	1.8	**5.8**	2.7-8.9	133
Pancreas	**12**	1.6	**4.0**	1.6-6.4	178
Stomach	**9**	1.2	**2.5**	0.8-4.2	357
Gallbladder / bile ducts	**9**	1.2	**3.0**	1.0-5.1	240
Oesophagus	**8**	1.0	**2.7**	0.7-4.7	372
Myeloma	**8**	1.0	**2.7**	0.7-4.6	234
Lip	**6**	0.8	**2.3**	0.4-4.2	354
Skin (NMSC exc. SCC/BCC)	**6**	0.8	**1.8**	0.2-3.4	642
All cancers	**772**	100.0	**272.5**	253-293	4

Appendix 3D. Cancer incidence, Western Australia, 2003: Leading types by sex and geographic area

North Metro AHS

Males

	Cases	%	ASR	95%c.i.	Risk
Prostate	**510**	26.4	**94.0**	85.6-102	9
Melanoma (skin)	**276**	14.3	**52.3**	46.0-58.6	17
Colorectal	**250**	13.0	**45.0**	39.2-50.7	18
Colon	**151**	7.8	**26.4**	22.0-30.7	31
Rectum	**97**	5.0	**18.2**	14.5-21.9	43
Lung	**205**	10.6	**35.4**	30.3-40.4	24
Lymphoma	**83**	4.3	**15.5**	12.0-19.0	70
Lymphoma NOS	**0**				
Hodgkin lymphoma	**7**	0.4	**1.4**	0.3-2.6	739
NHL	**76**	3.9	**14.0**	10.7-17.3	77
Kidney	**60**	3.1	**11.8**	8.7-15.0	75
Bladder	**48**	2.5	**7.9**	5.6-10.2	121
Unknown primary	**48**	2.5	**8.8**	6.2-11.3	100
Leukaemia	**42**	2.2	**9.9**	6.6-13.1	117
Leukaemia NOS	**1**	0.1	**0.2**	0 - 0.5	0
Lymphoid leukaemia	**25**	1.3	**6.3**	3.6-9.0	206
Myeloid leukaemia	**15**	0.8	**3.2**	1.5-4.9	271
Leukaemia, other	**1**	0.1	**0.2**	0 - 0.5	0
Stomach	**39**	2.0	**6.5**	4.3-8.6	165
Oesophagus	**36**	1.9	**6.1**	4.0-8.2	161
Pancreas	**33**	1.7	**5.7**	3.7-7.7	141
Testis	**33**	1.7	**7.3**	4.8-9.9	178
Brain	**28**	1.5	**5.7**	3.5-8.0	165
Lip	**26**	1.3	**4.7**	2.8-6.5	187
Skin (NMSC exc. SCC/BCC)	**20**	1.0	**3.5**	1.9-5.1	302
Myelodysplastic diseases	**20**	1.0	**3.2**	1.7-4.7	283
Myeloma	**18**	0.9	**2.8**	1.5-4.2	338
Liver	**16**	0.8	**2.9**	1.4-4.3	296
Larynx	**16**	0.8	**2.9**	1.4-4.3	299
All cancers	**1930**	100.0	**355.4**	339-372	3

Females

	Cases	%	ASR	95%c.i.	Risk
Breast	**479**	30.4	**84.5**	76.7-92.4	11
Colorectal	**193**	12.2	**28.4**	24.0-32.7	31
Colon	**123**	7.8	**17.5**	14.1-20.9	51
Rectum	**70**	4.4	**10.9**	8.1-13.6	76
Melanoma (skin)	**157**	9.9	**27.5**	23.0-32.1	36
Lung	**117**	7.4	**16.8**	13.5-20.2	50
Lymphoma	**83**	5.3	**13.7**	10.5-16.9	67
Lymphoma NOS	**5**	0.3	**0.4**	0.0-0.9	6449
Hodgkin lymphoma	**6**	0.4	**1.2**	0.1-2.2	1500
NHL	**72**	4.6	**12.1**	9.1-15.1	71
Ovary	**55**	3.5	**8.9**	6.4-11.4	111
Unknown primary	**51**	3.2	**7.1**	4.9-9.2	127
Uterus	**47**	3.0	**7.8**	5.4-10.1	109
Thyroid gland	**41**	2.6	**8.1**	5.6-10.6	126
Kidney	**32**	2.0	**5.0**	3.2-6.8	154
Cervix	**30**	1.9	**5.1**	3.2-7.0	210
Pancreas	**28**	1.8	**4.0**	2.4-5.6	198
Leukaemia	**24**	1.5	**5.2**	2.8-7.7	225
Leukaemia NOS	**0**				
Lymphoid leukaemia	**13**	0.8	**3.3**	1.2-5.3	405
Myeloid leukaemia	**7**	0.4	**1.5**	0.3-2.7	595
Leukaemia, other	**4**	0.3	**0.4**	0 - 1.0	3305
Brain	**22**	1.4	**4.7**	2.6-6.8	214
Gallbladder / bile ducts	**21**	1.3	**2.5**	1.3-3.7	631
Myeloma	**20**	1.3	**2.9**	1.6-4.3	246
Bladder	**18**	1.1	**2.4**	1.2-3.6	322
Stomach	**17**	1.1	**2.7**	1.4-4.1	245
Vulva & vagina	**16**	1.0	**2.0**	0.9-3.1	390
Skin (NMSC exc. SCC/BCC)	**14**	0.9	**2.2**	1.0-3.4	490
All cancers	**1578**	100.0	**259.4**	246-273	4

South Metro AHS

Males

	Cases	%	ASR	95%c.i.	Risk
Prostate	**478**	25.5	**92.9**	84.3-101	9
Melanoma (skin)	**253**	13.5	**52.3**	45.7-59.0	18
Colorectal	**230**	12.3	**43.5**	37.7-49.3	21
Colon	**137**	7.3	**25.3**	20.9-29.7	36
Rectum	**93**	5.0	**18.2**	14.4-22.0	47
Lung	**213**	11.3	**38.1**	32.8-43.5	22
Lymphoma	**88**	4.7	**18.5**	14.5-22.5	48
Lymphoma NOS	**6**	0.3	**1.2**	0.2-2.3	1353
Hodgkin lymphoma	**8**	0.4	**2.2**	0.6-3.8	720
NHL	**74**	3.9	**15.1**	11.6-18.6	53
Unknown primary	**55**	2.9	**9.7**	7.0-12.3	99
Kidney	**47**	2.5	**9.3**	6.5-12.1	89
Bladder	**47**	2.5	**8.3**	5.8-10.7	134
Leukaemia	**46**	2.5	**9.9**	6.8-12.9	110
Leukaemia NOS	**2**	0.1	**0.3**	0 - 0.9	4926
Lymphoid leukaemia	**24**	1.3	**5.5**	3.1-7.8	212
Myeloid leukaemia	**12**	0.6	**2.6**	1.1-4.2	357
Leukaemia, other	**8**	0.4	**1.4**	0.4-2.5	715
Stomach	**45**	2.4	**8.8**	6.1-11.4	99
Lip	**40**	2.1	**8.1**	5.5-10.7	116
Pancreas	**38**	2.0	**7.3**	4.9-9.7	135
Mesothelioma	**30**	1.6	**5.9**	3.7-8.1	127
Brain	**27**	1.4	**6.3**	3.7-8.8	149
Oesophagus	**26**	1.4	**4.6**	2.8-6.5	208
Larynx	**21**	1.1	**4.0**	2.3-5.8	213
Testis	**21**	1.1	**5.9**	3.3-8.4	232
Skin (NMSC exc. SCC/BCC)	**19**	1.0	**3.9**	2.1-5.6	216
Myeloma	**17**	0.9	**3.0**	1.5-4.5	318
Liver	**16**	0.9	**3.6**	1.8-5.5	227
All cancers	**1877**	100.0	**368.9**	352-386	3

Females

	Cases	%	ASR	95%c.i.	Risk
Breast	**434**	28.9	**86.9**	78.4-95.3	10
Colorectal	**202**	13.4	**32.0**	27.2-36.9	28
Colon	**133**	8.8	**21.0**	17.1-24.9	42
Rectum	**66**	4.4	**10.5**	7.7-13.3	80
Melanoma (skin)	**149**	9.9	**30.0**	24.9-35.1	31
Lung	**119**	7.9	**19.2**	15.5-23.0	42
Lymphoma	**68**	4.5	**12.4**	9.2-15.6	80
Lymphoma NOS	**2**	0.1	**0.4**	0 - 1.0	2178
Hodgkin lymphoma	**5**	0.3	**1.5**	0.2-2.9	985
NHL	**61**	4.1	**10.5**	7.6-13.3	90
Unknown primary	**63**	4.2	**8.4**	6.0-10.7	121
Lip	**39**	2.6	**6.7**	4.4-9.0	143
Uterus	**38**	2.5	**6.9**	4.6-9.2	119
Ovary	**36**	2.4	**6.5**	4.2-8.8	149
Thyroid gland	**36**	2.4	**8.3**	5.5-11.1	136
Pancreas	**35**	2.3	**5.3**	3.4-7.3	157
Cervix	**33**	2.2	**7.3**	4.7-9.9	140
Leukaemia	**29**	1.9	**6.4**	3.6-9.1	164
Leukaemia NOS	**2**	0.1	**0.2**	0 - 0.4	0
Lymphoid leukaemia	**7**	0.5	**1.9**	0.2-3.6	563
Myeloid leukaemia	**18**	1.2	**4.1**	2.0-6.2	245
Leukaemia, other	**2**	0.1	**0.3**	0 - 0.7	3987
Kidney	**28**	1.9	**5.2**	3.2-7.3	162
Brain	**20**	1.3	**4.1**	2.2-6.0	199
Bladder	**18**	1.2	**2.2**	1.1-3.3	693
Myeloma	**16**	1.1	**2.9**	1.3-4.4	313
Oesophagus	**14**	0.9	**2.2**	1.0-3.4	305
Stomach	**14**	0.9	**1.7**	0.7-2.7	635
Myelodysplastic diseases	**14**	0.9	**1.2**	0.5-1.9	2616
All cancers	**1504**	100.0	**273.3**	258-288	4

Appendix 3D. Cancer incidence, Western Australia, 2003: Leading types by sex and geographic area

WA Metro - all

Males

	Cases	%	ASR	95%c.i.	Risk
Prostate	**988**	26.0	**93.4**	87.4-99.4	9
Melanoma (skin)	**529**	13.9	**52.3**	47.7-56.8	18
Colorectal	**480**	12.6	**44.2**	40.1-48.3	19
Colon	**288**	7.6	**25.8**	22.7-28.9	33
Rectum	**190**	5.0	**18.2**	15.5-20.9	45
Lung	**418**	11.0	**36.7**	33.1-40.4	23
Lymphoma	**171**	4.5	**16.9**	14.2-19.5	57
Lymphoma NOS	**6**	0.2	**0.6**	0.1-1.1	2898
Hodgkin lymphoma	**15**	0.4	**1.8**	0.8-2.7	741
NHL	**150**	3.9	**14.5**	12.1-17.0	63
Kidney	**107**	2.8	**10.7**	8.5-12.8	81
Unknown primary	**103**	2.7	**9.2**	7.4-11.1	99
Bladder	**95**	2.5	**8.0**	6.4-9.7	127
Leukaemia	**88**	2.3	**9.9**	7.7-12.1	114
Leukaemia NOS	**3**	0.1	**0.2**	0 - 0.5	10806
Lymphoid leukaemia	**49**	1.3	**5.9**	4.1-7.8	209
Myeloid leukaemia	**27**	0.7	**2.9**	1.8-4.1	309
Leukaemia, other	**9**	0.2	**0.8**	0.2-1.3	1462
Stomach	**84**	2.2	**7.6**	5.9-9.3	125
Pancreas	**71**	1.9	**6.4**	4.9-8.0	139
Lip	**66**	1.7	**6.3**	4.7-7.9	145
Oesophagus	**62**	1.6	**5.4**	4.0-6.8	181
Brain	**55**	1.4	**6.0**	4.3-7.6	157
Testis	**54**	1.4	**6.7**	4.9-8.5	199
Mesothelioma	**45**	1.2	**4.2**	2.9-5.5	189
Skin (NMSC exc. SCC/BCC)	**39**	1.0	**3.7**	2.5-4.9	253
Larynx	**37**	1.0	**3.4**	2.3-4.5	251
Myeloma	**35**	0.9	**2.9**	1.9-3.9	327
Myelodysplastic diseases	**34**	0.9	**2.8**	1.8-3.8	343
All cancers	**3807**	100.0	**361.8**	350-374	3

Females

	Cases	%	ASR	95%c.i.	Risk
Breast	**913**	29.6	**85.6**	79.9-91.4	11
Colorectal	**395**	12.8	**30.1**	26.9-33.4	29
Colon	**256**	8.3	**19.2**	16.6-21.8	46
Rectum	**136**	4.4	**10.7**	8.8-12.7	78
Melanoma (skin)	**306**	9.9	**28.8**	25.4-32.2	33
Lung	**236**	7.7	**18.0**	15.5-20.5	46
Lymphoma	**151**	4.9	**13.1**	10.8-15.3	73
Lymphoma NOS	**7**	0.2	**0.4**	0.1-0.8	3369
Hodgkin lymphoma	**11**	0.4	**1.3**	0.5-2.2	1206
NHL	**133**	4.3	**11.3**	9.2-13.4	79
Unknown primary	**114**	3.7	**7.7**	6.1-9.3	124
Ovary	**91**	3.0	**7.8**	6.1-9.5	126
Uterus	**85**	2.8	**7.4**	5.7-9.0	113
Thyroid gland	**77**	2.5	**8.2**	6.3-10.1	131
Pancreas	**63**	2.0	**4.6**	3.4-5.9	176
Cervix	**63**	2.0	**6.1**	4.5-7.7	170
Kidney	**60**	1.9	**5.1**	3.7-6.4	159
Leukaemia	**53**	1.7	**5.8**	3.9-7.6	191
Leukaemia NOS	**2**	0.1	**0.1**	0 - 0.2	0
Lymphoid leukaemia	**20**	0.6	**2.6**	1.3-4.0	463
Myeloid leukaemia	**25**	0.8	**2.7**	1.5-3.9	355
Leukaemia, other	**6**	0.2	**0.4**	0.0-0.7	3652
Lip	**52**	1.7	**4.4**	3.1-5.7	207
Brain	**42**	1.4	**4.4**	3.0-5.9	205
Bladder	**36**	1.2	**2.3**	1.5-3.1	439
Myeloma	**36**	1.2	**2.9**	1.9-3.9	277
Stomach	**31**	1.0	**2.3**	1.4-3.1	348
Gallbladder / bile ducts	**31**	1.0	**1.9**	1.1-2.6	826
Vulva & vagina	**28**	0.9	**2.3**	1.3-3.2	388
All cancers	**3082**	100.0	**266.1**	256-276	4

All Western Australia

Males

	Cases	%	ASR	95%c.i.	Risk
Prostate	**1230**	25.6	**90.2**	85.0-95.4	9
Melanoma (skin)	**650**	13.6	**49.4**	45.5-53.3	19
Colorectal	**621**	12.9	**44.8**	41.2-48.4	19
Colon	**363**	7.6	**25.6**	22.9-28.3	33
Rectum	**256**	5.3	**19.0**	16.7-21.4	42
Lung	**503**	10.5	**34.5**	31.4-37.7	24
Lymphoma	**198**	4.1	**15.2**	13.0-17.4	65
Lymphoma NOS	**7**	0.1	**0.5**	0.1-0.9	3793
Hodgkin lymphoma	**19**	0.4	**1.7**	0.9-2.5	770
NHL	**172**	3.6	**13.0**	11.0-15.0	72
Unknown primary	**134**	2.8	**9.6**	7.9-11.3	94
Kidney	**133**	2.8	**10.0**	8.2-11.8	85
Bladder	**131**	2.7	**8.8**	7.2-10.3	111
Leukaemia	**110**	2.3	**9.6**	7.7-11.6	118
Leukaemia NOS	**3**	0.1	**0.2**	0 - 0.4	14514
Lymphoid leukaemia	**57**	1.2	**5.3**	3.8-6.8	228
Myeloid leukaemia	**38**	0.8	**3.3**	2.2-4.4	294
Leukaemia, other	**12**	0.3	**0.8**	0.3-1.3	1550
Stomach	**104**	2.2	**7.3**	5.8-8.7	127
Pancreas	**91**	1.9	**6.4**	5.0-7.8	134
Oesophagus	**85**	1.8	**6.0**	4.7-7.3	151
Lip	**82**	1.7	**6.0**	4.7-7.3	155
Brain	**74**	1.5	**6.1**	4.6-7.5	155
Testis	**73**	1.5	**6.8**	5.2-8.4	190
Mesothelioma	**56**	1.2	**4.0**	3.0-5.1	195
Skin (NMSC exc. SCC/BCC)	**51**	1.1	**3.7**	2.7-4.8	250
Myeloma	**48**	1.0	**3.3**	2.3-4.2	288
Larynx	**46**	1.0	**3.3**	2.4-4.3	251
Myelodysplastic diseases	**44**	0.9	**2.9**	2.0-3.8	359
All cancers	**4796**	100.0	**354.3**	344-365	3

Females

	Cases	%	ASR	95%c.i.	Risk
Breast	**1119**	29.0	**83.4**	78.4-88.5	11
Colorectal	**467**	12.1	**28.5**	25.7-31.4	31
Colon	**310**	8.0	**18.5**	16.3-20.8	48
Rectum	**154**	4.0	**9.8**	8.1-11.5	87
Melanoma (skin)	**403**	10.4	**30.5**	27.3-33.6	32
Lung	**301**	7.8	**18.8**	16.5-21.1	45
Lymphoma	**180**	4.7	**12.5**	10.6-14.5	75
Lymphoma NOS	**8**	0.2	**0.4**	0.1-0.7	3232
Hodgkin lymphoma	**18**	0.5	**1.7**	0.9-2.5	731
NHL	**154**	4.0	**10.4**	8.7-12.2	86
Unknown primary	**151**	3.9	**8.4**	6.9-9.8	109
Ovary	**120**	3.1	**8.2**	6.6-9.7	117
Uterus	**114**	3.0	**8.0**	6.4-9.5	100
Thyroid gland	**100**	2.6	**8.4**	6.7-10.1	127
Cervix	**82**	2.1	**6.4**	4.9-7.8	163
Kidney	**80**	2.1	**5.5**	4.2-6.8	158
Leukaemia	**77**	2.0	**6.5**	4.8-8.1	176
Leukaemia NOS	**4**	0.1	**0.2**	0 - 0.4	6716
Lymphoid leukaemia	**30**	0.8	**3.1**	1.8-4.3	401
Myeloid leukaemia	**37**	1.0	**3.0**	1.9-4.0	354
Leukaemia, other	**6**	0.2	**0.3**	0.0-0.6	4631
Pancreas	**75**	1.9	**4.5**	3.4-5.6	176
Lip	**58**	1.5	**4.0**	2.9-5.1	226
Brain	**56**	1.5	**4.7**	3.4-6.0	185
Myeloma	**44**	1.1	**2.8**	1.9-3.7	268
Bladder	**41**	1.1	**2.2**	1.5-3.0	469
Stomach	**40**	1.0	**2.3**	1.5-3.1	350
Gallbladder / bile ducts	**40**	1.0	**2.1**	1.4-2.8	555
All cancers	**3857**	100.0	**267.9**	259-277	4

Appendix 3E. Cancer mortality, Western Australia, 2003: Leading types by sex and geographic area

CHS Kimberley Region

Males

	Deaths	%	ASR	95%c.i.	Risk
Colorectal	**5**	26.3	**35.5**	4.1-66.9	28
Colon	**3**	15.8	**22.5**	0 - 47.9	51
Rectum	**2**	10.5	**13.0**	0 - 31.5	62
Lung	**5**	26.3	**39.5**	4.3-74.7	17
Oesophagus	**2**	10.5	**18.2**	0 - 43.5	60
Brain	**2**	10.5	**10.4**	0 - 24.8	105
Small intestine	**1**	5.3	**5.2**	0 - 15.3	155
Liver	**1**	5.3	**6.9**	0 - 20.4	*
Skin (not melanoma)	**1**	5.3	**8.5**	0 - 25.3	47
Kidney	**1**	5.3	**7.9**	0 - 23.2	102
Unknown primary	**1**	5.3	**8.2**	0 - 24.1	*
All cancer deaths	**19**	100.0	**140.3**	76.3-204	7

Females

	Deaths	%	ASR	95%c.i.	Risk
Breast	**4**	25.0	**33.7**	0 - 67.9	40
Unknown primary	**3**	18.8	**33.7**	0 - 72.0	20
Colorectal	**2**	12.5	**9.9**	0 - 23.6	122
Colon	**2**	12.5	**9.9**	0 - 23.6	122
Rectum	**0**				-
Tonsil / oropharynx	**1**	6.3	**7.2**	0 - 21.4	111
Lung	**1**	6.3	**6.5**	0 - 19.2	155
Uterus	**1**	6.3	**6.5**	0 - 19.2	155
Ovary	**1**	6.3	**12.4**	0 - 36.7	33
Bladder	**1**	6.3	**7.2**	0 - 21.4	111
Lymphoma	**1**	6.3	**3.7**	0 - 10.9	327
Leukaemia	**1**	6.3	**6.5**	0 - 19.2	155
All cancer deaths	**16**	100.0	**127.3**	61.4-193	7

CHS Pilbara-Gascoyne Region

Males

	Deaths	%	ASR	95%c.i.	Risk
Lung	**8**	44.4	**49.0**	13.6-84.3	12
Stomach	**2**	11.1	**6.1**	0 - 14.4	147
Liver	**1**	5.6	**3.2**	0 - 9.4	252
Nasal cavity & sinuses	**1**	5.6	**2.8**	0 - 8.4	422
Mesothelioma	**1**	5.6	**3.2**	0 - 9.4	252
Prostate	**1**	5.6	**7.0**	0 - 20.7	58
Bladder	**1**	5.6	**3.2**	0 - 9.4	252
Thyroid gland	**1**	5.6	**7.0**	0 - 20.7	58
Unknown primary	**1**	5.6	**7.0**	0 - 20.7	58
Lymphoma	**1**	5.6	**7.0**	0 - 20.7	58
Lymphoma NOS	**0**				-
Hodgkin lymphoma	**0**				-
NHL	**1**	5.6	**7.0**	0 - 20.7	58
Myelodysplastic diseases	**1**	5.6	**7.2**	0 - 21.3	*
All cancer deaths	**18**	100.0	**95.5**	48.6-142	6

Females

	Deaths	%	ASR	95%c.i.	Risk
Unknown primary	**5**	25.0	**37.0**	4.2-69.7	26
Breast	**3**	15.0	**14.3**	0 - 30.8	375
Lymphoma	**3**	15.0	**14.1**	0 - 32.4	66
Lymphoma NOS	**0**				-
Hodgkin lymphoma	**0**				-
NHL	**3**	15.0	**14.1**	0 - 32.4	66
Lung	**2**	10.0	**13.6**	0 - 33.0	59
Colorectal	**1**	5.0	**3.9**	0 - 11.5	258
Colon	**0**				-
Rectum	**1**	5.0	**3.9**	0 - 11.5	258
Tongue	**1**	5.0	**8.7**	0 - 25.8	46
Pancreas	**1**	5.0	**3.8**	0 - 11.4	313
Bone	**1**	5.0	**2.5**	0 - 7.5	471
Uterus	**1**	5.0	**5.2**	0 - 15.5	153
Kidney	**1**	5.0	**10.1**	0 - 30.0	60
Brain	**1**	5.0	**4.6**	0 - 13.7	432
All cancer deaths	**20**	100.0	**118.1**	62.8-173	8

CHS Midwest-Murchison Region

Males

	Deaths	%	ASR	95%c.i.	Risk
Lung	**9**	18.8	**23.5**	7.9-39.1	32
Melanoma (skin)	**6**	12.5	**18.0**	3.6-32.4	52
Colorectal	**5**	10.4	**14.8**	1.8-27.9	42
Colon	**1**	2.1	**2.6**	0 - 7.6	156
Rectum	**4**	8.3	**12.3**	0.2-24.3	56
Oesophagus	**4**	8.3	**10.3**	0.1-20.5	88
Prostate	**3**	6.3	**8.4**	0 - 18.1	107
Leukaemia	**3**	6.3	**7.5**	0 - 16.2	88
Leukaemia NOS	**0**				-
Lymphoid leukaemia	**1**	2.1	**3.0**	0 - 9.0	198
Myeloid leukaemia	**2**	4.2	**4.5**	0 - 10.7	156
Leukaemia, other	**0**				-
All cancer deaths	**48**	100.0	**131.3**	93.4-169	7

Females

	Deaths	%	ASR	95%c.i.	Risk
Breast	**8**	22.9	**22.7**	6.3-39.1	52
Lung	**6**	17.1	**14.1**	1.9-26.3	130
Colorectal	**2**	5.7	**5.5**	0 - 13.5	339
Colon	**2**	5.7	**5.5**	0 - 13.5	339
Rectum	**0**				-
Cervix	**2**	5.7	**6.7**	0 - 16.0	85
Brain	**2**	5.7	**5.7**	0 - 13.6	71
Leukaemia	**2**	5.7	**4.9**	0 - 12.0	371
Leukaemia NOS	**1**	2.9	**1.7**	0 - 4.9	*
Lymphoid leukaemia	**0**				-
Myeloid leukaemia	**1**	2.9	**3.2**	0 - 9.6	371
Leukaemia, other	**0**				-
All cancer deaths	**35**	100.0	**95.3**	61.7-129	11

Appendix 3E. Cancer mortality, Western Australia, 2003: Leading types by sex and geographic area

CHS Wheatbelt Region

Males

	Deaths	%	ASR	95%c.i.	Risk
Lung	**12**	17.4	**19.5**	8.3-30.7	41
Colorectal	**10**	14.5	**16.2**	6.0-26.4	60
Colon	**6**	8.7	**10.4**	2.0-18.7	83
Rectum	**4**	5.8	**5.9**	0 - 11.7	208
Prostate	**9**	13.0	**13.7**	4.6-22.7	78
Brain	**8**	11.6	**14.2**	3.6-24.7	58
Bladder	**6**	8.7	**9.1**	1.7-16.5	96
Oesophagus	**3**	4.3	**5.5**	0 - 11.7	110
Stomach	**3**	4.3	**4.8**	0 - 10.3	124
Melanoma (skin)	**3**	4.3	**5.2**	0 - 11.0	148
Pancreas	**2**	2.9	**3.4**	0 - 8.2	141
Skin (not melanoma)	**2**	2.9	**2.7**	0 - 6.5	248
Mesothelioma	**2**	2.9	**2.7**	0 - 6.5	248
Unknown primary	**2**	2.9	**2.9**	0 - 6.9	563
Lymphoma	**2**	2.9	**4.5**	0 - 11.5	587
All cancer deaths	**69**	100.0	**113.2**	85.7-141	8

Females

	Deaths	%	ASR	95%c.i.	Risk
Lung	**7**	14.6	**11.5**	2.7-20.3	65
Breast	**7**	14.6	**11.9**	2.6-21.2	71
Unknown primary	**5**	10.4	**6.8**	0.3-13.3	135
Pancreas	**4**	8.3	**5.7**	0 - 11.8	183
Ovary	**4**	8.3	**4.2**	0 - 8.6	458
Colorectal	**3**	6.3	**4.2**	0 - 9.3	359
Colon	**3**	6.3	**4.2**	0 - 9.3	359
Rectum	**0**				-
Brain	**3**	6.3	**5.1**	0 - 11.1	201
Myeloma	**3**	6.3	**2.4**	0 - 5.2	*
Stomach	**2**	4.2	**4.1**	0 - 9.8	135
Lymphoma	**2**	4.2	**3.7**	0 - 8.8	109
Lymphoma NOS	**0**				-
Hodgkin lymphoma	**0**				-
NHL	**2**	4.2	**3.7**	0 - 8.8	109
All cancer deaths	**48**	100.0	**67.2**	46.8-87.6	15

CHS Goldfields-SE Coastal Region

Males

	Deaths	%	ASR	95%c.i.	Risk
Lung	**13**	31.7	**47.7**	21.3-74.1	19
Prostate	**6**	14.6	**22.7**	4.4-41.0	59
Colorectal	**5**	12.2	**18.6**	2.3-35.0	134
Colon	**2**	4.9	**7.2**	0 - 17.2	*
Rectum	**3**	7.3	**11.4**	0 - 24.4	134
Unknown primary	**4**	9.8	**16.0**	0.1-31.9	41
Bladder	**2**	4.9	**6.3**	0 - 15.0	359
Tongue	**1**	2.4	**2.9**	0 - 8.6	412
Palate	**1**	2.4	**4.8**	0 - 14.1	85
Oesophagus	**1**	2.4	**4.2**	0 - 12.3	193
Stomach	**1**	2.4	**3.1**	0 - 9.1	*
Anus	**1**	2.4	**4.8**	0 - 14.1	85
Pancreas	**1**	2.4	**4.8**	0 - 14.1	85
Larynx	**1**	2.4	**2.9**	0 - 8.6	412
Melanoma (skin)	**1**	2.4	**4.5**	0 - 13.3	134
Kidney	**1**	2.4	**4.2**	0 - 12.3	193
Leukaemia	**1**	2.4	**2.9**	0 - 8.6	412
All cancer deaths	**41**	100.0	**154.7**	107-203	6

Females

	Deaths	%	ASR	95%c.i.	Risk
Lung	**8**	25.0	**31.4**	8.4-54.4	35
Breast	**6**	18.8	**20.3**	3.1-37.6	48
Pancreas	**3**	9.4	**11.2**	0 - 24.8	78
Colorectal	**2**	6.3	**10.3**	0 - 24.6	48
Colon	**1**	3.1	**4.7**	0 - 13.8	86
Rectum	**1**	3.1	**5.6**	0 - 16.7	107
Oesophagus	**2**	6.3	**7.7**	0 - 19.4	142
Stomach	**2**	6.3	**4.2**	0 - 9.9	*
Unknown primary	**2**	6.3	**7.6**	0 - 18.4	86
Leukaemia	**2**	6.3	**4.9**	0 - 11.7	443
Leukaemia NOS	**0**				-
Lymphoid leukaemia	**1**	3.1	**2.2**	0 - 6.4	*
Myeloid leukaemia	**1**	3.1	**2.7**	0 - 8.0	443
Leukaemia, other	**0**				-
All cancer deaths	**32**	100.0	**115.7**	72.9-158	8

CHS Great Southern Region

Males

	Deaths	%	ASR	95%c.i.	Risk
Lung	**11**	17.7	**20.6**	7.9-33.4	51
Prostate	**8**	12.9	**14.1**	4.2-24.0	64
Colorectal	**7**	11.3	**13.7**	3.0-24.3	110
Colon	**3**	4.8	**5.1**	0 - 11.3	240
Rectum	**4**	6.5	**8.5**	0 - 17.2	201
Oesophagus	**4**	6.5	**8.3**	0 - 16.7	80
Pancreas	**4**	6.5	**7.3**	0 - 14.7	106
Kidney	**4**	6.5	**7.0**	0 - 14.0	326
Unknown primary	**4**	6.5	**9.1**	0.0-18.2	84
Myeloma	**4**	6.5	**8.2**	0 - 16.4	176
Bladder	**3**	4.8	**5.4**	0 - 11.5	190
Brain	**3**	4.8	**6.2**	0 - 13.7	113
Leukaemia	**3**	4.8	**5.8**	0 - 12.7	275
Leukaemia NOS	**0**				-
Lymphoid leukaemia	**0**				-
Myeloid leukaemia	**2**	3.2	**2.9**	0 - 6.8	*
Leukaemia, other	**1**	1.6	**2.9**	0 - 8.6	275
All cancer deaths	**62**	100.0	**121.7**	90.0-153	9

Females

	Deaths	%	ASR	95%c.i.	Risk
Colorectal	**7**	13.7	**9.4**	1.6-17.2	105
Colon	**5**	9.8	**6.4**	0.0-12.9	224
Rectum	**2**	3.9	**3.0**	0 - 7.4	197
Lung	**5**	9.8	**12.1**	1.1-23.0	74
Breast	**5**	9.8	**11.0**	0.8-21.1	118
Unknown primary	**5**	9.8	**8.8**	0.4-17.2	73
Leukaemia	**5**	9.8	**7.5**	0.2-14.7	276
Leukaemia NOS	**0**				-
Lymphoid leukaemia	**3**	5.9	**3.2**	0 - 7.0	*
Myeloid leukaemia	**2**	3.9	**4.2**	0 - 10.4	276
Leukaemia, other	**0**				-
Pancreas	**4**	7.8	**8.9**	0 - 18.0	76
Stomach	**3**	5.9	**6.2**	0 - 13.8	112
Melanoma (skin)	**3**	5.9	**9.4**	0 - 20.0	111
All cancer deaths	**51**	100.0	**97.4**	68.1-127	10

Appendix 3E. Cancer mortality, Western Australia, 2003: Leading types by sex and geographic area

South West AHS

Males

	Deaths	%	ASR	95%c.i.	Risk
Lung	**28**	19.4	**26.0**	16.0-36.0	34
Colorectal	**20**	13.9	**20.4**	11.2-29.6	44
Colon	**12**	8.3	**12.2**	5.1-19.4	76
Rectum	**8**	5.6	**8.2**	2.4-14.0	102
Prostate	**20**	13.9	**17.6**	9.6-25.6	52
Bladder	**9**	6.3	**7.5**	2.4-12.6	184
Lymphoma	**9**	6.3	**6.7**	2.1-11.4	473
Lymphoma NOS	**2**	1.4	**1.3**	0 - 3.1	*
Hodgkin lymphoma	**0**				-
NHL	**7**	4.9	**5.5**	1.2-9.7	473
Leukaemia	**9**	6.3	**10.3**	3.3-17.4	102
Leukaemia NOS	**0**				-
Lymphoid leukaemia	**4**	2.8	**5.3**	0 - 10.8	248
Myeloid leukaemia	**5**	3.5	**5.0**	0.6-9.5	174
Leukaemia, other	**0**				-
Brain	**7**	4.9	**7.3**	1.8-12.8	103
Myeloma	**6**	4.2	**5.4**	0.9-9.8	379
Stomach	**5**	3.5	**3.9**	0.4-7.4	200
Unknown primary	**5**	3.5	**4.4**	0.3-8.4	240
Oesophagus	**4**	2.8	**3.5**	0 - 7.0	217
Mesothelioma	**4**	2.8	**3.7**	0 - 7.4	217
Pancreas	**3**	2.1	**3.2**	0 - 6.7	168
Kidney	**3**	2.1	**2.2**	0 - 4.8	400
Myelodysplastic diseases	**3**	2.1	**3.1**	0 - 6.7	281
All cancer deaths	**144**	100.0	**134.5**	112-157	7

Females

	Deaths	%	ASR	95%c.i.	Risk
Lung	**22**	21.6	**20.0**	11.1-29.0	36
Colorectal	**15**	14.7	**10.8**	4.9-16.7	96
Colon	**11**	10.8	**7.6**	2.7-12.5	141
Rectum	**4**	3.9	**3.2**	0 - 6.5	296
Breast	**13**	12.7	**11.1**	4.4-17.8	107
Pancreas	**6**	5.9	**5.0**	0.7-9.4	216
Unknown primary	**6**	5.9	**2.9**	0.6-5.3	*
Skin (not melanoma)	**5**	4.9	**2.8**	0.2-5.5	404
Oesophagus	**4**	3.9	**3.3**	0 - 6.8	219
Melanoma (skin)	**4**	3.9	**3.4**	0 - 7.0	239
Kidney	**4**	3.9	**2.6**	0 - 5.2	404
Ovary	**3**	2.9	**2.9**	0 - 6.4	239
Lymphoma	**3**	2.9	**2.3**	0 - 5.2	478
Lymphoma NOS	**0**				-
Hodgkin lymphoma	**0**				-
NHL	**3**	2.9	**2.3**	0 - 5.2	478
Leukaemia	**3**	2.9	**3.7**	0 - 8.5	297
Leukaemia NOS	**0**				-
Lymphoid leukaemia	**1**	1.0	**2.1**	0 - 6.1	781
Myeloid leukaemia	**2**	2.0	**1.7**	0 - 4.3	478
Leukaemia, other	**0**				-
All cancer deaths	**102**	100.0	**86.2**	67.7-105	11

WA Country - all

Males

	Deaths	%	ASR	95%c.i.	Risk
Lung	**86**	21.4	**27.4**	21.5-33.4	30
Colorectal	**52**	13.0	**16.8**	12.1-21.5	57
Colon	**27**	6.7	**8.7**	5.3-12.0	110
Rectum	**25**	6.2	**8.1**	4.9-11.4	119
Prostate	**47**	11.7	**14.3**	10.1-18.4	67
Bladder	**23**	5.7	**6.7**	3.9-9.5	182
Brain	**22**	5.5	**7.3**	4.2-10.4	106
Oesophagus	**18**	4.5	**6.0**	3.2-8.8	124
Unknown primary	**18**	4.5	**5.7**	3.0-8.4	156
Leukaemia	**17**	4.2	**5.7**	2.9-8.5	173
Leukaemia NOS	**0**				-
Lymphoid leukaemia	**6**	1.5	**2.3**	0.4-4.1	476
Myeloid leukaemia	**10**	2.5	**3.0**	1.1-4.9	316
Leukaemia, other	**1**	0.2	**0.4**	0 - 1.2	1962
Lymphoma	**15**	3.7	**4.6**	2.1-7.0	402
Lymphoma NOS	**2**	0.5	**0.5**	0 - 1.1	*
Hodgkin lymphoma	**0**				-
NHL	**13**	3.2	**4.1**	1.7-6.5	402
Stomach	**14**	3.5	**4.1**	2.0-6.3	214
Melanoma (skin)	**13**	3.2	**4.6**	2.1-7.2	169
Pancreas	**12**	3.0	**3.7**	1.6-5.9	171
Kidney	**12**	3.0	**3.5**	1.5-5.5	323
Myeloma	**12**	3.0	**3.7**	1.6-5.8	332
Mesothelioma	**8**	2.0	**2.4**	0.7-4.1	365
Larynx	**5**	1.2	**1.4**	0.1-2.7	1251
Myelodysplastic diseases	**5**	1.2	**1.5**	0.2-2.8	895
Tongue	**4**	1.0	**1.4**	0.0-2.7	572
Liver	**4**	1.0	**1.3**	0.0-2.5	785
Skin (not melanoma)	**4**	1.0	**1.1**	0 - 2.2	591
All cancer deaths	**401**	100.0	**127.3**	115-140	7

Females

	Deaths	%	ASR	95%c.i.	Risk
Lung	**51**	16.8	**16.4**	11.6-21.1	51
Breast	**46**	15.1	**14.1**	9.7-18.4	80
Colorectal	**32**	10.5	**8.8**	5.6-12.0	115
Colon	**24**	7.9	**6.3**	3.6-9.0	180
Rectum	**8**	2.6	**2.5**	0.7-4.3	316
Unknown primary	**27**	8.9	**7.4**	4.4-10.4	122
Pancreas	**19**	6.3	**6.1**	3.2-9.0	144
Leukaemia	**14**	4.6	**4.0**	1.7-6.2	386
Leukaemia NOS	**1**	0.3	**0.2**	0 - 0.5	*
Lymphoid leukaemia	**6**	2.0	**1.6**	0.2-3.1	1411
Myeloid leukaemia	**7**	2.3	**2.1**	0.4-3.8	530
Leukaemia, other	**0**				-
Ovary	**11**	3.6	**3.2**	1.2-5.3	234
Stomach	**10**	3.3	**3.4**	1.1-5.7	240
Brain	**10**	3.3	**3.8**	1.3-6.2	190
Lymphoma	**10**	3.3	**3.4**	1.2-5.6	207
Lymphoma NOS	**0**				-
Hodgkin lymphoma	**0**				-
NHL	**10**	3.3	**3.4**	1.2-5.6	207
Melanoma (skin)	**9**	3.0	**2.8**	0.9-4.7	382
Oesophagus	**7**	2.3	**2.0**	0.4-3.6	456
Uterus	**7**	2.3	**2.1**	0.4-3.7	546
Skin (not melanoma)	**6**	2.0	**1.2**	0.2-2.2	1120
Cervix	**6**	2.0	**2.0**	0.3-3.7	416
Kidney	**6**	2.0	**1.8**	0.3-3.2	398
Myeloma	**6**	2.0	**1.1**	0.2-2.0	*
Bone	**4**	1.3	**1.8**	0 - 3.6	968
All cancer deaths	**304**	100.0	**92.0**	81.0-103	11

Appendix 3E. Cancer mortality, Western Australia, 2003: Leading types by sex and geographic area

North Metro AHS

Males

	Deaths	%	ASR	95%c.i.	Risk
Lung	**176**	24.1	**28.8**	24.4-33.3	33
Colorectal	**111**	15.2	**18.8**	15.2-22.5	51
Colon	**71**	9.7	**12.0**	9.1-14.9	78
Rectum	**40**	5.5	**6.9**	4.7-9.1	146
Prostate	**74**	10.1	**10.5**	8.0-12.9	208
Lymphoma	**36**	4.9	**5.7**	3.7-7.6	222
Lymphoma NOS	**1**	0.1	**0.2**	0 - 0.7	3377
Hodgkin lymphoma	**1**	0.1	**0.2**	0 - 0.7	3377
NHL	**34**	4.7	**5.2**	3.4-7.0	256
Melanoma (skin)	**30**	4.1	**5.4**	3.4-7.4	161
Unknown primary	**29**	4.0	**5.2**	3.3-7.2	181
Oesophagus	**28**	3.8	**4.6**	2.9-6.4	198
Stomach	**28**	3.8	**4.5**	2.8-6.2	217
Pancreas	**26**	3.6	**4.3**	2.6-6.0	203
Leukaemia	**25**	3.4	**4.2**	2.5-5.9	260
Leukaemia NOS	**2**	0.3	**0.4**	0 - 1.0	3377
Lymphoid leukaemia	**8**	1.1	**1.4**	0.4-2.4	781
Myeloid leukaemia	**13**	1.8	**2.1**	0.9-3.3	439
Leukaemia, other	**2**	0.3	**0.3**	0 - 0.6	*
Mesothelioma	**22**	3.0	**3.6**	2.0-5.2	302
Brain	**21**	2.9	**4.2**	2.3-6.0	200
Myeloma	**20**	2.7	**3.4**	1.9-4.9	285
Liver	**19**	2.6	**3.0**	1.6-4.5	295
Kidney	**14**	1.9	**2.6**	1.2-3.9	317
Bladder	**14**	1.9	**2.1**	1.0-3.2	966
Gallbladder / bile ducts	**10**	1.4	**1.8**	0.6-2.9	404
Myelodysplastic diseases	**9**	1.2	**1.1**	0.4-1.9	1460
Skin (not melanoma)	**8**	1.1	**1.5**	0.4-2.6	540
Tongue	**6**	0.8	**1.3**	0.3-2.4	614
All cancer deaths	**731**	100.0	**121.6**	112-131	9

Females

	Deaths	%	ASR	95%c.i.	Risk
Breast	**108**	18.4	**16.1**	12.8-19.4	60
Lung	**93**	15.8	**12.7**	9.9-15.6	69
Colorectal	**86**	14.6	**10.6**	8.1-13.1	92
Colon	**58**	9.9	**6.9**	4.9-8.9	165
Rectum	**28**	4.8	**3.7**	2.2-5.1	207
Pancreas	**36**	6.1	**5.0**	3.2-6.7	185
Unknown primary	**34**	5.8	**4.6**	2.9-6.3	166
Ovary	**29**	4.9	**3.9**	2.3-5.5	247
Leukaemia	**21**	3.6	**2.7**	1.4-4.0	346
Leukaemia NOS	**0**				-
Lymphoid leukaemia	**7**	1.2	**1.0**	0.2-1.8	1005
Myeloid leukaemia	**10**	1.7	**1.5**	0.5-2.4	526
Leukaemia, other	**4**	0.7	**0.3**	0.0-0.5	*
Lymphoma	**18**	3.1	**2.2**	1.1-3.4	531
Lymphoma NOS	**4**	0.7	**0.4**	0 - 0.8	6449
Hodgkin lymphoma	**0**				-
NHL	**14**	2.4	**1.8**	0.8-2.9	578
Gallbladder / bile ducts	**16**	2.7	**1.9**	0.8-2.9	833
Brain	**15**	2.6	**2.6**	1.1-4.2	416
Myeloma	**14**	2.4	**1.7**	0.7-2.7	520
Kidney	**13**	2.2	**2.1**	0.9-3.4	299
Uterus	**12**	2.0	**1.2**	0.4-1.9	2084
Oesophagus	**11**	1.9	**1.3**	0.4-2.2	683
Stomach	**11**	1.9	**1.8**	0.7-3.0	364
Bladder	**11**	1.9	**1.0**	0.4-1.6	6077
Melanoma (skin)	**8**	1.4	**1.4**	0.4-2.4	605
Cervix	**7**	1.2	**0.9**	0.2-1.7	834
Myelodysplastic diseases	**7**	1.2	**0.8**	0.1-1.4	1257
Mesothelioma	**6**	1.0	**0.6**	0.1-1.1	5641
All cancer deaths	**588**	100.0	**80.3**	73.1-87.6	12

South Metro AHS

Males

	Deaths	%	ASR	95%c.i.	Risk
Lung	**166**	23.6	**31.1**	26.2-35.9	26
Colorectal	**95**	13.5	**16.3**	12.9-19.7	55
Colon	**61**	8.7	**10.0**	7.4-12.6	122
Rectum	**34**	4.8	**6.3**	4.1-8.5	101
Prostate	**81**	11.5	**13.2**	10.2-16.2	98
Unknown primary	**47**	6.7	**8.3**	5.8-10.8	107
Pancreas	**36**	5.1	**7.1**	4.7-9.5	107
Mesothelioma	**28**	4.0	**5.2**	3.2-7.2	155
Lymphoma	**28**	4.0	**5.5**	3.4-7.5	159
Lymphoma NOS	**0**				-
Hodgkin lymphoma	**0**				-
NHL	**28**	4.0	**5.5**	3.4-7.5	159
Stomach	**25**	3.6	**4.6**	2.7-6.5	193
Brain	**25**	3.6	**5.0**	3.0-7.0	152
Oesophagus	**22**	3.1	**3.7**	2.1-5.4	223
Leukaemia	**21**	3.0	**3.9**	2.2-5.7	264
Leukaemia NOS	**1**	0.1	**0.1**	0 - 0.3	*
Lymphoid leukaemia	**8**	1.1	**1.5**	0.4-2.5	681
Myeloid leukaemia	**9**	1.3	**1.8**	0.6-3.0	656
Leukaemia, other	**3**	0.4	**0.6**	0 - 1.3	1254
Bladder	**20**	2.8	**3.6**	2.0-5.3	331
Melanoma (skin)	**15**	2.1	**2.8**	1.3-4.3	298
Liver	**14**	2.0	**3.1**	1.5-4.7	220
Skin (not melanoma)	**12**	1.7	**2.4**	1.0-3.8	352
Kidney	**12**	1.7	**2.1**	0.9-3.4	420
Myeloma	**12**	1.7	**2.2**	0.9-3.5	378
Myelodysplastic diseases	**10**	1.4	**1.5**	0.5-2.4	1761
Gallbladder / bile ducts	**6**	0.9	**1.1**	0.2-2.0	735
All cancer deaths	**702**	100.0	**128.9**	119-139	7

Females

	Deaths	%	ASR	95%c.i.	Risk
Lung	**108**	18.3	**17.6**	14.0-21.1	47
Breast	**102**	17.3	**17.8**	14.1-21.6	52
Colorectal	**66**	11.2	**8.7**	6.4-11.1	114
Colon	**40**	6.8	**5.6**	3.6-7.5	163
Rectum	**26**	4.4	**3.1**	1.8-4.5	376
Unknown primary	**44**	7.4	**5.6**	3.7-7.4	172
Ovary	**31**	5.2	**5.4**	3.3-7.4	173
Pancreas	**28**	4.7	**4.3**	2.5-6.1	227
Lymphoma	**23**	3.9	**3.2**	1.8-4.6	258
Lymphoma NOS	**0**				-
Hodgkin lymphoma	**1**	0.2	**0.2**	0 - 0.6	4801
NHL	**22**	3.7	**3.0**	1.6-4.4	272
Leukaemia	**22**	3.7	**3.6**	1.8-5.4	310
Leukaemia NOS	**1**	0.2	**0.1**	0 - 0.2	*
Lymphoid leukaemia	**7**	1.2	**1.2**	0.2-2.3	784
Myeloid leukaemia	**11**	1.9	**2.1**	0.6-3.5	512
Leukaemia, other	**3**	0.5	**0.2**	0 - 0.5	*
Brain	**17**	2.9	**3.4**	1.7-5.1	212
Myeloma	**17**	2.9	**2.6**	1.3-4.0	249
Kidney	**15**	2.5	**2.5**	1.1-3.8	274
Oesophagus	**13**	2.2	**1.5**	0.6-2.4	1409
Stomach	**13**	2.2	**1.9**	0.8-3.0	454
Gallbladder / bile ducts	**11**	1.9	**1.7**	0.6-2.8	622
Melanoma (skin)	**11**	1.9	**2.0**	0.8-3.3	382
Cervix	**11**	1.9	**2.7**	1.1-4.3	379
Myelodysplastic diseases	**11**	1.9	**1.1**	0.4-1.9	1317
Bladder	**10**	1.7	**1.0**	0.3-1.7	2616
Liver	**7**	1.2	**0.9**	0.2-1.6	2178
All cancer deaths	**591**	100.0	**91.9**	83.7-100	10

Appendix 3E. Cancer mortality, Western Australia, 2003: Leading types by sex and geographic area

WA Metro - all

Males

	Deaths	%	ASR	95%c.i.	Risk
Lung	**342**	23.9	**29.9**	26.6-33.2	29
Colorectal	**206**	14.4	**17.7**	15.2-20.2	53
Colon	**132**	9.2	**11.0**	9.1-13.0	95
Rectum	**74**	5.2	**6.6**	5.1-8.2	119
Prostate	**155**	10.8	**11.8**	9.9-13.7	134
Unknown primary	**76**	5.3	**6.7**	5.2-8.3	135
Lymphoma	**64**	4.5	**5.5**	4.1-7.0	186
Lymphoma NOS	**1**	0.1	**0.1**	0 - 0.4	6441
Hodgkin lymphoma	**1**	0.1	**0.1**	0 - 0.4	6441
NHL	**62**	4.3	**5.3**	3.9-6.7	197
Pancreas	**62**	4.3	**5.6**	4.2-7.0	142
Stomach	**53**	3.7	**4.6**	3.3-5.8	205
Oesophagus	**50**	3.5	**4.2**	3.0-5.4	209
Mesothelioma	**50**	3.5	**4.4**	3.1-5.7	206
Brain	**46**	3.2	**4.6**	3.2-5.9	173
Leukaemia	**46**	3.2	**4.0**	2.8-5.3	263
Leukaemia NOS	**3**	0.2	**0.3**	0 - 0.6	6441
Lymphoid leukaemia	**16**	1.1	**1.4**	0.7-2.2	722
Myeloid leukaemia	**22**	1.5	**1.9**	1.1-2.8	533
Leukaemia, other	**5**	0.3	**0.4**	0.0-0.8	2537
Melanoma (skin)	**45**	3.1	**4.1**	2.9-5.4	207
Bladder	**34**	2.4	**2.8**	1.8-3.8	503
Liver	**33**	2.3	**3.0**	2.0-4.1	254
Myeloma	**32**	2.2	**2.8**	1.8-3.8	324
Kidney	**26**	1.8	**2.4**	1.4-3.3	360
Skin (not melanoma)	**20**	1.4	**2.0**	1.1-2.8	429
Myelodysplastic diseases	**19**	1.3	**1.3**	0.7-1.9	1617
Gallbladder / bile ducts	**16**	1.1	**1.5**	0.7-2.2	516
All cancer deaths	**1433**	100.0	**125.1**	118-132	8

Females

	Deaths	%	ASR	95%c.i.	Risk
Breast	**210**	17.8	**16.8**	14.4-19.3	56
Lung	**201**	17.0	**15.1**	12.8-17.3	56
Colorectal	**152**	12.9	**9.7**	8.0-11.4	101
Colon	**98**	8.3	**6.3**	4.9-7.7	164
Rectum	**54**	4.6	**3.4**	2.4-4.4	265
Unknown primary	**78**	6.6	**5.1**	3.8-6.3	169
Pancreas	**64**	5.4	**4.7**	3.4-5.9	204
Ovary	**60**	5.1	**4.6**	3.3-5.9	206
Leukaemia	**43**	3.6	**3.1**	2.0-4.2	329
Leukaemia NOS	**1**	0.1	**0.0**	0 - 0.1	*
Lymphoid leukaemia	**14**	1.2	**1.1**	0.5-1.8	880
Myeloid leukaemia	**21**	1.8	**1.7**	0.9-2.6	524
Leukaemia, other	**7**	0.6	**0.3**	0.1-0.5	*
Lymphoma	**41**	3.5	**2.7**	1.8-3.6	346
Lymphoma NOS	**4**	0.3	**0.2**	0 - 0.4	11900
Hodgkin lymphoma	**1**	0.1	**0.1**	0 - 0.3	10441
NHL	**36**	3.1	**2.4**	1.5-3.3	369
Brain	**32**	2.7	**3.0**	1.9-4.2	283
Myeloma	**31**	2.6	**2.2**	1.3-3.0	339
Kidney	**28**	2.4	**2.3**	1.4-3.2	286
Gallbladder / bile ducts	**27**	2.3	**1.8**	1.0-2.6	712
Oesophagus	**24**	2.0	**1.4**	0.8-2.0	929
Stomach	**24**	2.0	**1.9**	1.1-2.7	401
Bladder	**21**	1.8	**1.0**	0.5-1.5	3614
Melanoma (skin)	**19**	1.6	**1.7**	0.9-2.5	471
Cervix	**18**	1.5	**1.7**	0.9-2.6	540
Uterus	**18**	1.5	**1.0**	0.5-1.5	1283
Myelodysplastic diseases	**18**	1.5	**0.9**	0.4-1.4	1290
Liver	**11**	0.9	**0.6**	0.2-1.0	3032
All cancer deaths	**1179**	100.0	**85.8**	80.4-91.2	11

All Western Australia

Males

	Deaths	%	ASR	95%c.i.	Risk
Lung	**428**	23.3	**29.3**	26.5-32.2	29
Colorectal	**258**	14.1	**17.6**	15.3-19.8	54
Colon	**159**	8.7	**10.6**	8.9-12.3	98
Rectum	**99**	5.4	**7.0**	5.6-8.4	118
Prostate	**202**	11.0	**12.4**	10.6-14.1	110
Unknown primary	**94**	5.1	**6.5**	5.2-7.9	139
Lymphoma	**79**	4.3	**5.4**	4.1-6.6	210
Lymphoma NOS	**3**	0.2	**0.2**	0 - 0.4	8403
Hodgkin lymphoma	**1**	0.1	**0.1**	0 - 0.3	8403
NHL	**75**	4.1	**5.1**	3.9-6.3	221
Pancreas	**74**	4.0	**5.2**	3.9-6.4	149
Brain	**69**	3.8	**5.3**	4.0-6.6	148
Oesophagus	**68**	3.7	**4.6**	3.5-5.8	181
Stomach	**67**	3.7	**4.5**	3.4-5.6	208
Leukaemia	**63**	3.4	**4.4**	3.3-5.6	235
Leukaemia NOS	**3**	0.2	**0.2**	0 - 0.4	8403
Lymphoid leukaemia	**22**	1.2	**1.6**	0.9-2.4	641
Myeloid leukaemia	**32**	1.7	**2.2**	1.4-2.9	462
Leukaemia, other	**6**	0.3	**0.4**	0.1-0.8	2365
Melanoma (skin)	**58**	3.2	**4.3**	3.2-5.4	196
Mesothelioma	**58**	3.2	**4.0**	2.9-5.0	229
Bladder	**57**	3.1	**3.6**	2.7-4.6	362
Myeloma	**44**	2.4	**3.0**	2.1-3.9	325
Kidney	**38**	2.1	**2.6**	1.7-3.4	352
Liver	**37**	2.0	**2.6**	1.8-3.5	300
Skin (not melanoma)	**24**	1.3	**1.8**	1.0-2.5	460
Myelodysplastic diseases	**24**	1.3	**1.4**	0.8-1.9	1366
Gallbladder / bile ducts	**19**	1.0	**1.4**	0.8-2.0	533
Larynx	**14**	0.8	**0.9**	0.4-1.4	943
All cancer deaths	**1835**	100.0	**125.8**	120-132	8

Females

	Deaths	%	ASR	95%c.i.	Risk
Breast	**256**	17.3	**16.2**	14.1-18.4	60
Lung	**252**	17.0	**15.3**	13.3-17.4	55
Colorectal	**184**	12.4	**9.5**	8.0-11.1	104
Colon	**122**	8.2	**6.3**	5.0-7.5	167
Rectum	**62**	4.2	**3.2**	2.4-4.1	274
Unknown primary	**105**	7.1	**5.5**	4.3-6.7	157
Pancreas	**83**	5.6	**4.9**	3.8-6.1	188
Ovary	**71**	4.8	**4.3**	3.2-5.4	213
Leukaemia	**57**	3.8	**3.3**	2.3-4.3	337
Leukaemia NOS	**2**	0.1	**0.1**	0 - 0.1	*
Lymphoid leukaemia	**20**	1.3	**1.2**	0.6-1.8	947
Myeloid leukaemia	**28**	1.9	**1.8**	1.1-2.6	522
Leukaemia, other	**7**	0.5	**0.2**	0.1-0.4	*
Lymphoma	**51**	3.4	**2.9**	2.0-3.7	304
Lymphoma NOS	**4**	0.3	**0.2**	0 - 0.3	15399
Hodgkin lymphoma	**1**	0.1	**0.1**	0 - 0.2	13179
NHL	**46**	3.1	**2.6**	1.8-3.5	317
Brain	**42**	2.8	**3.2**	2.1-4.2	258
Myeloma	**37**	2.5	**1.9**	1.3-2.6	423
Stomach	**34**	2.3	**2.2**	1.4-3.0	353
Kidney	**34**	2.3	**2.2**	1.4-3.0	305
Oesophagus	**31**	2.1	**1.5**	0.9-2.1	768
Gallbladder / bile ducts	**30**	2.0	**1.7**	1.0-2.4	698
Melanoma (skin)	**28**	1.9	**1.9**	1.2-2.7	446
Uterus	**25**	1.7	**1.2**	0.7-1.8	993
Cervix	**24**	1.6	**1.8**	1.0-2.5	511
Bladder	**24**	1.6	**0.9**	0.5-1.4	3225
Myelodysplastic diseases	**20**	1.3	**0.8**	0.4-1.2	1614
Skin (not melanoma)	**16**	1.1	**0.6**	0.3-0.9	2877
All cancer deaths	**1483**	100.0	**87.0**	82.1-91.8	11