

# **Cancer incidence and mortality in Western Australia, 2002**

**A report of the Western Australian Cancer Registry**

**Health Data Collections, Health Information Centre  
Department of Health  
Perth, Western Australia**

**August 2004**

**Statistical Series number 71**

**ISSN: 0816-2999**

© 2004 Health Information Centre, Department of Health, Western Australia

Material in this publication may be reproduced and used, with acknowledgment, for genuine educational and health research purposes; no part may be published elsewhere nor copied and stored in any electronic retrieval system without the consent of the copyright holders.

Contact regarding enquiries, additional information and further copies:

Principal Medical Officer/Manager  
Western Australian Cancer Registry  
Health Information Centre  
Department of Health  
1st Floor, C Block  
189 Royal St  
East Perth WA 6004  
AUSTRALIA

Fax : +61 (0)8 9222 4236

Phone: +61 (0)8 9222 4022

E-mail - [wacanreg@health.wa.gov.au](mailto:wacanreg@health.wa.gov.au)

(No "spam" or commercial offers; cancer-related enquiries only please.)

Internet - Department of Health home page

[www.health.wa.gov.au](http://www.health.wa.gov.au)

- Western Australian Cancer Registry home page -

[www.health.wa.gov.au/wacr/](http://www.health.wa.gov.au/wacr/)

### **Cancer Registry Staff, 2003-2004**

Timothy Threlfall	Principal medical officer/ manager	John Langley	Analyst/ programmer
Judith Thompson	Medical officer/ coding advisor	Cathy Johnston Colleen Kontor	Clerical officer Clerical officer
Kaye Garrod	Research assistant	Nola Olsen	Research officer
Charmaine Brewster	Clerical officer		(mesothelioma)

### **Cancer Registry Scientific Advisory Committee, 2001-2004**

Dr Michael Byrne	oncologist	Dr Christobel Saunders	surgeon
Dr James Semmens	epidemiologist	Dr Yee Leung	gynaecologic oncologist
Dr Peter Heenan	pathologist	Dr Gordon Harloe	pathologist
Dr Cecily Metcalf	pathologist	Dr Judith Thompson	Cancer Registry
Dr Chris Harper	radiation oncologist	Dr Timothy Threlfall	Cancer Registry

### **Citation**

The following citation is suggested in referring to this report:

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

# Contents

	<b>Page</b>
Contents	i
List of Tables	ii
List of Figures	iii
Summary	v
Acknowledgments	vi
<b>1 Overview and Methods</b>	<b>1</b>
<b>1.1 Overview of this report</b>	<b>1</b>
<b>1.2 General structure; how to find information</b>	<b>1</b>
<b>1.3 Interpretation of changes and differences</b>	<b>1</b>
<b>1.4 Statistical methods</b>	<b>2</b>
<b>2 Cancer in Western Australia, 2002</b>	<b>3</b>
<b>2.1 All cancers</b>	<b>3</b>
Incidence	3
Mortality	4
Mortality to incidence ratios	4
<b>2.2 Common cancers</b>	<b>5</b>
Incidence	5
Mortality	6
<b>2.3 Cancer in different age groups</b>	<b>8</b>
Cancer in children	8
Other age groups: incidence	9
Other age groups: mortality	12
<b>2.4 Cancer statistics - variation within Western Australia</b>	<b>15</b>
<b>3 Cancer in Western Australia: special topics</b>	<b>16</b>
<b>3.1 Death Certificate Only cancers</b>	<b>16</b>
<b>3.2 Historical trends in cancer incidence and mortality</b>	<b>17</b>
<b>3.3 Revised projections of cancer incidence</b>	<b>22</b>
<b>3.4 The W.A. Cancer Staging project</b>	<b>26</b>
<b>3.5 Cancer incidence and mortality in areas of Western Australia, 1998-2002</b>	<b>31</b>
<b>3.6 Relative survival for common cancers, Western Australia, 1983-2002</b>	<b>41</b>
<b>3.7 Melanoma of the skin (cutaneous melanoma) 1993-2002</b>	<b>52</b>
<b>3.8 Breast cancer and breast cancer screening in Western Australian women</b>	<b>54</b>
<b>3.9 Incidence of <i>in situ</i> neoplasms</b>	<b>60</b>
<b>3.10 Impact of the ICDO-3 coding scheme on cancer data: update</b>	<b>61</b>
<b>3.11 Cancer incidence in indigenous Australians, 2002</b>	<b>62</b>
<b>4 References</b>	<b>63</b>

## APPENDICES

### 1 About The Western Australian Cancer Registry

1A	Overview and technical issues	
	History and role	A1-1
	Registry scope	A1-1
	Legislative basis	A1-1
	Sources of data	A1-2
	Data handling and maintenance	A1-2
	Coding practices	A1-3
	Quality assurance	A1-5
	Uses of Cancer Registry data	A1-5
1B	Current issues	
	Registry staffing and workload	A1-6

### 2 Technical and miscellaneous information

2A	Glossary	A2-1
2B	Statistical methods and formulae	A2-2
2C	Populations and geographic areas	A2-4
2D	Confidentiality guidelines	A2-6
2E	Cancer Notification Regulations	A2-7
2F	Cancer codes	A2-9
2G	WACR publications	A2-11
2H	Guide to tables in Appendix 3	A2-12

### 3 Cancer incidence and mortality in Western Australia, 2002

3A	Cancer incidence, Western Australia, 2002: numbers and rates by type, sex and age group	A3-1
3B	Cancer mortality, Western Australia, 2002: numbers and rates by type, sex and age group	A3-10
3C	Childhood cancer incidence, Western Australia, 2002: ICD-O 3rd Revision classification scheme	A3-20
3D	Cancer incidence, Western Australia, 2002: Leading types by sex and geographic area	A3-24
3E	Cancer mortality, Western Australia, 2002: Leading types by sex and geographic area	A3-29

## List of tables

	Page
1. Cancer incidence and mortality, Western Australia, 2002: leading types in males and females	7
2. Cancer incidence, Western Australia, 2002: leading types by sex and age group	11
3. Cancer mortality, Western Australia, 2002: leading types by sex and age group	14
4. Cancer incidence, Western Australia, 1993-2002, and projections to 2007: All cancers (males and females)	23
5. Cancer incidence, Western Australia, 1993-2002, and projections to 2007: Prostate cancer (males) and breast cancer (females)	24
6. Cancer incidence, Western Australia, 1993-2002, and projections to 2007: Lung cancer (males and females)	24
7. Cancer incidence, Western Australia, 1993-2002, and projections to 2007: Colorectal cancer (males and females)	25

<b>List of tables (cont.)</b>	<b>Page</b>
8. Cancer incidence, Western Australia, 1993 -2002, and projections to 2007: Melanoma (males and females)	25
9. Cutaneous melanoma, Western Australia, 1993-2002: Breslow thickness (invasive histologically-confirmed cases only)	52
10. Cutaneous melanoma, Western Australia, 2002: Clark level (invasive and <i>in situ</i> histologically-confirmed cases only)	53
11. Cutaneous melanoma, Western Australia, 2002: thickness by age group, for males and females (invasive histologically-confirmed cases only)	53
12. Breast cancer, Western Australia, 2002: tumour size and number of tumour-affected lymph nodes	56
13. Breast cancer in females, Western Australia, 1982-2002: cases with concurrent or subsequent breast cancers	57
14. BreastScreen-detected breast cancers in rural and metropolitan areas, as a percentage of all Western Australian cases, 1999-2002	58
15. <i>In situ</i> tumours, Western Australia, 2002: incidence	60
16. Conditions now included as "cancers" for the first time as a result of implementation of ICDO-3 coding system	61
17. Most common incident cancers in indigenous Australians, Western Australia, 2002	62

<b>List of figures</b>	<b>Page</b>
1. Age-specific all-cancers incidence and mortality rates, Western Australia, 2002.	3
2. Cancer incidence, Western Australia, 2002: common cancers	5
3. Cancer mortality, Western Australia, 2002: common cancers	6
4. Cancer in children under 15 years of age, Western Australia, 2002: most common types.	8
5. Cancer incidence, Western Australia, 2002: common cancers in the 15 to 39 years age group	9
6. Cancer incidence, Western Australia, 2002: common cancers in the 40 to 64 years age group	10
7. Cancer incidence, Western Australia, 2002: common cancers in the 65 years & over age group	10
8. Cancer mortality, Western Australia, 2002: common cancers in the 15 to 39 years age group	12
9. Cancer mortality, Western Australia, 2002: common cancers in the 40 to 64 years age group	13
10. Cancer mortality, Western Australia, 2002: common cancers in the 65 years & over age group	13
11. DCO and "DC & HMDS" cancers, 2002: common cancers	16
12. Selected cancers, Western Australia, 1998-2002: trends in incidence and mortality rates for males and females	17
13. All-cancers standardized incidence rate ratios for Western Australia, 1998-2002, for males and females	33
14. All-cancers standardized mortality rate ratios for Western Australia, 1998-2002, for males and females	34

<b>List of figures (cont.)</b>	<b>Page</b>
15. Colorectal cancer standardized incidence rate ratios for Western Australia, 1998-2002, for males and females	35
16. Colorectal cancer standardized mortality rate ratios for Western Australia, 1998-2002, for males and females	36
17. Prostate cancer standardized incidence and mortality rate ratios for Western Australia, 1998-2002	37
18. Breast cancer (females) standardized incidence and mortality rate ratios for Western Australia, 1998-2002	38
19. Lung cancer standardized incidence rate ratios for Western Australia, 1998-2002, for males and females	39
20. Lung cancer standardized mortality rate ratios for Western Australia, 1998-2002, for males and females	40
21a. Prostate cancer in males: recent data - persons 15+ at diagnosis, 1998-2002.	41
21b. Prostate cancer in males: relative survival by period, ages 15+ at diagnosis.	42
22a. Breast cancer in females: recent data - persons 15+ at diagnosis, 1998-2002	43
22b. Breast cancer in females: relative survival by period, ages 15+ at diagnosis.	43
22c. Breast cancer in females: relative survival by tumour size, 1983-2002.	44
23a. Colorectal cancer in males: recent data - persons 15+ at diagnosis, 1998-2002	44
23b. Colorectal cancer in males: relative survival by period, ages 15+ at diagnosis	45
23c. Colorectal cancer in females: recent data - persons 15+ at diagnosis, 1998-2002	46
23d. Colorectal cancer in females: relative survival by period, ages 15+ at diagnosis	46
24a. Lung cancer in males: recent data - persons 15+ at diagnosis, 1998-2002	47
24b. Lung cancer in males: relative survival by period, ages 15+ at diagnosis	48
24c. Lung cancer in females: recent data - persons 15+ at diagnosis, 1998-2002	48
24d. Lung cancer in females: relative survival by period, ages 15+ at diagnosis	49
25a. Melanoma in males: recent data - persons 15+ at diagnosis, 1998-2002	49
25b. Melanoma in males: relative survival by period, ages 15+ at diagnosis	50
25c. Melanoma in males: relative survival by Clark level, 1983-2002	50
25d. Melanoma in females: recent data - persons 15+ at diagnosis, 1998-2002	51
25e. Melanoma in females: relative survival by period, ages 15+ at diagnosis	51
25f. Melanoma in females: relative survival by Clark level, 1983-2002	51
26. Breast cancer, Western Australia, 2002: age-specific incidence and mortality rates in females	54
27. Breast cancer, Western Australia, 2002: size of histologically-confirmed invasive tumours	55
28. Breast cancer, Western Australia, 2002: number of lymph nodes assessed, and number of affected nodes, for histologically-confirmed tumours	56
29. Screen-detected breast tumours by year and region, as percentage of all W.A. breast tumours (invasive and <i>in situ</i> tumours combined)	58
30. Size of primary invasive breast cancers, Western Australia, 1999-2002: BreastScreen (BSWA)-detected tumours and others	59
31. Number of tumour-affected lymph nodes - BreastScreen WA (BSWA)-detected tumours and others, 1999-2002	59

## 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, 2002**

There were 8464 new cases of cancer recorded in Western Australians in 2002, 55% occurring in males. Age-standardized rates were 357 per 100,000 males, and 270 per 100,000 females, for 2002. 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 3266 deaths due to cancer in 2002 (57% males). Mortality rates for 2002 were 132 deaths per 100,000 males and 86 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 2001 data. In 2000, lung cancer caused more deaths than breast cancer in women. However, as anticipated in a previous report,<sup>10</sup> breast cancer has again in 2001 and in 2002 been the leading cause of cancer-related death in women.

### **Common cancers**

The most common cancers in males in 2002 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 55 cases of cancer diagnosed in children under the age of 15 years in 2002, predominantly leukaemias and tumours of the central nervous system (CNS). Annual variation in numbers and types is considerable. 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 aged 40 - 64 years, prostate and breast cancers, followed by melanoma and colorectal and lung cancers, remain the most common incident cancers. Other common cancers in this group were testicular and cervical cancers. Based on data for 2002, 1 in 11 women could be expected to develop breast cancer before the age of 75, and 1 in 53 could be expected to die as a result of it.

There were 71 cases of malignant mesothelioma diagnosed in Western Australians in 2002, a decrease since 2001, and the overall trend continues to be decreasing. The asbestos mining industry and the building industry remain the most common occupational settings. Mesothelioma incidence is currently the subject of another forthcoming WACR report.

### **Cancer survival and new projects**

In one of the most important sections in this report, Western Australian cancer survival results show that cancer survival is improving, and confirm previous local findings that both breast cancers and melanomas diagnosed at an early stage are associated with better relative survival. The WACR has recently carried out a Commonwealth (NCCI)-funded project that has provided data that may be useful in determining whether widespread recognition of a need for staging information, to permit more meaningful survival analysis, can be translated into a national program that allows for such information to be gathered routinely.

### **Historical trends and projections of incidence rates**

Historical trends in incidence and mortality rates are presented for many cancer types, and ten-year trends are included in a section dealing with new projections of future cancer incidence rates. Based on data for 1993-2002, significant changes noted were: decreases in incidence of lung cancer (2.0% per year), melanoma (1.9%), prostate cancer (4.6%) and all cancers combined (1.7%) in males. There were suggestions of increasing trends for female melanoma and lung cancer incidence but these were not statistically-significant.

Statistical projections suggest a decline in all-cancers incidence rates in both males and females in the next five years. However, recent changes and the inherent variability of rates easily influenced by medical procedures, such as PSA testing for prostate cancer, and the possibility of Commonwealth-sponsored colorectal cancer screening, suggest such projections must continue to be regarded with caution.

### **Data linkage and reconciliation issues: breast cancer**

Commenced in 2002, an important data-sharing process involving WACR and BreastScreen WA has supported an improvement in data quality in both registries, and permitted an assessment of the impact of the screening program, in terms of rural *vs* metropolitan area coverage. The results confirmed earlier local reports of a smaller average size for screen-detected tumours, and a lower risk of having lymph node metastases at the time of diagnosis.

### **Registry-related issues**

Timeliness of cancer case registration has been maintained during recent years in the face of an increasing workload, now documented for the first time in Appendix 1B. While electronic notification systems continue to facilitate data handling, and data linkage procedures increasingly allow better reconciliation with death and hospitalization information, population growth and an increasing complexity of data requirements both continue to impose considerable demands on finite resources.

## **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.

The cooperation of other Australian Cancer Registries in discussions 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 the Health Information Centre 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 2002. Sections concerning coding and other Registry practices and statistical methods include relevant material for recent years.

The Western Australian Cancer Registry is a population-based cancer registry 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 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).

### 1.2 General structure; how to find information

The major statistical sections are based on cancers diagnosed, and deaths due to cancer, in 2002. 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 2002 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 which will assist in locating the relevant information in Appendix 3.

### 1.3 Interpretation of changes and differences

With respect to geographical location, 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, it can be expected that numbers quoted for previous years may vary slightly from those in previous publications. As a guide, while total cancers for 2001 were quoted at 7639 in our previous report, the total currently recorded for 2001 is 7775 cases. This year, inclusion of several conditions in "cancers" for the first time has contributed to this (see Section 3.10); however 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. 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  $(\text{rate} \pm 1.96 \text{ ESE})$ . The **World Standard Population 1960**<sup>6</sup> remains in routine use, as in most cancer registries worldwide.

Where 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

The **cumulative incidence** of a condition is an estimate of the proportion of all persons, up to a specific age, who have been affected by the condition at some time. For cancer incidence statistics, this estimates the proportion of persons who have had a cancer diagnosis; for cancer mortality, it is an estimate of the proportion of persons below the specific age, who have died of a cancer-related cause. In Registry reports, cumulative incidence is generally expressed as a percentage.

A closely-related statistic is the **lifetime risk** (LR), an estimate of the probability of being diagnosed as having cancer (incidence) or of dying because of cancer (mortality) throughout life, up to a specific age. This is derived from the relevant cumulative incidence figure obtained by summing age-specific rates, and is 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

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

### Comparisons of 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 underlying differences in the age structures of populations.

## 2. Cancer in Western Australia, 2002

### 2.1 All cancers

#### Incidence

In 2002, there were 8464 new diagnoses of cancer in Western Australia, an increase of 9% over "current" data for 2001 (7775 cases). There were 4672 cases (55%) in males and 3792 (45%) in females. Corresponding age-standardized incidence rates were 357 per 100,000 (males) and 270 per 100,000 (females), both slightly higher than the updated 2001 rates.

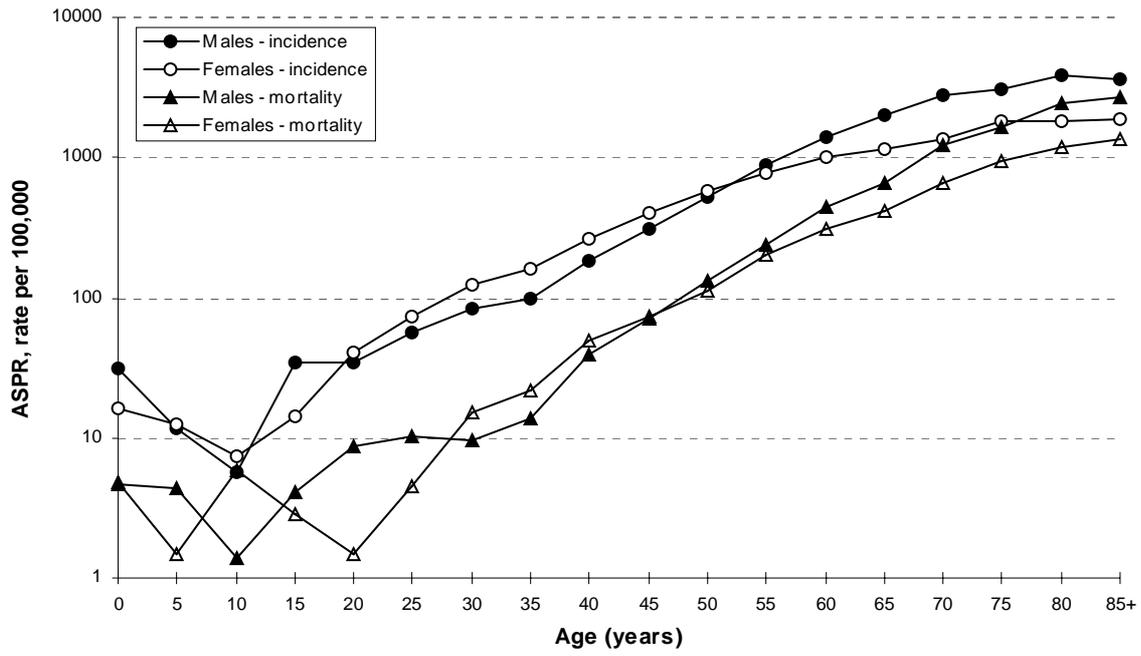
The estimated lifetime risk of cancer to age 75 years was 1 in 3 for males and 1 in 4 for females. The cumulative incidence of cancer - the proportion of persons in whom cancer had been diagnosed by age 75 years - was 42% for males, 30% for females, slightly higher than in 2001.

In childhood and early adult life, cancer rates in males generally exceed those in females. In 2001, rates for both sexes aged 15-39 years were similar, followed by a predominance of women between 40 and 54 years, and of males at older ages. In 2002, there was a predominance of cancer cases in females from ages 20 to 54 years. The differences are shown in Figure 1, with a logarithmic scale to better illustrate the differences in the younger age groups.

Most of the excess cancer risk in females between ages 20 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 65 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 (35% in males, 36% in females, both decreased since 2001). 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, 2002.**



## **Mortality**

Among Western Australian residents in 2002, there were 1858 deaths due to cancer in males and 1408 in females. Mortality ASRs were 132 deaths per 100,000 males and 86 per 100,000 females. The estimated lifetime risk of death due to cancer before age 75 years was 1 in 7 for males and 1 in 11 for females.

These deaths include 27 cases due to non-melanocytic skin cancers of the types (squamous and basal cell carcinomas) that are not included in incidence data (20 males, 7 females; 26 SCC and one BCC).

In 2002, there were 18 cancer-related deaths in persons not normally resident in Western Australia (11 Australian, 7 from overseas); these are not included in mortality statistics in this report.

Other 2002 deaths recorded by the Cancer Registry included:

Deaths due to benign tumours - none

Deaths due to "uncertain malignant potential" lymphohaematopoietic neoplasms - 1 (decreased as a result of recent inclusion of most of these conditions as "cancers").

Deaths due to non-tumour-related causes among persons with a Registry tumour record - 671 males (increased since 2001), 524 females (also increased).

Deaths of unresolved cause among persons with a tumour record - 12 (6 males, 6 females), both markedly reduced since our 2001 report. (The time taken to resolve causes of death for cases referred for Coronial enquiry continues to be a concern.)

Before the age of 75 years, a total of 12528 person-years of life were lost due to cancer among males (increased since 2001) and 10671 in females (also increased).

There was no significant change in the age-pattern of cancer mortality in 2002. 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 2002 mortality/incidence (M/I) rate ratio for prostate cancer was 0.13, reduced since 2001 (0.17), but the mortality/incidence ratio for breast cancer in females was slightly increased at 0.19. Lung cancer has a far higher impact, with 2002 M/I ratios of 0.88 in males and 0.71 in females. All-cancers mortality/incidence ratios for 2002 were higher for males than for females (0.37 and 0.32), both further reduced since 2001.

## 2.2 Common cancers

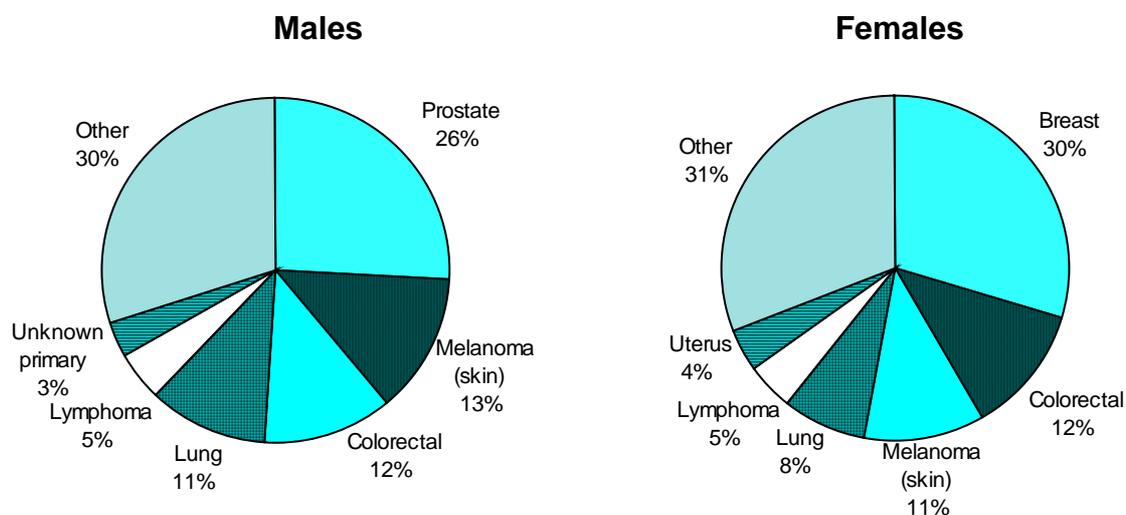
### Incidence

In females, breast cancer continued to be the most common incident cancer (1130 cases, 30% of all cancers in females; ASR 86 per 100,000). This was followed by colorectal cancer (12%), malignant melanoma of the skin (11%) and lung cancer (8%). These most-common cancers in females are unchanged over the last 5 years. There were an additional 200 cases of *in situ* breast carcinoma reported, relatively unchanged from 2001 (203 cases).

The most common cancers in males were prostate cancer (1204 cases; 26%), melanoma (13%), colorectal cancer (12%), and lung cancer (11%) (Table 1; Fig. 2). The incidence rate of prostate cancer was 92.5 per 100,000, increased from 73 in 2001. For all the major cancers affecting both males and females, males had a higher incidence than females. For lung cancer, the ASRs were 38 in males and 19 in females; for colorectal cancer, ASRs were 41 and 28 (both lower than in 2001). Melanoma ASRs were 49 in males, 33 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 17 and 12 per 100,000. Cancers of unknown primary site were recorded in 148 males (3% of all cancers, ASR 10) and 127 females (3%, ASR 7).

**Figure 2. Cancer incidence, Western Australia, 2002: common cancers**



Other common specific cancer types diagnosed included:

Leukaemias - 134 cases in men (ASR 11), 87 in women (ASR 7)  
(essentially unchanged since 2001)

Bladder - 137 cases in men (ASR 9.5), 47 in women (ASR 2.5)

Kidney - 128 cases in men (ASR 10), 79 in women (ASR 6) (both increased).

Stomach - 93 cases in men (ASR 7) (unchanged), 49 in women (ASR 3) (decreased)

Other common cancer types in women were -

Uterine cancer - 146 cases, ASR 10 (increased)

Cervical cancer - 78 cases, ASR 6 (decreased).

Ovarian cancer - 112 cases, ASR 8 (increased)

## Mortality

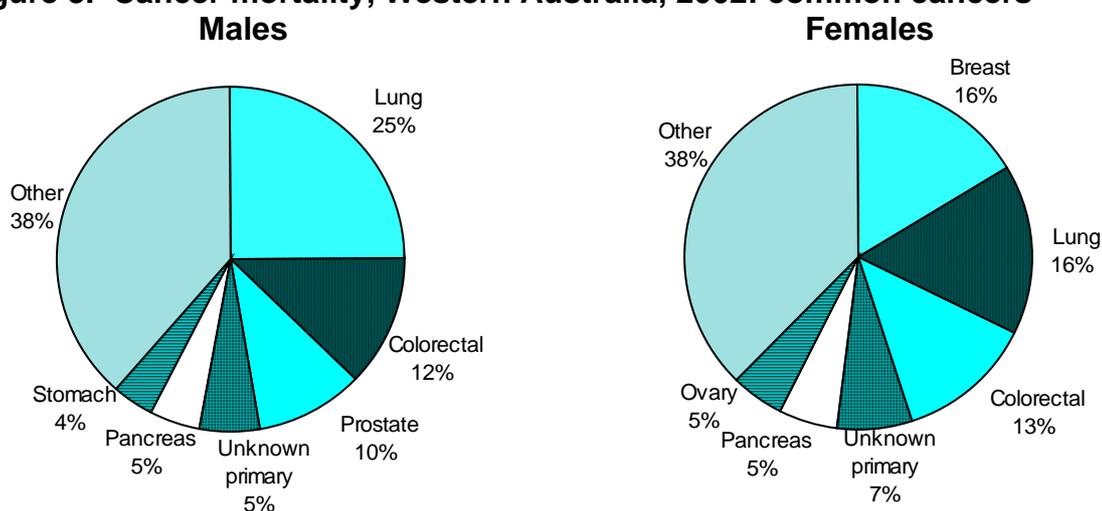
The most common causes of cancer-related death in males were lung cancer (25%), colorectal cancer (12%) and prostate cancer (10%) (Table 1; Fig. 3). Breast (16.4%), lung (15.8%) and colorectal cancer deaths (13%) were the most common in females. This pattern is more common in Western Australia than that seen in 2000, when lung cancer outranked breast cancer as a cause of death among women. In 2000, female lung cancer mortality exceeded that due to breast cancer for the first time, but this was reversed in 2001. However, in 2002, there were only 9 more deaths due to breast cancer than to lung cancer.

Other major causes of cancer-related mortality included tumours of unknown primary site and pancreas in both sexes, stomach cancer, lymphomas and leukaemias in males, and ovarian cancer 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 2002, lung cancer was responsible for 686 deaths (464 males, ASR 33 per 100,000; 222 females, ASR 13; both similar to 2001 figures). Prostate cancer mortality was essentially unchanged since 2001 (187 deaths, ASR 12). In women, the breast cancer death rate was similar to that of 2001 (231 cases, ASR 16 per 100,000 females). Among causes of cancer-related death, colorectal cancer again ranked second in males and third in females: 228 deaths in males (ASR 16) and 180 females (ASR 11).

Tumours of unknown primary site were the fourth most common cause of cancer death in both sexes (101 males, 98 females), and accounted for 5% of all cancer deaths in males and 7% in females. This represents a slight reduction among men, but an increase in women, since 2001.

**Figure 3. Cancer mortality, Western Australia, 2002: common cancers**



**Table 1. Cancer incidence and mortality, Western Australia, 2002: leading types in males and females**

<b>Incidence</b>											
<b>Males</b>						<b>Females</b>					
	Total	%	ASR	SE	Risk		Total	%	ASR	SE	Risk
Prostate	1204	25.8	92.5	2.7	9	Breast	1130	29.8	86.4	2.7	11
Melanoma (skin)	617	13.2	49.1	2.0	19	Colorectal	445	11.7	27.6	1.4	33
Colorectal	560	12.0	41.2	1.8	21	Colon	310	8.2	19.0	1.2	48
Colon	350	7.5	25.5	1.4	35	Rectum	133	3.5	8.5	0.8	108
Rectum	208	4.5	15.5	1.1	53	Melanoma (skin)	428	11.3	33.3	1.7	29
Lung	513	11.0	37.8	1.7	21	Lung	293	7.7	18.9	1.2	41
Lymphoma	222	4.8	17.1	1.2	59	Lymphoma	172	4.5	11.9	1.0	76
Lymphoma NOS	12	0.3	0.8	0.2	995	Lymphoma NOS	13	0.3	0.8	0.3	1152
Hodgkin lymphoma	20	0.4	1.9	0.4	613	Hodgkin lymphoma	10	0.3	0.8	0.3	1843
NHL	190	4.1	14.4	1.1	70	NHL	149	3.9	10.2	0.9	86
Unknown primary	148	3.2	10.5	0.9	90	Uterus	146	3.9	10.0	0.9	91
Bladder	137	2.9	9.5	0.8	95	Unknown primary	127	3.3	7.2	0.7	143
Leukaemia	134	2.9	11.0	1.0	98	Ovary	112	3.0	8.1	0.8	109
Leukaemia NOS	3	0.1	0.3	0.2	2263	Pancreas	89	2.3	5.7	0.7	155
Lymphoid leukaemia	62	1.3	5.2	0.7	219	Leukaemia	87	2.3	7.1	0.8	137
Myeloid leukaemia	57	1.2	4.8	0.7	211	Leukaemia NOS	3	0.1	0.1	0.1	5714
Leukaemia, other	12	0.3	0.8	0.2	1926	Lymphoid leukaemia	38	1.0	3.3	0.6	326
Kidney	128	2.7	9.6	0.9	90	Myeloid leukaemia	42	1.1	3.4	0.6	278
Stomach	93	2.0	6.7	0.7	130	Leukaemia, other	4	0.1	0.3	0.1	2224
Pancreas	76	1.6	5.6	0.7	151	Kidney	79	2.1	5.8	0.7	147
Lip	72	1.5	5.7	0.7	147	Cervix	78	2.1	6.4	0.8	161
Brain	71	1.5	6.4	0.8	167	Thyroid gland	77	2.0	6.8	0.8	167
Oesophagus	69	1.5	4.9	0.6	177	Lip	59	1.6	3.9	0.5	233
Mesothelioma	65	1.4	4.8	0.6	161	Brain	59	1.6	4.3	0.6	223
Testis	64	1.4	6.0	0.8	209	Stomach	49	1.3	3.2	0.5	260
Skin (NMSC exc. SCC/BCC)	50	1.1	3.5	0.5	299	Bladder	47	1.2	2.5	0.4	431
Liver	49	1.0	3.7	0.6	251	Oesophagus	37	1.0	2.2	0.4	399
<b>All cancers</b>	<b>4672</b>	<b>100.0</b>	<b>356.6</b>	<b>5.3</b>	<b>3</b>	<b>All cancers</b>	<b>3792</b>	<b>100.0</b>	<b>270.4</b>	<b>4.7</b>	<b>4</b>

<b>Mortality</b>											
<b>Males</b>						<b>Females</b>					
	Total	%	ASR	SE	Risk		Total	%	ASR	SE	Risk
Lung	464	25.0	33.2	1.6	25	Breast	231	16.4	16.0	1.1	53
Colorectal	228	12.3	16.0	1.1	58	Lung	222	15.8	13.4	1.0	64
Colon	123	6.6	8.5	0.8	107	Colorectal	180	12.8	10.7	0.9	83
Rectum	105	5.7	7.5	0.8	125	Colon	128	9.1	7.7	0.8	111
Prostate	187	10.1	11.8	0.9	113	Rectum	52	3.7	3.0	0.5	325
Unknown primary	101	5.4	7.0	0.7	137	Unknown primary	98	7.0	5.0	0.6	217
Pancreas	86	4.6	6.2	0.7	135	Pancreas	73	5.2	4.0	0.5	250
Stomach	77	4.1	5.3	0.6	201	Ovary	72	5.1	4.7	0.6	182
Lymphoma	73	3.9	4.9	0.6	198	Lymphoma	70	5.0	4.4	0.6	184
Lymphoma NOS	8	0.4	0.5	0.2	1642	Lymphoma NOS	8	0.6	0.5	0.2	1709
Hodgkin lymphoma	2	0.1	0.1	0.1	5345	Hodgkin lymphoma	3	0.2	0.2	0.1	2523
NHL	63	3.4	4.3	0.6	234	NHL	59	4.2	3.7	0.5	225
Leukaemia	73	3.9	5.5	0.7	181	Brain	48	3.4	3.4	0.6	331
Leukaemia NOS	2	0.1	0.1	0.1	####	Leukaemia	48	3.4	3.0	0.5	378
Lymphoid leukaemia	24	1.3	1.8	0.4	672	Leukaemia NOS	4	0.3	0.2	0.1	5714
Myeloid leukaemia	42	2.3	3.2	0.5	276	Lymphoid leukaemia	13	0.9	0.8	0.3	1706
Leukaemia, other	5	0.3	0.4	0.2	2790	Myeloid leukaemia	30	2.1	2.0	0.4	530
Mesothelioma	61	3.3	4.4	0.6	199	Leukaemia, other	1	0.1	0.0	0.0	*
Kidney	60	3.2	4.6	0.6	197	Stomach	39	2.8	2.5	0.4	343
Brain	58	3.1	4.6	0.6	191	Oesophagus	34	2.4	2.0	0.4	427
Melanoma (skin)	55	3.0	4.0	0.6	274	Uterus	34	2.4	1.9	0.3	462
Bladder	54	2.9	3.6	0.5	280	Kidney	34	2.4	1.8	0.3	471
Liver	46	2.5	3.4	0.5	247	Cervix	29	2.1	1.9	0.4	514
Oesophagus	44	2.4	3.0	0.5	303	Gallbladder / bile ducts	27	1.9	1.4	0.3	845
Skin (not melanoma)	33	1.8	2.2	0.4	421	Melanoma (skin)	27	1.9	1.6	0.3	620
Myeloma	33	1.8	2.4	0.4	352	Myeloma	20	1.4	0.9	0.2	1332
Myelodysplastic diseases	18	1.0	1.3	0.3	860	Bladder	19	1.3	0.9	0.2	1127
<b>All cancers</b>	<b>1858</b>	<b>100.0</b>	<b>131.8</b>	<b>3.2</b>	<b>7</b>	<b>All cancers</b>	<b>1408</b>	<b>100.0</b>	<b>85.7</b>	<b>2.5</b>	<b>11</b>

Other specific cancers of particular prominence in cancer mortality in 2002 included:

- Lymphomas - 143 deaths (73 males, 70 females; both increased)
- Leukaemia - 121 deaths (73 males, 48 females; increased in males, decreased in females)
- Stomach cancer - 116 deaths (77 males, 39 females; little changed)
- Malignant brain tumours - 106 deaths (58 males, 48 females; increased in females)
- Kidney - 94 deaths (60 males, 34 females; both increased)

In females: Cancer of the ovary - 72 deaths (increased from 68 in 2001)

In males: Mesothelioma - 61 deaths; increased from 55 in 2001.

## 2.3 Cancer in different age groups

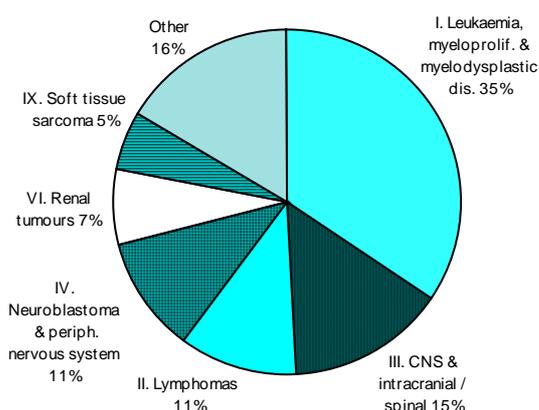
### Cancer in children

**In children under the age of 15 years**, there were 55 cases of cancer diagnosed in 2002, 32 males and 23 females. The corresponding ASRs were 17.5 per 100,000 males, 12.4 per 100,000 females. (**Appendix 3C**). The estimated 0-14 years population in Western Australia in 2002 was 399,428 children (204,774 males and 194,654 females).

Diagnoses are routinely coded and reported using ICD-O 3rd edition,<sup>13</sup> 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 detail in **Appendix 3C**. This report uses the draft 3rd revision of this classification as current in March 2004.

The most common tumours diagnosed in children in 2002 are shown in Figure 4. The leukaemias and lymphomas accounted for 46% of all diagnoses. The most common individual tumour type was acute lymphoblastic leukaemia, with 14 children newly diagnosed (ASR 3.9 in males, 3.7 in females). There was one melanoma case reported in a Western Australian child in 2002.

**Figure 4. Cancer in children under 15 years of age, Western Australia, 2002: most common types.**

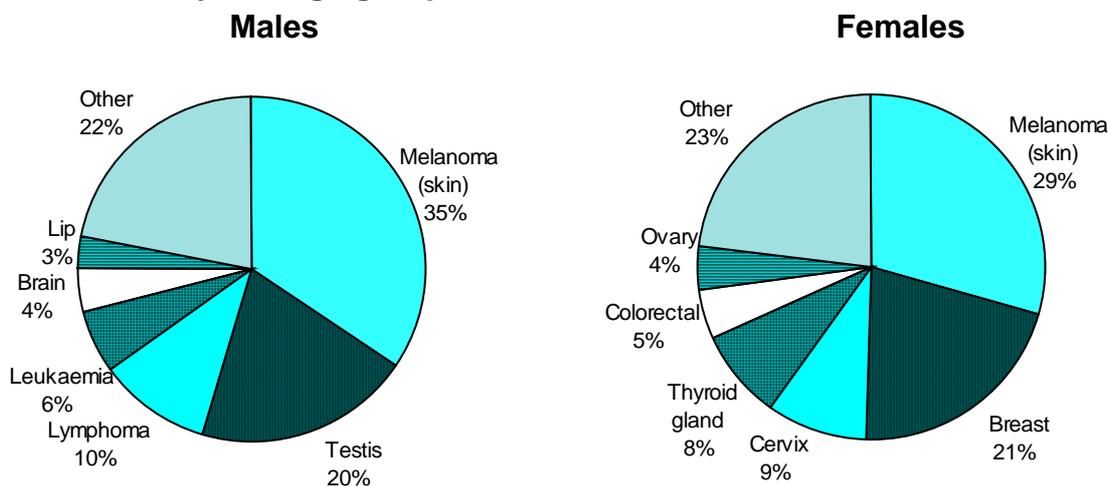


There were 15 cancer-related deaths (7 males, 8 females) in children in 2002, at age-adjusted death rates per 100,000 child-years of 3.6 for males (decreased since 2000) and 4.1 for females (increased since 2001). The estimated risk of death due to cancer before the age of 15 was 1 in 1919 for males, and 1 in 1627 for females.

### Other age groups: incidence

**In the 15 to 39 years age range**, there were 515 cancer diagnoses in 2002 (220 males, ASR 57, 295 females, ASR 74). Melanoma of the skin was most common in both sexes (76 males, 87 females), with the ASR in males being similar to the 2001 rate. Second-ranked cancers were testicular cancer in males (44 cases, 20% of all cancers) and breast cancer in females (61 cases, 21% of all cancers) (Fig. 5). Cervical and thyroid cancer were the next most common cancers in females (as in previous years), with lymphoma and leukaemia (36 cases) following next in males. Colorectal cancer in males (5 cases, ASR 1.3) has decreased in this age group since 2001, when the ASR was 5 per 100,000 in this age group.

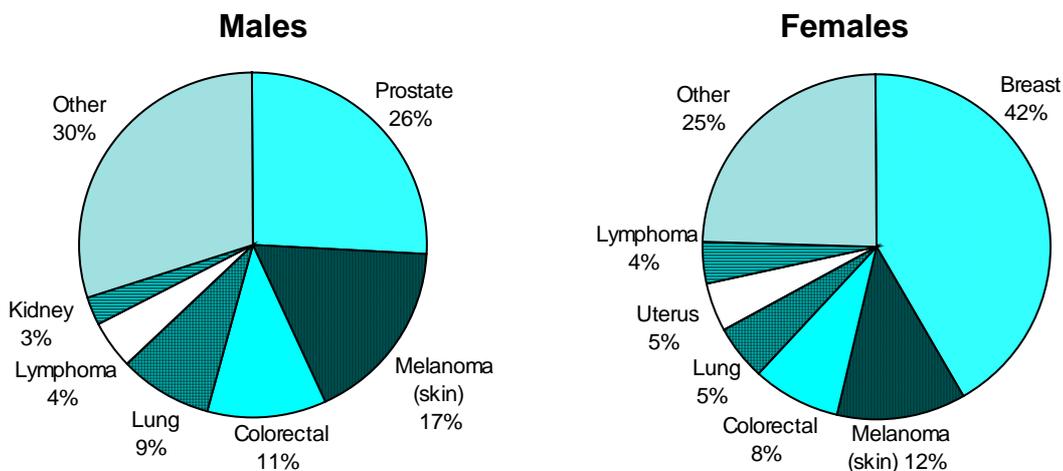
**Figure 5. Cancer incidence, Western Australia, 2002: common cancers in the 15 to 39 years age group**



**In the age range 40 to 64 years**, breast cancer continued to dominate reported incident cancers (683 cases, 42% of all female cancers in this age group, similar to 2001 data) (Table 2; Fig. 6). The risk of cancer occurring in this age range was 1 in 7 for males, and 1 in 7 for females. Over half (52%) of all new cancer diagnoses in this age range occurred in males. In males, prostate cancer (26%) was most common, followed by melanoma (17%) and colorectal cancer (11%).

As in the previous 3 years, melanoma cases (197, 12%) outnumbered colorectal cancers (132, 8%) in this age group in females. Also in common with data from recent years, lung cancer was the fourth most common cancer type in both sexes: males 154 cases (9%), females 88 cases (5%).

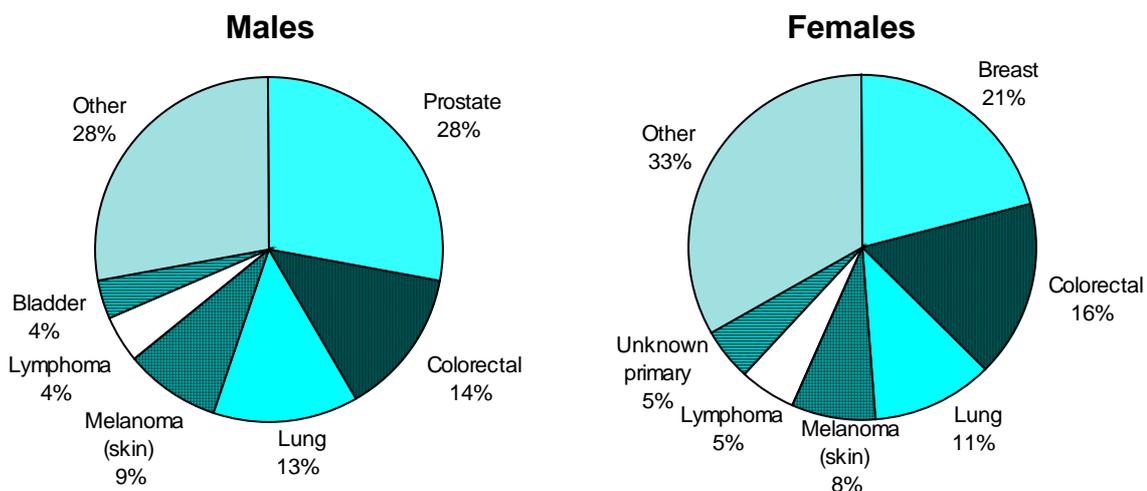
**Figure 6. Cancer incidence, Western Australia, 2002: common cancers in the 40 to 64 years age group**



Over the age of 65 years, prostate cancer (753 cases) outnumbered any other specific cancer type in either sex (Table 2; Fig. 7), and accounted for 28% of diagnoses in males in this group. Although there have been annual variations in recent years, this represents a considerable increase since 2001. Among females, breast cancer predominated (386 cases, 21% of all cancers, similar to recent-years averages). Other common cancer types in this age range were colorectal cancer (14% in males, 16% in females) and lung cancer (13%, 11%) (both similar to 2001 data).

Malignant melanoma of the skin was the fourth most common cancer type in males and in females, followed by lymphoma (males - 4% of cases; females - 5%). Age-adjusted rates for cancers of unknown primary site, as in recent years, were much higher in males (91 per 100,000) than in females (55) (Table 2).

**Figure 7. Cancer incidence, Western Australia, 2002: common cancers in the 65 years & over age group**



**Table 2. Cancer incidence, Western Australia, 2002: leading types by sex and age group (ASR: age-adjusted rate)**

15 to 39 years											
Males						Females					
	Total	%	ASR	SE	Risk		Total	%	ASR	SE	Risk
Melanoma (skin)	76	34.5	19.7	2.3	190	Melanoma (skin)	87	29.5	22.5	2.5	164
Testis	44	20.0	11.6	1.8	325	Breast	61	20.7	14.0	1.8	239
Lymphoma	23	10.5	6.3	1.3	623	Cervix	28	9.5	7.1	1.4	508
Lymphoma NOS	1	0.5	0.2	0.2	14661	Thyroid gland	25	8.5	7.1	1.4	554
Hodgkin lymphoma	7	3.2	2.1	0.8	2029	Colorectal	14	4.7	3.3	0.9	1034
NHL	15	6.8	4.0	1.1	957	Colon	7	2.4	1.6	0.6	2071
Leukaemia	13	5.9	3.7	1.0	1099	Rectum	7	2.4	1.7	0.6	2064
Leukaemia NOS	0					Ovary	12	4.1	3.0	0.9	1199
Lymphoid leukaemia	3	1.4	1.0	0.6	4791	Lymphoma	12	4.1	3.4	1.0	1153
Myeloid leukaemia	9	4.1	2.5	0.8	1580	Lymphoma NOS	0				
Leukaemia, other	1	0.5	0.2	0.2	14661	Hodgkin lymphoma	4	1.4	1.3	0.7	3319
Brain	9	4.1	2.4	0.8	1591	NHL	8	2.7	2.1	0.7	1767
Lip	7	3.2	1.5	0.6	2105	Leukaemia	7	2.4	1.9	0.7	2009
Kidney	7	3.2	1.6	0.6	2074	Leukaemia NOS	0				
Colorectal	5	2.3	1.3	0.6	2856	Lymphoid leukaemia	1	0.3	0.3	0.3	13253
Colon	2	0.9	0.5	0.4	7163	Myeloid leukaemia	6	2.0	1.5	0.6	2367
Rectum	3	1.4	0.8	0.4	4748	Leukaemia, other	0				
All cancers	220	100.0	57.3	3.9	66	All cancers	295	100.0	74.4	4.4	49

40 to 64 years											
Males						Females					
	Total	%	ASR	SE	Risk		Total	%	ASR	SE	Risk
Prostate	449	25.7	152.9	7.3	22	Breast	683	41.5	231.3	8.9	17
Melanoma (skin)	304	17.4	100.8	5.8	38	Melanoma (skin)	197	12.0	66.5	4.8	57
Colorectal	191	10.9	64.5	4.7	55	Colorectal	132	8.0	46.2	4.0	80
Colon	115	6.6	40.0	3.8	89	Colon	92	5.6	32.2	3.4	114
Rectum	76	4.4	24.5	2.8	145	Rectum	40	2.4	14.0	2.2	262
Lung	154	8.8	53.5	4.3	65	Lung	88	5.4	30.6	3.3	117
Lymphoma	77	4.4	25.5	2.9	151	Uterus	74	4.5	24.6	2.9	150
Lymphoma NOS	2	0.1	0.7	0.5	4628	Lymphoma	64	3.9	22.5	2.8	164
Hodgkin lymphoma	6	0.3	1.9	0.8	2038	Lymphoma NOS	4	0.2	1.5	0.7	2483
NHL	69	4.0	22.9	2.8	169	Hodgkin lymphoma	3	0.2	1.0	0.6	4143
Kidney	48	2.7	16.0	2.3	228	NHL	57	3.5	20.0	2.7	184
Leukaemia	48	2.7	16.2	2.4	221	Ovary	43	2.6	15.3	2.3	226
Leukaemia NOS	1	0.1	0.4	0.4	8144	Thyroid gland	41	2.5	13.7	2.1	289
Lymphoid leukaemia	20	1.1	6.8	1.5	495	Unknown primary	35	2.1	12.1	2.1	307
Myeloid leukaemia	22	1.3	7.4	1.6	514	Cervix	34	2.1	11.3	1.9	385
Leukaemia, other	5	0.3	1.6	0.7	2217	Pancreas	33	2.0	11.6	2.0	298
Unknown primary	45	2.6	15.7	2.4	226	Leukaemia	31	1.9	11.1	2.0	320
All cancers	1746	100.0	588.8	14.1	7	All cancers	1644	100.0	562.1	13.9	7

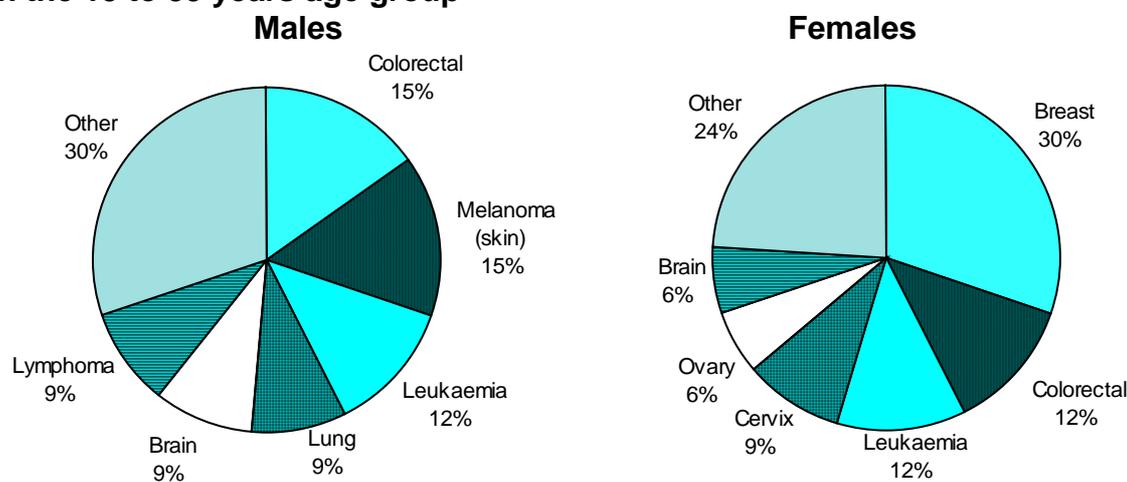
65 years and over											
Males						Females					
	Total	%	ASR	SE	Risk		Total	%	ASR	SE	Risk
Prostate	753	28.2	772.4	29.0	14	Breast	386	21.1	333.9	18.6	31
Colorectal	364	13.6	350.7	19.1	35	Colorectal	299	16.3	212.7	13.4	60
Colon	233	8.7	218.8	14.9	58	Colon	211	11.5	148.4	11.2	87
Rectum	129	4.8	130.5	11.9	85	Rectum	86	4.7	62.8	7.4	202
Lung	356	13.3	343.8	18.8	31	Lung	204	11.1	159.4	12.2	64
Melanoma (skin)	236	8.8	235.4	15.8	44	Melanoma (skin)	144	7.9	119.6	10.9	86
Lymphoma	116	4.3	106.3	10.2	121	Lymphoma	96	5.2	71.7	8.0	162
Lymphoma NOS	9	0.3	7.9	2.7	1388	Lymphoma NOS	9	0.5	6.9	2.6	2147
Hodgkin lymphoma	5	0.2	5.2	2.4	1976	Hodgkin lymphoma	3	0.2	1.6	0.9	0
NHL	102	3.8	93.2	9.5	141	NHL	84	4.6	63.3	7.5	175
Bladder	101	3.8	91.4	9.4	145	Unknown primary	89	4.9	55.1	6.4	282
Unknown primary	101	3.8	90.7	9.4	153	Uterus	71	3.9	53.5	7.0	236
Kidney	72	2.7	68.3	8.3	162	Ovary	57	3.1	44.7	6.5	254
Stomach	66	2.5	62.7	8.0	197	Pancreas	56	3.1	39.9	6.0	322
Leukaemia	63	2.4	55.8	7.3	245	Kidney	44	2.4	34.9	5.8	271
						Bladder	41	2.2	28.4	5.0	566
						Leukaemia	40	2.2	31.4	5.5	337
All cancers	2674	100.0	2612.1	51.7	5	All cancers	1830	100.0	1407.4	36.0	8

## Other age groups: mortality

Common causes of cancer-related death for males and females in each major age group in 2002 are shown in Table 3 and Figures 8, 9 and 10.

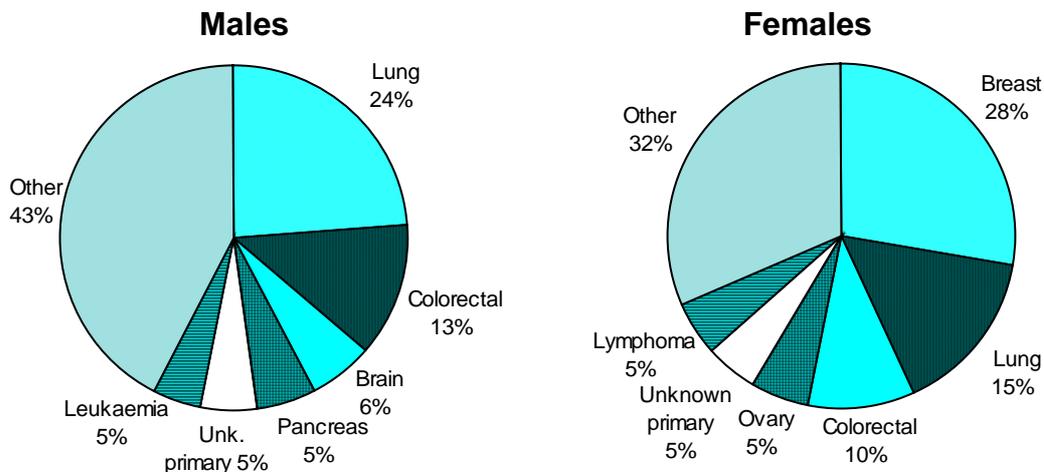
**Among persons aged 15 to 39 years**, there were 66 cancer-related deaths in 2002, slightly less than in 2001 (Table 3). Among males, colorectal cancer, melanoma and leukaemia were the leading causes of cancer death in this age group. In females, breast cancer was the leading cause of cancer death (10 cases, 30% of female deaths), followed by colorectal cancer (4 deaths) and leukaemia (4 deaths). As cancer-related death in this age group is relatively uncommon, changes in the rankings of cancer types in this age group are not, in themselves, reliable indicators of significant trends.

**Figure 8. Cancer mortality, Western Australia, 2002: common cancers in the 15 to 39 years age group**



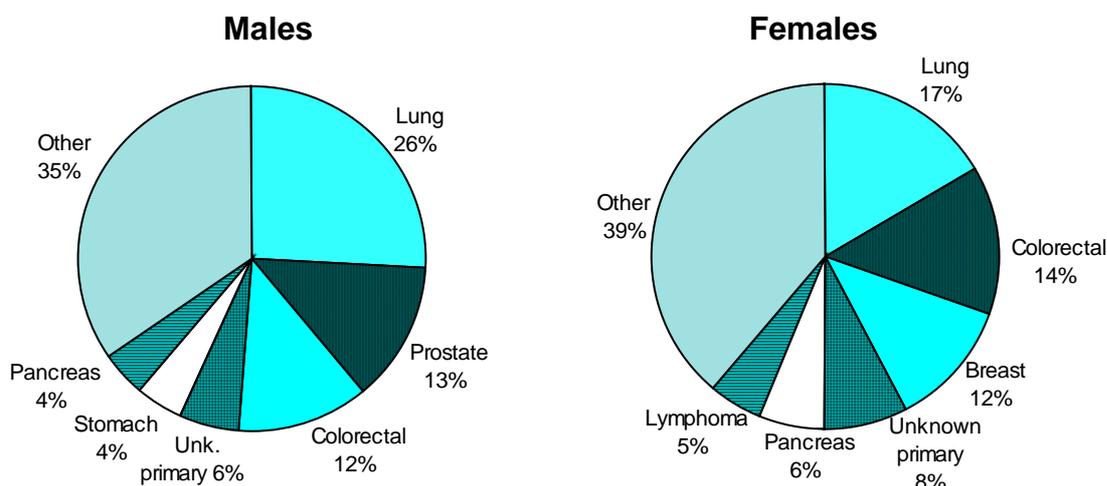
**In the age range 40 to 64 years**, lung cancer was the most common cause of cancer death in 2002 among males (114 deaths, age-adjusted rate of 40 per 100,000 males; little change since 2001) (Table 3). Other leading causes of death in males were colorectal (61 deaths), brain (28 deaths) and pancreatic cancers (26 deaths). Leading causes of death among females were breast cancer (108 deaths), lung cancer (59 deaths) and colorectal cancer (39 deaths). The four most common causes of cancer-related death were unchanged from 2001. Cancers of unknown primary site were the 5th most common cause of death in males (25 deaths) and females (20 deaths).

**Figure 9. Cancer mortality, Western Australia, 2002: common cancers in the 40 to 64 years age group**



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, 347 deaths, ASR 327 per 100,000; in females, 163 deaths, rate 117 (Table 3). Prostate cancer ranked second in males (174 deaths, rate 152) and colorectal cancer ranked third in males (162 deaths, rate 149) and second in females (137 deaths, rate 98). Other leading causes of cancer-related death in this age range were cancers of unknown primary site in males (74 deaths), and breast cancer in females (113 deaths).

**Figure 10. Cancer mortality, Western Australia, 2002: common cancers in the 65 years & over age group**



**Table 3. Cancer mortality, Western Australia, 2002: leading types by sex and age group (ASR: age-adjusted rate)**

15 to 39 years											
Males						Females					
	Total	%	ASR	SE	Risk		Total	%	ASR	SE	Risk
Colorectal	5	15.2	1.2	0.5	2891	Breast	10	30.3	2.2	0.7	1471
Colon	2	6.1	0.5	0.4	7050	Colorectal	4	12.1	1.1	0.6	3492
Rectum	3	9.1	0.7	0.4	4901	Colon	2	6.1	0.5	0.4	6977
Melanoma (skin)	5	15.2	1.6	0.7	2712	Rectum	2	6.1	0.5	0.4	6989
Leukaemia	4	12.1	1.3	0.6	3491	Leukaemia	4	12.1	1.1	0.6	3525
Leukaemia NOS	0				-	Leukaemia NOS	0				-
Lymphoid leukaemia	3	9.1	1.0	0.6	4661	Lymphoid leukaemia	2	6.1	0.4	0.3	7328
Myeloid leukaemia	1	3.0	0.3	0.3	13898	Myeloid leukaemia	2	6.1	0.7	0.5	6791
Leukaemia, other	0				-	Leukaemia, other	0				-
Lung	3	9.1	0.9	0.5	4678	Cervix	3	9.1	0.8	0.5	4719
Brain	3	9.1	0.7	0.4	4887	Ovary	2	6.1	0.4	0.3	7367
Lymphoma	3	9.1	0.8	0.4	4799	Brain	2	6.1	0.4	0.3	7328
Lymphoma NOS	0				-	Oesophagus	1	3.0	0.2	0.2	14656
Hodgkin lymphoma	0				-	Stomach	1	3.0	0.2	0.2	14733
NHL	3	9.1	0.8	0.4	4799	Bone	1	3.0	0.3	0.3	13927
Pancreas	2	6.1	0.4	0.3	7331	Melanoma (skin)	1	3.0	0.2	0.2	14733
Bone	2	6.1	0.6	0.4	7351	Peritoneum/retro-p.	1	3.0	0.2	0.2	14656
<b>All cancers</b>	<b>33</b>	<b>100.0</b>	<b>8.9</b>	<b>1.6</b>	<b>433</b>	<b>All cancers</b>	<b>33</b>	<b>100.0</b>	<b>8.0</b>	<b>1.4</b>	<b>439</b>

40 to 64 years											
Males						Females					
	Total	%	ASR	SE	Risk		Total	%	ASR	SE	Risk
Lung	114	23.8	39.8	3.8	86	Breast	108	27.8	36.6	3.5	101
Colorectal	61	12.7	20.6	2.7	173	Lung	59	15.2	20.8	2.7	171
Colon	27	5.6	9.0	1.7	390	Colorectal	39	10.1	14.0	2.3	249
Rectum	34	7.1	11.6	2.0	309	Colon	26	6.7	9.5	1.9	362
Brain	28	5.8	9.1	1.7	388	Rectum	13	3.4	4.5	1.3	801
Pancreas	26	5.4	8.7	1.7	427	Ovary	20	5.2	7.1	1.6	467
Unknown primary	25	5.2	8.5	1.7	429	Unknown primary	20	5.2	6.8	1.5	544
Leukaemia	22	4.6	7.6	1.6	456	Lymphoma	19	4.9	6.9	1.6	509
Leukaemia NOS	1	0.2	0.3	0.3	13264	Lymphoma NOS	1	0.3	0.3	0.3	10025
Lymphoid leukaemia	5	1.0	1.6	0.7	2378	Hodgkin lymphoma	1	0.3	0.3	0.3	15128
Myeloid leukaemia	15	3.1	5.4	1.4	623	NHL	17	4.4	6.3	1.5	556
Leukaemia, other	1	0.2	0.3	0.3	10720	Pancreas	15	3.9	5.7	1.5	598
Melanoma (skin)	21	4.4	6.9	1.5	543	Brain	15	3.9	4.9	1.3	757
Mesothelioma	19	4.0	6.5	1.5	530	Stomach	10	2.6	3.6	1.1	956
Lymphoma	19	4.0	6.4	1.5	568	Melanoma (skin)	10	2.6	3.3	1.1	1131
						Leukaemia	9	2.3	3.1	1.0	1167
<b>All cancers</b>	<b>480</b>	<b>100.0</b>	<b>163.7</b>	<b>7.5</b>	<b>22</b>	<b>All cancers</b>	<b>388</b>	<b>100.0</b>	<b>135.0</b>	<b>6.9</b>	<b>27</b>

65 years and over											
Males						Females					
	Total	%	ASR	SE	Risk		Total	%	ASR	SE	Risk
Lung	347	25.9	327.1	18.2	35	Lung	163	16.6	117.0	10.0	101
Prostate	174	13.0	151.9	11.8	133	Colorectal	137	14.0	97.7	9.2	129
Colorectal	162	12.1	149.3	12.2	89	Colon	100	10.2	73.2	8.1	164
Colon	94	7.0	86.8	9.3	150	Rectum	37	3.8	24.4	4.4	592
Rectum	68	5.1	62.5	7.9	220	Breast	113	11.5	86.3	9.0	121
Unknown primary	74	5.5	65.9	7.9	207	Unknown primary	77	7.9	46.4	5.8	371
Stomach	59	4.4	53.4	7.2	305	Pancreas	58	5.9	36.7	5.4	429
Pancreas	58	4.3	55.8	7.6	203	Lymphoma	51	5.2	38.7	6.0	288
Lymphoma	51	3.8	43.6	6.3	323	Lymphoma NOS	7	0.7	5.4	2.3	2060
Lymphoma NOS	7	0.5	6.5	2.5	1874	Hodgkin lymphoma	2	0.2	2.3	1.7	3028
Hodgkin lymphoma	2	0.1	1.8	1.3	5345	NHL	42	4.3	31.0	5.3	376
NHL	42	3.1	35.4	5.6	421	Ovary	50	5.1	39.5	6.2	309
Bladder	49	3.7	44.7	6.6	335	Leukaemia	34	3.5	23.4	4.5	696
Leukaemia	46	3.4	42.3	6.5	335						
<b>All cancers</b>	<b>1338</b>	<b>100.0</b>	<b>1235.9</b>	<b>34.8</b>	<b>11</b>	<b>All cancers</b>	<b>979</b>	<b>100.0</b>	<b>682.3</b>	<b>24.1</b>	<b>19</b>

## 2.4 Cancer statistics - variation within Western Australia

### Health-related geographic areas

The previous report *Cancer incidence and mortality in Western Australia, 2001*<sup>11</sup> contained a brief summary of the types of subdivisions of Western Australia used to support Health Department administrative and analytical convenience. The major units are still the Health Regions, each composed of one or more entire Health Districts. The current scheme, used for tabulations in this report, sees the Metropolitan Area divided into 3 Regions (North, East and South), with 7 rural Regions. The arrangement of areas is shown in **Appendix 2C**.

### Variation within Western Australia

From Appendices 3D and 3E, it is apparent that the pattern of cancer types in the Metropolitan Area is similar to the all-WA pattern - which might be expected, as it contains the bulk of the Western Australian population. Elsewhere, in smaller areas, patterns do vary, and may be influenced by differences in proportions of indigenous Australians in the local populations, and by other differences due to socioeconomic status (SES), or periodic (and relatively slow) changes in medical practice over the large area of Western Australia.

Inter-area differences continue to attract attention. However good the Cancer Registry data, definitive analysis requires knowledge of SES-related factors beyond the normal scope of Registry data collections. Such work is supported by the Registry whenever possible.

Issues concerning small-area statistics have previously been summarized in the report *Cancer incidence and mortality in Western Australia, 1999 and 2000*,<sup>10</sup> and may be seen on the Registry's Website at <http://www.health.wa.gov.au/wacr/AboutCR.html#Smallarea> with minor changes reflecting more recent experience.

### Data in Appendices 3D and 3E

The most common cancers and the most common causes of cancer-related death in major subdivisions (based on Health Regions) are found here as in previous reports, but without statistical comparison: **Appendix 3D** (incidence) and **Appendix 3E** (mortality).

Most rates, even when based on large geographic areas, have been found to be statistically indistinguishable. However, detailed analysis involving long-term trends and adjustment for various factors such as sex, indigenous status, does show that historically, cancer incidence does differ in various areas of Western Australia. Some of these analyses for selected common cancers by Health District, are presented in Section 3.5, while others, incorporating adjustment for other social factors, are beyond the scope of this report.

A separate Registry report is currently in preparation: *Cancer in Western Australia, 1998-2002: incidence and mortality by Statistical Local Area (SLA)* will present data for each SLA for the combined years 1998-2002. The Registry Website [www.health.wa.gov.au/wacr/](http://www.health.wa.gov.au/wacr/) will contain details in due course.

### 3. Cancer in Western Australia: special topics

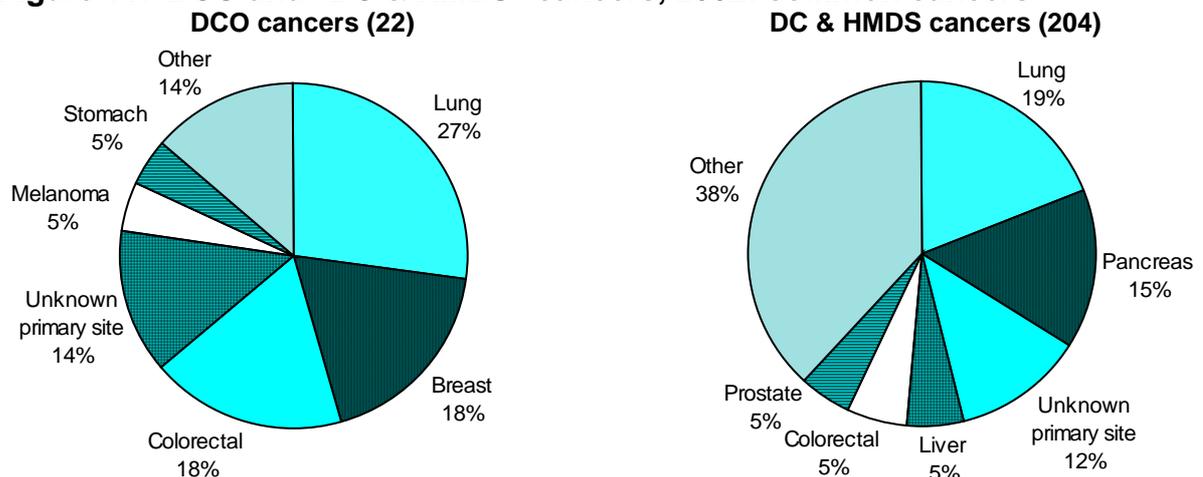
#### 3.1 Death Certificate Only cancers

“Death certificate only” (DCO) cancers are those for which no information other than a death certificate is available. There were 22 DCO cancers recorded for 2002 (the same number as in 2001 and as in 2000), representing only 0.3% of all cancers. These included lung (6 cases), breast (4) and colorectal cancers (4), and cancers of unknown primary site (3) (Fig. 11).

The Registry continues to use computerized hospital discharge data to eliminate some letter-based enquiries, and an additional 204 (15% fewer than in 2001, and only 2.4% of total cancers) 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. Most common types were lung (39), pancreas (30), cancers of unknown primary site (25), and liver and colorectal cancers (11 each). These are shown as "DC & HMDS" cases in Fig. 11 below.

The data thus included in these statistical reports are recognized to be potentially 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, a full audit of the "hospital-only" data is yet to be funded, however it was expected that the Registry would commence follow-up of some cases during 2003 as the question cannot remain unresolved indefinitely. This has been possible only to a small extent. In particular, the term "liver cancer" as mentioned on a death certificate, and as coded without a specific hepatoma code in hospital statistics, leaves room for significant doubt as to the real nature of the primary cancer.

**Figure 11. DCO and "DC & HMDS" cancers, 2002: common cancers**

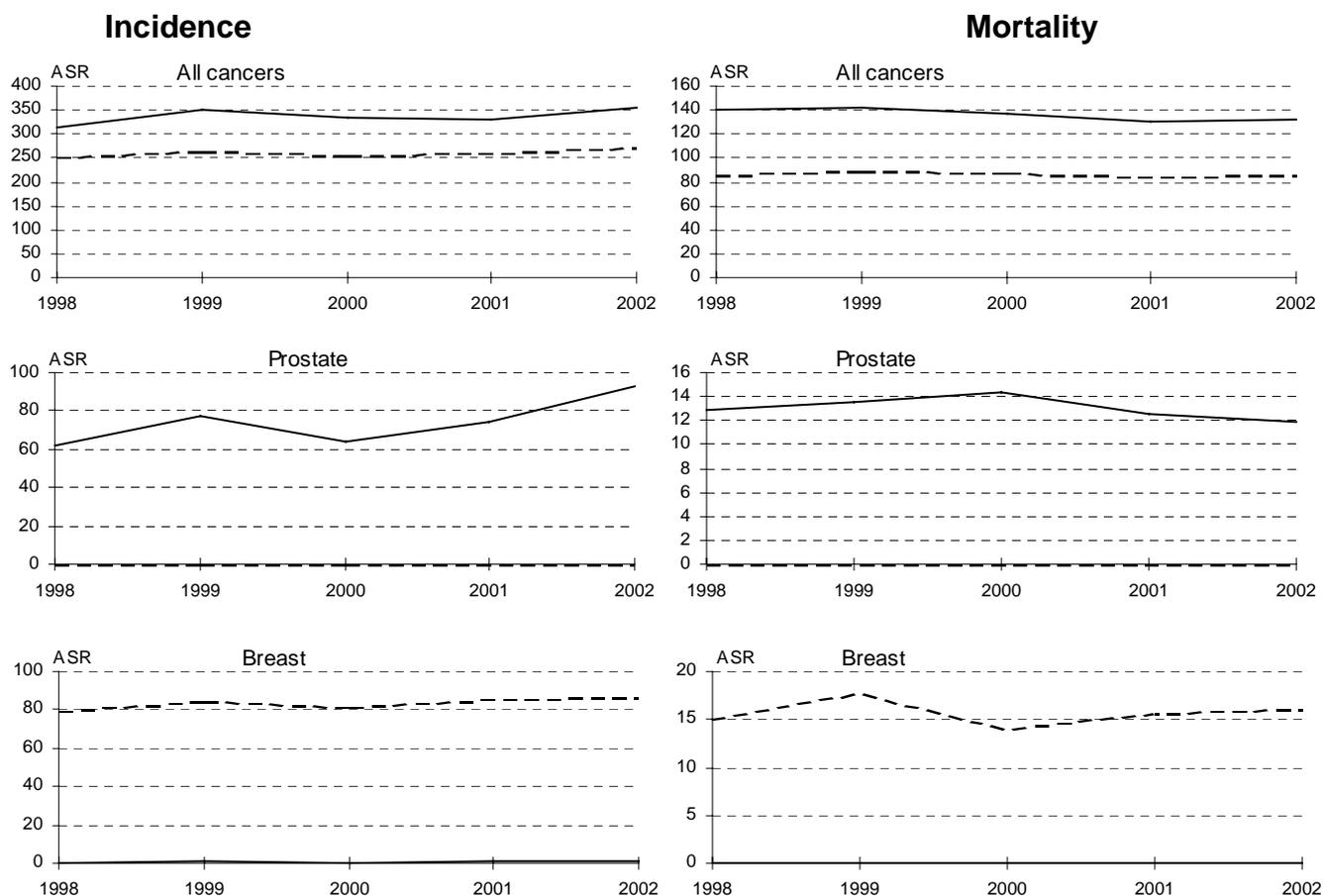


### 3.2 Historical trends in cancer incidence and mortality

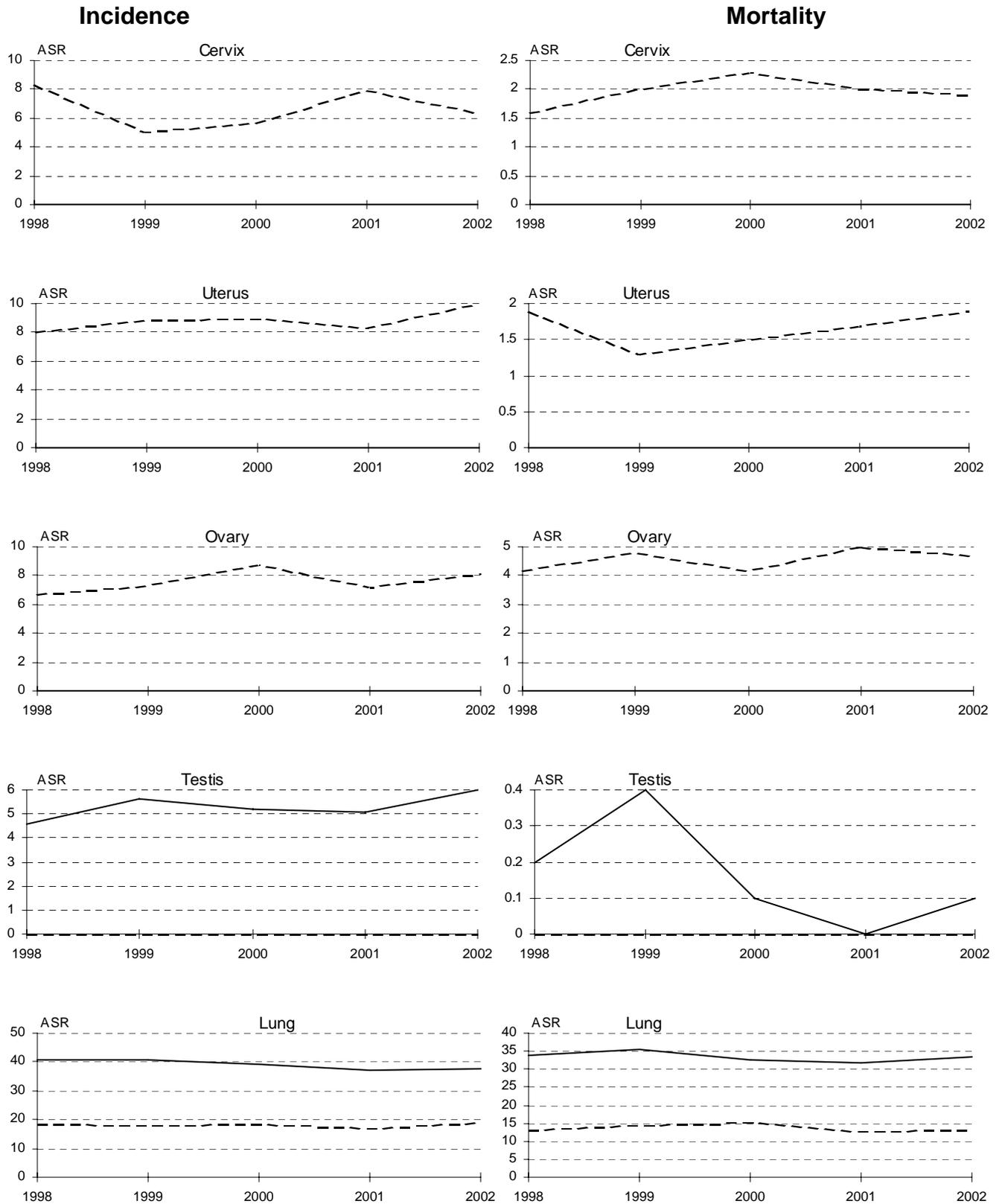
Large changes in the apparent incidence of cancer, or cancer-related mortality, have been apparent in Western Australia at various times, the best example being changes in prostate cancer incidence. Smaller changes are more common, and may result from changes in detection, real changes in the occurrence 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. Statistical significance tests based on 1993-2002 data are shown for the most common cancers in Section 3.3).

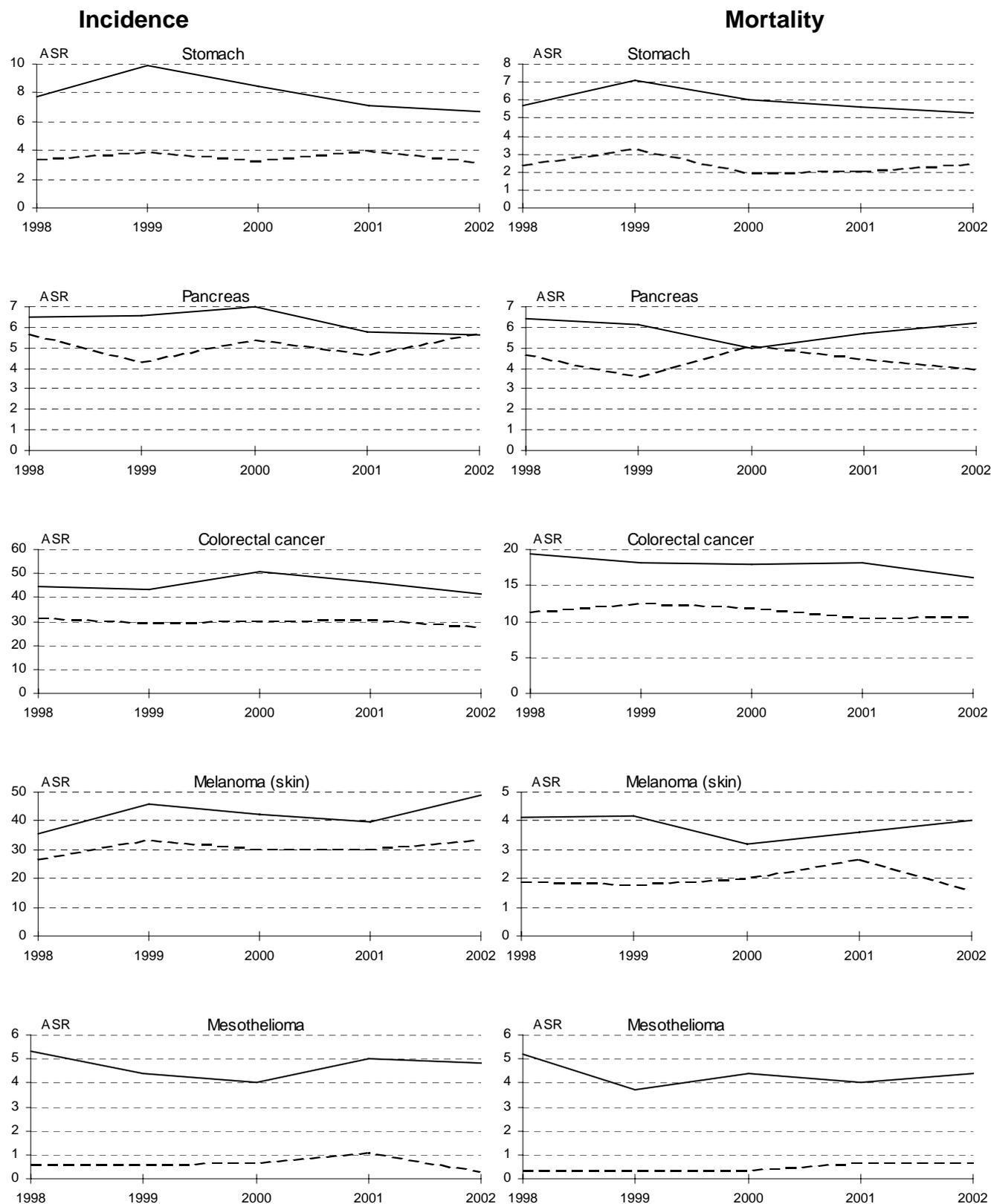
**Figure 12. Selected cancers, Western Australia, 1998-2002: trends in incidence and mortality rates for males ( — ) and females ( - - - )**



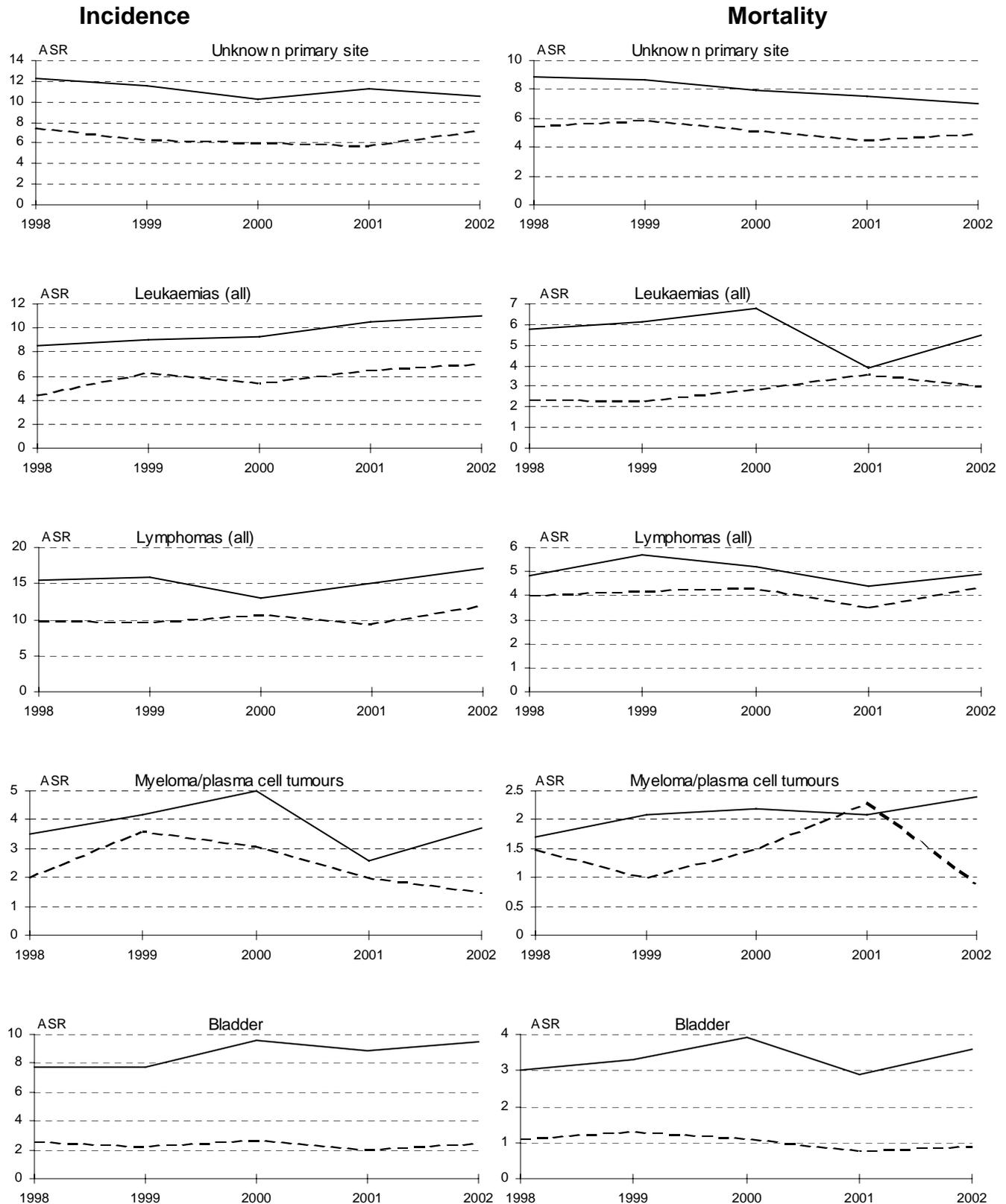
**Figure 12 (cont.). Selected cancers, Western Australia, 1998-2002: trends in incidence and mortality rates for males ( — ) and females ( - - - )**



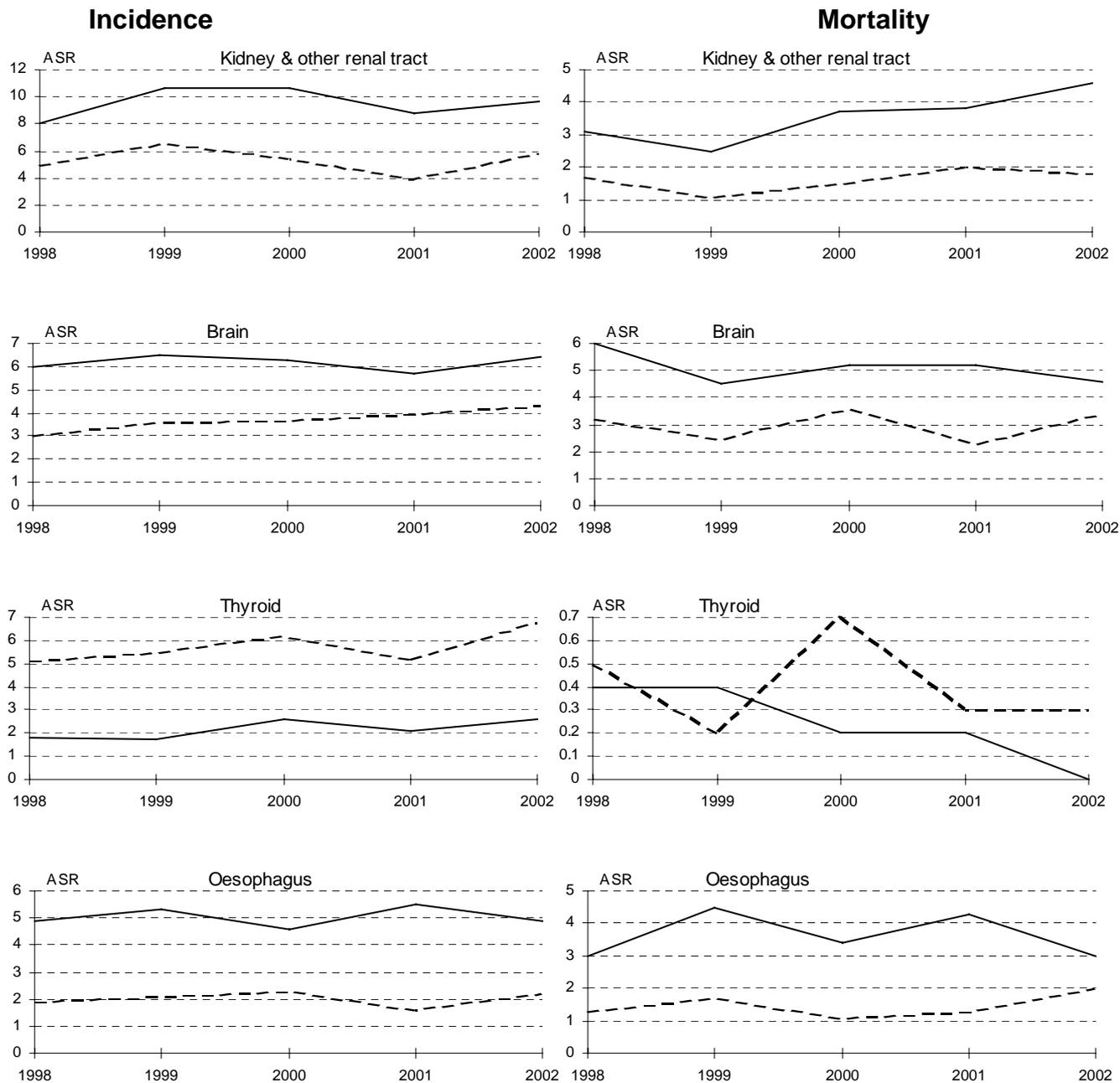
**Figure 12 (cont.). Selected cancers, Western Australia, 1998-2002: trends in incidence and mortality rates for males ( — ) and females ( - - - )**



**Figure 12 (cont.). Selected cancers, Western Australia, 1998-2002: trends in incidence and mortality rates for males ( — ) and females ( - - - )**



**Figure 12 (cont.). Selected cancers, Western Australia, 1998-2002: trends in incidence and mortality rates for males ( — ) and females ( - - - )**



## 3.3 Revised projections of cancer incidence

### 3.3.1 Previous projections

In *Cancer incidence and mortality projections for Western Australia, 1996-2001*,<sup>7</sup> a variety of methods were used to estimate the future burden of cancer incidence and cancer-related mortality. In 1996, just after the peak in the incidence of prostate cancer, it was estimated that the annual number of cancers in males would rise to 6178 by the year 2001, and the age-standardized rate would rise to 502 per 100,000.

Subsequent projections yielded a much lower estimated number of new cancers in males in 2001, of 4306 at an age-standardized rate of 344 per 100,000. The actual ASR for 2001 is now recorded as only 332. However, coding system changes have meant that Cancer Registry data now include new cancer types (lymphohaematopoietic neoplasms - see section 3.10) and omit some leukaemias, and the data are no longer directly comparable with those in previous reports.

### 3.3.2 Methods

Methods used in more recent reports rely upon the calculation of an exponentially-weighted moving average, and place more reliance on the most recent years of the "known" data. Methods are described in the Epidemiology and Analytical Services' report *Estimating future demand for hospital services: a comparison of three projection models*.<sup>3</sup>

There are some limitations to the technique: because it is in effect averaging historical data, with different weightings, the method itself may produce a sharp discontinuity in the incidence series at the junction of observed and projected data. In addition, there have been some changes made to the methods for production of population data since the analysis reported here, with decreased reliance on 1996 Census data, and some of the population estimates may be later revised. Both of these suggest that these projections should be used with some caution.

### 3.3.3 Statistical trends 1993-2002

Statistically-significant changes noted were: decreases in incidence of lung cancer (2.0% per year), melanoma (1.9%), prostate cancer (4.6%) and all-cancers combined (1.7%) in males. There were suggestions of increasing trends for female melanoma and lung cancer incidence but these 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 357 cases per 100,000 in 2002, to 321 per 100,000 by 2007 (Table 4). Changes in the rate of a single common cancer such as prostate cancer, can markedly influence such results as they have done in the past.

*Females:* On the basis of recent years, a decline in cancer incidence is projected, from an ASR of 270 per 100,000 to 259 per 100,000 by 2007 (Table 4). At the same time, actual numbers of cases may increase as the population grows, without meaning that the risk of cancer becomes any greater. The projected trend is not as marked as that projected for males.

### 3.3.5 Newest projections: other cancers

*Prostate cancer in males:* A decline in cancer incidence is projected, a return below 1000 cases a year (Table 5). Much higher rates were observed in the mid-1990s and changed rapidly, and changes in medical practice such as widespread use of PSA testing may lead to similar changes in the future. Case numbers are projected to increase in the 40-64 years age group, but decline in those over 65 years of age.

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

*Lung cancer:* No change in the rate of lung cancer is projected, for males or for females, although numbers of cases are expected to increase as the population grows (Table 6).

*Colorectal cancer:* No significant change in the rate of colorectal cancer is projected, for males or for females, over the period 2003 to 2007; however both males and females show a reduction in ASR between 2001 and 2002 and the projections may be too low (See Section 3.3.2, "Methods") (Table 7). In addition, numbers may be expected to rise in the short term at least, if Commonwealth plans for establishment of screening programs are implemented.

*Melanoma:* In females, there appears to be no expectation of major changes in incidence rates in the next few years. In males, rates appear likely to remain relatively constant, but at a level lower than that recorded here for 2002 (Table 8).

**Table 4. Cancer incidence, Western Australia, 1993-2002, and projections to 2007: All cancers (males and females)**

All cancers - males								All cancers - females						
Cases by age group								Cases by age group						
Year	15-39	40-64	65+	All	95% c.i.	ASR	95% c.i.	15-39	40-64	65+	All	95% c.i.	ASR	95% c.i.
1993	228	1164	2235	3657		367.1	355-379	306	1120	1368	2814		259.9	250-270
1994	213	1340	2653	4243		418.2	406-431	272	1204	1450	2944		266.1	256-276
1995	237	1431	2389	4090		395.9	384-408	293	1334	1583	3234		285	275-295
1996	214	1364	2299	3903		363.6	352-375	290	1189	1542	3051		258.9	249-269
1997	194	1225	2122	3560		319.1	308-330	287	1252	1545	3115		256.7	247-266
1998	211	1240	2161	3639		315.1	305-326	283	1274	1601	3177		252	243-261
1999	248	1408	2489	4177		350.1	339-361	304	1404	1654	3393		262	253-271
2000	235	1467	2399	4125		335	325-346	304	1431	1629	3391		256.7	248-266
2001	241	1473	2469	4214		331.6	321-342	242	1534	1766	3561		258	249-267
2002	220	1746	2674	4672		356.6	346-367	295	1644	1830	3792		270.4	261-280
<b>2003</b>	227	1663	2720	4638	4433-4844	343.6	333-354	285	1622	1843	3775	3707-3843	261.4	253-270
<b>2004</b>	232	1616	2561	4435	4240-4631	337.9	328-348	280	1566	1748	3615	3545-3685	260.8	252-270
<b>2005</b>	235	1659	2573	4492	4291-4693	332.2	322-342	279	1614	1786	3703	3632-3774	260.3	251-269
<b>2006</b>	238	1698	2582	4543	4337-4750	326.6	317-336	279	1664	1826	3791	3718-3864	259.8	251-269
<b>2007</b>	241	1731	2607	4605	4389-4821	321	312-331	279	1709	1876	3886	3811-3961	259.2	251-268

Trend 1993-2002: decrease by 1.7% per year (significant).

Trend 1993-2002: none.

**Table 5. Cancer incidence, Western Australia, 1993-2002, and projections to 2007: Prostate cancer (males) and breast cancer (females)**

Prostate cancer - males								Breast cancer - females						
Cases by age group								Cases by age group						
Year	15-39	40-64	65+	All	95% c.i.	ASR	95% c.i.	15-39	40-64	65+	All	95% c.i.	ASR	95% c.i.
1993	0	199	834	1033		100.5	94.3-107	67	409	299	775		74.6	69.1-80.0
1994	0	340	1081	1421		138.7	131-146	62	469	316	847		82.1	76.4-87.8
1995	0	384	863	1247		120.9	114-128	54	541	349	944		88.3	82.5-94.2
1996	0	292	654	946		88.9	83.1-94.7	79	477	323	879		79.4	73.9-84.8
1997	0	201	521	722		63.9	59.2-68.7	70	508	338	916		80.4	75.0-85.8
1998	0	232	480	712		61.5	56.9-66.1	78	521	326	925		79	73.8-84.3
1999	0	286	646	932		77.3	72.3-82.4	75	615	330	1020		84.9	79.5-90.3
2000	0	234	574	808		64.4	59.9-69.0	76	577	356	1009		81.4	76.2-86.6
2001	0	328	616	944		73.9	69.1-78.7	61	669	357	1087		86	80.8-91.3
2002	2	449	753	1204		92.5	87.1-97.8	61	683	386	1130		86.4	81.2-91.6
<b>2003</b>	0	359	720	1078	895-1261	79	74.2-83.9	68	674	383	1125	1094-1155	83.4	78.4-88.5
<b>2004</b>	0	350	637	986	810-1161	74.4	69.7-79.2	65	659	368	1091	1062-1119	84.1	79.0-89.3
<b>2005</b>	0	360	595	954	774-1135	69.9	65.4-74.4	66	686	375	1127	1097-1156	84.8	79.7-89.9
<b>2006</b>	0	369	549	920	734-1105	65.4	61.1-69.7	66	716	383	1164	1134-1193	85.5	80.5-90.6
<b>2007</b>	0	377	507	884	690-1078	60.9	56.8-65.0	66	743	392	1202	1172-1232	86.3	81.2-91.3

Trend 1993-2002: decrease by 4.6% per year (significant).

Trend 1993-2002: none.

**Table 6. Cancer incidence, Western Australia, 1993-2002, and projections to 2007: Lung cancer (males and females)**

Lung cancer - males								Lung cancer - females						
Cases by age group								Cases by age group						
Year	15-39	40-64	65+	All	95% c.i.	ASR	95% c.i.	15-39	40-64	65+	All	95% c.i.	ASR	95% c.i.
1993	2	130	285	417		42	37.9-46.1	0	59	141	200		17.7	15.1-20.3
1994	4	127	362	494		47.8	43.5-52.1	3	62	123	188		16.2	13.7-18.6
1995	3	131	330	465		43.9	39.8-47.9	1	79	143	224		19.2	16.5-21.8
1996	2	145	336	483		44.2	40.2-48.2	3	60	145	209		16.9	14.5-19.4
1997	4	125	326	455		40	36.2-43.8	5	79	153	237		18.8	16.3-21.4
1998	3	127	343	473		40.6	36.8-44.3	5	65	178	248		18.3	15.9-20.8
1999	5	127	376	508		40.7	37.1-44.4	5	76	178	259		18.2	15.8-20.6
2000	5	139	347	491		39.3	35.7-42.8	2	80	181	263		18.5	16.1-20.8
2001	2	133	353	488		37	33.6-40.3	1	83	173	257		17.2	14.9-19.4
2002	2	154	356	513		37.8	34.4-41.2	1	88	204	293		18.9	16.6-21.2
<b>2003</b>	2	157	390	550	526-575	39.5	36.0-42.9	2	88	191	281	262-300	18	15.8-20.3
<b>2004</b>	2	151	370	524	500-547	38.7	35.3-42.1	2	86	189	276	258-295	18.2	15.9-20.5
<b>2005</b>	2	152	374	531	506-556	38	34.7-41.4	2	90	196	287	269-306	18.3	16.1-20.6
<b>2006</b>	3	154	379	538	512-563	37.4	34.1-40.6	2	93	203	299	280-318	18.7	16.4-21.0
<b>2007</b>	4	155	387	546	520-573	36.6	33.5-39.8	4	96	210	313	294-332	19	16.8-21.3

Trend 1993-2002: decrease by 2% per year (significant)

Trend 1993-2002: increase by 1.4% per year (not significant)

**Table 7. Cancer incidence, Western Australia, 1993-2002, and projections to 2007: Colorectal cancer (males and females)**

Colorectal cancer - males								Colorectal cancer - females							
Cases by age group								Cases by age group							
Year	15-39	40-64	65+	All	95% c.i.	ASR	95% c.i.	15-39	40-64	65+	All	95% c.i.	ASR	95% c.i.	
1993	14	161	262	438		44.2	40.0-48.4	9	115	236	360		30	26.7-33.4	
1994	9	157	286	452		44.3	40.1-48.4	7	122	239	368		30.4	27.1-33.7	
1995	13	173	277	463		44	39.9-48.1	6	130	279	415		32.7	29.3-36.1	
1996	5	207	309	521		48.4	44.2-52.6	5	107	260	372		28.5	25.4-31.6	
1997	3	190	323	516		46.1	42.0-50.2	9	146	253	408		31.3	28.1-34.5	
1998	7	179	329	516		44.5	40.6-48.4	13	133	277	423		31.6	28.3-34.8	
1999	9	171	339	519		43.1	39.3-46.9	7	133	286	426		29.4	26.4-32.5	
2000	11	232	387	630		50.8	46.7-54.8	15	145	280	440		30.1	27.1-33.2	
2001	22	206	376	604		46.5	42.7-50.3	10	141	337	488		30.9	27.9-33.8	
2002	5	191	364	560		41.2	37.6-44.7	14	132	299	445		27.6	24.9-30.4	
<b>2003</b>	10	224	391	623	603-644	45.1	41.4-48.7	11	154	320	484	451-517	29.7	26.8-32.6	
<b>2004</b>	10	216	380	606	587-625	45.1	41.4-48.8	11	147	302	459	427-491	29.5	26.6-32.4	
<b>2005</b>	10	222	395	626	606-646	45.1	41.5-48.8	12	149	309	470	437-503	29.4	26.5-32.2	
<b>2006</b>	10	227	409	647	627-668	45.3	41.7-48.9	13	152	318	480	447-514	29.2	26.4-32.1	
<b>2007</b>	10	231	426	670	649-691	45.4	41.8-48.9	13	153	326	492	458-526	29.1	26.3-31.9	

Trend 1993-2002: none.

Trend 1993-2002: decrease by 0.3% per year (not significant).

**Table 8. Cancer incidence, Western Australia, 1993-2002, and projections to 2007: Melanoma (males and females)**

Melanoma - males								Melanoma - females							
Cases by age group								Cases by age group							
Year	15-39	40-64	65+	All	95% c.i.	ASR	95% c.i.	15-39	40-64	65+	All	95% c.i.	ASR	95% c.i.	
1993	78	165	110	358		37.1	33.2-41.0	95	152	76	324		32.6	29.0-36.3	
1994	83	196	124	406		40.9	36.8-44.9	83	158	102	344		33	29.4-36.6	
1995	80	230	150	460		46.1	41.8-50.3	98	149	98	345		32.5	29.0-36.0	
1996	69	193	139	402		38.3	34.5-42.1	83	143	75	302		28.3	25.0-31.6	
1997	54	179	151	384		35.1	31.5-38.6	85	116	86	288		25.6	22.5-28.6	
1998	66	173	165	407		35.6	32.1-39.1	77	134	105	316		26.9	23.8-30.0	
1999	94	226	211	532		46.1	42.1-50.0	106	173	110	390		33.4	29.9-36.8	
2000	89	224	190	504		42.5	38.7-46.3	102	151	109	362		30.2	26.9-33.4	
2001	84	211	193	488		39.7	36.1-43.3	73	184	126	383		30.3	27.1-33.4	
2002	76	304	236	617		49.1	45.1-53.0	87	197	144	428		33.3	30.0-36.6	
<b>2003</b>	77	254	209	541	510-573	42.2	38.5-45.8	88	184	125	397	367-428	30.5	27.4-33.7	
<b>2004</b>	80	248	208	538	507-569	42.8	39.1-46.5	87	176	124	386	357-415	30.5	27.3-33.7	
<b>2005</b>	81	257	223	561	529-593	43.4	39.7-47.1	87	179	129	396	366-426	30.4	27.3-33.6	
<b>2006</b>	82	265	237	585	552-618	44.1	40.4-47.7	86	184	136	407	376-437	30.6	27.4-33.7	
<b>2007</b>	84	274	256	613	579-646	44.9	41.2-48.5	87	185	142	417	386-448	30.5	27.5-33.6	

Trend 1993-2002: increase by 1.9% per year (significant).

Trend 1993-2002: increase by 0.3% per year (not significant).

### 3.4 The W.A. cancer staging project

In the treatment of many cancers, one of the most important prognostic factors is the stage, or anatomic extent of the disease. Whether measured by specific combinations of Tumour, Nodes and Metastasis (TNM) information, or various “extent of disease” (EOD) classifications, which assign terms such as “localized”, “regional spread” and “distant metastasis”, staging information can facilitate the provision of appropriate patient care, explain variability in treatment outcomes, and allow cancer patients and their families to better understand the clinical condition and prognosis.

The WA Cancer Staging Project was completed recently. This was a one-year project aimed at investigating the feasibility of adding cancer staging data to the routine collections of the population-based Western Australian Cancer Registry (WACR). The study was a collaboration between the University of Western Australia’s School of Population Health, the Western Australian Cancer Registry (Department of Health), the Western Australian Clinical Oncology Group (WACOG), and the funders, the National Cancer Control Initiative (NCCI).

The Staging Project report has now been published by the NCCI.<sup>12</sup> The Executive Summary is presented here, as a guide to the findings and recommendations.

#### Executive Summary

##### Project background

The aim of Western Australian Cancer Staging Project was to determine whether or not it is feasible to add cancer staging data to the routine data collections of the population-based Western Australian Cancer Registry (WACR).

In 2001, the West Australian Clinical Oncology Group held a symposium to discuss the WACR report, *Cancer survival in Western Australians, 1982-1997*.<sup>9</sup> A concern voiced by many clinicians was the limited ability to interpret the survival analysis data because of the lack of adjustment for stage of cancer. While the WACR routinely collects data relating to tumour location, type, basis and date of diagnosis, and grade, together with demographic information, it does not currently collect information on cancer stage.

This study was funded by the Australian Government through the National Cancer Control Initiative (NCCI) and was a collaboration between the University of Western Australia School of Population Health, the Western Australian Cancer Registry (Department of Health) and the Western Australian Clinical Oncology Group (WACOG).

##### Aims

- To determine the data requirements for staging information, with reference to the Core Clinical Data Set currently being developed by NCCI.
- To determine the degree to which requirements for staging information can be met by pathology reports as currently supplied to the Western Australian Cancer Registry and Hospital based cancer registries.
- To determine the feasibility of data collection, prospectively for new cases, and retrospectively for older cases.
- To estimate the infrastructure requirements and costs of ongoing collection of cancer

staging information.

## **Methods**

A frequency-weighted caselist of 600 cancer cases comprising the 20 most frequent cancers in WA, excluding non-melanocytic skin cancers, was selected from WACR data. For each of the five most common cancer types (prostate, colorectal, melanoma, breast and lung cancers), 60 cases were selected for staging. For the remaining 15 cancer types, 20 cases were selected. Of the 600 cases, 450 were “retrospective” cases diagnosed in 1998 (300) or January – June 2002 (150); and 150 were prospective, diagnosed after June 2002.

There were four sources for collecting data for the staging: the WACR, the hospital based cancer registries (HBCRs), hospital medical records (HMR), and letters to treating doctors. The procedure used for the majority of cancer types was as follows: First the pathology reports and death notifications for each case at the WACR were reviewed and staging data extracted. If full staging data were not available, data were acquired from the HBCRs. Next case-notes at both private and public hospitals were reviewed. Finally, where necessary, letters were sent to clinicians requesting staging information.

Data collected included the actual stage information where available, as well as resource use in terms of time, transport, letters, set-up and administration costs, so as to support an accurate budget estimate.

For many of the cases in this study it was not possible to stage the cancer definitively, because of the lack of information on regional nodal status or the presence or absence of distant metastases. Clinically, many of these cases are likely to be early stage cancers. For those cases which were not stageable, two different assumptions were applied. The first assumption was applied to cases which had data for tumour (T) and regional lymph nodes (N), but which had no assessment of distant metastasis (MX). The assumption made was that MX was equivalent to M0 (no distant metastases). The second assumption was applied to cases with data for T and M, but with no assessment of regional nodal involvement (NX). The assumption made was that NX was equivalent to N0 (no regional nodal involvement). This is summarized as “NX=N0” in the tables.

As the appropriateness of such assumptions may differ with cancer type, they need to be applied very cautiously, and after further liaison with clinicians.

## Results

The feasibility of staging the 20 cancer types is summarized as follows:

Cancer type	Staged from WACR data alone (%)	Staged from WACR and HBCRs, WARTN (%)	Staged after all completed steps (no assumptions) (%)	Staged after all steps with assumption/s (%)
<b>Group A: Could be staged now</b>				
Ovary	60 <sup>^</sup>	100	100	100
Cervix	16 <sup>^</sup>	95	100	100
Uterus	50 <sup>^</sup>	85	95	95
<b>Group B: Could be staged now, making MX=M0 assumption</b>				
Breast	0	12	65	95
Colorectal	12 <sup>^</sup>	53	80	92
<b>Group C: Could be staged now, with NX=N0 and MX=M0 assumptions</b>				
Melanoma	0	(0)	57	100
Prostate	2	5	34	97
<b>Group D: Could be started now with MX=M0, but long term collection requires system changes</b>				
Stomach**	25	25	70	95
Lung	18	38	76	86
Pancreas	45	45	70	80
Thyroid**	10	10	47	79
Testis**	10	10	75	75
Kidney**	15	20	65	70
<b>Group E: Staging not feasible at present</b>				
Oesophagus**	0	0	50	65
Bladder**	0	0	40	55
Lip	0	(0)	37	42
Lymphoma	44	(44)	44	44
Myeloma	0	(0)	0	0
Leukaemia	0	(0)	0	0
Brain	0	(0)	0	0

<sup>^</sup> These numbers could have been higher as the external databases were searched first, and WACR later searched only for incomplete cases.

\*\* Only one HBCR currently collects data on these cancers except bladder, for which two HBCRs are collecting data.

( ) Numbers in parentheses indicate that the additional data source/s indicated by the column header, was/were not accessed as they were either not applicable to the cancer type, or research suggested the additional effort would be unrewarding. Percentages shown are cumulative, beginning from the left.

For cancers in Group A the use of the HBCR was clearly crucial, markedly increasing the stageable proportion of cases. Cancer types in Group B and Group C could be staged now, but only if the assumption MX=M0 or both assumptions (NX=N0 and MX=M0) were acceptable, respectively. Cancer types in Group D could be staged now, but additional clinical input – on pathology request forms, for example - would be required to achieve useable levels of completeness. For cancer types in Group E, either “staging” is widely regarded as not relevant, and no generally-accepted system exists, or an acceptable level of completeness is not achievable.

## Estimated Costs

For each cancer type, the recorded times from the feasibility study were extrapolated to current annual based on a preliminary 2002 caselist. The estimated resources required ranged from less than 0.1 FTE for staging only cancers in Group A, to 1.5 FTE for adding cancers in Groups B-D. Although an estimate of Group D costs is included, clinical input would be necessary to make this option cost effective, and some cancers might be omitted as the percentage staged would still be too low to be of any clinical or statistical value. If the two main types of assumptions are not acceptable, then bringing completeness up to acceptable levels for some cancers might not be feasible without still further resources

## Conclusions

1. Adding stage to the WA Cancer Registry routinely collected information is possible for many cancer types.
2. Good staging information can be obtained with relatively minimal effort, for the following cancers - if specialized gynaecological hospital-based cancer registries continue to operate: **Cervix, Ovary and Uterus.**
3. Making the assumption that  $MX=M0$  for all cancers with  $N0$ ; reasonable staging information (>75% complete) can be obtained for the following cancers: **Breast, Colorectal.**
4. Making the assumption that  $MX=M0$  and  $NX=N0$ , reasonable staging information (>75% complete) can be obtained for the following cancers: **Prostate, Melanoma.** (However, for both these cancers, considerable improvement of the completeness and accuracy of the staging information would be possible if routine histopathology referral forms for melanoma and prostate cancer included information regarding presence or absence of clinically involved lymph nodes or metastases.)
5. Further work is needed to improve the staging data availability and systems for cancers of the lung, stomach, thyroid, testis, pancreas, and kidney. In particular, the acceptability of an  $MX=M0$  assumption for lung cancer, needs to be debated with local clinicians.
6. Staging of brain cancer should not be considered further at the moment, as no accepted staging system exists.
7. At the moment it is not possible to stage oesophageal, bladder or lip cancers, lymphoma, myeloma or leukaemia with reasonable effort.
8. Data for "old" cases can be obtained, but costs will appear excessive if unrealistic emphasis is placed on staging historical data.
9. These findings should be generalizable to most cancer registries in Australia, if hospital-based cancer registries or other specialized databases are accessible.

## Recommendations

1. Adding stage to the WA Cancer Registry routinely collected information should be started for the following cancers as soon as funding can be made available:
    - Cervix
    - Ovary
    - Uterus
    - Colorectal
    - Breast
    - Prostate
    - Melanoma
  2. Urgent further discussions with pathologists and relevant clinicians should be held to determine whether routine histopathology referral forms could include “tick boxes” for the clinician to indicate whether there were thought to be cancer-affected regional lymph nodes or distant metastases.
  3. Further work is needed in the near future to improve the staging data availability and systems for cancers of the lung, stomach, thyroid, testis, pancreas, and kidney.
  4. Staging of lip, oesophagus, bladder and brain cancers and lymphoma, myeloma and leukaemia are not possible at the moment, but this conclusion should be reviewed regularly to determine whether circumstances have changed so as to make staging of these cancers feasible.
  5. A special project should be funded to add staging to the data for cancers held by the WA Cancer Registry from 1998 onwards.
  6. The HBCRs should continue to be funded, on the condition that regular and timely data exchange with the WA Cancer Registry occurs, to facilitate the availability of population-based staging information. Extending coverage to private hospitals should also be considered.
  7. Any long term moves towards registration of “cancer treatment centres” should include a requirement that all cancers are staged and that such information is passed on to the WA Cancer Registry.
-

## 3.5 Cancer incidence and mortality in areas of Western Australia, 1998-2002

### 3.5.1 Background

In the report for 2001, we presented ten-year trend graphs for all cancers combined, for smaller areas based on the Department of Health's Zones and Health Service areas current at the time.

In Appendix 3D and Appendix 3E of this report, we present for the major areas in the current DOH arrangement (Health Regions and Rural / Metropolitan groupings), tabulations of cancer incidence and mortality for the most common cancers, as well as the all-W.A. data, for 2002.

In areas even smaller than Health Regions, such as Health Districts, Statistical Local Areas, or even localities and suburbs, cancer case numbers are commonly too small to permit a scientific assessment of "risk", especially when considering individual cancer types and individual years. However, in this section, we present graphs showing the comparisons of incidence and mortality rates in Health Regions and Health Districts with all-W.A. incidence and mortality data, using information for the period 1998-2002 combined. Although many crude "differences" are not statistically significant, it is important that the information be presented as public interest continues to grow.

### 3.5.2 Interpretation of graphs

In the graphs which follow, whether for incidence or for mortality, the **standardized rate ratio** (SRR) is shown, which is based on comparison of cases in each area of concern, with the numbers expected based on age- and sex-specific rates for the whole of WA. The horizontal bars represent the 95% confidence interval for the SRR. A bar crossing the vertical line at SRR=1 indicates that any difference from the State average is not statistically-significant. Bars that lie wholly to the left of the vertical line indicate a significantly lower rate than expected, bars to the right indicate a statistically-significant excess of cases.

Bars that are narrow, or short, are mostly those for the bigger areas such as Health Regions, and the most common cancers (e.g. most areas in Fig. 13) - as the statistics are based on larger numbers of "events", and the statistical uncertainty of the SRR is relatively small. Bars that are very wide are most common for the smaller Health Districts and for less common cancers (e.g. lung cancer in females, Fig. 19). In these areas, moving the analysis to single years, for less-common cancer types, will often result in an analysis which is incapable of giving meaningful results.

Some bars have been truncated on the right at an SRR of 3, to maintain clarity of other data, and these bars may appear asymmetrical.

The results are only summarized here for the "all-cancers" graphs, as so many of the other comparisons are based on numbers too small to permit precise estimates. The contact details at the beginning of this report may be used to seek further advice on specific areas.

### 3.5.3 Summary of results for all cancers combined

#### *All cancers - Incidence (Fig. 13)*

In males, total cancer incidence appeared elevated in the North Metropolitan Region and in the Bentley and Inner City Health Districts. Rates appeared lower than average in rural areas as a whole, and particularly in the Kimberley and Pilbara-Gascoyne Regions, and in the Warren-Blackwood Health District. In females, all-cancers incidence appeared higher than average in the Bentley and Fremantle Health Districts, and lower than average in the Armadale-Kelmscott Health District and in the Pilbara Gascoyne health region as a whole.

#### *All cancers - Mortality (Fig. 14)*

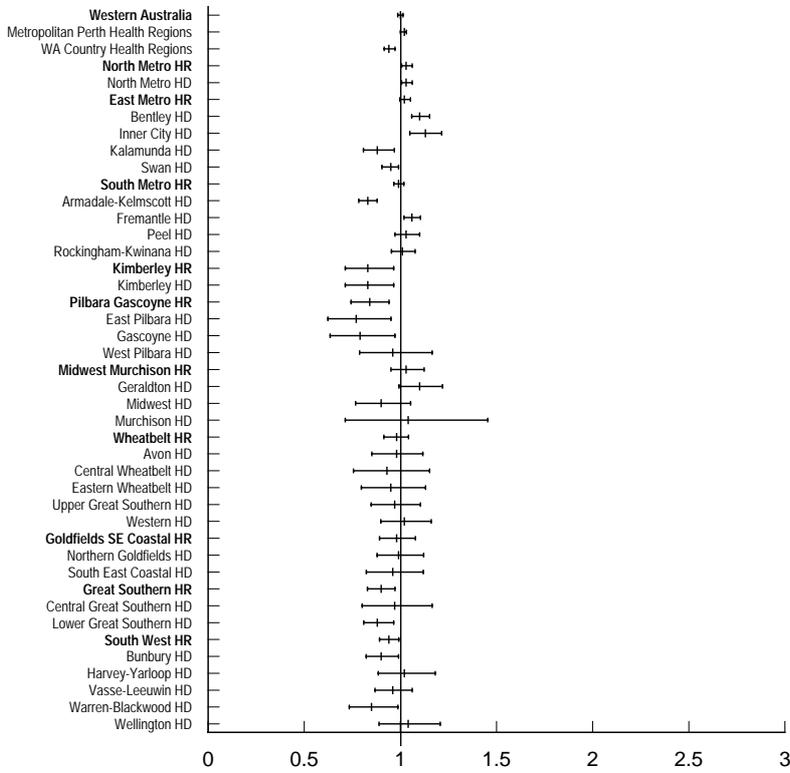
In males, cancer death appeared more frequent than average in the East Metropolitan Region, especially the Bentley and Inner City Districts. In the South Metropolitan region, it was less common than expected in the Armadale-Kelmscott Health District, but higher than average in the Rockingham-Kwinana District. Cancer mortality was more common than average in the Geraldton Health District, and lower than average in the Lower Great Southern Health District. Rates in other areas were essentially similar to State rates.

In females, similar patterns were seen, together with a marginally elevated mortality rate in Peel Health District and reduced rates in the Western Health District.

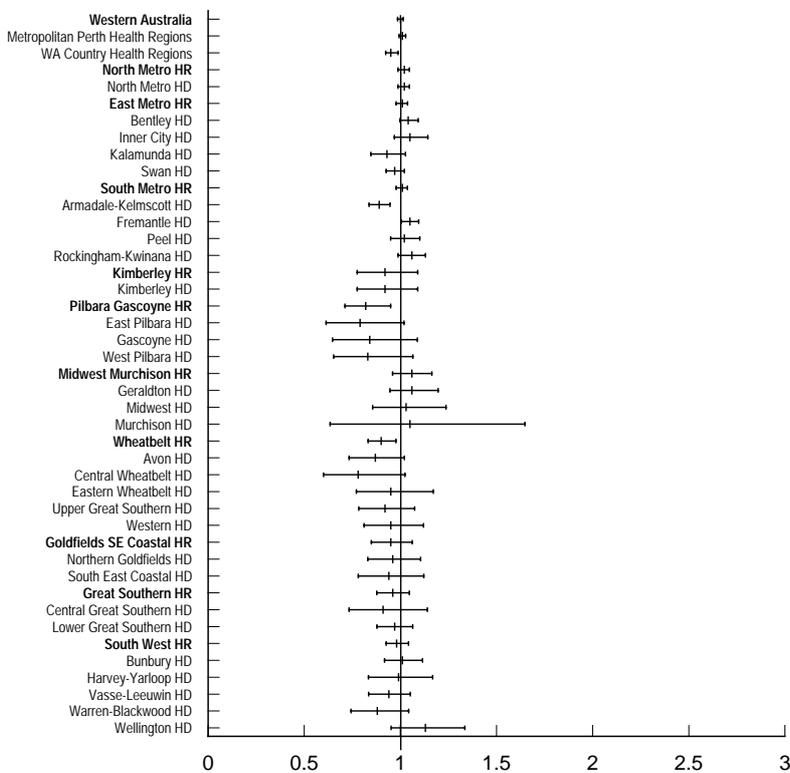
Mortality in particular may not be a good indicator of cancer risk as it may occur long after the onset of the disease, when people may have moved to other areas. These and previous data suggest it is reasonable to expect that relative mortality rates might be higher in areas where health services are more readily available - central Perth, Rockingham, Geraldton. However the lower rate in male Albany residents cannot as easily be explained in this way, but is consistent with lower observed incidence rates.

**Figure 13 All-cancers standardized incidence rate ratios for Western Australia, 1998-2002, for males and females**

**Males**

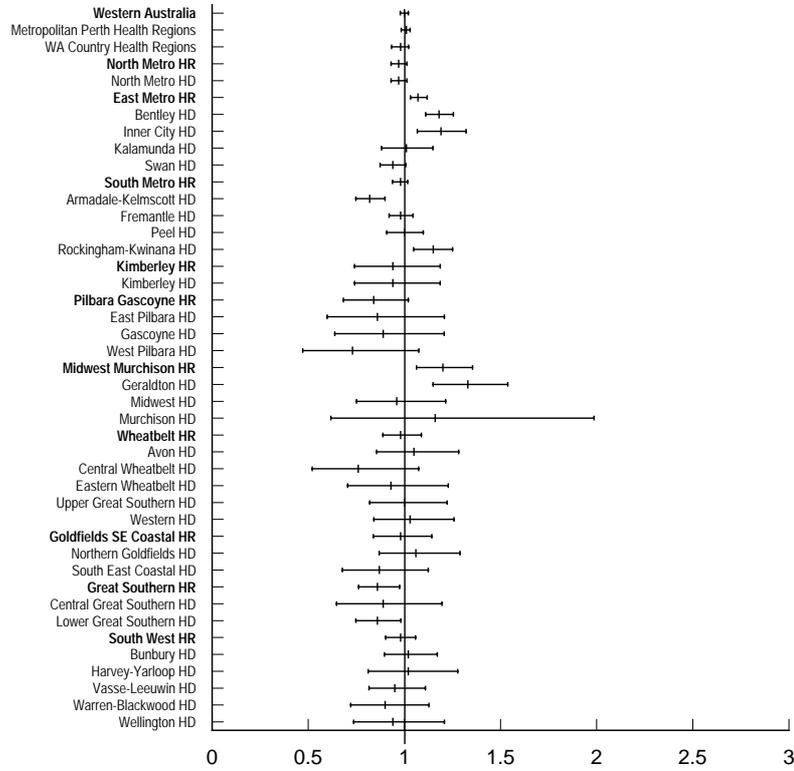


**Females**

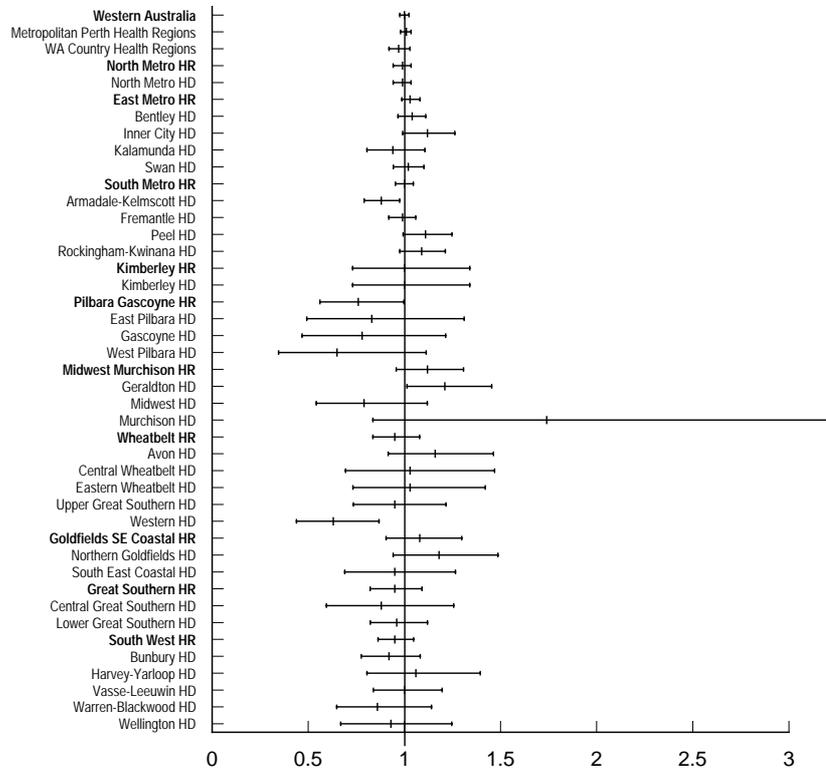


**Figure 14 All-cancers standardized mortality rate ratios for Western Australia, 1998-2002, for males and females**

**Males**

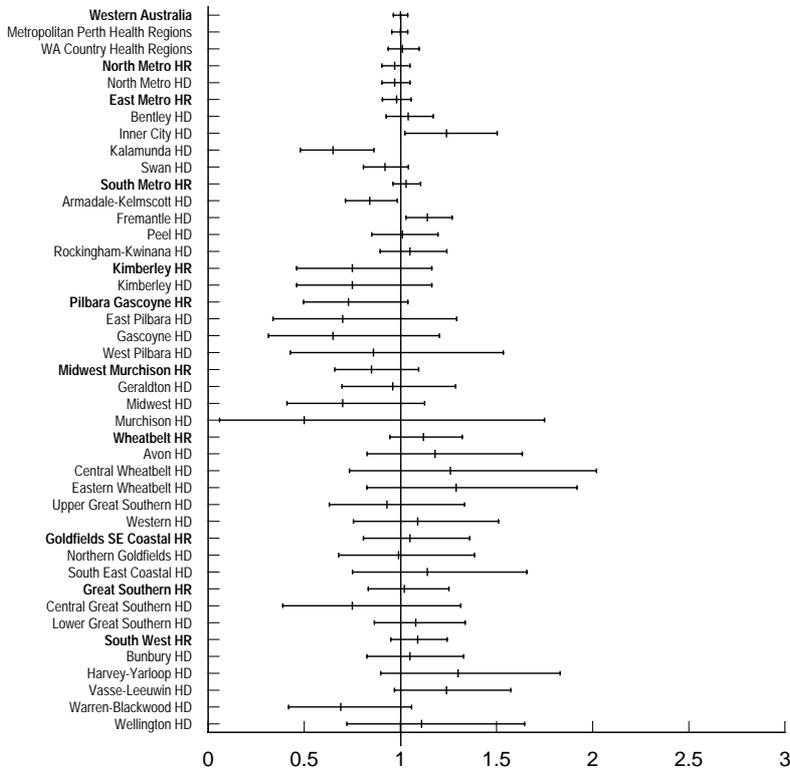


**Females**

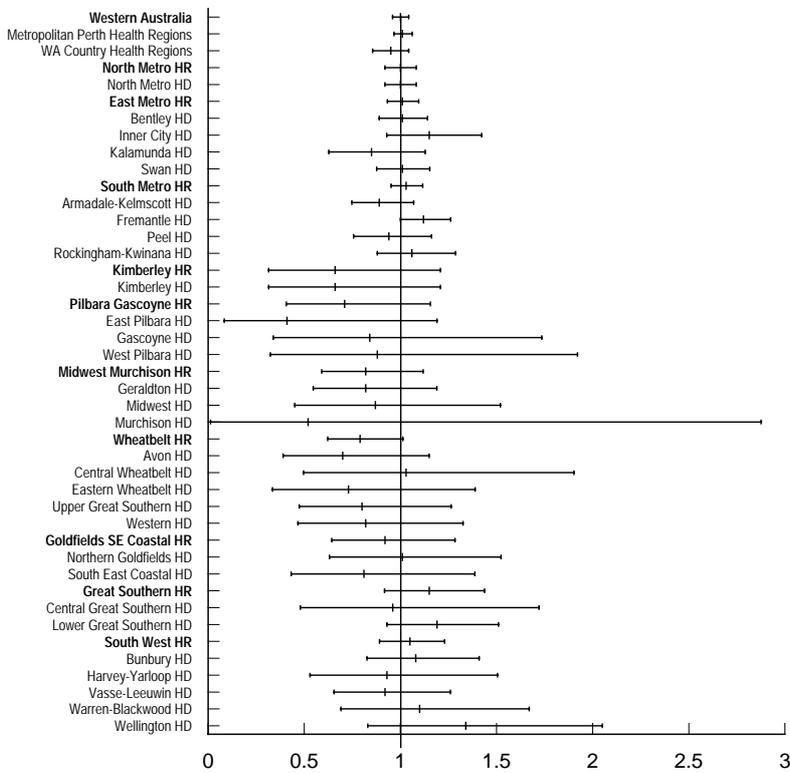


**Figure 15 Colorectal cancer standardized incidence rate ratios for Western Australia, 1998-2002, for males and females**

**Males**

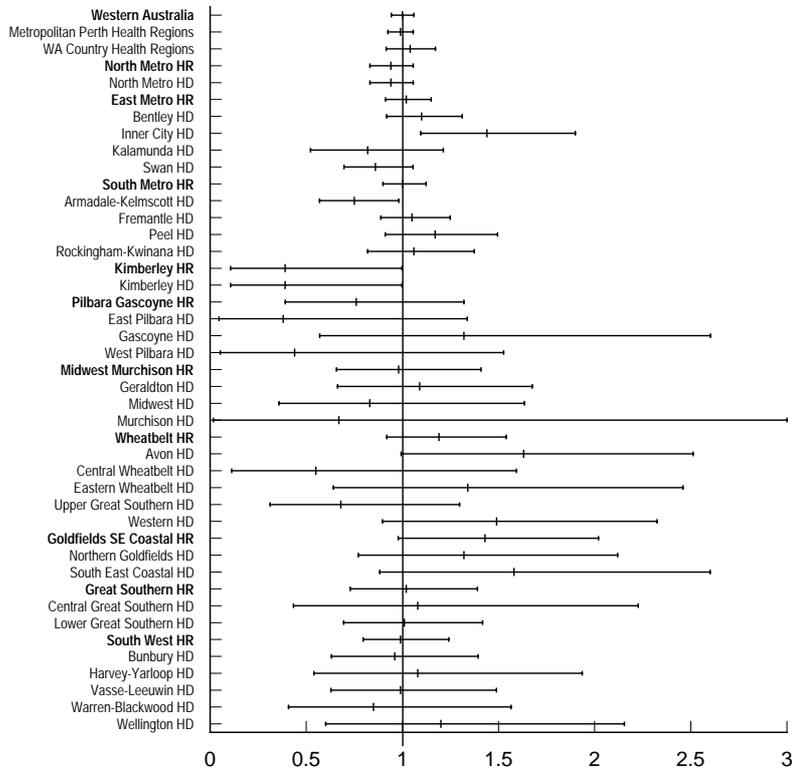


**Females**

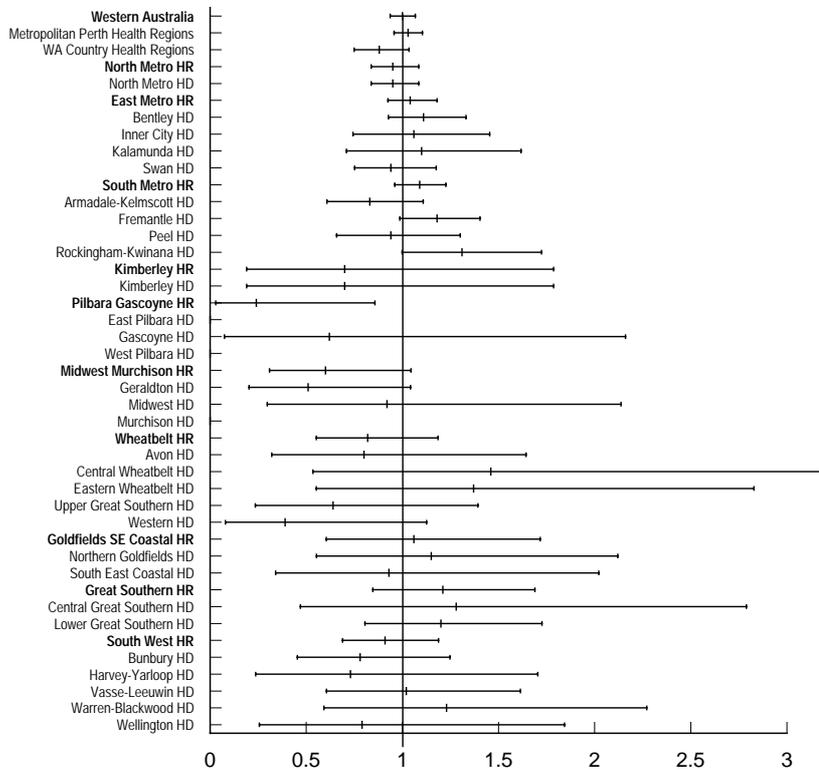


**Figure 16 Colorectal cancer standardized mortality rate ratios for Western Australia, 1998-2002, for males and females**

**Males**

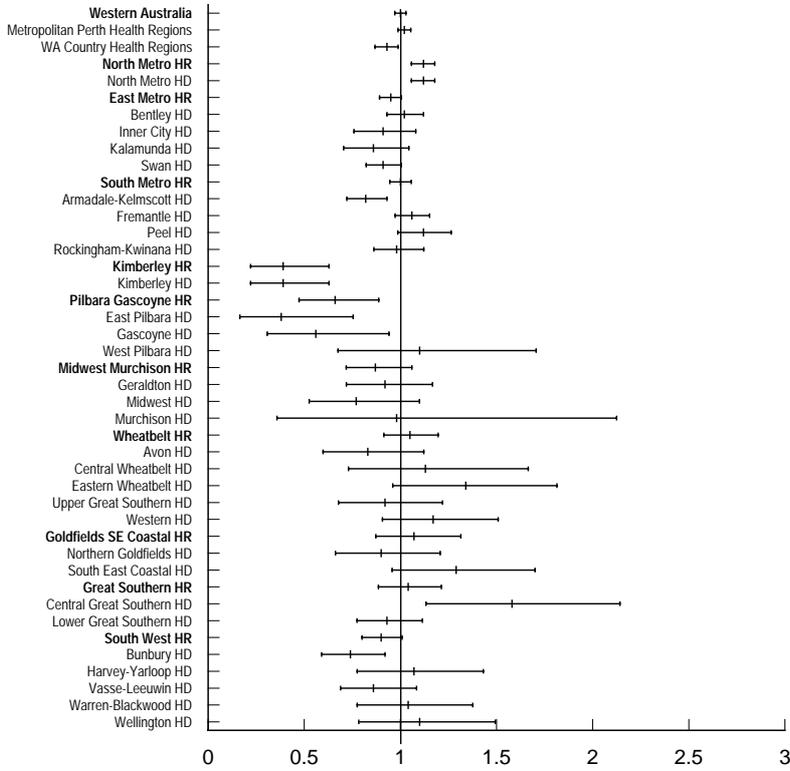


**Females**

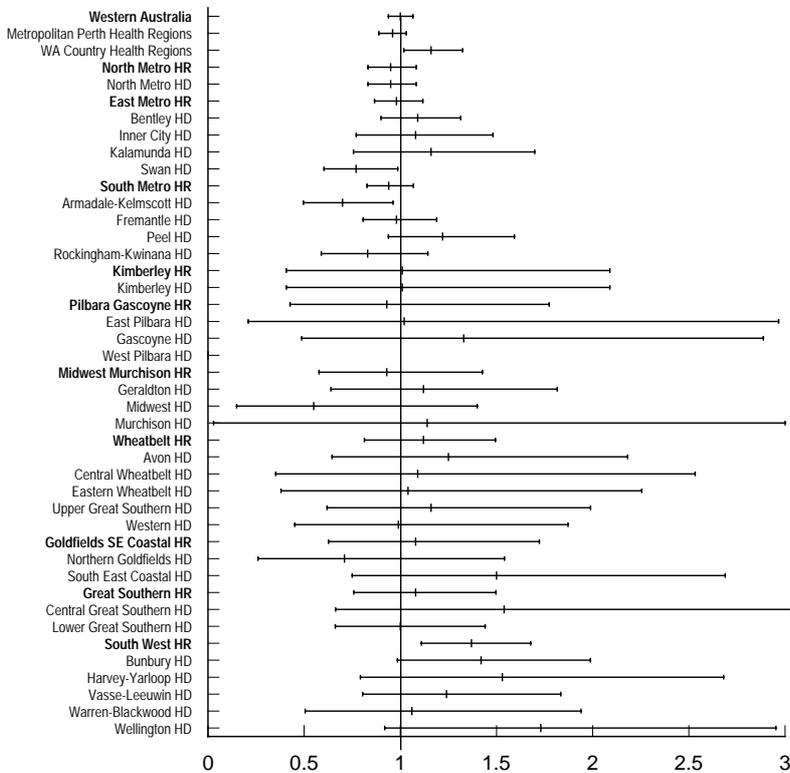


**Figure 17 Prostate cancer standardized incidence and mortality rate ratios for Western Australia, 1998-2002**

**Males - incidence**

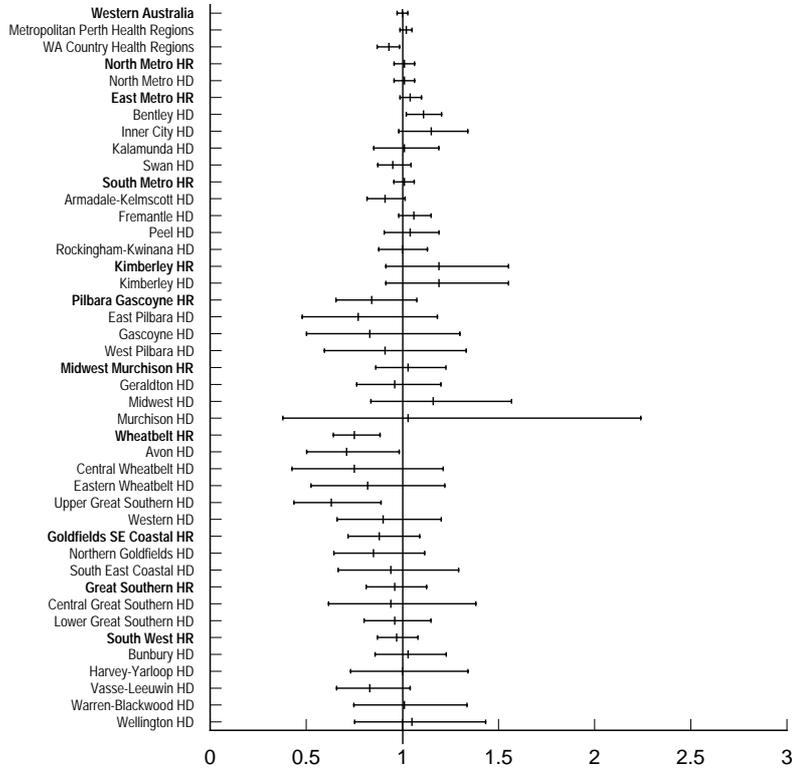


**Males - mortality**

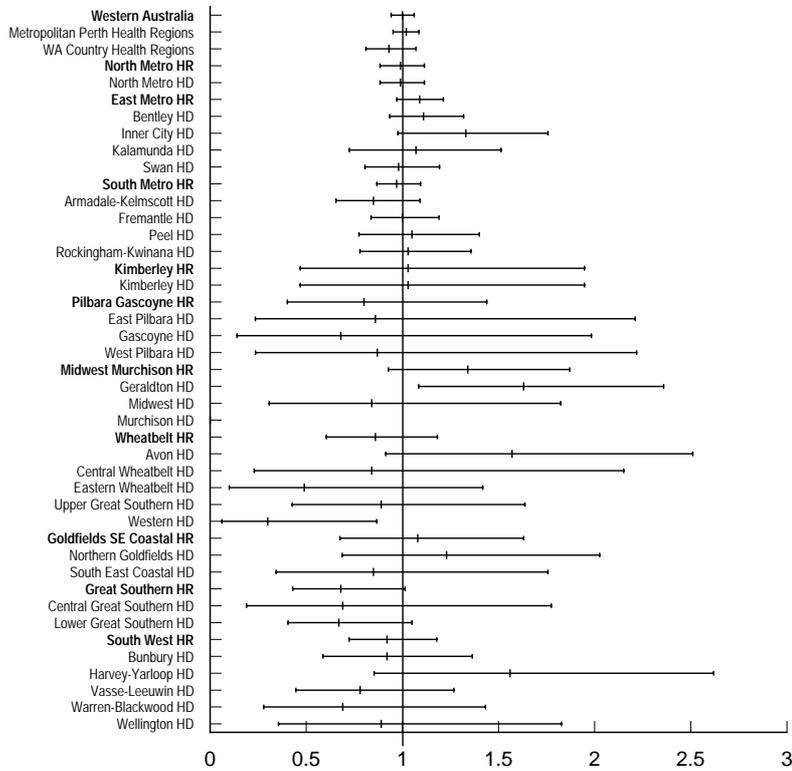


**Figure 18 Breast cancer (females) standardized incidence and mortality rate ratios for Western Australia, 1998-2002**

**Females - incidence**

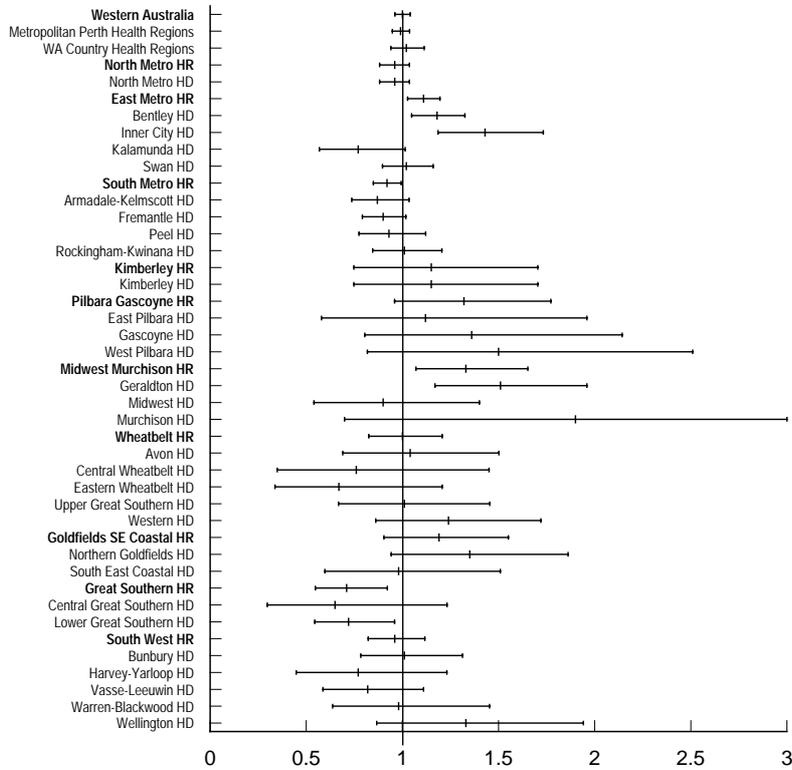


**Females - mortality**

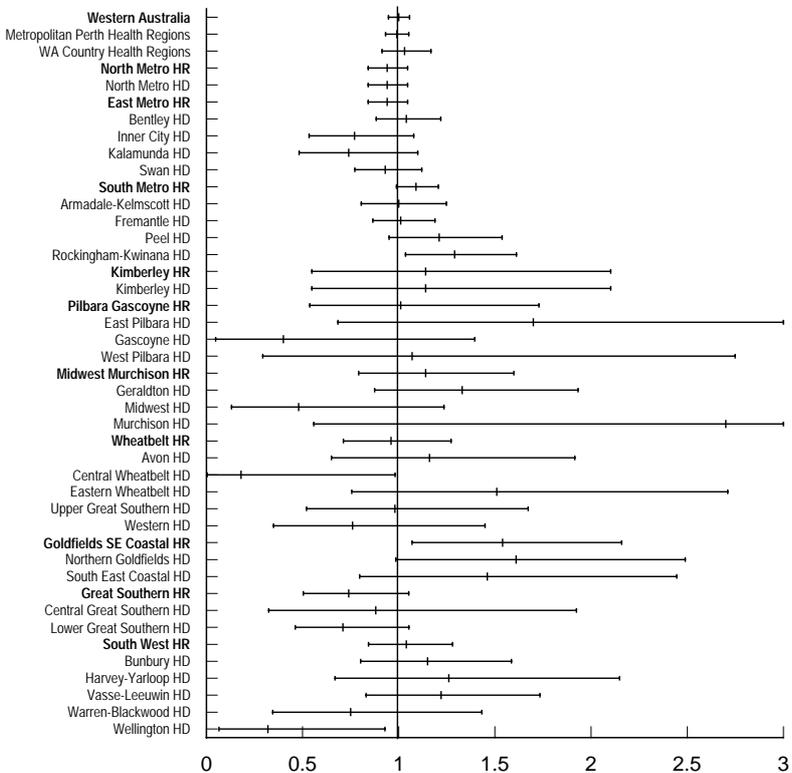


**Figure 19 Lung cancer standardized incidence rate ratios for Western Australia, 1998-2002, for males and females**

**Males**

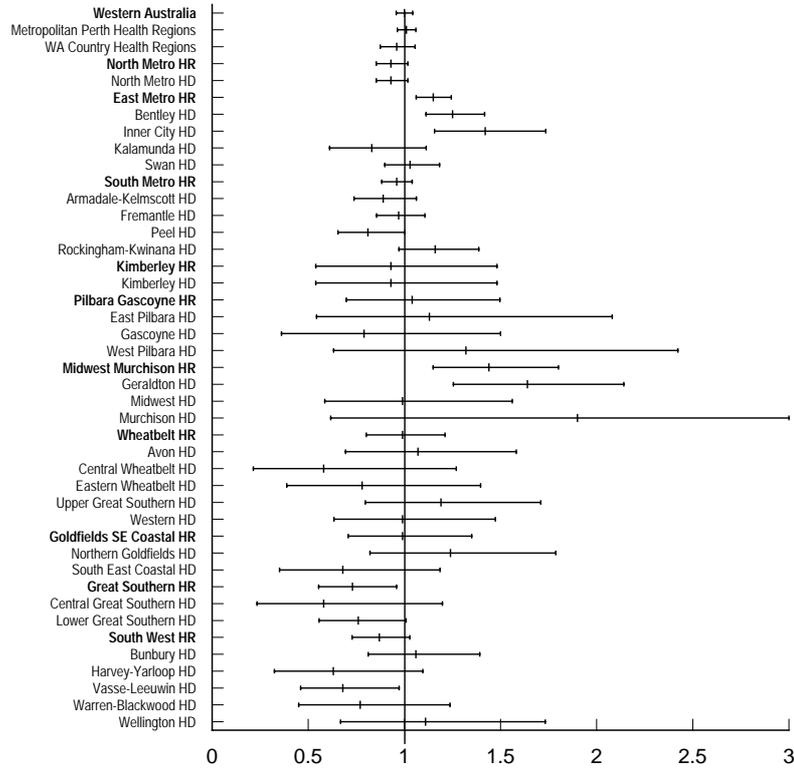


**Females**

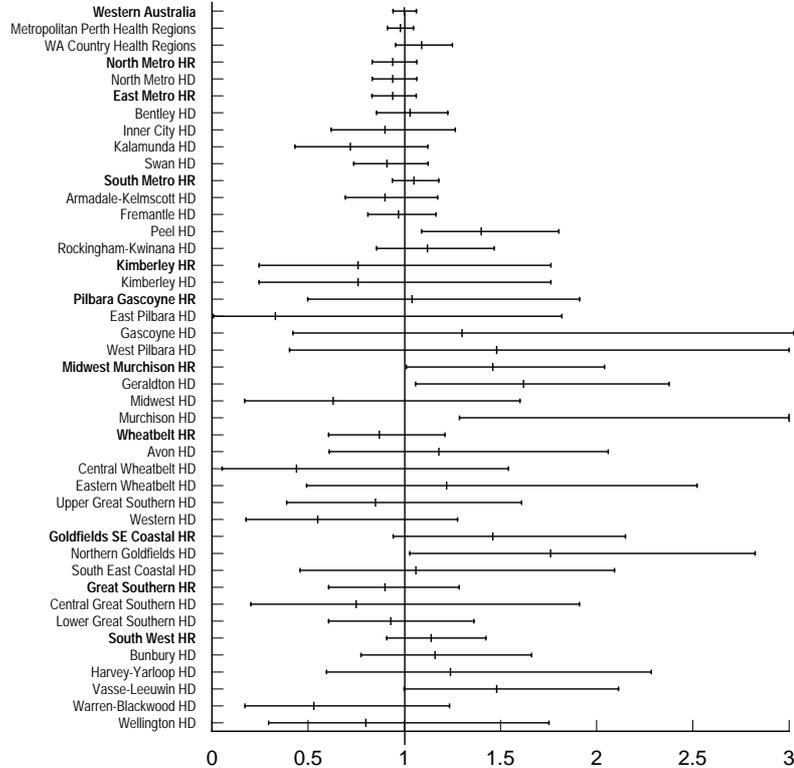


**Figure 20 Lung cancer standardized mortality rate ratios for Western Australia, 1998-2002, for males and females**

**Males**



**Females**



## 3.6 Relative survival for common cancers, W.A. 1983-2002

### 3.6.1 Background

In a previous report,<sup>9</sup> we presented results of relative survival analysis for all standard cancer "types" to 1997. Relative survival is expressed as a percentage of the survival time expected based on age and sex in the general population, for persons with a condition of interest. While concerns have been expressed about the relevance of such analyses in the absence of staging information, resources still preclude the routine addition of such information to the registry data. However, the possibility of using staging information is being considered (see Section 3.4). In this section, we present updated data based on diagnoses between 1983 and 2002, and mortality information to December 2003, for the most common cancers, and for melanoma and breast cancers, we present survival by Clark level<sup>2</sup> and tumour thickness at diagnosis, respectively. The most recent diagnosis period 1998-2002 is discussed in each case, but changes between 1983-1987 and 1998-2002 are also considered. Methods are noted in Appendix 2B.

### 3.6.2 Overview

For the common cancers discussed here, relative survival has in general been better for persons diagnosed earlier in life, and has improved with time since the 1983-1987 period. For survival analysis to be useful in assisting doctors and cancer patients to decide on treatment, on the one hand, and to have an idea of the likely impact on their lives, on the other, one would ideally incorporate into these analyses, the stage or extent of the disease at diagnosis, and treatment information. At present, this has been possible in only a limited way, however the data presented here confirm the view that cancers detected earlier, at smaller size (breast cancer) or level of invasion (melanoma) are associated with better survival results. This in turn suggests that efforts aimed at early detection of cancers, such as screening for breast cancer, can have noticeable benefits (see Section 3.8).

### 3.6.3 Prostate cancer

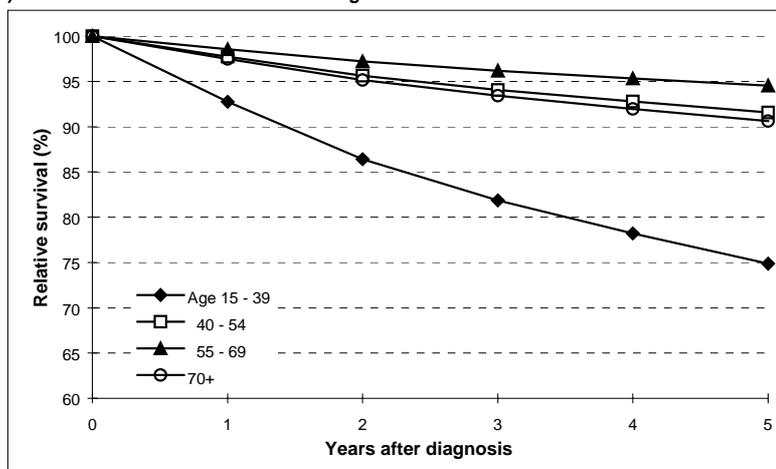
In males, data for diagnoses in the period 1998-2002 show an overall 5-year relative survival of 94%, with no clear trend with age at diagnosis. Although the age group 15-39 years is used as a common baseline, and survival appears worst in this group, the low numbers of cases in young men make statistics unreliable in this area.

**Figure 21a. Prostate cancer in males: recent data - persons 15+ at diagnosis, 1998-2002.**

Age at diagnosis	(A) Cases diagnosed in 1998-2002: relative survival (%)					(C) Age-adjusted rates, 1998-2002 (per 100,000)	
	Years after diagnosis 1 year	2 years	3 years	4 years	5 years	Incidence	Mortality
15 - 39	92.7 (82.9 - 100.0)	86.4 (68.6 - 100.0)	81.8 (58.7 - 100.0)	78.2 (51.1 - 100.0)	74.9 (44.3 - 100.0)	0.1	
40 - 54	97.7 (97.0 - 98.4)	95.6 (94.3 - 97.0)	94.1 (92.3 - 95.8)	92.8 (90.6 - 94.9)	91.5 (89.1 - 94.0)	34.8	1.7
55 - 69	98.5 (98.2 - 98.9)	97.2 (96.5 - 97.9)	96.2 (95.3 - 97.1)	95.3 (94.3 - 96.4)	94.5 (93.3 - 95.8)	359	23.5
70+	97.5 (96.8 - 98.1)	95.1 (93.9 - 96.3)	93.4 (91.8 - 95.0)	92.0 (90.0 - 93.9)	90.6 (88.4 - 92.9)	720.7	253.1
All (Ages 15+)	98.3 (97.9 - 98.8)	96.8 (96.0 - 97.6)	95.6 (94.6 - 96.7)	94.7 (93.4 - 96.0)	93.8 (92.3 - 95.3)	107.6	18.8

**Figure 21a (cont.). Prostate cancer in males: recent data - persons 15+ at diagnosis, 1998-2002.**

**(B) Relative survival curves for cases diagnosed in 1998-2002**



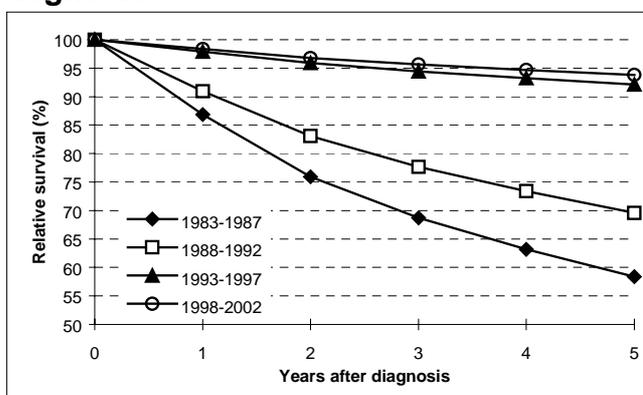
**(D) Survival analysis, 1998-2002:**

	Cases	Deaths*
Age 15-39	2	0
Age 40-54	364	18
Age 55-69	2021	136
Age 70+	2211	704
All (age 15+)	4598	858

\* Case follow-up to 31/12/2003

Relative survival after prostate cancer has improved over the period 1983-2002, with the relative risk of death almost 7 times lower in 1998-2002 (survival 94%) than in 1983-1987 (58%).

**Figure 21b. Prostate cancer in males: relative survival by period, ages 15+ at diagnosis.**



Period of diagnosis	R. Surv. at 5 years (%)	Relative risk**
1983 - 1987	58.4	(1.00)
1988 - 1992	69.6	0.70 (0.61 - 0.80)
1993 - 1997	92.1	0.18 (0.15 - 0.22)
1998 - 2002	93.8	0.15 (0.12 - 0.20)

\*\* Risk takes both age and period into account

### 3.6.3 Breast cancer in females

In females, data for diagnoses in the period 1998-2002 show an overall 5-year relative survival of 91%, with no clear trend with age at diagnosis.

**Figure 22a. Breast cancer in females: recent data - persons 15+ at diagnosis, 1998-2002.**

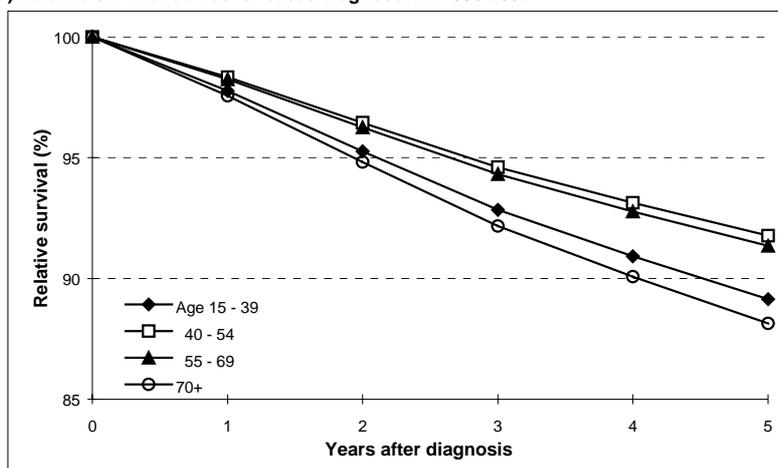
(A) Cases diagnosed in 1998-2002: relative survival (%)

Age at diagnosis	Years after diagnosis				
	1 year	2 years	3 years	4 years	5 years
15 - 39	97.8 (97.3 - 98.2)	95.3 (94.4 - 96.1)	92.8 (91.6 - 94.1)	90.9 (89.4 - 92.5)	89.1 (87.3 - 91.0)
40 - 54	98.3 (98.1 - 98.6)	96.4 (95.9 - 97.0)	94.6 (93.8 - 95.4)	93.1 (92.2 - 94.1)	91.8 (90.6 - 92.9)
55 - 69	98.2 (98.0 - 98.5)	96.3 (95.7 - 96.8)	94.3 (93.5 - 95.1)	92.8 (91.8 - 93.8)	91.3 (90.1 - 92.6)
70+	97.6 (97.1 - 98.0)	94.8 (93.9 - 95.7)	92.2 (90.9 - 93.4)	90.1 (88.5 - 91.7)	88.1 (86.3 - 90.0)
<b>All (Ages 15+)</b>	<b>98.2 (97.9 - 98.5)</b>	<b>96.2 (95.6 - 96.7)</b>	<b>94.2 (93.4 - 94.9)</b>	<b>92.6 (91.6 - 93.6)</b>	<b>91.1 (90.0 - 92.3)</b>

(C) Age-adjusted rates,

1998-2002 (per 100,000)	
Incidence	Mortality
16	1.9
177.3	26.9
328.6	55.8
287.1	108.6
121.3	22.8

(B) Relative survival curves for cases diagnosed in 1998-2002



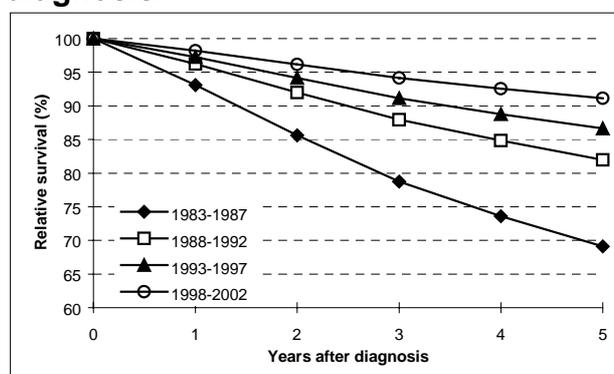
(D) Survival analysis, 1998-2002:

	Cases	Deaths*
Age 15-39	351	32
Age 40-54	1778	121
Age 55-69	1837	127
Age 70+	1193	332
All (age 15+)	5159	612

\* Case follow-up to 31/12/2003

Historically, relative survival after breast cancer has improved since 1983-2002, with the relative risk of death 4 times better in 1998-2002 (survival 91%) than in 1983-1987 (69%).

**Figure 22b. Breast cancer in females: relative survival by period, ages 15+ at diagnosis.**



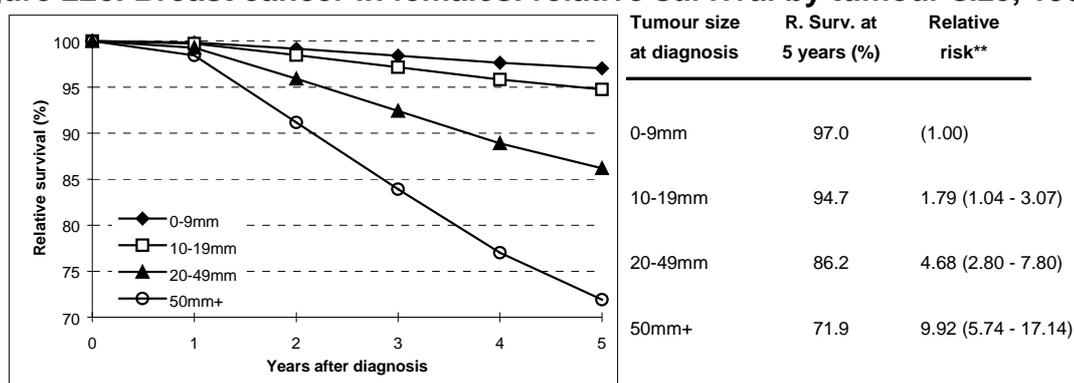
Period of diagnosis	R. Surv. at 5 years (%)	Relative risk**
1983 - 1987	69.1	(1.00)
1988 - 1992	82.0	0.55 (0.49 - 0.62)
1993 - 1997	86.6	0.40 (0.36 - 0.46)
1998 - 2002	91.1	0.27 (0.23 - 0.31)

\*\* Risk takes both age and period into account

### Breast cancer survival and tumour size

Women whose breast cancer was of smaller size at diagnosis had significantly better relative survival than those with larger-diameter tumours, both over the period 1983-2002, and in most recent years. Over the period 1983-2002, 5-year relative survival was 97% for those with tumours 0-9mm in diameter at diagnosis, but only 72% for those with tumours measuring 50mm or larger. The survival-size relationships for the most recent period, 1998-2002, are similar.

**Figure 22c. Breast cancer in females: relative survival by tumour size, 1983-2002.**



### 3.6.4 Colorectal cancer

Overall 5-year relative survival after colorectal cancer was 62% for males, and 63% for females, diagnosed in 1998-2002, and was generally lower for persons who were older at the time of their diagnosis.

Historical data for both males and females, for all ages combined, shows a progressive improvement in relative survival over the last 20 years.

**Figure 23a. Colorectal cancer in males: recent data - persons 15+ at diagnosis, 1998-2002.**

(A) Cases diagnosed in 1998-2002: relative survival (%)

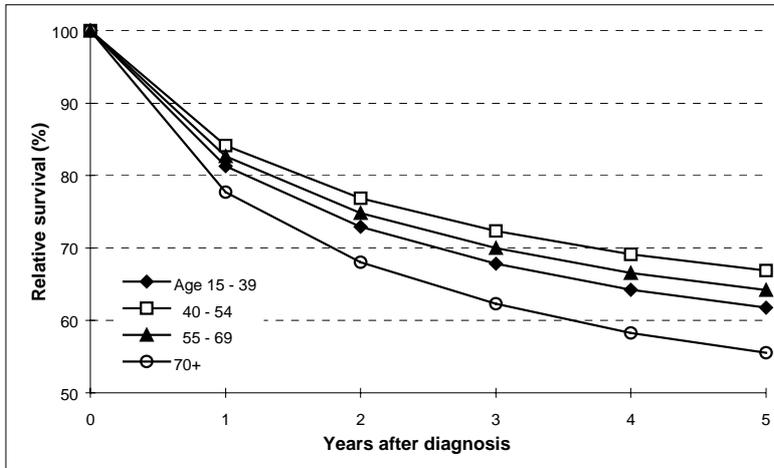
Age at diagnosis	Years after diagnosis				
	1 year	2 years	3 years	4 years	5 years
15 - 39	81.3 (77.3 - 85.3)	72.9 (67.5 - 78.3)	67.8 (61.7 - 74.0)	64.2 (57.6 - 70.9)	61.8 (54.8 - 68.7)
40 - 54	84.1 (82.4 - 85.9)	76.8 (74.5 - 79.2)	72.3 (69.6 - 75.1)	69.1 (66.2 - 72.1)	66.9 (63.8 - 70.0)
55 - 69	82.7 (81.2 - 84.1)	74.8 (72.9 - 76.7)	70.0 (67.8 - 72.2)	66.6 (64.2 - 69.0)	64.2 (61.6 - 66.7)
70+	77.7 (75.9 - 79.4)	68.0 (65.8 - 70.3)	62.3 (59.7 - 64.8)	58.3 (55.6 - 61.0)	55.5 (52.7 - 58.4)
All (Ages 15+)	81.0 (79.6 - 82.4)	72.5 (70.7 - 74.3)	67.4 (65.4 - 69.5)	63.9 (61.7 - 66.1)	61.5 (59.1 - 63.8)

(C) Age-adjusted rates,

1998-2002 (per 100,000)	
Incidence	Mortality
2.6	0.9
34.8	10.3
186.2	68.6
443.8	205.5
65.4	25.9

**Figure 23a (cont.) Colorectal cancer in males: recent data - persons 15+ at diagnosis, 1998-2002.**

**(B) Relative survival curves for cases diagnosed in 1998-2002**

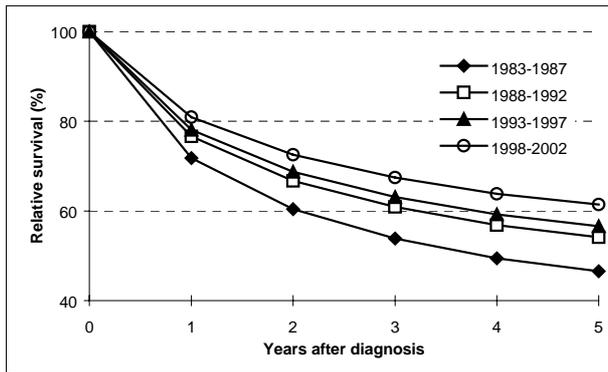


**(D) Survival analysis, 1998-2002:**

	Cases	Deaths*
Age 15-39	54	18
Age 40-54	358	93
Age 55-69	1047	344
Age 70+	1356	674
All (age 15+)	2815	1129

\* Case follow-up to 31/12/2003

**Figure 23b. Colorectal cancer in males: relative survival by period, ages 15+ at diagnosis.**



Period of diagnosis	R. Surv. at 5 years (%)	Relative risk**
1983 - 1987	46.5	(1.00)
1988 - 1992	54.2	0.81 (0.72 - 0.90)
1993 - 1997	56.6	0.74 (0.67 - 0.82)
1998 - 2002	61.5	0.63 (0.57 - 0.70)

\*\* Risk takes both age and period into account

**Figure 23c. Colorectal cancer in females: recent data - persons 15+ at diagnosis, 1998-2002.**

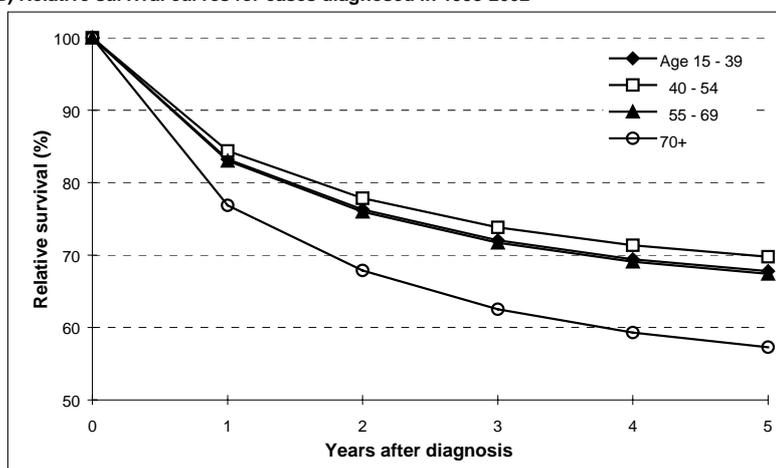
**(A) Cases diagnosed in 1998-2002: relative survival (%)**

Age at diagnosis	Years after diagnosis				
	1 year	2 years	3 years	4 years	5 years
15 - 39	83.2 (79.3 - 87.2)	76.3 (71.0 - 81.6)	72.0 (66.0 - 78.1)	69.4 (62.9 - 75.9)	67.8 (61.0 - 74.6)
40 - 54	84.4 (82.4 - 86.3)	77.8 (75.3 - 80.4)	73.8 (70.9 - 76.8)	71.3 (68.2 - 74.5)	69.8 (66.5 - 73.1)
55 - 69	83.0 (81.4 - 84.7)	76.0 (73.9 - 78.2)	71.7 (69.3 - 74.2)	69.1 (66.5 - 71.7)	67.4 (64.7 - 70.2)
70+	76.9 (74.9 - 78.8)	67.9 (65.4 - 70.3)	62.5 (59.8 - 65.2)	59.3 (56.4 - 62.2)	57.3 (54.3 - 60.3)
<b>All (Ages 15+)</b>	<b>80.5 (78.9 - 82.1)</b>	<b>72.7 (70.7 - 74.7)</b>	<b>68.0 (65.8 - 70.3)</b>	<b>65.2 (62.8 - 67.6)</b>	<b>63.4 (60.9 - 66.0)</b>

**(C) Age-adjusted rates,**

1998-2002 (per 100,000)	
Incidence	Mortality
2.8	0.7
28.9	8.4
115.9	41.8
279.5	126.7
43.3	16.5

**(B) Relative survival curves for cases diagnosed in 1998-2002**

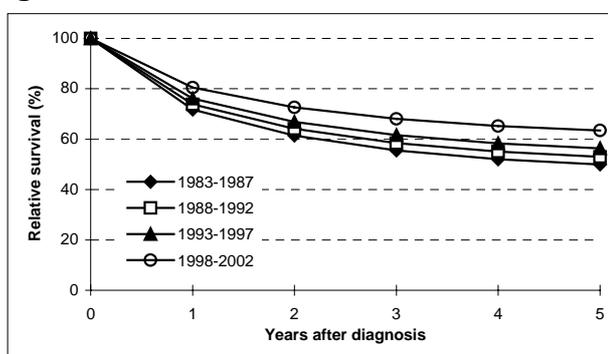


**(D) Survival analysis, 1998-2002:**

	Cases	Deaths*
Age 15-39	59	13
Age 40-54	288	75
Age 55-69	638	186
Age 70+	1216	575
All (age 15+)	2201	849

\* Case follow-up to 31/12/2003

**Figure 23d. Colorectal cancer in females: relative survival by period, ages 15+ at diagnosis.**



Period of diagnosis	R. Surv. at 5 years (%)	Relative risk**
1983 - 1987	49.9	(1.00)
1988 - 1992	53.0	0.91 (0.81 - 1.02)
1993 - 1997	56.4	0.82 (0.73 - 0.91)
1998 - 2002	63.4	0.65 (0.58 - 0.73)

\*\* Risk takes both age and period into account

### 3.6.5 Lung cancer

Survival after lung cancer is poor for males and for females, with only 25% or fewer being suitable for surgical treatment. Overall 5-year relative survival for males was 10% for those diagnosed in 1998-2002, and was better for younger men.

For females, overall 5-year relative survival was 15% (higher than for males) for those diagnosed in 1998-2002, and was better for younger women.

**Figure 24a. Lung cancer in males: recent data - persons 15+ at diagnosis, 1998-2002.**

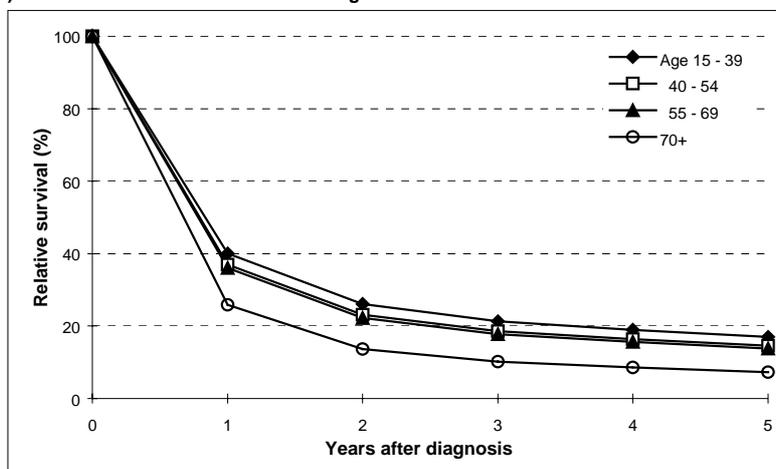
(A) Cases diagnosed in 1998-2002: relative survival (%)

Age at diagnosis	Years after diagnosis				
	1 year	2 years	3 years	4 years	5 years
15 - 39	40.1 (28.2 - 52.0)	26.1 (14.7 - 37.5)	21.3 (10.6 - 32.0)	19.0 (8.7 - 29.2)	17.0 (7.2 - 26.8)
40 - 54	37.0 (33.8 - 40.1)	23.1 (20.2 - 26.0)	18.6 (15.9 - 21.3)	16.4 (13.8 - 18.9)	14.5 (12.1 - 17.0)
55 - 69	36.0 (34.0 - 38.0)	22.3 (20.4 - 24.1)	17.8 (16.1 - 19.5)	15.6 (14.0 - 17.2)	13.8 (12.2 - 15.4)
70+	25.9 (24.1 - 27.6)	13.7 (12.3 - 15.1)	10.2 (8.9 - 11.4)	8.5 (7.4 - 9.7)	7.3 (6.2 - 8.3)
All (Ages 15+)	30.9 (29.2 - 32.6)	17.9 (16.4 - 19.3)	13.9 (12.6 - 15.2)	12.0 (10.8 - 13.3)	10.5 (9.4 - 11.7)

(C) Age-adjusted rates,

1998-2002 (per 100,000)	
Incidence	Mortality
0.8	0.6
19.4	14.1
160.9	132.3
441.8	405.6
56.5	48.4

(B) Relative survival curves for cases diagnosed in 1998-2002



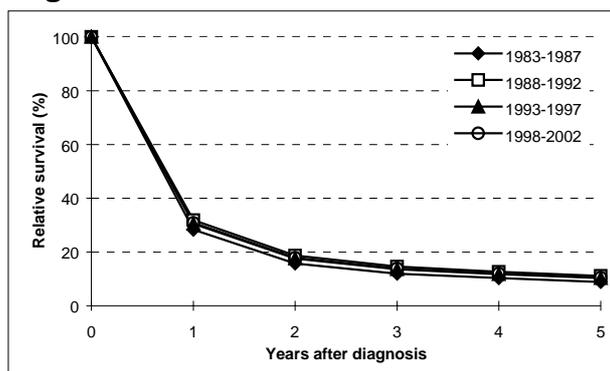
(D) Survival analysis, 1998-2002:

	Cases	Deaths*
Age 15-39	17	13
Age 40-54	198	151
Age 55-69	896	731
Age 70+	1348	1202
All (age 15+)	2459	2097

\* Case follow-up to 31/12/2003

Although for males, the survival percentages by calendar period may appear similar from the graph below, the relative risks do indicate a statistically-significant improvement since the 1983-1987 period, but little recent change. The situation was similar for females.

**Figure 24b. Lung cancer in males: relative survival by period, ages 15+ at diagnosis.**



Period of diagnosis	R. Surv. at 5 years (%)	Relative risk**
1983 - 1987	8.9	(1.00)
1988 - 1992	11.2	0.90 (0.84 - 0.96)
1993 - 1997	10.3	0.92 (0.86 - 0.98)
1998 - 2002	10.5	0.90 (0.84 - 0.96)

\*\* Risk takes both age and period into account

**Figure 24c. Lung cancer in females: recent data - persons 15+ at diagnosis, 1998-2002.**

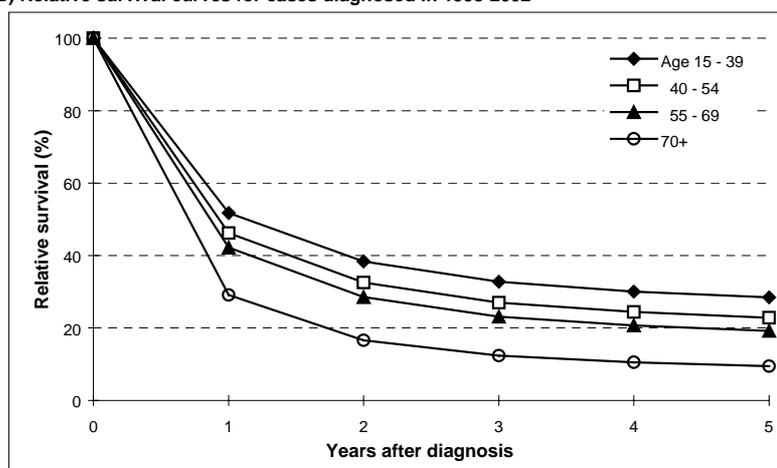
(A) Cases diagnosed in 1998-2002: relative survival (%)

Age at diagnosis	Years after diagnosis				
	1 year	2 years	3 years	4 years	5 years
15 - 39	51.8 (40.4 - 63.1)	38.4 (26.2 - 50.6)	32.7 (20.6 - 44.9)	30.1 (18.1 - 42.1)	28.4 (16.5 - 40.3)
40 - 54	46.2 (42.1 - 50.3)	32.5 (28.3 - 36.7)	27.0 (22.9 - 31.1)	24.4 (20.4 - 28.4)	22.8 (18.9 - 26.8)
55 - 69	42.2 (39.2 - 45.2)	28.5 (25.6 - 31.5)	23.2 (20.3 - 26.0)	20.7 (18.0 - 23.5)	19.2 (16.5 - 21.9)
70+	29.2 (26.6 - 31.7)	16.6 (14.5 - 18.8)	12.4 (10.5 - 14.2)	10.5 (8.8 - 12.3)	9.5 (7.8 - 11.2)
All (Ages 15+)	35.9 (33.5 - 38.3)	22.8 (20.6 - 25.0)	18.0 (15.9 - 20.0)	15.9 (13.9 - 17.8)	14.6 (12.7 - 16.5)

(C) Age-adjusted rates,

1998-2002 (per 100,000)	
Incidence	Mortality
0.6	0.3
16.5	11.2
71.3	51.5
183.6	152.1
26.4	20

(B) Relative survival curves for cases diagnosed in 1998-2002

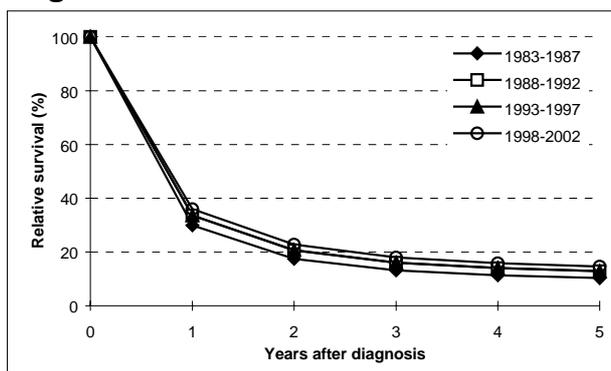


(D) Survival analysis, 1998-2002:

	Cases	Deaths*
Age 15-39	14	8
Age 40-54	166	118
Age 55-69	396	304
Age 70+	736	627
All (age 15+)	1312	1057

\* Case follow-up to 31/12/2003

**Figure 24d. Lung cancer in females: relative survival by period, ages 15+ at diagnosis.**



Period of diagnosis	R. Surv. at 5 years (%)	Relative risk**
1983 - 1987	10.3	(1.00)
1988 - 1992	12.8	0.87 (0.78 - 0.97)
1993 - 1997	12.9	0.87 (0.78 - 0.97)
1998 - 2002	14.6	0.80 (0.72 - 0.88)

\*\* Risk takes both age and period into account

### 3.6.6 Melanoma

Overall relative survival after cutaneous melanoma is good, 98% for males and for females, on the basis of data for 1998-2002 diagnoses. However, it appears worse for those who were older at the time of diagnosis.

**Figure 25a. Melanoma in males: recent data - persons 15+ at diagnosis, 1998-2002.**

(A) Cases diagnosed in 1998-2002: relative survival (%)

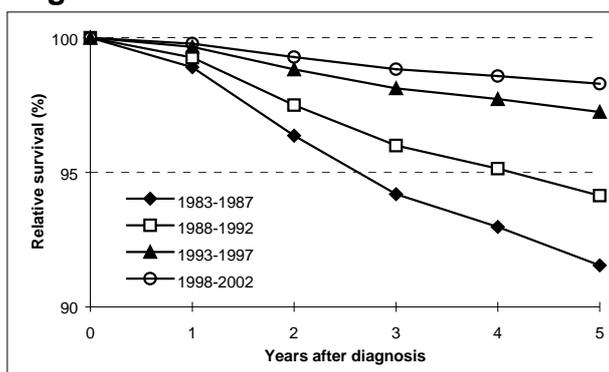
Age at diagnosis	Years after diagnosis				
	1 year	2 years	3 years	4 years	5 years
15 - 39	100.0 (99.9 - 100.0)	99.9 (99.8 - 100.0)	99.9 (99.7 - 100.0)	99.9 (99.7 - 100.0)	99.9 (99.6 - 100.0)
40 - 54	99.8 (99.7 - 100.0)	99.5 (99.1 - 99.8)	99.2 (98.6 - 99.7)	99.0 (98.3 - 99.7)	98.8 (97.9 - 99.6)
55 - 69	99.0 (98.5 - 99.5)	97.2 (96.1 - 98.3)	95.4 (93.7 - 97.2)	94.4 (92.3 - 96.5)	93.2 (90.7 - 95.8)
70+	95.3 (92.7 - 98.0)	87.0 (81.3 - 92.8)	79.5 (70.9 - 88.0)	75.4 (65.3 - 85.4)	71.0 (59.4 - 82.5)
All (Ages 15+)	99.8 (99.6 - 100.0)	99.3 (98.8 - 99.7)	98.8 (98.1 - 99.6)	98.6 (97.7 - 99.5)	98.3 (97.2 - 99.4)

(C) Age-adjusted rates,

1998-2002 (per 100,000)	
Incidence	Mortality
21	0.8
62.8	3.5
130.4	12
244.8	39.8
61.7	5.5

More recent data show an improved relative survival with time, the relative risk of death in 1998-2002 being only 21%-57% of the risk in 1983-1987. Data for females showed similar trends (the relative risk in 1998-2002 being only 12%-44% of the risk in 1983-1987).

**Figure 25b. Melanoma in males: relative survival by period, ages 15+ at diagnosis.**



Period of diagnosis	R. Surv. at 5 years (%)	Relative risk**
1983 - 1987	91.5	(1.00)
1988 - 1992	94.1	0.86 (0.58 - 1.29)
1993 - 1997	97.2	0.50 (0.33 - 0.78)
1998 - 2002	98.3	0.35 (0.21 - 0.57)

\*\* Risk takes both age and period into account

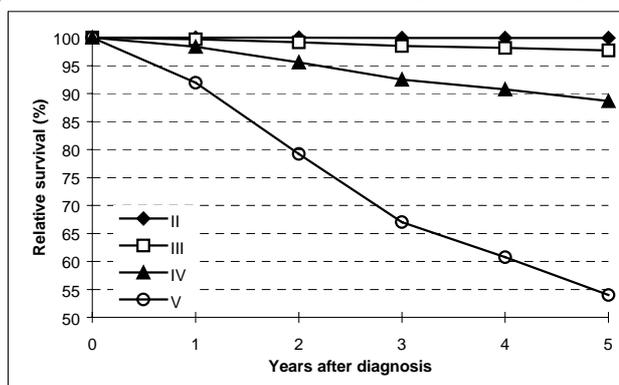
*Melanoma survival and level of invasion (Clark level)*

The Clark level is a measure of degree of invasion relating to the layers of cells in the skin,<sup>2</sup> and is a predictor of survival independent of absolute depth of invasion, in millimetres. *In situ* or non-invasive melanomas are classed as Level I, and are NOT included in these analyses.

In males, a higher "level" was associated with poorer survival in the period 1983-2002, with 5-year relative survival only 54% in Level 5 cases, and a relative risk over 200 times greater than for Level II cases (which invade only into the papillary dermis).

In females, a higher "level" was likewise associated with poorer survival in the period 1983-2002, with 5-year relative survival only 61% in Level 5 cases, and a relative risk over 60 times greater than for Level II cases.

**Figure 25c. Melanoma in males: relative survival by Clark level, 1983-2002.**



Age at diagnosis	R. Surv. at 5 years (%)	Relative risk**
Level II	100.0	(1.00)
Level III	97.7	9.57 (1.20 - 76.05)
Level IV	88.7	53.47 (7.30 - 391.92)
Level V	54.0	261.60 (35.30 - 1,938.46)

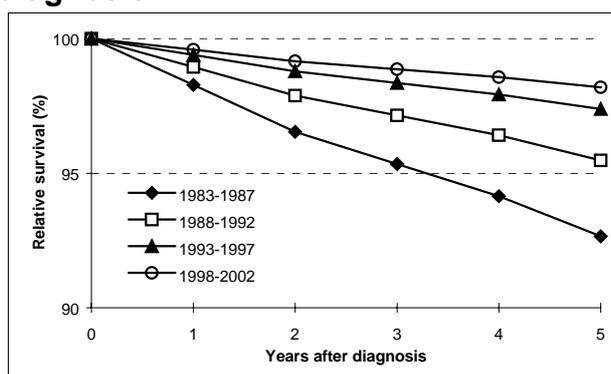
**Figure 25d. Melanoma in females: recent data - persons 15+ at diagnosis, 1998-2002.**

(A) Cases diagnosed in 1998-2002: relative survival (%)

(C) Age-adjusted rates,

Age at diagnosis	Years after diagnosis					1998-2002 (per 100,000)	
	1 year	2 years	3 years	4 years	5 years	Incidence	Mortality
15 - 39	99.7 (99.5 - 99.9)	99.4 (99.1 - 99.8)	99.2 (98.8 - 99.7)	99.0 (98.4 - 99.7)	98.8 (98.0 - 99.6)	23.3	0.7
40 - 54	99.5 (99.2 - 99.8)	99.0 (98.5 - 99.6)	98.7 (97.9 - 99.5)	98.4 (97.4 - 99.3)	97.9 (96.7 - 99.2)	52.7	2.3
55 - 69	99.5 (99.1 - 99.9)	99.0 (98.3 - 99.7)	98.6 (97.7 - 99.5)	98.2 (97.0 - 99.4)	97.7 (96.2 - 99.2)	84.2	7.1
70+	99.3 (98.7 - 99.9)	98.6 (97.5 - 99.7)	98.1 (96.7 - 99.5)	97.6 (95.7 - 99.4)	96.9 (94.6 - 99.3)	100.1	14.1
All (Ages 15+)	99.6 (99.3 - 99.9)	99.2 (98.7 - 99.7)	98.9 (98.2 - 99.5)	98.6 (97.7 - 99.4)	98.2 (97.1 - 99.3)	44.7	2.9

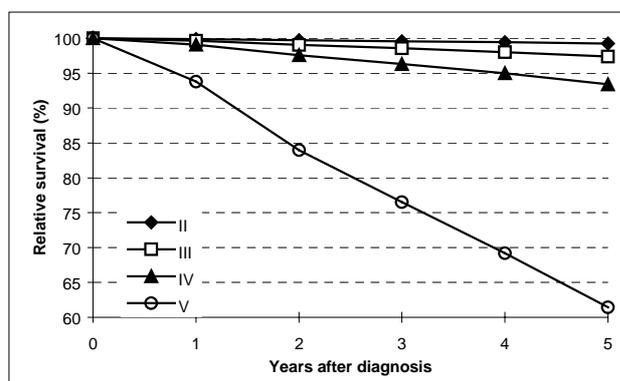
**Figure 25e. Melanoma in females: relative survival by period, ages 15+ at diagnosis.**



Period of diagnosis	R. Surv. at 5 years (%)	Relative risk**
1983 - 1987	92.7	(1.00)
1988 - 1992	95.5	0.59 (0.39 - 0.91)
1993 - 1997	97.4	0.37 (0.23 - 0.59)
1998 - 2002	98.2	0.23 (0.12 - 0.44)

\*\* Risk takes both age and period into account

**Figure 25f. Melanoma in females: relative survival by Clark level, 1983-2002.**



Age at diagnosis	R. Surv. at 5 years (%)	Relative risk**
Level II	99.2	(1.00)
Level III	97.4	3.22 (1.33 - 7.76)
Level IV	93.4	9.02 (4.16 - 19.54)
Level V	61.4	61.94 (27.87 - 137.65)

### 3.7 Melanoma of the skin (cutaneous melanoma) 1993-2002

Melanoma is relatively common in Western Australia, and in 2002 ranked second in males and third in females among the most common major cancer types in either sex (Table 1). It 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 12th in males and 16th in females in 2002 (Table 1).

Many melanomas are now diagnosed at a time when they have not invaded deeply into the skin. In addition to the 1045 persons with invasive melanoma cases reported for 2002, there were 714 additional registrations of *in situ*, or pre-invasive, melanoma.

The Registry records the thickness (Breslow<sup>1</sup>) and level of invasion (Clark<sup>2</sup>) 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.<sup>8</sup> Summarized data for the 1993-2002 period are shown in Table 9.

In 2001 and 2002, 68% of invasive melanomas were less than 1mm thick, increased from 67% in the 1993-1995 period but slightly lower than in 1999-2000 (70%). For invasive melanoma cases with data available (96% of cases in 2001 and 2002), the median thickness was 0.6mm, essentially unchanged over the last ten years (Table 9). The proportion of cases with unknown or un-assessed thickness decreased from 6% in 1993-1995 to 2% in 2001-2002.

**Table 9. Cutaneous melanoma, Western Australia, 1993-2002: Breslow thickness (invasive histologically-confirmed cases only)**

Thickness (mm)	Year of diagnosis							
	1993-95		1996-98		1999-2000		2001-2002	
	Cases	(%)	Cases	(%)	Cases	(%)	Cases	(%)
0.01 - 0.49	791	35.5	707	33.8	623	35.0	687	36.0
0.50 - 0.99	701	31.4	667	31.9	619	34.8	610	32.0
1.00 - 1.99	311	13.9	345	16.5	271	15.2	306	16.0
>= 2.00	295	13.2	301	14.4	226	12.7	271	14.2
Unknown/ not assessed	132	5.9	69	3.3	41	2.3	35	1.8
Total	2230	(100)	2089	(100)	1780	(100)	1909	(100)
Median (mm)	0.60		0.62		0.60		0.60	
Mean (mm)	1.10		1.19		1.10		1.14	

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*,<sup>10</sup> and were very similar). The 2002 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, 2002: Clark level (invasive and *in situ* histologically-confirmed cases only)**

Clark level	Cases	%	% of invasive cases
I ( <i>in situ</i> )	714	40.7	-
II	416	23.7	40.0
III	234	13.3	22.5
IV	346	19.7	33.2
V	30	1.7	2.9
Unknown/ not assessed	15	0.9	1.4
Total	1755	(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. Data for 2002 confirm this situation persists, and are cause for continuing concern. In persons aged 75 or more, 26% of tumours were more than 2mm deep at diagnosis, compared with 7% in the 15-39 years age range (Table 11). Coexisting illness and other physical factors may limit treatment options in the elderly, and the data suggest that increased efforts at melanoma detection in the elderly may be justified, as it is possible that tumour growth rates may be higher in this group.

**Table 11. Cutaneous melanoma, Western Australia, 2002: thickness by age group, for males and females (invasive histologically-confirmed cases only)**

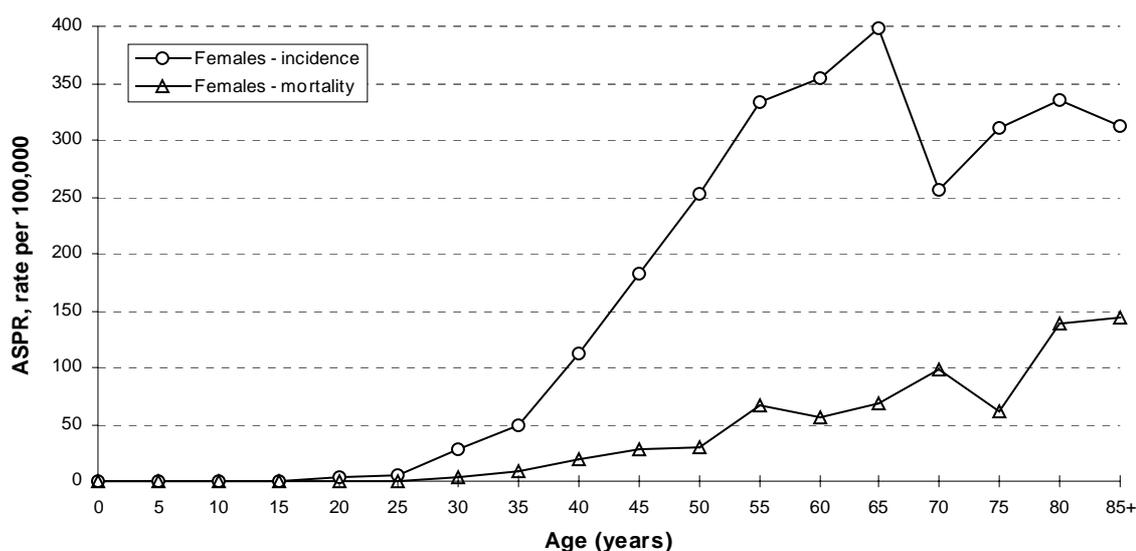
Tumour thickness	Age at diagnosis				All
	15-39	40-59	60-74	75 +	
	(%)	(%)	(%)	(%)	(%)
0-0.49mm	36.2	39.1	34.9	33.1	36.4
0.5-0.99mm	43.6	33.3	31.9	20.8	32.4
1.0-1.99mm	11.7	16.9	14.8	16.3	15.4
>=2.0mm	6.7	9.6	16.1	26.4	13.9
Unknown/ not assessed	1.8	1.0	2.3	3.4	1.9
Total	(100)	(100)	(100)	(100)	(100)

### 3.8 Breast cancer and breast cancer screening in Western Australian women

In 2002, there were 1130 cases of breast cancer recorded in Western Australian women. Of these, 98.4% were confirmed microscopically (histology or cytology), 0.7% were diagnosed clinically, and 0.9% 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). Although incidence has increased since 1993, there has been no significant trend in the incidence rate over the period 1993-2002 (Table 5) and neither incidence nor mortality showed any significant change in the period 1998-2002 (Fig. 12). Based on data for 2002, 1 in 11 women could be expected to develop breast cancer before the age of 75, and 1 in 53 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. 26. A “dip” in the incidence rate graph at the 70-74 years age group is a common feature in recent Western Australian data, and further analysis is now being done to determine how this might relate to screening age-ranges, changes in public awareness, or other issues.

**Figure 26. Breast cancer, Western Australia, 2002: 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. Hospital data included in the report *Cancer survival in Western Australian residents, 1982-1997*,<sup>9</sup> showed survival was better for less-advanced tumours.

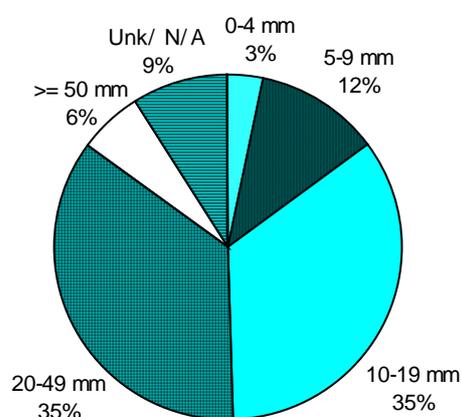
There are persisting difficulties with the collection and reporting of data concerning both primary tumour size and numbers of positive and negative lymph nodes, for breast cancer cases. Although size information is commonly available from pathology reports, the Western Australian legislation has, historically, not made the reporting of "negative" (i.e. no cancer) pathology reports compulsory. Accordingly, in cases where an axillary lymph node dissection

is done and a second pathology specimen is assessed, with negative results, this information has not routinely been made available. The Registry is planning changes in recording practices and in legislation, aimed at addressing this situation.

Meanwhile, 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 50% of tumours were less than 20mm in diameter at diagnosis (Fig. 27). The distribution is essentially the same as seen since 1997. The median size, for tumours where data were available, was 18mm for 2002, essentially unchanged over the last 5 years. Correlation with lymph node status is shown in Table 12.

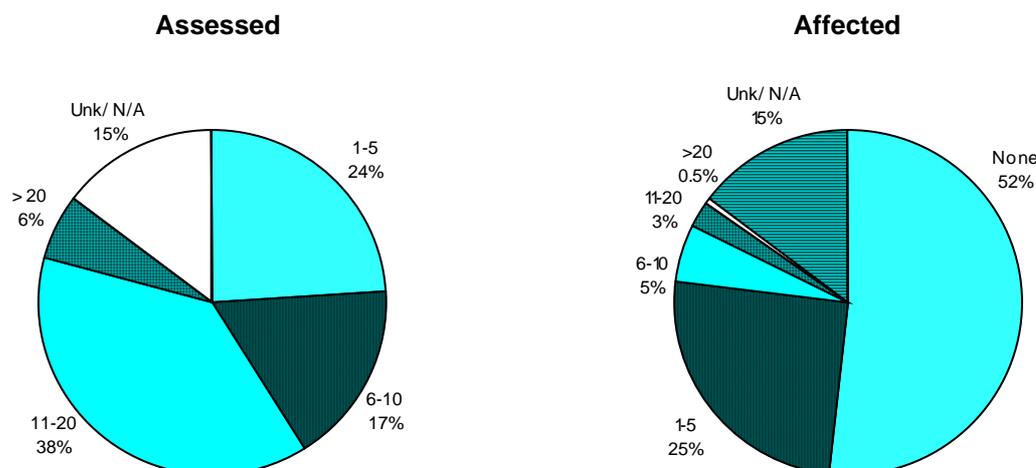
**Figure 27. Breast cancer, Western Australia, 2002: size of histologically-confirmed invasive tumours.**



Information about numbers of affected lymph nodes was available for 85% of cases in 2002, an improvement since 1999-2000 (Fig. 28). In 52% of cases, no nodes were found to be affected, slightly higher than that reported for 2000, but proportions by category were generally similar to those of 2001.

Of the cases for which data were available, 48% had 10 or more nodes assessed, decreased from 69% in 2000. There appears to have been a reduction in the numbers of lymph nodes mentioned in pathology reports since 1999, when the mean number of nodes reported was 13.8, to 2002, when the mean was 10.6 (the median was 13 in 1999, and 11 in 2002). The proportion of cases for whom only 1 - 5 nodes were assessed has risen progressively from 4.5% in 1998 to 24.2% in 2002. Advice from clinicians suggests these changes are due to an increasing use of sentinel lymph node biopsy and a decline in axillary dissection.

**Figure 28. Breast cancer, Western Australia, 2002: number of lymph nodes assessed, and number of affected nodes, for histologically-confirmed tumours.**



Western Australian data for 2002 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 12). Most small tumours 0-4mm in size had no affected nodes, while 69% of cases with tumours 50mm or larger had some cancer-affected nodes.

**Table 12. Breast cancer, Western Australia, 2002: tumour size and number of tumour-affected lymph nodes.**

Tumour size (mm)	Lymph nodes affected by cancer										Total	
	None		1-5		6-10		11-20		> 20			
	Cases	%	Cases	%	Cases	%	Cases	%	Cases	%	Cases	(%)
0-4	24	92.3	1	3.8	0	0.0	1	3.8	0	0.0	26	(100)
5-9	86	83.5	17	16.5	0	0.0	0	0.0	0	0.0	103	(100)
10-19	256	72.7	84	23.9	8	2.3	4	1.1	0	0.0	352	(100)
20-29	112	51.4	78	35.8	21	9.6	7	3.2	0	0.0	218	(100)
30-50	61	39.1	70	44.9	15	9.6	7	4.5	3	1.9	156	(100)
50 or more	20	30.8	20	30.8	14	21.5	9	13.8	2	3.1	65	(100)
<b>All</b>	<b>559</b>	<b>60.8</b>	<b>270</b>	<b>29.3</b>	<b>58</b>	<b>6.3</b>	<b>28</b>	<b>3.0</b>	<b>5</b>	<b>0.5</b>	<b>920</b>	<b>(100)</b>

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

### Women with more than one breast cancer

Routine cancer registry tables only report the first breast cancer of each type in a person (Appendix 1, "Multiple tumours"). However, the knowledge that breast cancer can, and does, affect the same women more than once, in up to 6% of cases, is important for clinicians and their patients. With ongoing improvements in survival, and with changes in treatment, women are increasingly living long enough to have another diagnosis of breast cancer in later life. Some, however, have two or more tumours present at the same time when they are first diagnosed.

The simple analysis presented here in Table 13 shows that of women first diagnosed between 1989 and 2000, 4 - 6% had second tumours at the time, or have since had a further breast cancer diagnosed. In earlier years, the proportion is lower, and is at least partly due to changes in recording practices, but could also be due to variations in the rate of mastectomy. For the most recent data, for 2001 and 2002, it is likely that it is too early to say what proportion will eventually have further breast cancers diagnosed.

**Table 13. Breast cancer in females, Western Australia, 1982-2002: cases with concurrent or subsequent breast cancers.**

YEAR	Incident cases	Number with other concurrent/ subsequent breast cancer	% of total	YEAR	Incident cases	Number with other concurrent/ subsequent breast cancer	% of total
1982	447	10	2.2	1992	751	42	5.6
1983	450	9	2.0	1993	775	38	4.9
1984	481	18	3.7	1994	847	53	6.3
1985	537	18	3.4	1995	944	51	5.4
1986	533	13	2.4	1996	879	55	6.3
1987	593	18	3.0	1997	916	58	6.3
1988	613	18	2.9	1998	925	38	4.1
1989	693	29	4.2	1999	1020	52	5.1
1990	683	34	5.0	2000	1009	44	4.4
1991	696	33	4.7	2001	1087	25	2.3
				2002	1130	38	3.4

From these data alone, it is not possible to determine what proportion of women have multifocal or truly separate tumours, in the same or both breasts. Surgeons are aware of these issues and as these may affect treatment choices, a more detailed analysis will be presented in another report.

### 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.

Subsequently, the data were used to determine the proportion of breast cancer diagnoses resulting from BreastScreen activities, and to compare the characteristics of BreastScreen-detected cases with others.

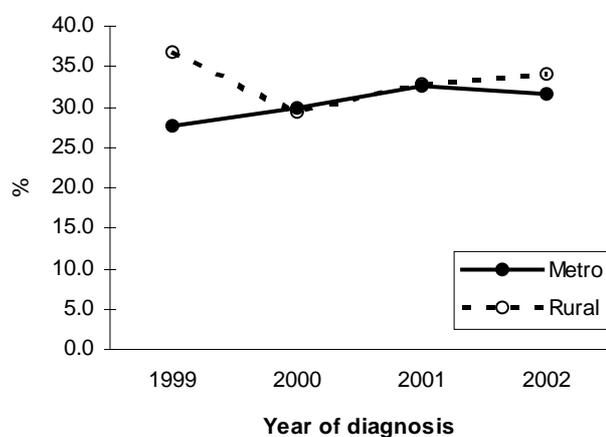
Over the period 1999-2002, BreastScreen was responsible for the detection of 28% of all invasive breast cancers in Western Australian women, and 50% of *in situ* tumours. For the whole period 1999-2002, proportions of breast cancers detected by BreastScreen in rural and metropolitan areas were compared. 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 14).

**Table 14. BreastScreen-detected breast cancers in rural and metropolitan areas, as a percentage of all Western Australian cases, 1999-2002.**

Cancer type	Rural	Metro	All
Invasive	30	27	28
In situ	54	49	50
All	33	30	31

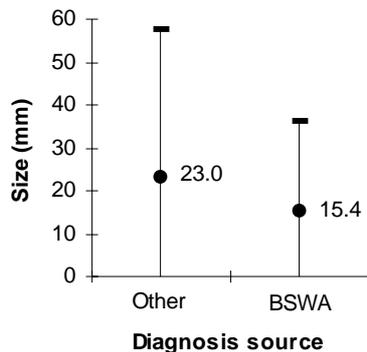
For invasive and *in situ* tumours combined, the proportion that were BreastScreen-detected in the metropolitan area has risen steadily over the period, while rural figures have varied more (Fig 29).

**Figure 29. BreastScreen-detected breast tumours by year and region, as percentage of all W.A. breast tumours (invasive and *in situ* tumours combined)**



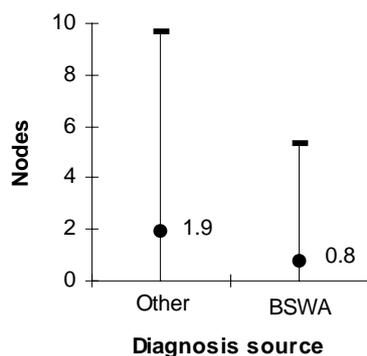
Over the period 1999-2002, BreastScreen-detected invasive cancers were smaller (mean 15.4mm, median 13mm) than others (mean 23.0mm, median 19mm) (Fig. 30). For these analyses, assumptions of statistical normality are not satisfied; however the non-parametric Kruskal-Wallis test indicates the difference to be statistically-significant ( $p < 0.00001$ ).

**Figure 30. Size of primary invasive breast cancers, Western Australia, 1999-2002: BreastScreen-detected tumours and others.**



BreastScreen-detected invasive tumours were less likely to have tumour-affected lymph nodes (21.9%) than others (33.9%), and the average number of affected lymph nodes was smaller ( $p < 0.00001$ ) (Fig. 31). The total numbers of lymph nodes assessed was similar ( $p = 0.99$ ) for BSWA cases and others, with a mean of 12.2 for both classes of tumours.

**Figure 31. Number of tumour-affected lymph nodes - BreastScreen-detected tumours and others, 1999-2002.**



In summary, BreastScreen WA detects 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.

### 3.9 Incidence of *in situ* neoplasms

*In situ* neoplasms are those detected at a stage such that neoplastic cells, although cytologically abnormal and 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 15), with 640 cases, higher than the 620 cases per year reported for 1999 and 2000. Other common *in situ* tumour types were cervical cancer (751 cases), bladder cancer (271 cases) and breast cancer (200 cases).

As noted in the Registry's last report, these data include only the first *in situ* tumour of any particular type in a person. The number of second or subsequent *in situ* melanomas, cervical neoplasms and transitional cell carcinomas of the bladder and urinary system, recorded but not presented here, is considerable, and indicates a significant burden of morbidity.

The presence of most *in situ* neoplasms is 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 15. *In situ* tumours, Western Australia, 2002: incidence**

Males				Females			
Tumour type	Cases	%	ASR	Tumour type	Cases	%	ASR
Melanoma	389	55.0	31.1	Cervix	751	53.3	74.0
Bladder	206	29.1	14.2	Melanoma	251	17.8	20.0
Colon	34	4.8	2.7	Breast	200	14.2	16.4
Rectum	17	2.4	1.2	Bladder	65	4.6	4.2
Eye	14	2.0	1.1	Vulva/vagina	35	2.5	2.8
NMSC	13	1.8	0.9	Colon	23	1.6	1.5
Larynx	6	0.8	0.5	NMSC	20	1.4	1.2
Lip	4	0.6	0.3	Rectum	17	1.2	1.2
Oesophagus	3	0.4	0.2	Uterus	8	0.6	0.7
Lung	3	0.4	0.3	Anus	4	0.3	0.3
Other	9	1.3	0.8	Other	18	1.3	0.9
All <i>in situ</i> tumours	707	(100)	53.3	All <i>in situ</i> tumours	1410	(100)	123.2

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

### 3.10 Impact of the ICDO-3 coding scheme on cancer data: update

In this report, as foreshadowed previously,<sup>11</sup> several conditions are now tabulated as "cancers" for the first time, including polycythaemia rubra vera, refractory anaemias and myelodysplastic syndromes. Accordingly, the "Deaths due to lymphohaematopoietic neoplasms of uncertain malignant potential" are now very much reduced (from 32 in 2001<sup>11</sup> to 1 in 2002) and historical comparisons will require a request for an updated time-series. The conditions now included in "all cancers" for the first time are shown in Table 16 below.

The reporting of persons with leukaemia, with a prior diagnosis of one of these new "cancers", is now problematic for Registries. Reporting rules promoted by the International Association of Cancer Registries (IACR) currently suggest that such later-diagnoses should not be counted separately in incidence statistics. The issue was to be included in an international meeting in 2003, but little information concerning the outcome is available as yet.

Pending further information, the current IACR "rules" have been implemented, and at the time of writing, in addition to the 221 leukaemias reported for 2002 (Table 1) there were 12 further leukaemias not "counted" due to a prior myelodysplasia or similar condition.

**Table 16. Conditions now included as "cancers" for the first time as a result of implementation of ICDO-3 coding system**

Code	Condition	Code	Condition
9950	Polycythaemia vera	9980	Refract. anaemia, NOS
9950	Chronic erythraemia	9980	Refract. anaemia without sideroblasts
9950	Chronic erythraemia [obs]	9982	Refract. anaemia with sideroblasts
9950	Polycythaemia rubra vera	9982	RARS
9950	Proliferative polycythaemia	9982	Refract. anaemia with ringed sideroblasts
9960	Lympho/Myeloproliferative disorder NOS (malignant)	9983	Refract. anaemia with excess of blasts
9960	Chronic myeloproliferative disease NOS	9983	RAEB
9960	Chronic myeloproliferative disorder	9983	RAEB I
9961	Myelosclerosis w. myel. metaplasia	9983	RAEB II
9961	Agnogenic myeloid metaplasia	9984	Refract. anaemia w. exc blasts w. transf
9961	Chronic idiopathic myelofibrosis	9984	RAEB-T
9961	Megakaryocytic myelosclerosis	9989	Myelodysplastic syndrome
9961	Myelofibrosis due to myeloprolif. disease	9989	Preleukaemia [obs]
9961	Myelofibrosis with myeloid metaplasia	9989	Preleukaemic syndrome [obs]
9962	Idiopathic thrombocythaemia		
9962	Essential hemorrhagic thrombocythaemia		
9962	Essential thrombocythaemia		
9962	Idopathic hemorrhagic thrombocythaemia		

**NOTES:**

- NOS Not otherwise specified
- RAEB Refractory anaemia with excess of blasts
- transf Transformation
- [obs] Obsolete term
- Refract. Refractory

### 3.11 Cancer incidence in indigenous Australians, 2002

There is a history in reports from this Registry, that continues to suggest that male Aboriginals in particular, do not demonstrate the high rate of prostate cancer seen in the State as a whole, but have a greater relative incidence of lung cancers and cancers of unknown primary site. Among Aboriginals, melanoma has no place in the most common cancers in males or females, 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 are so much more common among Aboriginal people, in males (ASR 27.0 vs 10.5 for the whole population) and in females (49.5 vs 7.2). More remains to be done, to address this discrepancy. Table 17 shows the most common incident cancers by sex, based on data for 2002.

**Table 17. Most common incident cancers in indigenous Australians, Western Australia, 2002.**

Cancer type	Cases	ASR	SE	Risk*
<b>Males</b>				
Lung	6	36.8	15.5	21
Prostate	5	34.0	15.5	32
Unknown primary site	4	27.0	14.1	20
Mesothelioma	3	16.6	9.5	49
Leukaemia	3	20.2	12.1	37
Colorectal	3	18.4	10.6	146
Oesophagus	2	11.2	8.5	45
Gallbladder	2	10.2	7.2	87
Larynx	2	11.1	7.9	216
Kidney	2	6.5	4.6	185
Other	12	62.9	-	-
All cancers	44	254.9	40.1	4
<b>Females</b>				
Breast	17	69.5	17.7	16
Unknown primary site	8	49.5	17.6	16
Colorectal	8	36.7	14.2	22
Lung	7	39.1	15.0	20
Cervix	3	8.6	5.0	154
Uterus	3	13.2	8.2	61
Tongue	2	13.2	9.3	31
Lymphoma	2	7.2	5.4	125
Other	8	50.3	-	-
All cancers	58	287.3	39.5	3

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

## 4. References

- 1 Breslow A (1970) Thickness, cross-sectional area and depth of invasion in the prognosis of cutaneous melanoma. *Ann Surg* **172**, 902-908
- 2 Clark WH *et al* (1975) The developmental biology of primary cutaneous malignant melanoma. *Seminars in Oncology* **2**, 83.
- 3 Gill L, Codde J, Vasudaven M (1997) *Estimating future demand for hospital services: a comparison of three projection models*. Health Department of Western Australia, Perth, Epidemiology Occasional Paper 1.
- 4 Jensen OM, Parkin DM, MacLennan R *et al* (1991) *Cancer Registration: Principles and methods*. IARC Scientific Publications No. 95, Lyon, France.
- 5 Parkin DM, Chen VW, Ferlay J *et al* (1994) *Comparability and quality control in Cancer Registration*. IARC Technical Report No. 19, IARC, Lyon.
- 6 Segi M (1960) *Cancer mortality for selected sites in 24 countries (1950-1957)*. Sendai, Japan, Tohoku University Press.
- 7 Threlfall TJ (1997) *Cancer incidence and mortality projections for Western Australia, 1996-2001*. Health Department of Western Australia, Perth, Statistical Series number 50.
- 8 Threlfall TJ, Thompson JR (1999) *Cancer incidence and mortality in Western Australia, 1997*. Health Department of Western Australia, Perth, Statistical Series number 57.
- 9 Threlfall TJ, Brameld K (2000) *Cancer survival in Western Australian residents, 1982-1997*. Health Department of Western Australia, Perth, Statistical Series number 60.
- 10 Threlfall TJ, Thompson JR (2002) *Cancer incidence and mortality in Western Australia, 1999 and 2000*. Department of Health, Western Australia, Perth. Statistical series number 65
- 11 Threlfall TJ, Thompson JR (2003) *Cancer incidence and mortality in Western Australia, 2001*. Health Department of Western Australia, Perth, Statistical Series number 68.
- 12 Threlfall TJ, Wittorff J, Boutdara P, Fritschi L, Heyworth J, Katris P, Sheiner H (2004) *Collection of population-based cancer staging information in Western Australia – a feasibility study*. National Cancer Control Initiative (NCCI), Melbourne.
- 13 World Health Organization (2000) *ICD-O: International classification of diseases for oncology* (Third Edition). WHO, Geneva.

## APPENDICES

### 1 About The Western Australian Cancer Registry

1A	Overview and technical issues	
	History and role	A1-1
	Registry scope	A1-1
	Legislative basis	A1-1
	Sources of data	A1-2
	Data handling and maintenance	A1-2
	Coding practices	A1-3
	Quality assurance	A1-5
	Uses of Cancer Registry data	A1-5
1B	Current issues	
	Registry staffing and workload	A1-6

### 2 Technical and miscellaneous information

2A	Glossary	A2-1
2B	Statistical methods and formulae	A2-2
2C	Populations and geographic areas	A2-4
2D	Confidentiality guidelines	A2-6
2E	Cancer Notification Regulations	A2-7
2F	Cancer codes	A2-9
2G	WACR publications	A2-11
2H	Guide to tables in Appendix 3	A2-12

### 3 Cancer incidence and mortality in Western Australia, 2002

3A	Cancer incidence, Western Australia, 2002: numbers and rates by type, sex and age group	A3-1
3B	Cancer mortality, Western Australia, 2002: numbers and rates by type, sex and age group	A3-10
3C	Childhood cancer incidence, Western Australia, 2002: ICD-O 3rd Revision classification scheme	A3-20
3D	Cancer incidence, Western Australia, 2002: Leading types by sex and geographic area	A3-24
3E	Cancer mortality, Western Australia, 2002: Leading types by sex and geographic area	A3-29

- Notes -



# 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 (NCSCCH) (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. For the last 4 years, the Principal Medical Officer, WACR, has been Oceania representative on the Executive Board of IACR.

### 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. 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. Resources are not available to permit optimum use of these records at present.

## 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 in the context of a planned re-engineering process in the next few years.

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 found to be duplicates of existing cases are now handled by cross-referencing to the "valid" case, rather than by physical deletion from the database, in order to pre-empt a need for repetition of investigations should misleading data be received later.

Statistics are produced from database extracts using the Registry's own incidence and mortality rates calculation system and a variety of other statistical and graphics software packages. Software for routine statistical reports is constantly being developed and upgraded to reflect changes in coding systems, geographical area 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),<sup>13</sup> 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) and topography (others). An exception is made for cutaneous (skin) melanoma, which is coded for mortality purposes to the ICD-10 code, C43x, to distinguish these deaths from deaths due to non-melanoma skin cancers (C44x). In accordance with IACR guidelines adopted by AACR, deaths due to primary melanomas of unknown primary site are now recorded as deaths due to 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).<sup>4</sup> In this way, for example, a squamous cell carcinoma of the lung and an adenocarcinoma of the lung arising at any time will both be counted in incidence statistics. Lymphohaematopoietic malignancies are treated differently, being tabulated by morphology, and their discovery in a 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 C64x to C68x , except bladder (C67x), are counted only once in a person.

While these practices govern the reporting of cancers for incidence statistics in accordance with international practice, it is an inescapable conclusion that multiple tumours have separate effects on health, and the best illustration of this is in relation to survival. Cases occur in which a person has a breast carcinoma, and is treated and considered cured, only to die from a second primary breast carcinoma arising many years later. Measuring survival time from the first tumour diagnosis (the “incident” tumour) and ignoring the presence of the second, can lead to a simplistic analysis which falsely 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<sup>1</sup> Clark *et al* 1975<sup>2</sup>). Analyses of these items, which are not a substitute for a formal staging, but do predict outcomes, have been presented in a number of the Registry's previous reports.

## Quality assurance

Data quality is assessed in various ways, both continuous and occasional. On a continuous basis, all coding on pathology reports, and the details entered on the database, are checked by a second member of the Registry staff, and queries are referred to a Registry medical officer. In addition, the Registry database system incorporates various “unusual case” warnings, based on dates, sex, and age. A case-flagging system, based on site and tissue combinations and the rules encapsulated in a modified version of IARC’s “Check” routine,<sup>5</sup> 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 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. Hospital registry data were included in the report *Cancer survival in Western Australian residents, 1982-1997*.<sup>9</sup>

## Appendix 1B. Current issues

### Registry staffing and workload

In 2004 as this report was in preparation, a long process seeking reclassification of "Clerical officers" to a higher level, redesignated "Data quality officers", came to a successful conclusion. The reclassification effort was made in recognition of the increasingly complex role that these key staff play, as data are more commonly received in electronic form, and their workloads have moved from "data entry" towards greater responsibility for coding decisions and reconciliation of new data with old data, and initiating and managing enquiries aimed at substantiating the more unusual or incomplete notifications received.

The alternative term "Case officer" would equally have reflected this, as the WACR is truly a "case-based" registry, rather than an "event-based" one, and the notion that a registry can function merely as a passive repository of often-conflicting items of information, is increasingly unrealistic. The Registry serves its purpose only partially through the production of reports such as this one, and increasingly functions as a conduit between medical researchers and the persons registered on the database. Accordingly, the correct collation of conflicting data, and a close attention to detail in data linkage issues, have become even more crucial than ever.

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 "cancers" totals, as demonstrated by the following data: in 2002 there were 8464 "cancer" cases as mentioned earlier in this report. However, in the same year there were 15521 pathology records added to the registry databases, and 17803 records were edited in some way by staff.

Corresponding figures for 1998 were 9223 and 10585, hence the 2002 figures represent increases of 68% in both workload measures, in 5 years, or an annual increase of 11% over the last 5 years. These rates of increase 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.

## 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) <sup>b</sup>
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
SE	Estimated standard error; 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:

Crude	Crude rate per 100,000 persons
Cum inc	Cumulative incidence (%) (before a particular age, usually 75 years)
SE	Estimated standard error; standard deviation
Risk	Lifetime risk (usually to age 75; 1 in $n$ )
TissDx	Percentage of diagnoses made on basis of tissue examination (histology, haematology or cytology)

## 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<sup>a</sup> 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<sup>b</sup>). Weightings by other population standards can be used if requested.

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

#### Formulae:

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

where  $w_i$  is the World Standard Population<sup>b</sup> for the  $i$ th age group,  $W = \sum_i w_i$  and  $\sum_i$  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<sup>c</sup>) 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.

<sup>a</sup> Rothman KJ (1986) *Modern epidemiology*. Little, Brown & Company, Boston.

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

<sup>c</sup> 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:

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

### Person years of life lost

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

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

### **Formulae:**

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

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

where *a<sub>i</sub>* 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<sub>i</sub>* is the number of deaths from the cause of death of interest in the *i*th age group, *p<sub>i</sub>* is the probability of surviving the *i*th age interval after eliminating the cause of death of interest, and

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

The quantity *p<sub>i</sub>* 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<sub>i</sub>* is the death rate and *D<sub>i</sub>* is the total number of deaths for the *i*th age group.

<sup>a</sup> 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 the calculation of 2002 rates in this report

Age	Males	(%)	Females	(%)	Total	(%)
0-4	64054	6.8	61237	6.5	125291	6.5
5-9	69019	7.2	65234	6.8	134253	7.0
10-14	71701	7.5	68183	7.1	139884	7.3
15-19	73114	7.6	69633	7.2	142747	7.4
20-24	69486	6.8	66472	6.5	135958	7.1
25-29	67381	7.2	66263	7.1	133644	6.9
30-34	73910	7.6	73276	7.5	147186	7.6
35-39	73302	7.8	73663	7.8	146965	7.6
40-44	75261	7.7	75637	7.8	150898	7.8
45-49	69824	7.2	70600	7.4	140424	7.3
50-54	66316	7.2	64474	6.9	130790	6.8
55-59	53596	5.3	50120	5.0	103716	5.4
60-64	40719	4.2	39304	4.1	80023	4.2
65-69	31328	3.1	32202	3.2	63530	3.3
70-74	26720	2.8	28567	3.0	55287	2.9
75-79	19944	2.1	24185	2.6	44129	2.3
80-84	11159	1.1	17278	1.7	28437	1.5
85+	7479	0.8	16681	1.7	24160	1.3
Total	964313	100.0	963009	100.0	1927322	(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.)

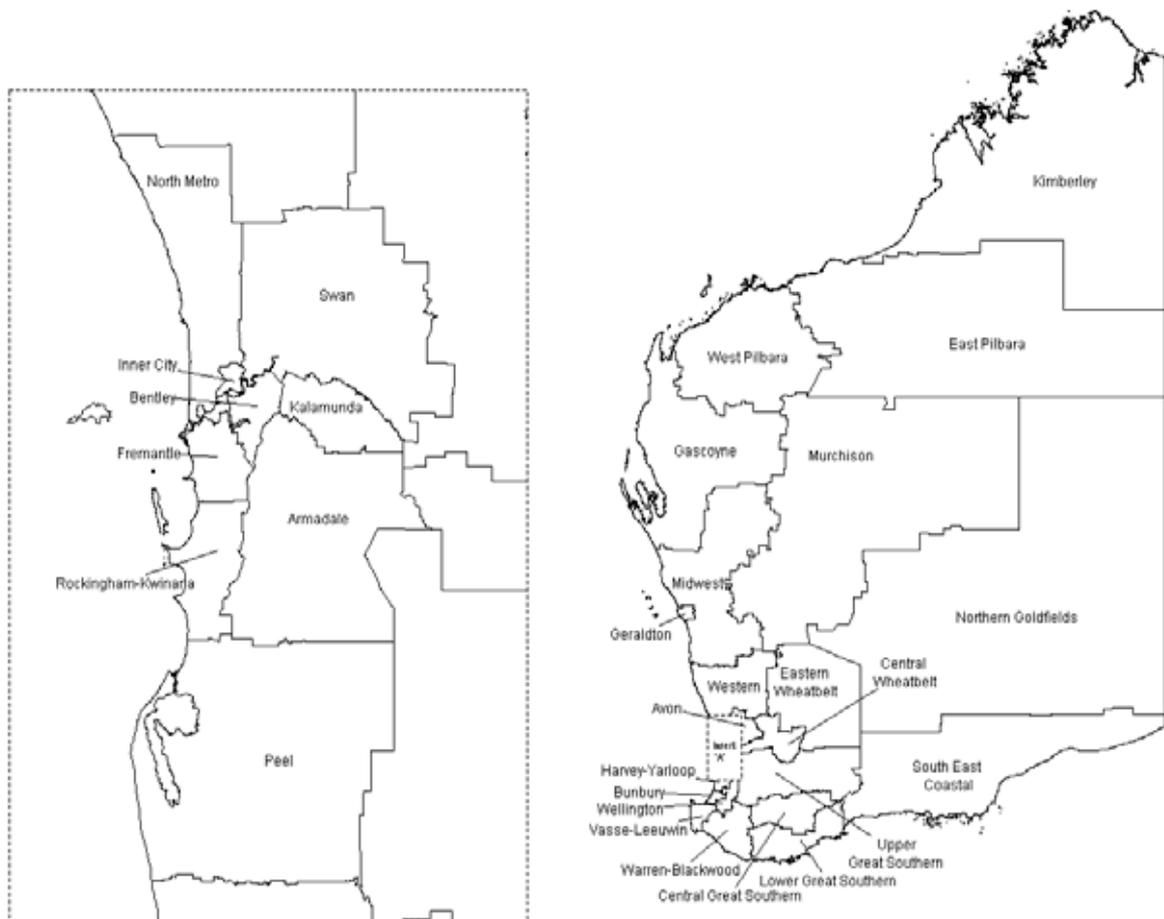
### Health District composition of Health Regions as used for this Report

<b>Kimberley HR</b>	<b>Goldfields SE Coastal HR</b>	<b>North Metro HR</b>
Kimberley HD	Northern Goldfields HD	North Metro HD
<b>Pilbara Gascoyne HR</b>	South East Coastal HD	
East Pilbara HD		<b>East Metro HR</b>
Gascoyne HD	<b>Great Southern HR</b>	Bentley HD
West Pilbara HD	Central Great Southern HD	Inner City HD
<b>Midwest Murchison HR</b>	Lower Great Southern HD	Kalamunda HD
Geraldton HD		Swan HD
Midwest HD	<b>South West HR</b>	
Murchison HD	Bunbury HD	<b>South Metro HR</b>
<b>Wheatbelt HR</b>	Harvey-Yarloop HD	Armadale-Kelmscott HD
Avon HD	Vasse-Leeuwin HD	Fremantle HD
Central Wheatbelt HD	Warren-Blackwood HD	Peel HD
Eastern Wheatbelt HD	Wellington HD	Rockingham-Kwinana HD
Upper Great Southern HD		
Western HD		

The Department of Health's area of responsibility is administered through 10 Health Regions (replacing 11 Health Zones of similar size) and 30 individual Health Districts (which replace the previous Health Services). Each Health District (HD) lies entirely within a Health Region (HR). Areas have been re-named and re-allocated, 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 map below will assist comparison of boundaries and area names with those used in previous reports.

### Western Australian Health Zone and Health District boundaries



## 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.

(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 <sup>(1)</sup>	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	Pyrimiform sinus & hypopharynx	C54	Corpus uteri (Uterus)
C14	Pharynx, other & ill-def. sites	C55	Uterus, nos ( <i>not used</i> )
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	Kidney & other renal tract
C22	Liver & intrahepatic bile ducts	& C68	
C23 - C24	Gallbladder & bile ducts	C67	Urinary bladder
C25	Pancreas	C69	Eye & lacrimal gland
C30 - C31	Nasal cavity & sinuses, middle & inner ear	C70	Meninges (cerebral & spinal)
C32	Larynx	C71	Brain
C33 - C34	Lung, bronchus & trachea	C72	Spinal cord & cranial nerves
C37	Thymus	C73	Thyroid gland
C38	Pleura, heart & mediastinum	C74 - C75	Adrenal & other endocrine glands
		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 ( <i>subset of 1c1</i> )	YNBB	9687
2 Myeloma/Plasma Cell tumours	P*	9731-9734
3 All leukaemias	L**	
3a Leukaemias, NOS/unclassifiable	LUC	9800-9801, 9805
3b Leukaemias, lymphoid, all	LL*	
3b1 Leukaemias, lymphoid, acute	LLA	9836-9837
3b2 Leukaemias, lymphoid, chronic	LLC	9823
3b3 Leukaemias, lymphoid, other/NOS	LLO	9820, 9826, 9827, 9831-9834,
3c Leukaemias, myeloid, all	LM*	
3c1 Leukaemias, myeloid, acute	LMA	9840, 9861, 9866-9867, 9870-9874, 9891, 9895-9897, 9910, 9920, 9930-9931
3c2 Leukaemias, myeloid, chronic	LMC	9863, 9875-9876
3c3 Leukaemias, myeloid, other & NOS	LMO	9860
3d Other leukaemias	LOT	9940, 9945-9946, 9948
4 Other lymphohaematopoietic malignancies		
4a Myelodysplastic diseases, all	HM*	
4a1 Refractory anaemias/cytopenias	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.

## 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. Cancer incidence, Western Australia, 2002

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	Crude	ASR	SE	TissDx	CumInc	Risk	
<b>Lip (C000-C009)</b>																											
M							4	3	5	8	10	8	7	10	8	3	3	3		<b>72</b>	7.5	<b>5.7</b>	0.7	100.0	0.7	147	
							5.4	4.1	6.6	11.5	15.1	14.9	17.2	31.9	29.9	15.0	26.9	40.1									
F							2	3	3	2	7	6	5	4	7	9	7	4		<b>59</b>	6.1	<b>3.9</b>	0.5	100.0	0.4	233	
							2.7	4.1	4.0	2.8	10.9	12.0	12.7	12.4	24.5	37.2	40.5	24.0									
<b>Tongue (C010-C029)</b>																											
M								2	4	6	8	6	2	3	1	1	1			<b>34</b>	3.5	<b>2.7</b>	0.5	100.0	0.3	310	
								2.7	5.7	9.0	14.9	14.7	6.4	11.2	5.0	9.0	13.4										
F											1		1	2	1	3	1			<b>9</b>	0.9	<b>0.5</b>	0.2	100.0	0.1	1653	
											2.0		3.1	7.0	4.1	17.4	6.0										
<b>Gum (C030-C039)</b>																											
M												1								<b>1</b>	0.1	<b>0.1</b>	0.1	100.0	0.0	8144	
												2.5															
F															1			1		<b>2</b>	0.2	<b>0.1</b>	0.1	100.0	0.0	5714	
															3.5			6.0									
<b>Floor of mouth (C040-C049)</b>																											
M								2	1	1	2	2	1	2	1					<b>12</b>	1.2	<b>1.0</b>	0.3	100.0	0.1	803	
								2.7	1.4	1.5	3.7	4.9	3.2	7.5	5.0												
F										1	1	1			1	1				<b>5</b>	0.5	<b>0.3</b>	0.2	100.0	0.0	3284	
										1.6	2.0	2.5			4.1	5.8											
<b>Palate, other &amp; u/s parts of mouth (C050-C069)</b>																											
M								3	4	2		1	1	1	2	1				<b>15</b>	1.6	<b>1.1</b>	0.3	100.0	0.1	905	
								4.0	5.7	3.0		2.5	3.2	3.7	10.0	9.0											
F					1				1		2		1	1						<b>6</b>	0.6	<b>0.5</b>	0.2	100.0	0.1	1480	
					1.5				1.4		4.0		3.1	3.5													
<b>Parotid &amp; other major salivary gland (C070-C089)</b>																											
M								1	1	1			1	2	1	1	1			<b>9</b>	0.9	<b>0.6</b>	0.2	100.0	0.1	1339	
								1.3	1.4	1.5			3.2	7.5	5.0	9.0	13.4										
F			1	1				1	1		1		2		1	1				<b>9</b>	0.9	<b>0.8</b>	0.3	100.0	0.1	1499	
			1.5	1.4				1.4	1.3		1.6		6.2		4.1	5.8											
<b>Tonsil &amp; oropharynx (C090-C109)</b>																											
M								1	4	7	3	4	1	2	2	4	2			<b>30</b>	3.1	<b>2.3</b>	0.4	96.7	0.2	445	
								1.4	5.3	10.0	4.5	7.5	2.5	6.4	7.5	20.1	17.9										
F											2	2	2	1				1		<b>8</b>	0.8	<b>0.6</b>	0.2	100.0	0.1	1065	
											4.0	5.1	6.2	3.5				6.0									
<b>Nasopharynx (C110-C119)</b>																											
M											1	1						1		<b>3</b>	0.3	<b>0.2</b>	0.1	66.7	0.0	4628	
											1.9	2.5						13.4									
F									1		1									<b>2</b>	0.2	<b>0.2</b>	0.1	100.0	0.0	5050	
									1.4		2.5																
<b>Pyriiform sinus &amp; hypopharynx (C120-C139)</b>																											
M								1	1	1	2	2	2			1	1			<b>11</b>	1.1	<b>0.9</b>	0.3	100.0	0.1	848	
								1.4	1.5	1.9	4.9	6.4	7.5			9.0	13.4										
F											1			1						<b>2</b>	0.2	<b>0.1</b>	0.1	100.0	0.0	3640	
											2.0			3.5													

## Appendix 3A. Cancer incidence, Western Australia, 2002

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	Crude	ASR	SE	TissDx	CumInc	Risk	
Pharynx, other & ill-def. sites (C140-C149)																											
M										1	2	1	1			2	2			<b>9</b>	0.9	<b>0.6</b>	0.2	100.0	0.0	2281	
										1.4	3.0	1.9	2.5			10.0	17.9										
F																				<b>0</b>							
Oesophagus (C150-C159)																											
M										2	4	3	6	5	10	12	11	11	5	<b>69</b>	7.2	<b>4.9</b>	0.6	98.6	0.6	177	
										2.7	5.7	4.5	11.2	12.3	31.9	44.9	55.2	98.6	66.9								
F							1				2	3	4	5	4	7	6	5		<b>37</b>	3.8	<b>2.2</b>	0.4	97.3	0.3	399	
							1.4				3.1	6.0	10.2	15.5	14.0	28.9	34.7	30.0									
Stomach (C160-C169)																											
M								1		4	4	8	10	12	17	17	10	10		<b>93</b>	9.6	<b>6.7</b>	0.7	96.8	0.8	130	
								1.4		5.7	6.0	14.9	24.6	38.3	63.6	85.2	89.6	133.7									
F				1						1	7	3	9	1	9	6	6	6		<b>49</b>	5.1	<b>3.2</b>	0.5	93.9	0.4	260	
				1.4						1.4	10.9	6.0	22.9	3.1	31.5	24.8	34.7	36.0									
Small intestine (C170-C179)																											
M											2	2	2	1	3	2	1	1		<b>14</b>	1.5	<b>1.0</b>	0.3	92.9	0.1	767	
											3.0	3.7	4.9	3.2	11.2	10.0	9.0	13.4									
F									1	1	1	1	1	1		1		1		<b>7</b>	0.7	<b>0.5</b>	0.2	100.0	0.1	1885	
									1.4	1.6	2.0	2.5	3.1		4.1		6.0										
Colorectal cancer (C18-C20, C218)																											
M					1	1	1	2	10	20	48	47	66	85	84	99	57	39		<b>560</b>	58.1	<b>41.2</b>	1.8	97.1	4.8	21	
					1.4	1.5	1.4	2.7	13.3	28.6	72.4	87.7	162.1	271.3	314.4	496.4	510.8	521.5									
F					1	1	7	5	14	19	33	21	45	38	62	96	49	54		<b>445</b>	46.2	<b>27.6</b>	1.4	95.3	3.0	33	
					1.5	1.5	9.6	6.8	18.5	26.9	51.2	41.9	114.5	118.0	217.0	396.9	283.6	323.7									
Colon (C180-C189)																											
M					1		1		7	14	26	17	51	44	56	67	39	27		<b>350</b>	36.3	<b>25.5</b>	1.4	97.1	2.9	35	
					1.4		1.4		9.3	20.1	39.2	31.7	125.2	140.4	209.6	335.9	349.5	361.0									
F						1	1	5	10	14	21	16	31	24	45	69	36	37		<b>310</b>	32.2	<b>19.0</b>	1.2	93.9	2.1	48	
						1.5	1.4	6.8	13.2	19.8	32.6	31.9	78.9	74.5	157.5	285.3	208.4	221.8									
Rectosigmoid junction & rectum (C190-C209)																											
M						1		2	3	6	22	30	15	41	28	30	18	12		<b>208</b>	21.6	<b>15.5</b>	1.1	97.1	1.9	53	
						1.5		2.7	4.0	8.6	33.2	56.0	36.8	130.9	104.8	150.4	161.3	160.4									
F					1		6		4	5	12	5	14	14	16	27	13	16		<b>133</b>	13.8	<b>8.5</b>	0.8	98.5	0.9	108	
					1.5		8.2		5.3	7.1	18.6	10.0	35.6	43.5	56.0	111.6	75.2	95.9									
Anus (C210-C219)																											
M					1				1			1			2					<b>5</b>	0.5	<b>0.4</b>	0.2	100.0	0.0	3755	
					1.4				1.4			2.5			10.0												
F						1	1		1			1	1	2	2			1		<b>10</b>	1.0	<b>0.7</b>	0.2	100.0	0.1	1192	
						1.4	1.4		1.4			2.5	3.1	7.0	8.3		6.0										
Liver & intrahepatic bile ducts (C220-C229)																											
M	1							1		2	4	5	7	6	6	9	6	2		<b>49</b>	5.1	<b>3.7</b>	0.6	57.1	0.4	251	
	1.6							1.4		2.9	6.0	9.3	17.2	19.2	22.5	45.1	53.8	26.7									
F									2			1		3	2	1	2	4		<b>15</b>	1.6	<b>0.9</b>	0.2	40.0	0.1	952	
									2.7			2.0		9.3	7.0	4.1	11.6	24.0									

## Appendix 3A. Cancer incidence, Western Australia, 2002

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	Crude	ASR	SE	TissDx	CumInc	Risk	
<b>Gallbladder &amp; bile ducts (C230-C249)</b>																											
M											3	4	5	2	7	2	3			<b>26</b>	2.7	<b>2.0</b>	0.4	80.8	0.3	352	
											4.5	7.5	12.3	6.4	26.2	10.0	26.9										
F									1	2	1	3	1	3	3	5	6			<b>25</b>	2.6	<b>1.4</b>	0.3	68.0	0.1	721	
									1.4	3.1	2.0	7.6	3.1	10.5	12.4	28.9	36.0										
<b>Pancreas (C250-C259)</b>																											
M							1	1	4	5	5	5	18	10	12	11	4			<b>76</b>	7.9	<b>5.6</b>	0.7	64.5	0.7	151	
							1.4	1.3	5.7	7.5	9.3	12.3	57.5	37.4	60.2	98.6	53.5										
F								1	4	5	11	12	11	8	10	12	15			<b>89</b>	9.2	<b>5.7</b>	0.7	64.0	0.6	155	
								1.3	5.7	7.8	21.9	30.5	34.2	28.0	41.3	69.5	89.9										
<b>Nasal cavity &amp; sinuses, middle &amp; inner ear (C300-C319)</b>																											
M								1	1		2	3	1		2	1				<b>11</b>	1.1	<b>0.8</b>	0.3	100.0	0.1	942	
								1.4	1.3		3.0	5.6	2.5		7.5	5.0											
F									1							1				<b>2</b>	0.2	<b>0.1</b>	0.1	100.0	0.0	14121	
									1.4						4.1												
<b>Larynx (C320-C329)</b>																											
M								2	1	3	7	8	1	5	4		1			<b>32</b>	3.3	<b>2.5</b>	0.5	100.0	0.3	317	
								2.7	1.4	4.5	13.1	19.6	3.2	18.7	20.1		13.4										
F					1		1						2	1	2					<b>7</b>	0.7	<b>0.5</b>	0.2	100.0	0.1	1591	
					1.5		1.4						6.2	3.5	8.3												
<b>Lung, bronchus &amp; trachea (C330-C349)</b>																											
M	1							2	6	15	28	35	70	68	117	85	55	31		<b>513</b>	53.2	<b>37.8</b>	1.7	84.0	4.8	21	
	1.6							2.7	8.0	21.5	42.2	65.3	171.9	217.1	437.9	426.2	492.9	414.5									
F								1	6	10	22	21	29	35	59	44	31	35		<b>293</b>	30.4	<b>18.9</b>	1.2	82.3	2.4	41	
								1.4	7.9	14.2	34.1	41.9	73.8	108.7	206.5	181.9	179.4	209.8									
<b>Thymus (C370-C379)</b>																											
M															1					<b>1</b>	0.1	<b>0.1</b>	0.1	100.0	0.0	5345	
															3.7												
F									1			1					1			<b>3</b>	0.3	<b>0.2</b>	0.1	66.7	0.0	5050	
									1.4			2.5					5.8										
<b>Pleura, heart &amp; mediastinum (C380-C389)</b>																											
M											1									<b>1</b>	0.1	<b>0.1</b>	0.1	100.0	0.0	13264	
											1.5																
F								1					1		1					<b>3</b>	0.3	<b>0.2</b>	0.1	100.0	0.0	5126	
								1.4				2.5			4.1												
<b>Bones, joints &amp; articular cartilages (C400-C419)</b>																											
M				2			2	1	1			2					1			<b>9</b>	0.9	<b>0.8</b>	0.3	100.0	0.1	1671	
				2.7			2.7	1.4	1.4			3.7					9.0										
F		1	1		2			2			1		1							<b>8</b>	0.8	<b>0.9</b>	0.3	100.0	0.1	1561	
		1.5	1.5		3.0			2.7			1.6		2.5														
<b>Skin (melanoma only) (C440-C449; M-8720 - 8774)</b>																											
M			1	8	8	13	25	22	42	59	61	75	67	54	77	42	35	28		<b>617</b>	64.0	<b>49.1</b>	2.0	99.7	5.5	19	
			1.4	10.9	11.5	19.3	33.8	30.0	55.8	84.5	92.0	139.9	164.5	172.4	288.2	210.6	313.6	374.4									
F				4	7	19	31	26	28	40	45	47	37	39	32	30	30	13		<b>428</b>	44.4	<b>33.3</b>	1.7	100.0	3.5	29	
				5.7	10.5	28.7	42.3	35.3	37.0	56.7	69.8	93.8	94.1	121.1	112.0	124.0	173.6	77.9									

## Appendix 3A. Cancer incidence, Western Australia, 2002

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	Crude	ASR	SE	TissDx	CumInc	Risk	
<b>Skin (not melanoma/SCC/BCC) (C440-C449)</b>																											
M					1	1	1	1	3	3	3	4	3		9	5	8	8		<b>50</b>	5.2	<b>3.5</b>	0.5	100.0	0.3	299	
					1.4	1.5	1.4	1.4	4.0	4.3	4.5	7.5	7.4		33.7	25.1	71.7	107.0									
F					1	1	1			2	2	2	4	5	1	3	5	3		<b>30</b>	3.1	<b>2.1</b>	0.4	100.0	0.2	460	
					1.5	1.5	1.4			2.8	3.1	4.0	10.2	15.5	3.5	12.4	28.9	18.0									
<b>Mesothelioma (M905; ICD10 C45)</b>																											
M										2	1	12	6	12	12	9	7	4		<b>65</b>	6.7	<b>4.8</b>	0.6	100.0	0.6	161	
										2.9	1.5	22.4	14.7	38.3	44.9	45.1	62.7	53.5									
F										1	1				2	1	1			<b>6</b>	0.6	<b>0.3</b>	0.1	100.0	0.0	5640	
										1.6	2.0				8.3	5.8	6.0										
<b>Kaposi sarcoma (M914; ICD10 C46)</b>																											
M										1					1					<b>2</b>	0.2	<b>0.2</b>	0.1	100.0	0.0	3810	
										1.5					3.7												
F																	1			<b>1</b>	0.1	<b>0.0</b>	0.0	100.0	0.0	0	
																	5.8										
<b>Nervous system, peripheral &amp; autonomic (C470-C479)</b>																											
M																				<b>0</b>							
F							1													<b>1</b>	0.1	<b>0.1</b>	0.1	100.0	0.0	14656	
							1.4																				
<b>Retroperitoneum and peritoneum (C480-C489)</b>																											
M											1									<b>1</b>	0.1	<b>0.1</b>	0.1	100.0	0.0	13264	
											1.5																
F							1				2	1	2	2	2					<b>10</b>	1.0	<b>0.8</b>	0.3	100.0	0.1	808	
							1.4				3.1	2.0	5.1	6.2	7.0												
<b>Connective, subcutaneous &amp; other soft tissues (C490-C499)</b>																											
M	1	1				1	2	1	3	1	1	1	3	1	2	1		1		<b>20</b>	2.1	<b>1.8</b>	0.4	100.0	0.2	565	
	1.6	1.4				1.5	2.7	1.4	4.0	1.4	1.5	1.9	7.4	3.2	7.5	5.0		13.4									
F		1	1				1			1	2	1	2		1					<b>10</b>	1.0	<b>1.0</b>	0.3	100.0	0.1	1028	
		1.5	1.5				1.4			1.4	3.1	2.0	5.1		3.5												
<b>Breast (C500-C509)</b>																											
M							1					2	1	1	3		2	2		<b>12</b>	1.2	<b>0.9</b>	0.3	100.0	0.1	911	
							1.4					3.7	2.5	3.2	11.2		17.9	26.7									
F					2	3	20	36	85	129	163	167	139	128	73	75	58	52		<b>1130</b>	117.3	<b>86.4</b>	2.7	98.4	9.9	11	
					3.0	4.5	27.3	48.9	112.4	182.7	252.8	333.2	353.7	397.5	255.5	310.1	335.7	311.7									
<b>Vulva/vagina (C510-C529)</b>																											
F							3		3	1		1	2	1	4	3	5	3		<b>26</b>	2.7	<b>1.6</b>	0.3	100.0	0.2	595	
							4.1		4.0	1.4		2.0	5.1	3.1	14.0	12.4	28.9	18.0									
<b>Cervix uteri (C530-C539)</b>																											
F					3	6	6	13	14	10	5	2	3	4	6	2	1	3		<b>78</b>	8.1	<b>6.4</b>	0.8	98.7	0.6	161	
					4.5	9.1	8.2	17.6	18.5	14.2	7.8	4.0	7.6	12.4	21.0	8.3	5.8	18.0									
<b>Corpus uteri (C540-C549)</b>																											
F							1	6	8	27	21	12	15	11	21	12	12		<b>146</b>	15.2	<b>10.0</b>	0.9	97.3	1.1	91		
							1.4	7.9	11.3	41.9	41.9	30.5	46.6	38.5	86.8	69.5	71.9										
<b>Uterus, nos (C550-C559)</b>																											
F						1	1	1	1								1	1		<b>6</b>	0.6	<b>0.4</b>	0.2	66.7	0.0	3663	
						1.4	1.4	1.3	1.4								5.8	6.0									

## Appendix 3A. Cancer incidence, Western Australia, 2002

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	Crude	ASR	SE	TissDx	CumInc	Risk	
Ovary, uterine adnexa & other female genital (C560-C579)																											
F		1	1		1	2	7	3	2	9	11	18	13	11	15	10	8			<b>112</b>	11.6	<b>8.1</b>	0.8	94.6	0.9	109	
		1.4	1.5		1.5	2.7	9.5	4.0	2.8	14.0	21.9	45.8	40.4	38.5	62.0	57.9	48.0										
Placenta (C580-C589)																											
F																				<b>0</b>							
Penis & other male genital organs (C600-C639) (not C61 C62)																											
M		1						1			1			2				1		<b>6</b>	0.6	<b>0.5</b>	0.2	100.0	0.1	1889	
		1.4						1.3			1.5			6.4				13.4									
Prostate gland (C610-C619)																											
M								2	4	16	85	155	189	236	203	169	86	59		<b>1204</b>	124.9	<b>92.5</b>	2.7	98.2	12.1	9	
								2.7	5.3	22.9	128.2	289.2	464.2	753.3	759.7	847.4	770.7	788.9									
Testis (C620-C629)																											
M			3	4	12	13	12	4	7	5			2	2						<b>64</b>	6.6	<b>6.0</b>	0.8	100.0	0.5	209	
			4.1	5.8	17.8	17.6	16.4	5.3	10.0	7.5			4.9	6.4													
Kidney & other renal tract (C640-C689) (not C67)																											
M	1				1	2	4	5	8	9	13	13	13	22	19	12	6			<b>128</b>	13.3	<b>9.6</b>	0.9	86.7	1.1	90	
	1.6				1.5	2.7	5.5	6.6	11.5	13.6	24.3	31.9	41.5	82.3	95.3	107.5	80.2										
F	3				1		2	2	7	4	10	6	8	14	6	8	8			<b>79</b>	8.2	<b>5.8</b>	0.7	84.8	0.7	147	
	4.9				1.5		2.7	2.6	9.9	6.2	20.0	15.3	24.8	49.0	24.8	46.3	48.0										
Urinary bladder (C670-C679)																											
M						2		3	1	1	13	16	13	26	22	26	14			<b>137</b>	14.2	<b>9.5</b>	0.8	96.4	1.1	95	
						2.7		4.0	1.4	1.5	24.3	39.3	41.5	97.3	110.3	233.0	187.2										
F						2	1				1	2	8	3	12	3	15			<b>47</b>	4.9	<b>2.5</b>	0.4	89.4	0.2	431	
						2.7	1.3				2.0	5.1	24.8	10.5	49.6	17.4	89.9										
Eye & lacrimal gland (C690-C699)																											
M	1						1	2	3	2					1					<b>10</b>	1.0	<b>0.9</b>	0.3	100.0	0.1	1551	
	1.6						1.4	2.7	4.3	3.0					5.0												
F										1				2		1	1			<b>5</b>	0.5	<b>0.3</b>	0.1	100.0	0.0	2339	
										1.6				7.0		5.8	6.0										
Meninges (cerebral & spinal) (C700-C709)																											
M																				<b>0</b>							
F																	1			<b>1</b>	0.1	<b>0.0</b>	0.0	0.0	0.0	0	
																	5.8										
Brain (C710-C719)																											
M	5	2	1	1	1	2	2	3	3	4	8	7	9	5	6	3	7	2		<b>71</b>	7.4	<b>6.4</b>	0.8	87.3	0.6	167	
	7.8	2.9	1.4	1.4	1.4	3.0	2.7	4.1	4.0	5.7	12.1	13.1	22.1	16.0	22.5	15.0	62.7	26.7									
F	1	1		2			4	5	6	2	6	3	4	8	7	4	6			<b>59</b>	6.1	<b>4.3</b>	0.6	84.7	0.4	223	
	1.6	1.5		2.9			5.5	6.6	8.5	3.1	12.0	7.6	12.4	28.0	28.9	23.2	36.0										
Spinal cord & cranial nerves (C720-C729)																											
M				1																<b>1</b>	0.1	<b>0.1</b>	0.1	100.0	0.0	14623	
				1.4																							
F					1															<b>1</b>	0.1	<b>0.1</b>	0.1	100.0	0.0	13295	
					1.5																						

## Appendix 3A. Cancer incidence, Western Australia, 2002

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	Crude	ASR	SE	TissDx	CumInc	Risk		
<b>Thyroid gland (C730-C739)</b>																												
M				2		1		1	5		8	4	3	3	2	1	1				<b>31</b>	3.2	<b>2.6</b>	0.5	100.0	0.3	356	
				2.7		1.5		1.4	6.6		12.1	7.5	7.4	9.6	7.5	5.0	9.0											
F		1		1	4	10	5	5	12	10	3	11	5	3	1	5		1			<b>77</b>	8.0	<b>6.8</b>	0.8	98.7	0.6	167	
		1.5		1.4	6.0	15.1	6.8	6.8	15.9	14.2	4.7	21.9	12.7	9.3	3.5	20.7		6.0										
<b>Adrenal &amp; other endocrine glands (C740-C759)</b>																												
M	1									1											<b>2</b>	0.2	<b>0.3</b>	0.2	100.0	0.0	6682	
	1.6									1.4																		
F	2							1		1											<b>4</b>	0.4	<b>0.6</b>	0.3	100.0	0.0	3312	
	3.3							1.4		1.4																		
<b>LYMPHOMAS</b>																												
Lymphoma, NOS / unclassifiable																												
M								1			1	1	1	3	2	3					<b>12</b>	1.2	<b>0.8</b>	0.2	83.3	0.1	995	
								1.4			1.9	2.5	3.2	11.2	10.0	26.9												
F									1	1			2	3		2	2	2			<b>13</b>	1.3	<b>0.8</b>	0.3	84.6	0.1	1152	
									1.4	1.6			5.1	9.3		8.3	11.6	12.0										
Hodgkin lymphoma																												
M		1	1	2	1	2	1	1	3		1	1	1	2	1	2					<b>20</b>	2.1	<b>1.9</b>	0.4	100.0	0.2	613	
		1.4	1.4	2.7	1.4	3.0	1.4	1.4	4.0		1.5	1.9	2.5	6.4	3.7	10.0												
F					2	2				2		1				2	1				<b>10</b>	1.0	<b>0.8</b>	0.3	100.0	0.1	1843	
					3.0	3.0				2.8		2.0				8.3	5.8											
All NHL																												
M	2	2		2	3	2	3	5	11	18	12	15	13	14	26	28	20	14			<b>190</b>	19.7	<b>14.4</b>	1.1	98.4	1.4	70	
	3.1	2.9		2.7	4.3	3.0	4.1	6.8	14.6	25.8	18.1	28.0	31.9	44.7	97.3	140.4	179.2	187.2										
F					2	1	2	3	6	12	9	11	19	11	23	27	11	12			<b>149</b>	15.5	<b>10.2</b>	0.9	98.0	1.2	86	
					3.0	1.5	2.7	4.1	7.9	17.0	14.0	21.9	48.3	34.2	80.5	111.6	63.7	71.9										
NHL, mature B cell																												
M	1	2		2	2	2		5	8	11	10	9	5	5	18	20	9	8			<b>117</b>	12.1	<b>8.9</b>	0.9	100.0	0.9	116	
	1.6	2.9		2.7	2.9	3.0		6.8	10.6	15.8	15.1	16.8	12.3	16.0	67.4	100.3	80.7	107.0										
F					1		2	1	5	5	5	10	16	9	14	19	5	9			<b>101</b>	10.5	<b>7.0</b>	0.7	99.0	0.8	122	
					1.5		2.7	1.4	6.6	7.1	7.8	20.0	40.7	27.9	49.0	78.6	28.9	54.0										
NHL, mature YT/NK cell																												
M									5		1	2	2	2		2	1				<b>15</b>	1.6	<b>1.2</b>	0.3	93.3	0.1	720	
									7.2		1.9	4.9	6.4	7.5		17.9	13.4											
F					1			1		3	2	1			4	1	1				<b>14</b>	1.5	<b>1.0</b>	0.3	92.9	0.1	764	
					1.5			1.4		4.2	3.1	2.0			14.0	4.1	5.8											
NHL, precursor cell lymphoblastic																												
M	1																				<b>1</b>	0.1	<b>0.2</b>	0.2	100.0	0.0	12811	
	1.6																											
F										1											<b>1</b>	0.1	<b>0.1</b>	0.1	100.0	0.0	14121	
										1.4																		
NHL, other/unclassifiable																												
M					1		3		3	2	2	5	6	7	6	8	9	5			<b>57</b>	5.9	<b>4.1</b>	0.6	96.5	0.4	238	
					1.4		4.1		4.0	2.9	3.0	9.3	14.7	22.3	22.5	40.1	80.7	66.9										
F						1		1	1	3	2		3	2	5	7	5	3			<b>33</b>	3.4	<b>2.1</b>	0.4	97.0	0.2	467	
						1.5		1.4	1.3	4.2	3.1		7.6	6.2	17.5	28.9	28.9	18.0										

## Appendix 3A. Cancer incidence, Western Australia, 2002

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	Crude	ASR	SE	TissDx	CumInc	Risk	
<b>Lymphomas (all)</b>																											
M	2	3	1	4	4	4	4	7	14	18	13	17	15	17	30	32	23	14		<b>222</b>	23.0	<b>17.1</b>	1.2	97.7	1.7	59	
	3.1	4.3	1.4	5.5	5.8	5.9	5.4	9.5	18.6	25.8	19.6	31.7	36.8	54.3	112.3	160.4	206.1	187.2									
F					4	3	2	3	6	15	10	12	21	14	23	31	14	14		<b>172</b>	17.9	<b>11.9</b>	1.0	97.1	1.3	76	
					6.0	4.5	2.7	4.1	7.9	21.2	15.5	23.9	53.4	43.5	80.5	128.2	81.0	83.9									
<b>MYELOMA</b>																											
Myeloma/plasma cell tumours																											
M									2	2	1	1	4	12	10	6	3	8		<b>49</b>	5.1	<b>3.7</b>	0.5	83.7	0.5	212	
									2.7	2.9	1.5	1.9	9.8	38.3	37.4	30.1	26.9	107.0									
F												4	1	2	5	6	4	6		<b>28</b>	2.9	<b>1.5</b>	0.3	92.9	0.2	585	
												8.0	2.5	6.2	17.5	24.8	23.2	36.0									
<b>LEUKAEMIAS</b>																											
Leukaemias, NOS/unclassifiable																											
M													1	2						<b>3</b>	0.3	<b>0.3</b>	0.2	100.0	0.0	2263	
													2.5	6.4													
F															1	1	1			<b>3</b>	0.3	<b>0.1</b>	0.1	100.0	0.0	5714	
															3.5	4.1	5.8										
Leukaemias, lymphoid, all																											
M	5	1	1	2	1				2	2	8	8	2	8	11	9	2			<b>62</b>	6.4	<b>5.2</b>	0.7	96.8	0.5	219	
	7.8	1.4	1.4	2.7	1.4				2.9	3.0	14.9	19.6	6.4	29.9	55.2	80.7	26.7										
F	3	2	2			1			3	2	3	5	4	3	2	3	5			<b>38</b>	3.9	<b>3.3</b>	0.6	97.4	0.3	326	
	4.9	3.1	2.9			1.5			4.2	3.1	6.0	12.7	12.4	10.5	8.3	17.4	30.0										
Leukaemias, lymphoid, acute																											
M	5	1	1	2	1				1						1					<b>12</b>	1.2	<b>1.7</b>	0.5	100.0	0.1	1001	
	7.8	1.4	1.4	2.7	1.4				1.4						3.7												
F	3	2	2			1					1	1			1			1		<b>13</b>	1.3	<b>1.6</b>	0.5	92.3	0.1	1050	
	4.9	3.1	2.9			1.5					1.6	2.0			3.1			4.1									
Leukaemias, lymphoid, chronic																											
M									1	1	7	8	2	7	11	9	2			<b>48</b>	5.0	<b>3.3</b>	0.5	97.9	0.3	294	
									1.4	1.5	13.1	19.6	6.4	26.2	55.2	80.7	26.7										
F									3	1	1	5	3	3	1	3	3			<b>23</b>	2.4	<b>1.6</b>	0.4	100.0	0.2	496	
									4.2	1.6	2.0	12.7	9.3	10.5	4.1	17.4	18.0										
Leukaemias, lymphoid, other/NOS																											
M									1	1										<b>2</b>	0.2	<b>0.2</b>	0.1	50.0	0.0	5929	
									1.5	1.9																	
F											1							1		<b>2</b>	0.2	<b>0.1</b>	0.1	100.0	0.0	10025	
											2.0							6.0									
Leukaemias, myeloid, all																											
M	2	1		1	2	2	1	3	2	4	8	2	6	4	7	6	4	2		<b>57</b>	5.9	<b>4.8</b>	0.7	89.5	0.5	211	
	3.1	1.4		1.4	2.9	3.0	1.4	4.1	2.7	5.7	12.1	3.7	14.7	12.8	26.2	30.1	35.8	26.7									
F		2			1	1	1	3	4	1	1	3	8	5	3	3	4	2		<b>42</b>	4.4	<b>3.4</b>	0.6	92.9	0.4	278	
		3.1			1.5	1.5	1.4	4.1	5.3	1.4	1.6	6.0	20.4	15.5	10.5	12.4	23.2	12.0									
Leukaemias, myeloid, acute																											
M	2			1	1	2			1	2	7	2	5	4	7	5	2	2		<b>43</b>	4.5	<b>3.7</b>	0.6	88.4	0.4	255	
	3.1			1.4	1.4	3.0			1.3	2.9	10.6	3.7	12.3	12.8	26.2	25.1	17.9	26.7									
F		2				1	1	2	3		1	2	5	5	2	3	3	1		<b>31</b>	3.2	<b>2.5</b>	0.5	93.5	0.3	375	
		3.1				1.5	1.4	2.7	4.0		1.6	4.0	12.7	15.5	7.0	12.4	17.4	6.0									

## Appendix 3A. Cancer incidence, Western Australia, 2002

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	Crude	ASR	SE	TissDx	CumInc	Risk	
<b>Leukaemias, myeloid, chronic</b>																											
M		1			1		1	3	1	2	1		1			1	2			<b>14</b>	1.5	<b>1.2</b>	0.3	92.9	0.1	1213	
		1.4			1.4		1.4	4.1	1.3	2.9	1.5		2.5			5.0	17.9										
F					1			1	1	1		1	3		1			1		<b>10</b>	1.0	<b>0.9</b>	0.3	100.0	0.1	1068	
					1.5			1.4	1.3	1.4		2.0	7.6		3.5			6.0									
<b>Leukaemias, myeloid, other/NOS</b>																											
M																				<b>0</b>							
F																	1			<b>1</b>	0.1	<b>0.0</b>	0.0	0.0	0.0	0	
																	5.8										
<b>Leukaemias, other</b>																											
M								1	1		1	2	1			1	3	2		<b>12</b>	1.2	<b>0.8</b>	0.2	100.0	0.1	1926	
								1.4	1.3		1.5	3.7	2.5			5.0	26.9	26.7									
F												1			2	1				<b>4</b>	0.4	<b>0.3</b>	0.1	100.0	0.0	2224	
												2.0			7.0	4.1											
<b>Leukaemias (all)</b>																											
M	7	2	1	3	3	2	1	4	3	6	11	12	16	8	15	18	16	6		<b>134</b>	13.9	<b>11.0</b>	1.0	94.0	1.0	98	
	10.9	2.9	1.4	4.1	4.3	3.0	1.4	5.5	4.0	8.6	16.6	22.4	39.3	25.5	56.1	90.3	143.4	80.2									
F	3	4	2		1	2	1	3	4	4	3	7	13	9	9	7	8	7		<b>87</b>	9.0	<b>7.1</b>	0.8	95.4	0.7	137	
	4.9	6.1	2.9		1.5	3.0	1.4	4.1	5.3	5.7	4.7	14.0	33.1	27.9	31.5	28.9	46.3	42.0									
<b>MYELODYSPLASTIC DISEASES</b>																											
<b>Refractory anaemias/cytopaenias</b>																											
M														1	2		1			<b>4</b>	0.4	<b>0.3</b>	0.1	50.0	0.1	1874	
														3.2	7.5		9.0										
F																	2	2		<b>4</b>	0.4	<b>0.1</b>	0.1	25.0	0.0	0	
																	11.6	12.0									
<b>Myelodysplastic syndromes</b>																											
M							1					1	3	7	4	4	5			<b>25</b>	2.6	<b>1.7</b>	0.4	80.0	0.2	506	
							1.4					2.5	9.6	26.2	20.1	35.8	66.9										
F								2			1	2	1	3	2	1				<b>12</b>	1.2	<b>0.7</b>	0.2	83.3	0.1	1343	
								2.6			2.5	6.2	3.5	12.4	11.6	6.0											
<b>Myelodysplastic diseases, all</b>																											
M							1					1	4	9	4	5	5			<b>29</b>	3.0	<b>2.0</b>	0.4	75.9	0.3	398	
							1.4					2.5	12.8	33.7	20.1	44.8	66.9										
F								2			1	2	1	3	4	3				<b>16</b>	1.7	<b>0.8</b>	0.2	68.8	0.1	1343	
								2.6			2.5	6.2	3.5	12.4	23.2	18.0											
<b>CHRONIC MYELOPROLIFERATIVE DISEASES</b>																											
<b>Chronic myeloproliferative disorder, NOS</b>																											
M																	1			<b>1</b>	0.1	<b>0.0</b>	0.0	100.0	0.0	0	
																	9.0										
F											1									<b>1</b>	0.1	<b>0.1</b>	0.1	100.0	0.0	10025	
											2.0																
<b>Polycythaemia rubra vera</b>																											
M																				<b>0</b>							
F															1	1				<b>2</b>	0.2	<b>0.1</b>	0.1	100.0	0.0	5714	
															3.5	4.1											
<b>Myelofibrosis/sclerosis</b>																											
M											1	1			1	1				<b>4</b>	0.4	<b>0.3</b>	0.1	100.0	0.0	5046	
											1.5	2.5			5.0	9.0											

## Appendix 3A. Cancer incidence, Western Australia, 2002

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	Crude	ASR	SE	TissDx	CumInc	Risk	
F											1						1			2	0.2	0.1	0.1	50.0	0.0	12895	
											1.6						5.8										
Other chronic myeloproliferative d/o																											
M																2				4	0.4	0.2	0.1	100.0	0.0	2673	
															7.5		17.9										
F													2	2	1	2				7	0.7	0.5	0.2	100.0	0.1	1352	
													5.1	6.2	3.5	8.3											
Chronic myeloproliferative d/o, all																											
M											1		1		2	1	4			9	0.9	0.6	0.2	100.0	0.1	1747	
											1.5		2.5		7.5	5.0	35.8										
F											1	1	2	2	2	3	1			12	1.2	0.8	0.3	91.7	0.1	916	
											1.6	2.0	5.1	6.2	7.0	12.4	5.8										
<b>OTHER CHRONIC IMMUNOPROLIFERATIVE DISEASES</b>																											
Mast cell tumours																											
M																				0							
F																				0							
Histiocytic/dendritic cell malignancies																											
M																				0							
F																				0							
Other & U/S immunoproliferative neoplasms																											
M														1	1	1	2	2		7	0.7	0.4	0.2	100.0	0.0	2885	
														3.2	3.7	5.0	17.9	26.7									
F																				0							
Other chronic immunoproliferative d/o, all																											
M														1	1	1	2	2		7	0.7	0.4	0.2	100.0	0.0	2885	
														3.2	3.7	5.0	17.9	26.7									
F																				0							
Unknown primary site (C26, C39, C76, C80; Behaviour 6/9)																											
M								1	4	6	7	8	20	13	24	25	25	14		148	15.3	10.5	0.9	75.0	1.1	90	
								1.4	5.3	8.6	10.6	14.9	49.1	41.5	89.8	125.4	224.0	187.2									
F	1						1	1	5	7	6	7	10	6	15	20	20	28		127	13.2	7.2	0.7	67.7	0.7	143	
	1.6						1.4	1.4	6.6	9.9	9.3	14.0	25.4	18.6	52.5	82.7	115.8	167.9									
<b>All cancers</b>																											
M	20	8	4	25	24	38	61	72	137	216	349	473	571	619	738	615	428	274		4672	484.5	356.6	5.3	94.0	42.0	3	
	31.2	11.6	5.6	34.2	34.5	56.4	82.5	98.2	182.0	309.3	526.3	882.5	1402.3	1975.9	2762.0	3083.6	3835.5	3663.6									
F	10	8	5	10	27	49	91	118	202	287	368	388	399	373	386	437	316	318		3792	393.8	270.4	4.7	93.6	30.0	4	
	16.3	12.3	7.3	14.4	40.6	73.9	124.2	160.2	267.1	406.5	570.8	774.1	1015.2	1158.3	1351.2	1806.9	1828.9	1906.4									

### Appendix 3B. Cancer mortality, Western Australia, 2002

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	Crude	ASR	SE	PYLL	CumInc	Risk	
Lip (C000-C009)																											
M																					<b>0</b>						-
F																					<b>0</b>						-
Tongue (C010-C029)																											
M								1	1	2	2	1						1			<b>8</b>	0.8	<b>0.7</b>	0.2	111.4	0.1	1364
								1.3	1.5	3.7	4.9	3.2						13.4									
F									1					1	1	1					<b>4</b>	0.4	<b>0.2</b>	0.1	23.5	0.0	3960
									1.6					3.5	4.1	5.8											
Gum (C030-C039)																											
M													1								<b>1</b>	0.1	<b>0.1</b>	0.1	11.3	0.0	8144
													2.5														
F															1						<b>1</b>	0.1	<b>0.1</b>	0.1	2.4	0.0	5714
															3.5												
Floor of mouth (C040-C049)																											
M									1	1			1	1							<b>4</b>	0.4	<b>0.3</b>	0.2	45.5	0.1	1941
									1.5	1.9			3.2	3.7													
F									1						1			2			<b>4</b>	0.4	<b>0.2</b>	0.1	21.1	0.0	12895
									1.6						4.1		12.0										
Palate, other & u/s parts of mouth (C050-C069)																											
M										1		1									<b>2</b>	0.2	<b>0.2</b>	0.1	22.7	0.0	3955
										1.9		3.2															
F									1		1							1			<b>3</b>	0.3	<b>0.2</b>	0.1	32.9	0.0	4884
									1.6		2.5							6.0									
Parotid & other major salivary gland (C070-C089)																											
M										1	1				1						<b>3</b>	0.3	<b>0.2</b>	0.1	27.2	0.0	4628
										1.9	2.5				5.0												
F																					<b>0</b>						-
Tonsil & oropharynx (C090-C109)																											
M								1	1	2	2				1	1					<b>8</b>	0.8	<b>0.6</b>	0.2	77.3	0.1	1371
								1.4	1.9	4.9	6.4				5.0	9.0											
F																		1			<b>1</b>	0.1	<b>0.0</b>	0.0	0.0	0.0	*
																		6.0									
Nasopharynx (C110-C119)																											
M											1							1			<b>2</b>	0.2	<b>0.1</b>	0.1	15.9	0.0	10720
											1.9							13.4									
F																					<b>0</b>						-
Pyriiform sinus & hypopharynx (C120-C139)																											
M								1	2	1	3	3	1	2							<b>13</b>	1.3	<b>1.1</b>	0.3	138.7	0.1	741
								1.4	3.0	1.9	7.4	9.6	3.7	10.0													
F											1										<b>1</b>	0.1	<b>0.1</b>	0.1	11.8	0.0	7861
											2.5																

## Appendix 3B. Cancer mortality, Western Australia, 2002

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	Crude	ASR	SE	PYLL	CumInc	Risk
Pharynx, other & ill-def. sites (C140-C149)																										
M														1		1	1			<b>3</b>	0.3	<b>0.2</b>	0.1	6.9	0.0	6266
														3.2		5.0	9.0									
F																				<b>0</b>						-
Oesophagus (C150-C159)																										
M									2		3	3	3	5	8	8	7	5		<b>44</b>	4.6	<b>3.0</b>	0.5	255.7	0.3	303
									2.7		4.5	5.6	7.4	16.0	29.9	40.1	62.7	66.9								
F							1				1	3	3	3	6	4	7	6		<b>34</b>	3.5	<b>2.0</b>	0.4	181.9	0.2	427
							1.4				1.6	6.0	7.6	9.3	21.0	16.5	40.5	36.0								
Stomach (C160-C169)																										
M									1	3	3	5	6	10	9	18	12	10		<b>77</b>	8.0	<b>5.3</b>	0.6	403.7	0.5	201
									1.3	4.3	4.5	9.3	14.7	31.9	33.7	90.3	107.5	133.7								
F								1			4	1	5	6	5	5	3	9		<b>39</b>	4.0	<b>2.5</b>	0.4	249.9	0.3	343
								1.4			6.2	2.0	12.7	18.6	17.5	20.7	17.4	54.0								
Small intestine (C170-C179)																										
M													1	1	1	1	1	2		<b>7</b>	0.7	<b>0.5</b>	0.2	20.5	0.0	2130
													2.5	3.2	3.7	5.0	9.0	26.7								
F											1			2		2				<b>5</b>	0.5	<b>0.3</b>	0.2	35.3	0.0	2577
											1.6			6.2		8.3										
Colorectal cancer (C18-C20, C218)																										
M						1	2	2	4	8	11	18	20	26	38	41	34	23		<b>228</b>	23.6	<b>16.0</b>	1.1	1522.8	1.7	58
F					1	1		2	1	6	6	9	17	22	25	32	24	34		<b>180</b>	18.7	<b>10.7</b>	0.9	1046.3	1.2	83
					1.5	1.5		2.7	1.3	8.5	9.3	18.0	43.3	68.3	87.5	132.3	138.9	203.8								
Colon (C180-C189)																										
M						1	1		2	3	4	10	8	15	23	23	20	13		<b>123</b>	12.8	<b>8.5</b>	0.8	708.0	0.9	107
									2.7	4.3	6.0	18.7	19.6	47.9	86.1	115.3	179.2	173.8								
F						1		1		4	3	6	13	19	18	20	18	25		<b>128</b>	13.3	<b>7.7</b>	0.8	678.6	0.9	111
						1.5		1.4		5.7	4.7	12.0	33.1	59.0	63.0	82.7	104.2	149.9								
Rectosigmoid junction & rectum (C190-C209)																										
M							1	2	2	5	7	8	12	11	15	18	14	10		<b>105</b>	10.9	<b>7.5</b>	0.8	811.5	0.8	125
F					1			1	1	2	3	3	4	3	7	12	6	9		<b>52</b>	5.4	<b>3.0</b>	0.5	366.3	0.3	325
					1.5			1.4	1.3	2.8	4.7	6.0	10.2	9.3	24.5	49.6	34.7	54.0								
Anus (C210-C219)																										
M									1				1	1		1				<b>4</b>	0.4	<b>0.3</b>	0.2	47.9	0.0	2867
									1.3				2.5	3.2		5.0										
F									1	1	1			1		2	1	2		<b>9</b>	0.9	<b>0.5</b>	0.2	84.7	0.0	2705
									1.3	1.4	1.6			3.1		8.3	5.8	12.0								
Liver & intrahepatic bile ducts (C220-C229)																										
M					1					2	2	2	6	8	8	6	7	4		<b>46</b>	4.8	<b>3.4</b>	0.5	318.1	0.4	247
					1.4					2.9	3.0	3.7	14.7	25.5	29.9	30.1	62.7	53.5								
F											2	1	1	1	3	1	2	3		<b>14</b>	1.5	<b>0.8</b>	0.2	84.7	0.1	942
											3.1	2.0	2.5	3.1	10.5	4.1	11.6	18.0								

## Appendix 3B. Cancer mortality, Western Australia, 2002

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	Crude	ASR	SE	PYLL	CumInc	Risk
Gallbladder & bile ducts (C230-C249)																										
M										2	1	2	3		1	4	4			<b>17</b>	1.8	<b>1.1</b>	0.3	138.6	0.1	1041
										2.9	1.5	3.7	7.4		3.7	20.1	35.8									
F										2	2	1	1	2	2	4	7	6		<b>27</b>	2.8	<b>1.4</b>	0.3	141.1	0.1	845
										2.8	3.1	2.0	2.5	6.2	7.0	16.5	40.5	36.0								
Pancreas (C250-C259)																										
M								2	2	5	7	5	7	11	17	11	11	8		<b>86</b>	8.9	<b>6.2</b>	0.7	672.2	0.7	135
								2.7	2.7	7.2	10.6	9.3	17.2	35.1	63.6	55.2	98.6	107.0								
F								2	1			2	10	6	8	13	14	17		<b>73</b>	7.6	<b>4.0</b>	0.5	299.6	0.4	250
								2.6	1.4			4.0	25.4	18.6	28.0	53.8	81.0	101.9								
Nasal cavity & sinuses, middle & inner ear (C300-C319)																										
M										1		1			1	1				<b>4</b>	0.4	<b>0.3</b>	0.1	43.3	0.0	2841
										1.4		1.9			3.7	5.0										
F																				<b>0</b>						-
Larynx (C320-C329)																										
M											2	3	3	3	3	1		2		<b>17</b>	1.8	<b>1.4</b>	0.3	150.1	0.2	544
											3.0	5.6	7.4	9.6	11.2	5.0		26.7								
F													1	1						<b>2</b>	0.2	<b>0.2</b>	0.1	18.8	0.0	3541
													2.5	3.1												
Lung, bronchus & trachea (C330-C349)																										
M				1	1	1			4	9	17	29	55	60	104	87	64	32		<b>464</b>	48.1	<b>33.2</b>	1.6	2590.0	4.1	25
				1.4	1.5	1.4			5.3	12.9	25.6	54.1	135.1	191.5	389.2	436.2	573.5	427.9								
F									4	9	9	16	21	18	41	49	30	25		<b>222</b>	23.1	<b>13.4</b>	1.0	1286.2	1.6	64
									5.3	12.7	14.0	31.9	53.4	55.9	143.5	202.6	173.6	149.9								
Thymus (C370-C379)																										
M											1			1						<b>2</b>	0.2	<b>0.2</b>	0.1	27.3	0.0	4256
											1.5			3.2												
F															1		1	1		<b>4</b>	0.4	<b>0.2</b>	0.1	23.5	0.0	3960
															3.5		5.8	6.0								
Pleura, heart & mediastinum (C380-C389)																										
M																				<b>0</b>						-
F																1				<b>1</b>	0.1	<b>0.0</b>	0.0	0.0	0.0	*
																4.1										
Bones, joints & articular cartilages (C400-C419)																										
M				1			1				1	1	1		1		1			<b>7</b>	0.7	<b>0.6</b>	0.2	142.9	0.1	1627
				1.4			1.4				1.5	1.9	2.5		3.7		9.0									
F				1	1				1											<b>3</b>	0.3	<b>0.3</b>	0.2	145.7	0.0	4734
				1.5	1.4				1.3																	
Skin (melanoma only) (C430-C439)																										
M					1	4			5	3	2	7	4	2	6	11	8	2		<b>55</b>	5.7	<b>4.0</b>	0.6	675.9	0.4	274
					1.4	5.9			6.6	4.3	3.0	13.1	9.8	6.4	22.5	55.2	71.7	26.7								
F								1	3		3	2	2	2	2	4	6	2		<b>27</b>	2.8	<b>1.6</b>	0.3	266.3	0.2	620
								1.4	4.0		4.7	4.0	5.1	6.2	7.0	16.5	34.7	12.0								

### Appendix 3B. Cancer mortality, Western Australia, 2002

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	Crude	ASR	SE	PYLL	CumInc	Risk	
Skin (not melanoma) (C440-C449)																											
M									1			3	2	3	7	7	5	5		<b>33</b>	3.4	<b>2.2</b>	0.4	137.2	0.2	421	
									1.3			5.6	4.9	9.6	26.2	35.1	44.8	66.9									
F										1					1	4	3			<b>9</b>	0.9	<b>0.3</b>	0.1	25.8	0.0	14121	
										1.4					4.1	23.2	18.0										
Mesothelioma (M905; ICD10 C45)																											
M									1	1	4	5	8	8	10	12	7	5		<b>61</b>	6.3	<b>4.4</b>	0.6	385.4	0.5	199	
									1.3	1.4	6.0	9.3	19.6	25.5	37.4	60.2	62.7	66.9									
F										1	1	1	1		3	1	1	1		<b>10</b>	1.0	<b>0.7</b>	0.2	82.4	0.1	1111	
										1.4	1.6	2.0	2.5		10.5	4.1	5.8	6.0									
Kaposi sarcoma (M914; ICD10 C46)																											
M																				<b>0</b>						-	
F																				<b>0</b>						-	
Nervous system, peripheral & autonomic (C470-C479)																											
M																				<b>0</b>						-	
F																				<b>0</b>						-	
Retroperitoneum and peritoneum (C480-C489)																											
M										1					1	1				<b>3</b>	0.3	<b>0.2</b>	0.1	36.9	0.0	3917	
										1.4					3.7	5.0											
F											1	1			3					<b>6</b>	0.6	<b>0.4</b>	0.2	85.3	0.1	1298	
											1.4		1.6	2.0	10.5												
Connective, subcutaneous & other soft tissues (C490-C499)																											
M												1	1		1	1				<b>4</b>	0.4	<b>0.3</b>	0.2	29.5	0.0	2481	
												1.9	2.5		3.7	5.0											
F													1		2					<b>4</b>	0.4	<b>0.3</b>	0.2	52.1	0.1	1835	
													2.5		7.0												
Breast (C500-C509)																											
M												1								<b>1</b>	0.1	<b>0.1</b>	0.1	15.9	0.0	10720	
												1.9															
F							3	7	14	20	19	33	22	22	28	15	24	24		<b>231</b>	24.0	<b>16.0</b>	1.1	2756.9	1.9	53	
							4.1	9.5	18.5	28.3	29.5	65.8	56.0	68.3	98.0	62.0	138.9	143.9									
Vulva/vagina (C510-C529)																											
F											2				1	2	1			<b>6</b>	0.6	<b>0.3</b>	0.1	42.2	0.0	6448	
											3.1				4.1	11.6	6.0										
Cervix uteri (C530-C539)																											
F							1	2		3	1	2	2	3	3	3	4	5		<b>29</b>	3.0	<b>1.9</b>	0.4	310.1	0.2	514	
							1.5	2.7		4.2	1.6	4.0	5.1	9.3	10.5	12.4	23.2	30.0									
Corpus uteri (C540-C549)																											
F											1	3	2	2	7	10	5	4		<b>34</b>	3.5	<b>1.9</b>	0.3	125.0	0.2	462	
											1.6	6.0	5.1	6.2	24.5	41.3	28.9	24.0									
Uterus, NOS (C550-C559)																											
F																	1	1		<b>2</b>	0.2	<b>0.1</b>	0.0	0.0	0.0	*	
																	5.8	6.0									

## Appendix 3B. Cancer mortality, Western Australia, 2002

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	Crude	ASR	SE	PYLL	CumInc	Risk	
Ovary, uterine adnexa & other female genital (C560-C579)																											
F								2	1		3	7	9	13	7	15	8	7		<b>72</b>	7.5	<b>4.7</b>	0.6	495.6	0.6	182	
								2.7	1.3		4.7	14.0	22.9	40.4	24.5	62.0	46.3	42.0									
Placenta (C580-C589)																											
F																				<b>0</b>							-
Penis & other male genital organs (C600-C639) (not C61 C62)																											
M																	1			<b>1</b>	0.1	<b>0.0</b>	0.0	0.0	0.0	0.0	*
																	9.0										
Prostate gland (C610-C619)																											
M											2	4	7	12	30	46	37	49		<b>187</b>	19.4	<b>11.8</b>	0.9	337.4	0.9	113	
											3.0	7.5	17.2	38.3	112.3	230.6	331.6	655.2									
Testis (C620-C629)																											
M										1										<b>1</b>	0.1	<b>0.1</b>	0.1	25.0	0.0	13965	
										1.4																	
Kidney & other renal tract (C640-C689) (not C67)																											
M	1				1		1				8	2	7	8	10	5	7	9		<b>60</b>	6.2	<b>4.6</b>	0.6	542.3	0.5	197	
	1.6				1.4		1.4		1.3		12.1	3.7	17.2	25.5	37.4	25.1	62.7	120.3									
F											2	2	2	3	6	5	7	7		<b>34</b>	3.5	<b>1.8</b>	0.3	134.3	0.2	471	
											3.1	4.0	5.1	9.3	21.0	20.7	40.5	42.0									
Urinary bladder (C670-C679)																											
M											1	4	7	10	14	9	9			<b>54</b>	5.6	<b>3.6</b>	0.5	132.9	0.4	280	
											1.9	9.8	22.3	37.4	70.2	80.7	120.3										
F											1	1	2	2	3	3	7			<b>19</b>	2.0	<b>0.9</b>	0.2	47.2	0.1	1127	
											2.0	2.5	6.2	7.0	12.4	17.4	42.0										
Eye & lacrimal gland (C690-C699)																											
M							1	1			1	1	1	1				1		<b>7</b>	0.7	<b>0.6</b>	0.2	105.6	0.1	1435	
							1.4	1.3			1.9	2.5	3.2	3.7				13.4									
F											2					1				<b>3</b>	0.3	<b>0.2</b>	0.1	23.5	0.0	3931	
											5.1				4.1												
Meninges (cerebral & spinal) (C700-C709)																											
M																				<b>0</b>							-
F																	1			<b>1</b>	0.1	<b>0.0</b>	0.0	0.0	0.0	0.0	*
																	5.8										
Brain (C710-C719)																											
M	1	1	1					3	2	3	5	12	6	7	6	4	6	1		<b>58</b>	6.0	<b>4.6</b>	0.6	854.9	0.5	191	
	1.6	1.4	1.4					4.1	2.7	4.3	7.5	22.4	14.7	22.3	22.5	20.1	53.8	13.4									
F	2	1	2				2		1	2	5	6	1	2	5	7	6	6		<b>48</b>	5.0	<b>3.4</b>	0.6	735.5	0.3	331	
	3.3	1.5	2.9				2.7		1.3	2.8	7.8	12.0	2.5	6.2	17.5	28.9	34.7	36.0									
Spinal cord & cranial nerves (C720-C729)																											
M																				<b>0</b>							-
F																				<b>0</b>							-

### Appendix 3B. Cancer mortality, Western Australia, 2002

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	Crude	ASR	SE	PYLL	CumInc	Risk	
Thyroid gland (C730-C739)																											
M																	1			1	0.1	0.0	0.0	0.0	0.0	*	
F														1		4	1	1		7	0.7	0.3	0.1	7.1	0.0	6441	
														3.1		16.5	5.8	6.0									
Adrenal & other endocrine glands (C740-C759)																											
M		1											2							3	0.3	0.3	0.2	86.5	0.0	3145	
F		1.4											4.9							1	0.1	0.1	0.1	35.5	0.0	14733	
																				1.4							
<b>LYMPHOMAS</b>																											
Lymphoma, NOS / unclassifiable																											
M											1		1	2	1	2	1			8	0.8	0.5	0.2	32.0	0.1	1642	
F											1.5		3.2	7.5	5.0	17.9	13.4			8	0.8	0.5	0.2	33.0	0.1	1709	
												2.0	6.2	3.5		5.8	18.0										
Hodgkin lymphoma																											
M															1	1				2	0.2	0.1	0.1	2.4	0.0	5345	
F															1	1				3	0.3	0.2	0.1	40.2	0.0	2523	
															1.3	3.1	3.5										
All NHL																											
M				1			2	2	2	4	4	6	2	11	10	14	5			63	6.5	4.3	0.6	481.1	0.4	234	
F				1.4			2.7	2.7	2.9	6.0	7.5	14.7	6.4	41.2	50.1	125.5	66.9			59	6.1	3.7	0.5	356.0	0.4	225	
							1.3	4.2	1.6	6.0	22.9	21.7	31.5	41.3	34.7	59.9											
NHL, mature B cell																											
M							2	2	1	1	3	3		8	9	7	3			39	4.0	2.6	0.4	274.7	0.3	391	
F							2.7	2.7	1.4	1.5	5.6	7.4		29.9	45.1	62.7	40.1			42	4.4	2.6	0.4	235.7	0.3	336	
							1.3	1.4	1.6	4.0	15.3	18.6	17.5	37.2	17.4	48.0											
NHL, mature YT/NK cell																											
M									1	1	1				2		1			6	0.6	0.5	0.2	66.1	0.1	1628	
F									1.4	1.5	1.9				7.5		13.4			2	0.2	0.1	0.1	18.8	0.0	3640	
											2.0				3.5												
NHL, precursor cell lymphoblastic																											
M																				0						-	
F										1										1	0.1	0.1	0.1	25.8	0.0	14121	
										1.4																	
NHL, other/unclassifiable																											
M				1							2	3	2	1	1	7	1			18	1.9	1.3	0.3	140.0	0.1	912	
F				1.4							3.0	7.4	6.4	3.7	5.0	62.7	13.4			14	1.5	0.9	0.3	75.4	0.1	883	
										1		3	1	3	1	3	2										
										1.4		7.6	3.1	10.5	4.1	17.4	12.0										

## Appendix 3B. Cancer mortality, Western Australia, 2002

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	Crude	ASR	SE	PYLL	CumInc	Risk	
<b>Lymphomas (all)</b>																											
M					1			2	2	2	5	4	6	3	14	12	16	6		<b>73</b>	7.6	<b>4.9</b>	0.6	515.6	0.5	198	
					1.4			2.7	2.7	2.9	7.5	7.5	14.7	9.6	52.4	60.2	143.4	80.2									
F									2	3	1	4	9	10	11	10	7	13		<b>70</b>	7.3	<b>4.4</b>	0.6	429.4	0.5	184	
									2.6	4.2	1.6	8.0	22.9	31.1	38.5	41.3	40.5	77.9									
<b>MYELOMA</b>																											
Myeloma/plasma cell tumours																											
M										1	1		2	6	8	6	3	6		<b>33</b>	3.4	<b>2.4</b>	0.4	128.2	0.3	352.0	
										1.4	1.5		4.9	19.2	29.9	30.1	26.9	80.2									
F										1			1	3	3	8	4			<b>20</b>	2.1	<b>0.9</b>	0.2	40.1	0.1	1332.0	
										1.4			3.1	10.5	12.4	46.3	24.0										
<b>LEUKAEMIAS</b>																											
Leukaemias, NOS/unclassifiable																											
M											1						1			<b>2</b>	0.2	<b>0.1</b>	0.1	20.4	0.0	13264	
											1.5						9.0										
F														1	1	1	1			<b>4</b>	0.4	<b>0.2</b>	0.1	2.4	0.0	5714	
														3.5	4.1	5.8	6.0										
Leukaemias, lymphoid, all																											
M				1	1	1				1	3		1	3	2	1	6	4		<b>24</b>	2.5	<b>1.8</b>	0.4	269.9	0.1	672	
				1.4	1.4	1.5				1.4	4.5		2.5	9.6	7.5	5.0	53.8	53.5									
F			1											2	3	2	2			<b>13</b>	1.3	<b>0.8</b>	0.3	185.9	0.1	1706	
			1.5				2		1					6.2	12.4	11.6	12.0										
Leukaemias, lymphoid, acute																											
M				1	1	1					1									<b>4</b>	0.4	<b>0.4</b>	0.2	167.3	0.0	3449	
				1.4	1.4	1.5					1.5																
F			1													1				<b>4</b>	0.4	<b>0.3</b>	0.2	141.0	0.0	4767	
			1.5				2								4.1												
Leukaemias, lymphoid, chronic																											
M										1	1		1	2	2	1	5	4		<b>17</b>	1.8	<b>1.1</b>	0.3	75.2	0.1	1039	
										1.4	1.5		2.5	6.4	7.5	5.0	44.8	53.5									
F									1					2	2	2	2			<b>9</b>	0.9	<b>0.5</b>	0.2	44.8	0.0	2656	
									1.3					6.2	8.3	11.6	12.0										
Leukaemias, lymphoid, other/NOS																											
M											1			1			1			<b>3</b>	0.3	<b>0.2</b>	0.1	27.3	0.0	4256	
											1.5			3.2			9.0										
F																				<b>0</b>						-	
Leukaemias, myeloid, all																											
M					1					1	2	3	9	4	7	7	4	4		<b>42</b>	4.4	<b>3.2</b>	0.5	308.7	0.4	276.0	
					1.4					1.4	3.0	5.6	22.1	12.8	26.2	35.1	35.8	53.5									
F				1		1			2		1	2	3	5	1	5	4	5		<b>30</b>	3.1	<b>2.0</b>	0.4	289.0	0.2	530.0	
				1.4		1.5			2.6		1.6	4.0	7.6	15.5	3.5	20.7	23.2	30.0									
Leukaemias, myeloid, acute																											
M					1					1	2	2	8	4	4	6	4	3		<b>35</b>	3.6	<b>2.7</b>	0.5	274.3	0.3	351.0	
					1.4					1.4	3.0	3.7	19.6	12.8	15.0	30.1	35.8	40.1									
F				1		1			1		1	2	2	5		4	4	3		<b>24</b>	2.5	<b>1.6</b>	0.4	244.1	0.2	658.0	
				1.4		1.5			1.3		1.6	4.0	5.1	15.5		16.5	23.2	18.0									

## Appendix 3B. Cancer mortality, Western Australia, 2002

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	Crude	ASR	SE	PYLL	CumInc	Risk	
Leukaemias, myeloid, chronic																											
M												1	1			3	1		1		7	0.7	0.5	0.2	34.3	0.1	1287.0
												1.9	2.5		11.2	5.0		13.4									
F									1				1		1	1			2		6	0.6	0.4	0.2	44.8	0.0	2715.0
									1.3				2.5		3.5	4.1		12.0									
Leukaemias, myeloid, other/NOS																											
M																					0						-
F																					0						-
Leukaemias, other																											
M	1											1			1		1	1		5	0.5	0.4	0.2	88.7	0.0	2790.0	
	1.6											1.9			3.7		9.0	13.4									
F																		1		1	0.1	0.0	0.0	0.0	0.0	*	
																		6.0									
Leukaemias (all)																											
M	1			1	2	1				2	6	4	10	7	10	8	12	9		73	7.6	5.5	0.7	688.2	0.6	181.0	
	1.6			1.4	2.9	1.5				2.9	9.0	7.5	24.6	22.3	37.4	40.1	107.5	120.3									
F			1	1		1	2		3		1	2	3	7	2	9	7	9		48	5.0	3.0	0.5	477.4	0.3	378.0	
			1.5	1.4		1.5	2.7		4.0		1.6	4.0	7.6	21.7	7.0	37.2	40.5	54.0									
<b>MYELODYSPLASTIC DISEASES</b>																											
Refractory anaemias/cytopaenias																											
M														1	1					2	0.2	0.2	0.1	9.2	0.0	2885	
														3.2	3.7												
F														1			1	2		4	0.4	0.2	0.1	7.1	0.0	6441	
														3.1			5.8	12.0									
Myelodysplastic syndromes																											
M													1	2	2	4	1	6		16	1.7	1.1	0.3	29.8	0.1	1226	
													2.5	6.4	7.5	20.1	9.0	80.2									
F									1								1	3		5	0.5	0.2	0.1	25.8	0.0	14121	
									1.4								5.8	18.0									
Myelodysplastic diseases, all																											
M													1	3	3	4	1	6		18	1.9	1.3	0.3	39.0	0.1	860	
													2.5	9.6	11.2	20.1	9.0	80.2									
F									1					1			2	5		9	0.9	0.4	0.1	32.9	0.0	4423	
									1.4					3.1			11.6	30.0									
<b>CHRONIC MYELOPROLIFERATIVE DISEASES</b>																											
Chronic myeloproliferative disorder, NOS																											
M													1		1					2	0.2	0.1	0.1	11.3	0.0	8144	
													2.5		5.0												
F														1			2			3	0.3	0.2	0.1	11.8	0.0	7861	
													2.5				11.6										
Polycythaemia rubra vera																											
M																					0						-
F															1	1	1			3	0.3	0.1	0.1	0.0	0.0	*	
															4.1	5.8	6.0										

### Appendix 3B. Cancer mortality, Western Australia, 2002

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	Crude	ASR	SE	PYLL	CumInc	Risk	
<b>Myelofibrosis/sclerosis</b>																											
M																					<b>0</b>						-
F												1	2.5								<b>1</b>	0.1	<b>0.1</b>	0.1	11.8	0.0	7861
<b>Other chronic myeloproliferative d/o</b>																											
M																1	5.0				<b>1</b>	0.1	<b>0.1</b>	0.1	0.0	0.0	*
F																					<b>0</b>						-
<b>Chronic myeloproliferative d/o, all</b>																											
M												1	2.5			2	10.0				<b>3</b>	0.3	<b>0.2</b>	0.1	11.3	0.0	8144
F												2	5.1			1	4.1	3	17.4	1	<b>7</b>	0.7	<b>0.4</b>	0.2	23.5	0.0	3931
<b>OTHER CHRONIC IMMUNOPROLIFERATIVE DISEASES</b>																											
<b>Mast cell tumours</b>																											
M																			1	13.4	<b>1</b>	0.1	<b>0.1</b>	0.1	0.0	0.0	*
F																					<b>0</b>						-
<b>Histiocytic/dendritic cell malignancies</b>																											
M																					<b>0</b>						-
F																					<b>0</b>						-
<b>Other &amp; U/S immunoproliferative neoplasms</b>																											
M															1	3.7					<b>1</b>	0.1	<b>0.1</b>	0.1	2.4	0.0	5345.0
F																1	4.1				<b>1</b>	0.1	<b>0.0</b>	0.0	0.0	0.0	*
<b>Other chronic immunoproliferative d/o, all</b>																											
M															1	3.7			1	13.4	<b>2</b>	0.2	<b>0.1</b>	0.1	2.4	0.0	5345.0
F																1	4.1				<b>1</b>	0.1	<b>0.0</b>	0.0	0.0	0.0	*
<b>Unknown primary site (C80 or Behaviour 6/9)</b>																											
M		1					1		2	5	4	6	8	8	19	19	18	10			<b>101</b>	10.5	<b>7.0</b>	0.7	656.3	0.7	137
F		1.4					1.4		2.7	7.2	6.0	11.2	19.6	25.5	71.1	95.3	161.3	133.7			<b>98</b>	10.2	<b>5.0</b>	0.6	507.2	0.5	217
							1.4	6.6	2.8	4.7	10.0	12.7	15.5	38.5	74.4	98.4	155.9										
<b>Total deaths due to cancer</b>																											
M	3	3	1	3	6	7	7	10	30	50	89	128	183	207	327	330	273	201		<b>1858</b>	192.7	<b>131.8</b>	3.2	12528.4	14.4	7	
F	3	1	4	2	1	3	11	16	38	52	73	102	123	135	188	226	202	228		<b>1408</b>	146.2	<b>85.7</b>	2.5	10670.7	9.4	11.0	
	4.7	4.3	1.4	4.1	8.6	10.4	9.5	13.6	39.9	71.6	134.2	238.8	449.4	660.8	1223.8	1654.6	2446.5	2687.5									
	4.9	1.5	5.9	2.9	1.5	4.5	15.0	21.7	50.2	73.7	113.2	203.5	312.9	419.2	658.1	934.5	1169.1	1366.8									

## Appendix 3B. Cancer mortality, Western Australia, 2002

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	Crude	ASR	SE	PYLL	CumInc	Risk	
Deaths due to benign tumours in CR cases																											
M																					<b>0</b>						-
F																					<b>0</b>						-
Deaths due to lymphohaematopoietic tumours of uncertain malignant potential																											
M																					<b>0</b>						-
F	1																				<b>1</b>	0.1	<b>0.2</b>	0.2	72.0	0.0	12248.0
	1.6																										
Deaths due to non-lymphohaematopoietic tumours of uncertain/unspecified nature																											
M							1														<b>1</b>	0.1	<b>0.1</b>	0.1	39.5	0.0	14783.0
							1.4																				
F																			1		<b>1</b>	0.1	<b>0.0</b>	0.0	0.0	0.0	*
																			6.0								
Non-cancer deaths in CR cases																											
M							1	1	1	5	8	10	21	45	81	105	154	239		<b>671</b>	69.6	<b>42.6</b>	1.7	1296.7	2.7	38.0	
							1.4	1.4	1.3	7.2	12.1	18.7	51.6	143.6	303.1	526.5	1380.1	3195.6									
F						1	1		1	2	4	8	16	20	41	63	99	268		<b>524</b>	54.4	<b>21.3</b>	1.0	815.1	1.4	73.0	
						1.5	1.4		1.3	2.8	6.2	16.0	40.7	62.1	143.5	260.5	573.0	1606.6									
Deaths of undetermined cause in CR cases																											
M									1		1				1	1		2		<b>6</b>	0.6	<b>0.4</b>	0.2	43.3	0.0	2841.0	
									1.4		1.9				3.7	5.0		26.7									
F												1					1	4		<b>6</b>	0.6	<b>0.3</b>	0.1	11.8	0.0	7861.0	
												2.5					5.8	24.0									
<b>Total deaths of Cancer Registry cases</b>																											
M	3	3	1	3	6	7	9	11	31	55	97	139	206	257	412	443	429	449		<b>2561</b>	265.6	<b>176.7</b>	3.6	14079.2	17.3	6.0	
	4.7	4.3	1.4	4.1	8.6	10.4	12.2	15.0	41.2	78.8	146.3	259.3	505.9	820.4	1541.9	2221.2	3844.4	6003.5									
F	3	1	4	2	1	5	12	16	39	55	78	111	143	156	232	290	306	506		<b>1960</b>	203.5	<b>108.6</b>	2.7	11718.8	11.0	10	
	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, 2002 (WHO International Classification, version 3)

	Males				Total	ASR	SE	TissDx	Females				Total	ASR	SE	TissDx	Total								
	Age Group								Age Group								Age Group								
	0	1-4	5-9	10-14					0	1-4	5-9	10-14					0	1-4	5-9	10-14					
<b>I. LEUKAEMIAS, MYELOPROLIFERATIVE AND MYELOYDYSPLASTIC DISEASES</b>																									
All		7	2	1	<b>10</b>	<b>5.5</b>	1.8	100.0		3	4	2	<b>9</b>	<b>4.7</b>	1.6	100.0		10	6	3	<b>19</b>	<b>5.1</b>	1.2	100.0	
		13.6	2.9	1.4						6.1	6.1	2.9						9.9	4.5	2.1					
Lymphoid leukaemia		5	1	1	<b>7</b>	<b>3.9</b>	1.5	100.0		3	2	2	<b>7</b>	<b>3.7</b>	1.4	100.0		8	3	3	<b>14</b>	<b>3.8</b>	1.0	100.0	
		9.7	1.4	1.4						6.1	3.1	2.9						7.9	2.2	2.1					
Acute myeloid leukaemia		2			<b>2</b>	<b>1.2</b>	0.8	100.0			2		<b>2</b>	<b>1.0</b>	0.7	100.0		2	2		<b>4</b>	<b>1.1</b>	0.6	100.0	
		3.9									3.1							2.0	1.5						
Chronic MPDs				1	<b>1</b>	<b>0.5</b>	0.5	100.0					<b>0</b>						1		<b>1</b>	<b>0.2</b>	0.2	100.0	
				1.4															0.7						
MDS & other MPDs					<b>0</b>								<b>0</b>								<b>0</b>				
Unspecified/other leukaemia					<b>0</b>								<b>0</b>								<b>0</b>				
<b>II. LYMPHOMAS</b>																									
All		2	3	1	<b>6</b>	<b>3.0</b>	1.2	100.0					<b>0</b>					2	3	1	<b>6</b>	<b>1.5</b>	0.6	100.0	
		3.9	4.3	1.4														2.0	2.2	0.7					
Hodgkin lymphoma				1	<b>2</b>	<b>0.9</b>	0.6	100.0					<b>0</b>							1	1	<b>2</b>	<b>0.4</b>	0.3	100.0
				1.4																0.7	0.7				
Non-Hodgkin lymphoma exc Burkitt		1			<b>1</b>	<b>0.6</b>	0.6	100.0					<b>0</b>						1		<b>1</b>	<b>0.3</b>	0.3	100.0	
		1.9																	1.0						
Burkitt lymphoma		1	2		<b>3</b>	<b>1.5</b>	0.9	100.0					<b>0</b>						1	2	<b>3</b>	<b>0.8</b>	0.5	100.0	
		1.9	2.9																1.0	1.5					
Misc. lymphoreticular neoplasms					<b>0</b>								<b>0</b>								<b>0</b>				
Unspecified lymphoma					<b>0</b>								<b>0</b>								<b>0</b>				
<b>III. CNS AND INTRACRANIAL/SPINAL</b>																									
All		1	3	2	<b>6</b>	<b>3.4</b>	1.4	83.3		1	1		<b>2</b>	<b>1.1</b>	0.8	50.0		1	4	3	<b>8</b>	<b>2.3</b>	0.8	75.0	
		8.1	5.8	2.9						2.0	1.5								4.1	4.0	2.2				
Ependymoma/choroid plexus				1	<b>1</b>	<b>0.5</b>	0.5	100.0		1			<b>1</b>	<b>0.6</b>	0.6	0.0			1	1	<b>2</b>	<b>0.5</b>	0.4	50.0	
				1.4						2.0									1.0	0.7					
Astrocytoma			1		<b>1</b>	<b>0.6</b>	0.6	100.0					<b>0</b>						1		<b>1</b>	<b>0.3</b>	0.3	100.0	
			1.9																1.0						
Embryonal tumours		1	1	1	<b>3</b>	<b>1.7</b>	1.0	100.0				1	<b>1</b>	<b>0.5</b>	0.5	100.0		1	1	2	<b>4</b>	<b>1.1</b>	0.6	100.0	
		8.1	1.9	1.4							1.5								4.1	1.0	1.5				
Other gliomas			1		<b>1</b>	<b>0.6</b>	0.6	0.0					<b>0</b>							1		<b>1</b>	<b>0.3</b>	0.3	0.0
			1.9																	1.0					
Other intracranial/spinal					<b>0</b>								<b>0</b>								<b>0</b>				
Unspecified					<b>0</b>								<b>0</b>								<b>0</b>				

### Appendix 3C. Childhood cancer, Western Australia, 2002 (WHO International Classification, version 3)

	Males				Total	ASR	SE	TissDx	Females				Total	ASR	SE	TissDx	Total							
	Age Group								Age Group								Age Group							
	0	1-4	5-9	10-14					0	1-4	5-9	10-14					0	1-4	5-9	10-14				
<b>IV. NEUROBLASTOMA &amp; PERIPHERAL NERVOUS SYSTEM TUMOURS</b>																								
All	3				<b>3</b>	<b>1.9</b>	1.1	100.0	3				<b>3</b>	<b>1.9</b>	1.1	100.0	3	3			<b>6</b>	<b>1.9</b>	0.8	100.0
	24.2								6.1								12.3	3.0						
Neuroblastoma/ganglioneurobl.	3				<b>3</b>	<b>1.9</b>	1.1	100.0	3				<b>3</b>	<b>1.9</b>	1.1	100.0	3	3			<b>6</b>	<b>1.9</b>	0.8	100.0
	24.2								6.1								12.3	3.0						
Other					<b>0</b>								<b>0</b>								<b>0</b>			
<b>V. RETINOBLASTOMA</b>																								
All	1				<b>1</b>	<b>0.6</b>	0.6	100.0					<b>0</b>				1				<b>1</b>	<b>0.3</b>	0.3	100.0
	8.1																4.1							
<b>VI. RENAL TUMOURS</b>																								
All		1			<b>1</b>	<b>0.6</b>	0.6	100.0	3				<b>3</b>	<b>1.9</b>	1.1	100.0	4				<b>4</b>	<b>1.2</b>	0.6	100.0
		1.9							6.1								4.0							
Neuroblastoma/other non-epithel.		1			<b>1</b>	<b>0.6</b>	0.6	100.0	3				<b>3</b>	<b>1.9</b>	1.1	100.0	4				<b>4</b>	<b>1.2</b>	0.6	100.0
		1.9							6.1								4.0							
Renal carcinoma					<b>0</b>								<b>0</b>								<b>0</b>			
Unspecified					<b>0</b>								<b>0</b>								<b>0</b>			
<b>VII. HEPATIC TUMOURS</b>																								
All	1				<b>1</b>	<b>0.6</b>	0.6	100.0					<b>0</b>				1				<b>1</b>	<b>0.3</b>	0.3	100.0
	1.9																1.0							
Hepatoblastoma	1				<b>1</b>	<b>0.6</b>	0.6	100.0					<b>0</b>				1				<b>1</b>	<b>0.3</b>	0.3	100.0
	1.9																1.0							
Hepatic carcinoma					<b>0</b>								<b>0</b>								<b>0</b>			
Unspecified					<b>0</b>								<b>0</b>								<b>0</b>			
<b>VIII. BONE</b>																								
All					<b>0</b>				1	1			<b>2</b>	<b>0.9</b>	0.7	100.0	1	1			<b>2</b>	<b>0.4</b>	0.3	100.0
									1.5	1.5							0.7	0.7						
Osteosarcoma					<b>0</b>						1		<b>1</b>	<b>0.4</b>	0.4	100.0			1		<b>1</b>	<b>0.2</b>	0.2	100.0
											1.5								0.7					
Chondrosarcoma					<b>0</b>								<b>0</b>								<b>0</b>			
Ewing & related sarcoma					<b>0</b>				1				<b>1</b>	<b>0.5</b>	0.5	100.0	1				<b>1</b>	<b>0.2</b>	0.2	100.0
									1.5								0.7							
Other specified					<b>0</b>								<b>0</b>								<b>0</b>			
Unspecified					<b>0</b>								<b>0</b>								<b>0</b>			

### Appendix 3C. Childhood cancer, Western Australia, 2002 (WHO International Classification, version 3)

	Males				Total	ASR	SE	TissDx	Females				Total	ASR	SE	TissDx	Total									
	Age Group								Age Group								Age Group									
	0	1-4	5-9	10-14					0	1-4	5-9	10-14					0	1-4	5-9	10-14						
<b>IX. SOFT TISSUE SARCOMA</b>																										
All			1		1	0.5	0.5	100.0			1	1		2	0.9	0.7	100.0		2	1		3	0.7	0.4	100.0	
			1.4								1.5	1.5							1.5	0.7						
Rhabdomyosarcoma			1		1	0.5	0.5	100.0			1			1	0.5	0.5	100.0		2			2	0.5	0.3	100.0	
			1.4								1.5								1.5							
Fibrosarcoma/Neurofibrosarc.					0									0								0				
Kaposi sarcoma					0									0								0				
Other specified					0									0								0				
Unspecified					0							1		1	0.4	0.4	100.0			1		1	0.2	0.2	100.0	
											1.5									0.7						
<b>X. GONADAL AND GERM CELL</b>																										
All				1	1	0.4	0.4	100.0						0						1		1	0.2	0.2	100.0	
				1.4																0.7						
Intracranial/spinal				1	1	0.4	0.4	100.0						0						1		1	0.2	0.2	100.0	
				1.4																0.7						
Other/unspecified non-gonadal					0									0								0				
Gonadal germ cell					0									0								0				
Gonadal carcinoma					0									0								0				
Other and unspecified					0									0								0				
<b>XI. OTHER EPITHELIAL / MELANOMA</b>																										
All				1	1	0.4	0.4	100.0			1	1		2	0.9	0.7	100.0		1	2		3	0.7	0.4	100.0	
				1.4							1.5	1.5								0.7	1.4					
Adrenocortical carcinoma					0									0								0				
Thyroid carcinoma					0						1			1	0.5	0.5	100.0		1			1	0.2	0.2	100.0	
											1.5									0.7						
Nasopharyngeal carcinoma					0									0								0				
Malignant melanoma				1	1	0.4	0.4	100.0						0							1		1	0.2	0.2	100.0
				1.4																0.7						
Skin carcinomas					0									0								0				
Other/unspecified carcinoma					0							1		1	0.4	0.4	100.0			1		1	0.2	0.2	100.0	
											1.5									0.7						

### Appendix 3C. Childhood cancer, Western Australia, 2002 (WHO International Classification, version 3)

	Males				Total	ASR	SE	TissDx	Females				Total	ASR	SE	TissDx	Total							
	Age Group								Age Group								Age Group							
	0	1-4	5-9	10-14					0	1-4	5-9	10-14					0	1-4	5-9	10-14				
XII. OTHER																								
All	1				<b>1</b>	<b>0.6</b>	0.6	100.0					<b>0</b>				1				<b>1</b>	<b>0.3</b>	0.3	100.0
	8.1																4.1							
Other specified malignancy	1				<b>1</b>	<b>0.6</b>	0.6	100.0					<b>0</b>				1				<b>1</b>	<b>0.3</b>	0.3	100.0
	8.1																4.1							
Other unspecified malignancy					<b>0</b>								<b>0</b>								<b>0</b>			
TOTAL	6	14	8	4	<b>32</b>	<b>17.5</b>	3.1	96.9	10	8	5		<b>23</b>	<b>12.4</b>	2.6	95.7	6	24	16	9	<b>55</b>	<b>15.0</b>	2.0	96.4
	48.4	27.1	11.6	5.6					20.3	12.3	7.3						24.6	23.8	11.9	6.4				

## Appendix 3D. Cancer incidence, Western Australia, 2002: Leading types by sex and geographic area

### Kimberley Health Region

Males						Females					
	Total	%	ASR	SE	Risk		Total	%	ASR	SE	Risk
Colorectal	6	17.6	46.1	19.0	20	Breast	14	36.8	98.3	27.6	11
Colon	4	11.8	31.0	15.5	50	Colorectal	5	13.2	43.9	20.4	27
Rectum	2	5.9	15.1	11.0	33	Colon	3	7.9	23.1	14.0	55
Lung	5	14.7	34.9	16.2	23	Rectum	2	5.3	20.9	14.9	51
Prostate	5	14.7	38.6	17.5	21	Lung	5	13.2	32.0	14.5	32
Melanoma (skin)	3	8.8	16.9	10.3	58	Unknown primary	4	10.5	39.5	20.8	18
Unknown primary	3	8.8	25.5	14.7	30	Melanoma (skin)	3	7.9	12.9	7.6	93
Lip	1	2.9	5.4	5.4	187	Lymphoma	2	5.3	11.6	8.6	78
Tongue	1	2.9	8.2	8.2	99	Lymphoma NOS	0				
Tonsil / oropharynx	1	2.9	4.5	4.5	267	Hodgkin lymphoma	0				
Oesophagus	1	2.9	4.5	4.5	267	NHL	2	5.3	11.6	8.6	78
Small intestine	1	2.9	5.8	5.8	138	Oesophagus	1	2.6	12.0	11.9	51
Gallbladder / bile ducts	1	2.9	5.8	5.8	138	Cervix	1	2.6	5.3	5.3	226
Larynx	1	2.9	5.4	5.4	187	Ovary	1	2.6	11.2	11.2	72
Connective/ soft tissues	1	2.9	5.8	5.8	138	Kidney	1	2.6	7.8	7.8	104
Brain	1	2.9	5.4	5.4	187	Myeloprolif. d/o (chronic)	1	2.6	8.9	8.9	0
Adrenal & other endocrine	1	2.9	7.3	7.3	329						
<b>All cancers</b>	<b>34</b>	<b>100.0</b>	<b>235.7</b>	<b>41.4</b>	<b>4</b>	<b>All cancers</b>	<b>38</b>	<b>100.0</b>	<b>283.5</b>	<b>48.7</b>	<b>4</b>

### Pilbara Gascoyne Health Region

Males						Females					
	Total	%	ASR	SE	Risk		Total	%	ASR	SE	Risk
Prostate	11	18.0	66.8	20.8	13	Breast	20	35.7	103.2	25.9	8
Colorectal	6	9.8	35.6	14.9	24	Lung	5	8.9	35.2	16.3	19
Colon	4	6.6	21.7	11.1	36	Melanoma (skin)	4	7.1	20.8	12.1	40
Rectum	2	3.3	13.9	10.0	75	Leukaemia	4	7.1	29.4	15.1	43
Lung	6	9.8	41.0	17.2	20	Leukaemia NOS	0				
Melanoma (skin)	5	8.2	17.1	8.0	55	Lymphoid leukaemia	1	1.8	4.5	4.5	448
Lymphoma	5	8.2	14.0	6.3	74	Myeloid leukaemia	3	5.4	25.0	14.4	47
Lymphoma NOS	0					Leukaemia, other	0				
Hodgkin lymphoma	0					Cervix	3	5.4	8.6	5.0	141
NHL	5	8.2	14.0	6.3	74	Uterus	3	5.4	15.4	9.9	59
Mesothelioma	4	6.6	13.5	6.8	60	Colorectal	2	3.6	6.5	4.7	164
Bladder	4	6.6	15.7	8.1	51	Colon	0				
Stomach	3	4.9	15.8	9.4	36	Rectum	2	3.6	6.5	4.7	164
Brain	3	4.9	16.4	9.9	157	Pancreas	2	3.6	9.5	6.8	98
Mouth, floor	2	3.3	8.0	6.1	112	Brain	2	3.6	8.4	5.9	182
Testis	2	3.3	8.9	6.5	193	Unknown primary	2	3.6	16.4	11.6	94
Kidney	2	3.3	5.3	3.8	228	Lymphoma	2	3.6	8.4	6.1	170
<b>All cancers</b>	<b>61</b>	<b>100.0</b>	<b>291.0</b>	<b>39.8</b>	<b>4</b>	<b>All cancers</b>	<b>56</b>	<b>100.0</b>	<b>304.8</b>	<b>44.6</b>	<b>3</b>

### Midwest Murchison Health Region

Males						Females					
	Total	%	ASR	SE	Risk		Total	%	ASR	SE	Risk
Prostate	29	25.0	87.3	16.3	9	Breast	27	30.3	87.7	17.2	10
Lung	15	12.9	42.9	11.2	18	Colorectal	13	14.6	36.8	10.4	22
Melanoma (skin)	15	12.9	45.3	11.7	20	Colon	9	10.1	26.4	9.0	24
Colorectal	10	8.6	28.9	9.2	20	Rectum	4	4.5	10.4	5.3	190
Colon	7	6.0	19.9	7.6	31	Lung	12	13.5	37.6	11.3	23
Rectum	3	2.6	9.0	5.2	59	Melanoma (skin)	5	5.6	16.4	7.3	51
Pancreas	5	4.3	13.2	6.0	95	Lymphoma	4	4.5	10.8	5.5	150
Oesophagus	4	3.4	11.3	5.7	84	Lymphoma NOS	1	1.1	3.3	3.3	300
Kidney	4	3.4	10.8	5.5	71	Hodgkin lymphoma	0				
Lymphoma	4	3.4	16.1	8.2	71	NHL	3	3.4	7.4	4.4	300
Lymphoma NOS	1	0.9	3.0	3.0	271	Pancreas	3	3.4	10.4	6.1	55
Hodgkin lymphoma	1	0.9	4.9	4.9	369	Brain	3	3.4	9.7	5.6	70
NHL	2	1.7	8.2	5.9	128	Leukaemia	3	3.4	7.8	4.7	152
Lip	3	2.6	9.3	5.4	77	Leukaemia NOS	1	1.1	1.5	1.5	0
Gallbladder / bile ducts	3	2.6	9.9	5.7	67	Lymphoid leukaemia	1	1.1	3.2	3.2	251
Larynx	3	2.6	10.3	5.9	78	Myeloid leukaemia	1	1.1	3.1	3.1	386
Bladder	3	2.6	8.8	5.1	104	Leukaemia, other	0				
<b>All cancers</b>	<b>116</b>	<b>100.0</b>	<b>349.1</b>	<b>32.8</b>	<b>3</b>	<b>All cancers</b>	<b>89</b>	<b>100.0</b>	<b>279.3</b>	<b>30.4</b>	<b>3</b>

## Appendix 3D. Cancer incidence, Western Australia, 2002: Leading types by sex and geographic area

### Wheatbelt Health Region

Males						Females					
	Total	%	ASR	SE	Risk		Total	%	ASR	SE	Risk
Prostate	60	30.6	101.4	13.2	8	Breast	22	14.9	40.3	8.9	24
Colorectal	27	13.8	46.3	9.0	18	Colorectal	19	12.8	32.1	7.8	29
Colon	16	8.2	27.6	7.0	30	Colon	15	10.1	23.4	6.4	42
Rectum	11	5.6	18.7	5.7	44	Rectum	4	2.7	8.7	4.3	97
Lung	25	12.8	43.0	8.7	19	Melanoma (skin)	17	11.5	33.9	8.4	26
Melanoma (skin)	23	11.7	43.4	9.6	24	Lung	12	8.1	19.0	5.7	49
Lymphoma	7	3.6	12.3	5.0	106	Pancreas	7	4.7	11.8	4.7	62
Lymphoma NOS	0					Uterus	7	4.7	12.1	4.8	111
Hodgkin lymphoma	1	0.5	1.2	1.2	0	Thyroid gland	7	4.7	16.6	6.5	66
NHL	6	3.1	11.0	4.8	106	Brain	6	4.1	14.7	6.5	73
Bladder	6	3.1	10.3	4.3	83	Unknown primary	6	4.1	8.0	3.6	182
Lip	5	2.6	7.6	3.5	94	Lymphoma	6	4.1	9.7	4.2	96
Tongue	5	2.6	8.4	3.8	104	Lymphoma NOS	0				
Stomach	4	2.0	5.9	3.0	138	Hodgkin lymphoma	1	0.7	0.9	0.9	0
Pancreas	4	2.0	5.9	3.0	138	NHL	5	3.4	8.9	4.1	96
Unknown primary	4	2.0	6.1	3.1	202	Ovary	5	3.4	7.0	3.3	167
Liver	2	1.0	3.1	2.2	318	Kidney	5	3.4	9.2	4.3	106
<b>All cancers</b>	<b>196</b>	<b>100.0</b>	<b>340.9</b>	<b>24.9</b>	<b>3</b>	<b>All cancers</b>	<b>148</b>	<b>100.0</b>	<b>267.1</b>	<b>23.5</b>	<b>4</b>

### Goldfields SE Coastal Health Region

Males						Females					
	Total	%	ASR	SE	Risk		Total	%	ASR	SE	Risk
Prostate	15	18.8	57.5	15.2	15	Breast	19	30.6	66.2	15.8	14
Lung	11	13.8	46.2	14.1	14	Lung	8	12.9	33.0	12.4	21
Colorectal	10	12.5	42.9	13.7	18	Colorectal	5	8.1	21.9	10.2	33
Colon	4	5.0	16.8	8.6	42	Colon	3	4.8	10.6	6.4	81
Rectum	6	7.5	26.2	10.8	30	Rectum	2	3.2	11.3	7.9	54
Melanoma (skin)	9	11.3	28.0	9.6	37	Melanoma (skin)	5	8.1	17.4	8.2	58
Testis	4	5.0	12.1	6.4	124	Uterus	4	6.5	14.7	7.7	65
Bladder	4	5.0	13.3	6.7	151	Unknown primary	3	4.8	11.4	7.0	81
Lymphoma	4	5.0	12.4	6.3	75	Lymphoma	3	4.8	11.5	6.8	65
Lymphoma NOS	0					Lymphoma NOS	0				
Hodgkin lymphoma	1	1.3	2.8	2.8	358	Hodgkin lymphoma	0				
NHL	3	3.8	9.6	5.7	94	NHL	3	4.8	11.5	6.8	65
Tongue	3	3.8	10.7	6.4	58	Pancreas	2	3.2	11.7	8.3	60
Kidney	3	3.8	7.2	4.2	155	Ovary	2	3.2	9.2	6.8	99
Leukaemia	3	3.8	11.2	6.6	83	Kidney	2	3.2	8.1	6.4	133
						Thyroid gland	2	3.2	5.4	3.8	224
<b>All cancers</b>	<b>80</b>	<b>100.0</b>	<b>288.2</b>	<b>33.0</b>	<b>4</b>	<b>All cancers</b>	<b>62</b>	<b>100.0</b>	<b>239.4</b>	<b>32.0</b>	<b>4</b>

### Great Southern Health Region

Males						Females					
	Total	%	ASR	SE	Risk		Total	%	ASR	SE	Risk
Prostate	51	32.9	105.2	15.2	8	Breast	33	29.5	86.2	15.4	10
Colorectal	21	13.5	37.7	8.6	30	Melanoma (skin)	20	17.9	59.6	14.6	19
Colon	15	9.7	27.4	7.5	40	Colorectal	14	12.5	26.1	7.7	42
Rectum	5	3.2	8.9	4.1	118	Colon	7	6.3	11.7	4.9	119
Melanoma (skin)	14	9.0	36.8	9.9	25	Rectum	7	6.3	14.4	6.0	65
Lung	12	7.7	22.1	6.7	62	Lung	10	8.9	19.5	6.5	41
Unknown primary	7	4.5	14.4	5.7	60	Lymphoma	5	4.5	12.3	5.7	66
Leukaemia	7	4.5	15.6	7.5	187	Lymphoma NOS	1	0.9	1.0	1.0	0
Leukaemia NOS	0					Hodgkin lymphoma	0				
Lymphoid leukaemia	5	3.2	13.1	7.3	187	NHL	4	3.6	11.3	5.6	66
Myeloid leukaemia	1	0.6	1.3	1.3	0	Uterus	4	3.6	5.7	3.2	294
Leukaemia, other	1	0.6	1.3	1.3	0	Oesophagus	3	2.7	8.2	4.8	93
Oesophagus	5	3.2	10.2	4.8	144	Cervix	3	2.7	8.9	5.1	127
Kidney	5	3.2	10.7	5.1	88	Kidney	3	2.7	7.1	4.5	156
Lymphoma	5	3.2	10.5	4.9	74	Bladder	3	2.7	5.1	3.4	261
						Leukaemia	3	2.7	6.5	4.0	130
<b>All cancers</b>	<b>155</b>	<b>100.0</b>	<b>325.9</b>	<b>27.4</b>	<b>3</b>	<b>All cancers</b>	<b>112</b>	<b>100.0</b>	<b>266.9</b>	<b>27.1</b>	<b>4</b>

## Appendix 3D. Cancer incidence, Western Australia, 2002: Leading types by sex and geographic area

### South West Health Region

Males						Females					
	Total	%	ASR	SE	Risk		Total	%	ASR	SE	Risk
Prostate	60	19.2	62.6	8.3	13	Breast	79	30.3	90.5	10.4	10
Colorectal	49	15.7	48.9	7.3	17	Colorectal	35	13.4	32.2	5.8	27
Colon	30	9.6	29.3	5.6	32	Colon	23	8.8	20.8	4.6	43
Rectum	19	6.1	19.6	4.7	36	Rectum	12	4.6	11.4	3.5	72
Melanoma (skin)	47	15.0	52.5	7.9	20	Melanoma (skin)	35	13.4	40.4	7.4	26
Lung	39	12.5	38.6	6.6	24	Lung	17	6.5	18.1	4.6	38
Lymphoma	12	3.8	12.0	3.6	101	Lymphoma	16	6.1	15.6	4.3	62
Lymphoma NOS	0					Lymphoma NOS	1	0.4	1.4	1.4	562
Hodgkin lymphoma	1	0.3	1.1	1.1	1076	Hodgkin lymphoma	0				
NHL	11	3.5	10.9	3.4	111	NHL	15	5.7	14.2	4.1	70
Leukaemia	12	3.8	13.3	4.3	83	Unknown primary	12	4.6	9.6	3.0	97
Leukaemia NOS	0					Uterus	10	3.8	9.3	3.1	104
Lymphoid leukaemia	6	1.9	6.9	3.3	216	Pancreas	6	2.3	5.1	2.2	242
Myeloid leukaemia	4	1.3	4.4	2.2	176	Leukaemia	6	2.3	9.0	4.0	128
Leukaemia, other	2	0.6	2.0	1.5	576						
Kidney	11	3.5	10.8	3.4	73						
Bladder	11	3.5	10.5	3.3	73						
All cancers	313	100.0	328.9	19.3	3	All cancers	261	100.0	277.7	18.2	4

### WA Country Health Regions

Males						Females					
	Total	%	ASR	SE	Risk		Total	%	ASR	SE	Risk
Prostate	231	24.2	78.7	5.3	10	Breast	214	27.9	80.2	5.6	11
Colorectal	129	13.5	42.8	3.9	20	Colorectal	93	12.1	30.1	3.3	30
Colon	80	8.4	26.4	3.0	33	Colon	60	7.8	18.9	2.6	48
Rectum	48	5.0	16.2	2.4	45	Rectum	33	4.3	11.3	2.0	79
Melanoma (skin)	116	12.1	40.1	3.8	25	Melanoma (skin)	89	11.6	33.4	3.7	30
Lung	113	11.8	38.1	3.7	22	Lung	69	9.0	24.3	3.0	32
Lymphoma	38	4.0	13.0	2.2	84	Lymphoma	38	5.0	12.9	2.2	77
Lymphoma NOS	1	0.1	0.3	0.3	2452	Lymphoma NOS	3	0.4	1.0	0.6	1036
Hodgkin lymphoma	4	0.4	1.5	0.8	1104	Hodgkin lymphoma	2	0.3	0.8	0.7	2462
NHL	33	3.5	11.2	2.0	94	NHL	33	4.3	11.0	2.0	85
Bladder	31	3.2	10.3	1.9	84	Uterus	30	3.9	9.4	1.8	119
Leukaemia	28	2.9	9.6	1.9	132	Unknown primary	30	3.9	9.3	1.8	100
Leukaemia NOS	0					Pancreas	22	2.9	7.8	1.7	93
Lymphoid leukaemia	15	1.6	5.5	1.5	270	Leukaemia	21	2.7	8.5	2.0	132
Myeloid leukaemia	10	1.0	3.2	1.0	298	Leukaemia NOS	1	0.1	0.2	0.2	0
Leukaemia, other	3	0.3	0.9	0.5	1931	Lymphoid leukaemia	11	1.4	5.3	1.7	215
Kidney	27	2.8	8.7	1.7	94	Myeloid leukaemia	7	0.9	2.4	0.9	489
Unknown primary	27	2.8	8.6	1.7	120	Leukaemia, other	2	0.3	0.6	0.4	1094
Stomach	18	1.9	5.8	1.4	141	Kidney	17	2.2	6.2	1.5	134
Brain	18	1.9	7.2	1.8	163	Cervix	16	2.1	5.7	1.4	182
Pancreas	17	1.8	5.6	1.4	138	Thyroid gland	16	2.1	5.7	1.5	205
Oesophagus	15	1.6	4.8	1.3	248	Ovary	13	1.7	4.0	1.2	275
Lip	14	1.5	4.8	1.3	147	Brain	13	1.7	5.3	1.5	169
Testis	14	1.5	5.9	1.6	218	Lip	10	1.3	3.8	1.2	245
Mesothelioma	13	1.4	4.1	1.2	195	Oesophagus	9	1.2	3.3	1.1	217
Myeloma	12	1.3	3.9	1.1	206	Bladder	9	1.2	2.8	1.0	372
Tongue	11	1.2	3.8	1.2	201	Stomach	6	0.8	2.4	1.0	318
All cancers	955	100.0	325.6	10.7	3	All cancers	766	100.0	272.9	10.2	4

## Appendix 3D. Cancer incidence, Western Australia, 2002: Leading types by sex and geographic area

### North Metro Health Region

Males						Females					
	Total	%	ASR	SE	Risk		Total	%	ASR	SE	Risk
Prostate	362	29.4	109.3	5.9	7	Breast	311	30.6	88.6	5.2	11
Melanoma (skin)	176	14.3	55.7	4.3	17	Melanoma (skin)	132	13.0	38.6	3.5	25
Colorectal	146	11.9	42.6	3.6	23	Colorectal	115	11.3	24.9	2.6	44
Colon	96	7.8	27.6	2.9	35	Colon	81	8.0	17.4	2.1	63
Rectum	50	4.1	15.0	2.2	61	Rectum	33	3.2	7.3	1.4	158
Lung	110	8.9	31.8	3.1	26	Lung	67	6.6	15.6	2.1	51
Lymphoma	58	4.7	18.3	2.5	51	Lymphoma	44	4.3	10.7	1.8	78
Lymphoma NOS	1	0.1	0.2	0.2	0	Lymphoma NOS	5	0.5	1.2	0.6	923
Hodgkin lymphoma	6	0.5	2.3	1.0	425	Hodgkin lymphoma	1	0.1	0.2	0.2	0
NHL	51	4.1	15.8	2.3	58	NHL	38	3.7	9.4	1.6	85
Unknown primary	34	2.8	9.4	1.7	104	Ovary	39	3.8	10.8	1.8	78
Leukaemia	30	2.4	10.0	2.0	101	Uterus	36	3.5	9.3	1.6	98
Leukaemia NOS	2	0.2	0.8	0.6	876	Unknown primary	28	2.8	5.9	1.3	161
Lymphoid leukaemia	15	1.2	4.4	1.2	216	Pancreas	24	2.4	5.3	1.2	184
Myeloid leukaemia	11	0.9	4.3	1.5	277	Leukaemia	20	2.0	5.8	1.4	166
Leukaemia, other	2	0.2	0.6	0.4	1815	Leukaemia NOS	0				
Kidney	29	2.4	9.0	1.8	99	Lymphoid leukaemia	9	0.9	2.1	0.8	436
All cancers	1231	100.0	372.0	10.9	3	All cancers	1018	100.0	268.0	9.0	4

### East Metro Health Region

Males						Females					
	Total	%	ASR	SE	Risk		Total	%	ASR	SE	Risk
Prostate	277	23.1	91.9	5.7	8	Breast	322	31.7	97.8	5.7	9
Melanoma (skin)	168	14.0	54.6	4.3	16	Colorectal	125	12.3	29.9	3.0	29
Lung	156	13.0	46.3	3.8	17	Colon	92	9.1	21.5	2.5	40
Colorectal	130	10.9	40.6	3.7	20	Rectum	32	3.2	8.2	1.6	104
Colon	75	6.3	23.4	2.8	33	Melanoma (skin)	99	9.8	29.7	3.2	31
Rectum	54	4.5	17.0	2.4	49	Lung	62	6.1	13.7	2.0	64
Lymphoma	66	5.5	19.9	2.6	47	Uterus	48	4.7	13.7	2.1	64
Lymphoma NOS	8	0.7	2.5	0.9	259	Lymphoma	44	4.3	12.8	2.1	70
Hodgkin lymphoma	2	0.2	1.1	0.8	1673	Lymphoma NOS	0				
NHL	56	4.7	16.3	2.3	60	Hodgkin lymphoma	3	0.3	1.2	0.7	1189
Unknown primary	43	3.6	12.8	2.0	69	NHL	41	4.0	11.5	2.0	74
Leukaemia	41	3.4	14.0	2.4	72	Ovary	34	3.3	9.9	1.8	80
Leukaemia NOS	0					Unknown primary	34	3.3	6.7	1.3	146
Lymphoid leukaemia	17	1.4	6.6	1.8	163	Cervix	29	2.9	9.5	1.8	106
Myeloid leukaemia	22	1.8	7.0	1.6	127	Leukaemia	25	2.5	9.0	2.0	103
Leukaemia, other	2	0.2	0.4	0.3	0						
Bladder	40	3.3	10.7	1.8	93						
All cancers	1197	100.0	378.7	11.3	3	All cancers	1015	100.0	282.7	9.6	4

### South Metro Health Region

Males						Females					
	Total	%	ASR	SE	Risk		Total	%	ASR	SE	Risk
Prostate	333	25.9	89.5	5.0	10	Breast	282	28.6	77.8	4.8	12
Melanoma (skin)	157	12.2	45.4	3.7	20	Colorectal	112	11.4	26.3	2.7	33
Colorectal	155	12.0	39.6	3.3	24	Colon	77	7.8	18.5	2.2	47
Colon	99	7.7	25.0	2.6	38	Rectum	35	3.5	7.8	1.4	111
Rectum	56	4.4	14.5	2.0	60	Melanoma (skin)	108	11.0	31.5	3.2	30
Lung	133	10.3	35.0	3.1	22	Lung	94	9.5	22.2	2.4	33
Lymphoma	60	4.7	17.1	2.3	67	Lymphoma	46	4.7	11.6	1.8	81
Lymphoma NOS	2	0.2	0.3	0.2	0	Lymphoma NOS	5	0.5	1.2	0.6	756
Hodgkin lymphoma	8	0.6	2.6	1.0	406	Hodgkin lymphoma	4	0.4	1.2	0.7	1086
NHL	50	3.9	14.1	2.1	80	NHL	37	3.8	9.2	1.6	99
Unknown primary	44	3.4	11.0	1.7	85	Unknown primary	34	3.4	7.6	1.5	169
Bladder	40	3.1	9.4	1.5	108	Uterus	32	3.2	7.8	1.5	106
Kidney	39	3.0	9.9	1.6	96	Lip	25	2.5	5.8	1.2	133
Leukaemia	35	2.7	10.8	1.9	103	Ovary	25	2.5	6.4	1.4	154
						Kidney	23	2.3	6.1	1.5	173
						Brain	21	2.1	5.3	1.2	220
						Leukaemia	21	2.1	5.4	1.3	172
All cancers	1287	100.0	349.8	10.0	3	All cancers	986	100.0	256.6	8.7	4

## Appendix 3D. Cancer incidence, Western Australia, 2002: Leading types by sex and geographic area

### Metropolitan Perth Health Regions

Males						Females					
	Total	%	ASR	SE	Risk		Total	%	ASR	SE	Risk
Prostate	972	26.2	96.5	3.2	8	Breast	915	30.3	87.8	3.0	11
Melanoma (skin)	501	13.5	51.6	2.4	17	Colorectal	352	11.7	27.0	1.6	34
Colorectal	431	11.6	40.8	2.0	22	Colon	250	8.3	19.2	1.3	48
Colon	270	7.3	25.3	1.6	36	Rectum	100	3.3	7.7	0.8	120
Rectum	160	4.3	15.4	1.3	56	Melanoma (skin)	339	11.2	33.3	1.9	28
Lung	399	10.7	37.6	1.9	21	Lung	223	7.4	17.4	1.3	45
Lymphoma	184	5.0	18.2	1.4	55	Lymphoma	134	4.4	11.6	1.1	77
Lymphoma NOS	11	0.3	0.9	0.3	850	Lymphoma NOS	10	0.3	0.8	0.3	1193
Hodgkin lymphoma	16	0.4	2.0	0.5	538	Hodgkin lymphoma	8	0.3	0.9	0.3	1684
NHL	157	4.2	15.3	1.3	65	NHL	116	3.8	10.0	1.0	86
Unknown primary	121	3.3	11.0	1.0	84	Uterus	116	3.8	10.1	1.0	86
Bladder	106	2.9	9.2	0.9	99	Ovary	98	3.2	9.0	1.0	95
Leukaemia	106	2.9	11.5	1.2	91	Unknown primary	96	3.2	6.7	0.8	159
Leukaemia NOS	3	0.1	0.4	0.2	1740	Pancreas	67	2.2	5.2	0.7	186
Lymphoid leukaemia	47	1.3	5.0	0.8	210	Leukaemia	66	2.2	6.6	0.9	141
Myeloid leukaemia	47	1.3	5.3	0.8	194	Leukaemia NOS	2	0.1	0.1	0.1	4621
Leukaemia, other	9	0.2	0.8	0.3	1922	Lymphoid leukaemia	27	0.9	2.7	0.6	390
Kidney	101	2.7	9.8	1.0	89	Myeloid leukaemia	35	1.2	3.7	0.7	250
Stomach	75	2.0	7.0	0.8	127	Leukaemia, other	2	0.1	0.2	0.1	2918
Pancreas	59	1.6	5.6	0.8	156	Cervix	62	2.1	6.6	0.9	156
Lip	58	1.6	6.1	0.8	146	Kidney	61	2.0	5.6	0.8	152
Oesophagus	54	1.5	4.9	0.7	164	Thyroid gland	60	2.0	6.9	0.9	163
Brain	53	1.4	6.0	0.9	169	Lip	49	1.6	3.9	0.6	231
Mesothelioma	52	1.4	5.0	0.7	153	Brain	46	1.5	3.9	0.6	245
Testis	50	1.3	6.0	0.9	206	Stomach	43	1.4	3.5	0.6	247
Skin (NMSC exc. SCC/BCC)	46	1.2	4.2	0.6	258	Bladder	38	1.3	2.4	0.4	452
Liver	41	1.1	4.0	0.7	237	Oesophagus	28	0.9	2.0	0.4	509
<b>All cancers</b>	<b>3715</b>	<b>100.0</b>	<b>365.5</b>	<b>6.2</b>	<b>3</b>	<b>All cancers</b>	<b>3019</b>	<b>100.0</b>	<b>269.0</b>	<b>5.2</b>	<b>4</b>

### Western Australia

Males						Females					
	Total	%	ASR	SE	Risk		Total	%	ASR	SE	Risk
Prostate	1204	25.8	92.5	2.7	9	Breast	1130	29.8	86.4	2.7	11
Melanoma (skin)	617	13.2	49.1	2.0	19	Colorectal	445	11.7	27.6	1.4	33
Colorectal	560	12.0	41.2	1.8	21	Colon	310	8.2	19.0	1.2	48
Colon	350	7.5	25.5	1.4	35	Rectum	133	3.5	8.5	0.8	108
Rectum	208	4.5	15.5	1.1	53	Melanoma (skin)	428	11.3	33.3	1.7	29
Lung	513	11.0	37.8	1.7	21	Lung	293	7.7	18.9	1.2	41
Lymphoma	222	4.8	17.1	1.2	59	Lymphoma	172	4.5	11.9	1.0	76
Lymphoma NOS	12	0.3	0.8	0.2	995	Lymphoma NOS	13	0.3	0.8	0.3	1152
Hodgkin lymphoma	20	0.4	1.9	0.4	613	Hodgkin lymphoma	10	0.3	0.8	0.3	1843
NHL	190	4.1	14.4	1.1	70	NHL	149	3.9	10.2	0.9	86
Unknown primary	148	3.2	10.5	0.9	90	Uterus	146	3.9	10.0	0.9	91
Bladder	137	2.9	9.5	0.8	95	Unknown primary	127	3.3	7.2	0.7	143
Leukaemia	134	2.9	11.0	1.0	98	Ovary	112	3.0	8.1	0.8	109
Leukaemia NOS	3	0.1	0.3	0.2	2263	Pancreas	89	2.3	5.7	0.7	155
Lymphoid leukaemia	62	1.3	5.2	0.7	219	Leukaemia	87	2.3	7.1	0.8	137
Myeloid leukaemia	57	1.2	4.8	0.7	211	Leukaemia NOS	3	0.1	0.1	0.1	5714
Leukaemia, other	12	0.3	0.8	0.2	1926	Lymphoid leukaemia	38	1.0	3.3	0.6	326
Kidney	128	2.7	9.6	0.9	90	Myeloid leukaemia	42	1.1	3.4	0.6	278
Stomach	93	2.0	6.7	0.7	130	Leukaemia, other	4	0.1	0.3	0.1	2224
Pancreas	76	1.6	5.6	0.7	151	Kidney	79	2.1	5.8	0.7	147
Lip	72	1.5	5.7	0.7	147	Cervix	78	2.1	6.4	0.8	161
Brain	71	1.5	6.4	0.8	167	Thyroid gland	77	2.0	6.8	0.8	167
Oesophagus	69	1.5	4.9	0.6	177	Lip	59	1.6	3.9	0.5	233
Mesothelioma	65	1.4	4.8	0.6	161	Brain	59	1.6	4.3	0.6	223
Testis	64	1.4	6.0	0.8	209	Stomach	49	1.3	3.2	0.5	260
Skin (NMSC exc. SCC/BCC)	50	1.1	3.5	0.5	299	Bladder	47	1.2	2.5	0.4	431
Liver	49	1.0	3.7	0.6	251	Oesophagus	37	1.0	2.2	0.4	399
<b>All cancers</b>	<b>4672</b>	<b>100.0</b>	<b>356.6</b>	<b>5.3</b>	<b>3</b>	<b>All cancers</b>	<b>3792</b>	<b>100.0</b>	<b>270.4</b>	<b>4.7</b>	<b>4</b>

## Appendix 3E. Cancer mortality, Western Australia, 2002: Leading types by sex and geographic area

### Kimberley Health Region

Males						Females					
	Total	%	ASR	SE	Risk		Total	%	ASR	SE	Risk
Lung	4	33.3	31.9	16.3	24	Unknown primary	4	30.8	35.1	18.7	23
Unknown primary	2	16.7	15.1	11.0	33	Colorectal	2	15.4	21.2	16.0	28
Colorectal	1	8.3	7.6	7.6	*	Colon	1	7.7	6.5	6.5	*
Colon	1	8.3	7.6	7.6	*	Rectum	1	7.7	14.7	14.7	28
Rectum	0					Lung	2	15.4	14.1	10.0	67
Oesophagus	1	8.3	4.5	4.5	267	Liver	1	7.7	6.7	6.7	149
Liver	1	8.3	5.4	5.3	225	Breast	1	7.7	14.7	14.7	28
Larynx	1	8.3	5.4	5.4	187	Cervix	1	7.7	7.8	7.8	104
Melanoma (skin)	1	8.3	4.5	4.5	267	Ovary	1	7.7	11.2	11.2	72
Connective/ soft tissues	1	8.3	5.8	5.8	138	Lymphoma	1	7.7	7.8	7.8	104
Myeloprolif. d/o (chronic)	1	8.3	8.2	8.2	99	Lymphoma NOS	0				-
						Hodgkin lymphoma	0				-
						NHL	1	7.7	7.8	7.8	104
All cancers	12	100.0	80.2	24.0	11	All cancers	13	100.0	118.6	34.7	6

### Pilbara Gascoyne Health Region

Males						Females					
	Total	%	ASR	SE	Risk		Total	%	ASR	SE	Risk
Colorectal	3	14.3	14.8	9.4	46	Lung	4	36.4	30.6	15.5	19
Colon	2	9.5	6.8	4.8	119	Breast	3	27.3	23.1	14.1	24
Rectum	1	4.8	8.1	8.1	75	Liver	1	9.1	4.0	4.0	252
Mesothelioma	3	14.3	12.3	7.3	65	Mesothelioma	1	9.1	5.6	5.6	144
Prostate	3	14.3	21.5	12.4	*	Ovary	1	9.1	5.0	4.9	*
Bladder	2	9.5	12.7	9.0	59	Unknown primary	1	9.1	7.8	7.8	*
Brain	2	9.5	11.2	8.5	237						
Tonsil / oropharynx	1	4.8	3.4	3.4	237						
Oesophagus	1	4.8	3.0	3.0	338						
Stomach	1	4.8	3.4	3.4	237						
Pancreas	1	4.8	5.9	5.9	*						
Lung	1	4.8	8.1	8.1	75						
Kidney	1	4.8	5.9	5.9	*						
Unknown primary	1	4.8	5.6	5.6	144						
Lymphoma	1	4.8	2.3	2.3	524						
All cancers	21	100.0	110.0	25.3	11	All cancers	11	100.0	76.0	23.9	10

### Midwest Murchison Health Region

Males						Females					
	Total	%	ASR	SE	Risk		Total	%	ASR	SE	Risk
Lung	22	40.7	59.4	12.8	15	Lung	11	29.7	31.8	10.1	26
Colorectal	4	7.4	11.6	5.9	81	Breast	6	16.2	17.2	7.3	44
Colon	2	3.7	5.5	4.0	234	Pancreas	5	13.5	15.5	7.2	51
Rectum	2	3.7	6.1	4.3	122	Colorectal	3	8.1	7.3	4.4	170
Pancreas	3	5.6	9.6	5.5	104	Colon	3	8.1	7.3	4.4	170
Prostate	3	5.6	8.2	4.8	187	Rectum	0				-
Brain	3	5.6	9.3	5.4	74	Ovary	3	8.1	7.6	4.6	170
Stomach	2	3.7	5.1	3.6	271	Unknown primary	2	5.4	6.5	4.6	96
Gallbladder / bile ducts	2	3.7	6.4	4.5	126	Leukaemia	2	5.4	3.5	2.5	*
Bladder	2	3.7	5.5	3.9	155	Leukaemia NOS	1	2.7	1.5	1.5	*
Leukaemia	2	3.7	6.4	4.5	234	Lymphoid leukaemia	0				-
Leukaemia NOS	0					Myeloid leukaemia	1	2.7	2.0	2.0	*
Lymphoid leukaemia	1	1.9	2.9	2.9	*	Leukaemia, other	0				-
Myeloid leukaemia	1	1.9	3.4	3.4	234	Tongue	1	2.7	3.0	3.0	134
Leukaemia, other	0					Mouth, floor	1	2.7	3.3	3.3	300
Myeloma	2	3.7	6.3	4.5	141	Oesophagus	1	2.7	2.0	2.0	*
						Bladder	1	2.7	1.5	1.5	*
All cancers	54	100.0	152.6	20.9	7	All cancers	37	100.0	103.2	17.8	9

## Appendix 3E. Cancer mortality, Western Australia, 2002: Leading types by sex and geographic area

### Wheatbelt Health Region

Males						Females					
	Total	%	ASR	SE	Risk		Total	%	ASR	SE	Risk
Lung	20	25.6	34.2	7.7	24	Lung	8	14.8	13.2	4.9	82
Colorectal	13	16.7	20.0	5.6	42	Breast	8	14.8	11.9	4.5	75
Colon	8	10.3	12.3	4.4	61	Colorectal	6	11.1	10.2	4.4	78
Rectum	5	6.4	7.7	3.5	138	Colon	6	11.1	10.2	4.4	78
Prostate	9	11.5	13.2	4.4	81	Rectum	0				-
Liver	4	5.1	6.6	3.3	121	Unknown primary	6	11.1	8.1	3.6	218
Kidney	4	5.1	6.7	3.4	180	Pancreas	5	9.3	9.0	4.2	60
Unknown primary	4	5.1	6.1	3.1	202	Bladder	3	5.6	6.3	3.6	115
Stomach	3	3.8	4.7	2.8	138	Lymphoma	3	5.6	4.9	3.0	167
Pancreas	3	3.8	4.1	2.4	243	Lymphoma NOS	2	3.7	4.1	2.9	167
Mesothelioma	3	3.8	5.0	2.9	159	Hodgkin lymphoma	0				-
Melanoma (skin)	2	2.6	2.4	1.7	*	NHL	1	1.9	0.8	0.8	*
Brain	2	2.6	3.6	2.5	226	Stomach	2	3.7	2.9	2.2	505
Lymphoma	2	2.6	3.6	2.6	413	Cervix	2	3.7	2.9	2.2	505
Lymphoma NOS	1	1.3	1.7	1.7	*	Ovary	2	3.7	3.4	2.5	364
Hodgkin lymphoma	0				-	Gum	1	1.9	1.9	1.9	214
NHL	1	1.3	1.9	1.9	413	Oesophagus	1	1.9	0.9	0.9	*
All cancers	78	100.0	124.2	14.2	8	All cancers	54	100.0	87.6	13.0	11

### Goldfields SE Coastal Health Region

Males						Females					
	Total	%	ASR	SE	Risk		Total	%	ASR	SE	Risk
Lung	5	20.8	21.6	9.8	23	Breast	8	26.7	27.7	10.3	43
Colorectal	4	16.7	16.8	8.6	42	Lung	7	23.3	24.6	9.9	35
Colon	1	4.2	5.0	5.0	122	Unknown primary	4	13.3	16.8	8.9	45
Rectum	3	12.5	11.8	7.0	63	Cervix	2	6.7	6.0	4.4	205
Prostate	4	16.7	15.2	7.6	199	Uterus	2	6.7	7.4	5.5	81
Stomach	3	12.5	11.1	6.6	63	Lymphoma	2	6.7	5.2	3.7	384
Liver	2	8.3	7.6	5.6	68	Lymphoma NOS	0				-
Oesophagus	1	4.2	5.0	5.0	122	Hodgkin lymphoma	1	3.3	3.1	3.1	384
Kidney	1	4.2	2.8	2.8	358	NHL	1	3.3	2.1	2.1	*
Brain	1	4.2	3.7	3.7	*	Colorectal	1	3.3	5.0	5.0	81
Unknown primary	1	4.2	4.3	4.3	*	Colon	1	3.3	5.0	5.0	81
Lymphoma	1	4.2	2.8	2.8	358	Rectum	0				-
Lymphoma NOS	0				-	Anus	1	3.3	2.1	2.1	*
Hodgkin lymphoma	0				-	Bone	1	3.3	3.1	3.1	384
NHL	1	4.2	2.8	2.8	358	Kidney	1	3.3	3.9	3.9	205
Leukaemia	1	4.2	4.7	4.7	381	Brain	1	3.3	4.4	4.4	411
All cancers	24	100.0	95.6	19.8	9	All cancers	30	100.0	106.2	20.5	9

### Great Southern Health Region

Males						Females					
	Total	%	ASR	SE	Risk		Total	%	ASR	SE	Risk
Colorectal	13	22.0	26.3	7.7	42	Lung	11	31.4	22.5	7.2	40
Colon	6	10.2	10.9	4.7	111	Lymphoma	5	14.3	10.6	5.1	94
Rectum	7	11.9	15.4	6.1	67	Lymphoma NOS	1	2.9	1.0	1.0	*
Lung	6	10.2	11.5	4.8	112	Hodgkin lymphoma	0				-
Unknown primary	5	8.5	8.8	4.1	103	NHL	4	11.4	9.6	5.0	94
Melanoma (skin)	4	6.8	12.1	6.8	107	Colorectal	4	11.4	7.7	4.3	138
Prostate	4	6.8	6.2	3.1	*	Colon	2	5.7	3.8	2.9	294
Kidney	3	5.1	7.4	4.3	77	Rectum	2	5.7	4.0	3.2	261
Bladder	3	5.1	6.3	3.9	112	Bladder	3	8.6	2.8	1.6	*
Brain	3	5.1	6.6	3.9	112	Oesophagus	2	5.7	5.5	3.9	126
Liver	2	3.4	5.7	4.0	144	Unknown primary	2	5.7	2.4	1.7	*
Pancreas	2	3.4	4.8	3.4	126	Gallbladder / bile ducts	1	2.9	0.9	0.9	*
Lymphoma	2	3.4	2.7	1.9	*	Pancreas	1	2.9	3.1	3.1	261
Lymphoma NOS	0				-	Melanoma (skin)	1	2.9	0.9	0.9	*
Hodgkin lymphoma	0				-	Uterus	1	2.9	1.0	1.0	*
NHL	2	3.4	2.7	1.9	*	Ovary	1	2.9	2.7	2.7	220
Leukaemia	2	3.4	3.4	2.5	190	Thyroid gland	1	2.9	1.3	1.3	*
All cancers	59	100.0	121.3	16.8	9	All cancers	35	100.0	66.9	12.4	16

## Appendix 3E. Cancer mortality, Western Australia, 2002: Leading types by sex and geographic area

### South West Health Region

Males						Females					
	Total	%	ASR	SE	Risk		Total	%	ASR	SE	Risk
Lung	26	18.7	26.6	5.4	28	Lung	12	14.0	10.9	3.5	100
Prostate	17	12.2	14.1	3.5	80	Breast	11	12.8	12.9	4.0	53
Colorectal	15	10.8	12.1	3.3	93	Colorectal	8	9.3	6.7	2.6	125
Colon	7	5.0	6.2	2.4	137	Colon	6	7.0	5.0	2.2	147
Rectum	8	5.8	6.0	2.2	283	Rectum	2	2.3	1.7	1.3	832
Stomach	7	5.0	6.4	2.5	190	Unknown primary	7	8.1	4.1	1.6	398
Kidney	7	5.0	8.1	3.3	97	Gallbladder / bile ducts	5	5.8	4.7	2.2	182
Unknown primary	7	5.0	5.5	2.2	256	Pancreas	5	5.8	4.4	2.2	281
Pancreas	6	4.3	6.5	2.7	110	Ovary	5	5.8	4.7	2.3	155
Melanoma (skin)	6	4.3	5.7	2.4	178	Lymphoma	5	5.8	5.7	2.7	121
Brain	6	4.3	7.7	3.5	117	Lymphoma NOS	1	1.2	1.0	1.0	398
Lymphoma	6	4.3	6.4	2.7	154	Hodgkin lymphoma	0				-
Lymphoma NOS	0				-	NHL	4	4.7	4.6	2.5	174
Hodgkin lymphoma	1	0.7	1.0	1.0	391	Oesophagus	3	3.5	2.4	1.5	456
NHL	5	3.6	5.4	2.5	253	Liver	3	3.5	2.0	1.2	398
Skin (not melanoma)	5	3.6	4.1	1.9	742	Kidney	3	3.5	2.8	1.7	269
Mesothelioma	5	3.6	5.5	2.5	152	Bladder	3	3.5	2.4	1.5	456
All cancers	139	100.0	134.9	12.0	7	All cancers	86	100.0	78.0	9.2	12

### WA Country Health Regions

Males						Females					
	Total	%	ASR	SE	Risk		Total	%	ASR	SE	Risk
Lung	84	21.7	28.6	3.2	28	Lung	55	20.7	17.9	2.6	50
Colorectal	53	13.7	16.8	2.4	58	Breast	37	13.9	13.0	2.2	59
Colon	27	7.0	8.5	1.7	107	Unknown primary	26	9.8	7.0	1.5	162
Rectum	26	6.7	8.3	1.7	123	Colorectal	24	9.0	7.4	1.6	110
Prostate	40	10.3	11.7	1.9	127	Colon	19	7.1	5.9	1.5	138
Unknown primary	20	5.2	6.0	1.4	178	Rectum	5	1.9	1.6	0.7	532
Kidney	17	4.4	5.9	1.5	139	Lymphoma	17	6.4	5.9	1.5	144
Brain	17	4.4	6.1	1.5	142	Lymphoma NOS	4	1.5	1.4	0.7	467
Stomach	16	4.1	5.1	1.3	180	Hodgkin lymphoma	1	0.4	0.3	0.3	3477
Pancreas	15	3.9	5.0	1.3	163	NHL	12	4.5	4.2	1.3	220
Melanoma (skin)	14	3.6	4.3	1.2	323	Pancreas	16	6.0	5.6	1.5	134
Liver	13	3.4	4.5	1.3	168	Ovary	13	4.9	4.3	1.3	202
Mesothelioma	13	3.4	4.6	1.3	196	Bladder	10	3.8	2.9	1.0	389
Lymphoma	13	3.4	4.3	1.2	261	Oesophagus	7	2.6	2.1	0.8	505
Lymphoma NOS	1	0.3	0.3	0.3	*	Gallbladder / bile ducts	7	2.6	2.0	0.8	532
Hodgkin lymphoma	1	0.3	0.3	0.3	1163	Cervix	7	2.6	2.4	1.0	390
NHL	11	2.8	3.7	1.1	336	Liver	5	1.9	1.5	0.7	602
Leukaemia	11	2.8	3.5	1.1	348	Uterus	5	1.9	1.2	0.5	1094
Leukaemia NOS	0				-	Kidney	5	1.9	1.5	0.7	568
Lymphoid leukaemia	4	1.0	1.4	0.8	1562	Brain	5	1.9	2.4	1.1	525
Myeloid leukaemia	5	1.3	1.5	0.7	726	Leukaemia	5	1.9	1.3	0.6	1739
Leukaemia, other	2	0.5	0.6	0.4	1163	Leukaemia NOS	1	0.4	0.2	0.2	*
Oesophagus	9	2.3	2.9	1.0	333	Lymphoid leukaemia	1	0.4	0.2	0.2	*
Bladder	9	2.3	3.0	1.0	264	Myeloid leukaemia	3	1.1	0.9	0.5	1739
Myeloma	9	2.3	3.1	1.0	295	Leukaemia, other	0				-
Skin (not melanoma)	7	1.8	2.0	0.8	2452	Stomach	3	1.1	0.7	0.4	2680
Larynx	4	1.0	1.3	0.7	531	Melanoma (skin)	3	1.1	0.9	0.5	1739
All cancers	387	100.0	126.5	6.6	8	All cancers	266	100.0	84.6	5.5	11

## Appendix 3E. Cancer mortality, Western Australia, 2002: Leading types by sex and geographic area

### North Metro Health Region

Males						Females					
	Total	%	ASR	SE	Risk		Total	%	ASR	SE	Risk
Lung	106	23.6	29.9	3.0	31	Breast	69	18.4	17.8	2.3	49
Prostate	53	11.8	13.7	1.9	89	Lung	57	15.2	12.9	1.9	66
Colorectal	50	11.1	13.9	2.0	68	Colorectal	47	12.6	11.6	1.8	73
Colon	25	5.6	6.8	1.4	136	Colon	33	8.8	7.9	1.5	106
Rectum	25	5.6	7.1	1.5	133	Rectum	14	3.7	3.7	1.0	228
Unknown primary	24	5.3	6.5	1.4	137	Unknown primary	23	6.1	3.9	0.9	314
Pancreas	23	5.1	6.9	1.5	101	Ovary	22	5.9	5.6	1.3	154
Lymphoma	21	4.7	5.4	1.2	177	Pancreas	21	5.6	3.5	0.9	383
Lymphoma NOS	3	0.7	0.6	0.4	3481	Lymphoma	16	4.3	3.6	1.0	197
Hodgkin lymphoma	0				-	Lymphoma NOS	0				-
NHL	18	4.0	4.7	1.2	186	Hodgkin lymphoma	2	0.5	0.6	0.5	784
Stomach	20	4.5	4.8	1.1	273	NHL	14	3.7	2.9	0.9	262
Kidney	16	3.6	5.2	1.3	159	Leukaemia	15	4.0	2.8	0.8	542
Leukaemia	16	3.6	4.5	1.2	185	Leukaemia NOS	1	0.3	0.1	0.1	*
Leukaemia NOS	0				-	Lymphoid leukaemia	4	1.1	0.5	0.3	*
Lymphoid leukaemia	8	1.8	2.0	0.7	585	Myeloid leukaemia	10	2.7	2.1	0.8	542
Myeloid leukaemia	8	1.8	2.5	0.9	269	Leukaemia, other	0				-
All cancers	449	100.0	124.9	6.1	8	All cancers	374	100.0	86.5	5.0	11

### East Metro Health Region

Males						Females					
	Total	%	ASR	SE	Risk		Total	%	ASR	SE	Risk
Lung	138	27.1	38.7	3.5	22	Colorectal	52	14.4	11.1	1.8	89
Colorectal	53	10.4	15.9	2.3	56	Colon	37	10.2	8.5	1.6	112
Colon	31	6.1	9.0	1.7	95	Rectum	15	4.2	2.6	0.8	433
Rectum	22	4.3	6.9	1.5	136	Breast	52	14.4	13.4	2.0	68
Prostate	46	9.0	11.1	1.7	116	Lung	51	14.1	11.2	1.8	83
Unknown primary	32	6.3	9.2	1.7	101	Unknown primary	33	9.1	6.6	1.3	137
Leukaemia	30	5.9	9.2	1.8	119	Pancreas	21	5.8	3.9	1.0	305
Leukaemia NOS	2	0.4	0.5	0.4	3219	Ovary	17	4.7	4.4	1.2	197
Lymphoid leukaemia	7	1.4	2.1	0.8	713	Lymphoma	17	4.7	5.2	1.4	150
Myeloid leukaemia	21	4.1	6.6	1.5	149	Lymphoma NOS	2	0.6	0.5	0.4	1562
Leukaemia, other	0				-	Hodgkin lymphoma	0				-
Lymphoma	23	4.5	6.1	1.3	137	NHL	15	4.2	4.7	1.3	166
Lymphoma NOS	3	0.6	1.0	0.6	442	Brain	13	3.6	2.6	0.8	408
Hodgkin lymphoma	0				-	Leukaemia	12	3.3	3.5	1.1	214
NHL	20	3.9	5.1	1.2	198	Leukaemia NOS	1	0.3	0.3	0.3	1453
Stomach	20	3.9	5.2	1.2	298	Lymphoid leukaemia	3	0.8	1.0	0.6	839
Pancreas	18	3.5	4.9	1.2	296	Myeloid leukaemia	8	2.2	2.2	0.9	358
All cancers	509	100.0	145.7	6.8	7	All cancers	361	100.0	82.5	4.9	12

### South Metro Health Region

Males						Females					
	Total	%	ASR	SE	Risk		Total	%	ASR	SE	Risk
Lung	136	26.5	34.4	3.0	23	Breast	73	17.9	18.9	2.3	46
Colorectal	72	14.0	18.0	2.2	53	Lung	59	14.5	12.4	1.7	62
Colon	40	7.8	9.9	1.6	99	Colorectal	57	14.0	12.0	1.7	76
Rectum	32	6.2	8.0	1.5	114	Colon	39	9.6	8.1	1.4	102
Prostate	48	9.4	10.8	1.6	127	Rectum	18	4.4	3.9	1.0	289
Pancreas	30	5.8	7.8	1.5	104	Ovary	20	4.9	4.5	1.1	188
Unknown primary	25	4.9	6.4	1.3	150	Lymphoma	20	4.9	3.6	0.9	279
Stomach	21	4.1	5.6	1.3	144	Lymphoma NOS	2	0.5	0.3	0.2	*
Bladder	19	3.7	4.5	1.1	269	Hodgkin lymphoma	0				-
Mesothelioma	17	3.3	4.5	1.1	148	NHL	18	4.4	3.4	0.9	279
Lymphoma	16	3.1	3.9	1.0	277	Brain	17	4.2	4.0	1.1	330
Lymphoma NOS	1	0.2	0.2	0.2	*	Uterus	16	3.9	3.4	0.9	251
Hodgkin lymphoma	1	0.2	0.2	0.2	*	Unknown primary	16	3.9	3.4	0.9	404
NHL	14	2.7	3.5	1.0	277	Leukaemia	16	3.9	3.9	1.1	323
Leukaemia	16	3.1	5.1	1.4	182	Leukaemia NOS	1	0.2	0.1	0.1	*
Leukaemia NOS	0				-	Lymphoid leukaemia	5	1.2	1.4	0.7	943
Lymphoid leukaemia	5	1.0	1.7	0.8	497	Myeloid leukaemia	9	2.2	2.2	0.8	491
All cancers	513	100.0	131.0	6.0	7	All cancers	407	100.0	89.0	4.8	11

## Appendix 3E. Cancer mortality, Western Australia, 2002: Leading types by sex and geographic area

### Metropolitan Perth Health Regions

Males						Females					
	Total	%	ASR	SE	Risk		Total	%	ASR	SE	Risk
Lung	<b>380</b>	25.8	<b>34.4</b>	1.8	24	Breast	<b>194</b>	17.0	<b>16.9</b>	1.3	52
Colorectal	<b>175</b>	11.9	<b>15.9</b>	1.2	58	Lung	<b>167</b>	14.6	<b>12.2</b>	1.0	69
Colon	<b>96</b>	6.5	<b>8.6</b>	0.9	107	Colorectal	<b>156</b>	13.7	<b>11.6</b>	1.0	78
Rectum	<b>79</b>	5.4	<b>7.3</b>	0.9	126	Colon	<b>109</b>	9.5	<b>8.2</b>	0.9	106
Prostate	<b>147</b>	10.0	<b>11.8</b>	1.0	109	Rectum	<b>47</b>	4.1	<b>3.4</b>	0.5	295
Unknown primary	<b>81</b>	5.5	<b>7.3</b>	0.8	129	Unknown primary	<b>72</b>	6.3	<b>4.6</b>	0.6	238
Pancreas	<b>71</b>	4.8	<b>6.6</b>	0.8	129	Ovary	<b>59</b>	5.2	<b>4.8</b>	0.7	177
Leukaemia	<b>62</b>	4.2	<b>6.2</b>	0.8	158	Pancreas	<b>57</b>	5.0	<b>3.5</b>	0.5	323
Leukaemia NOS	<b>2</b>	0.1	<b>0.2</b>	0.1	10207	Lymphoma	<b>53</b>	4.6	<b>4.0</b>	0.6	201
Lymphoid leukaemia	<b>20</b>	1.4	<b>1.9</b>	0.4	576	Lymphoma NOS	<b>4</b>	0.4	<b>0.2</b>	0.1	5114
Myeloid leukaemia	<b>37</b>	2.5	<b>3.7</b>	0.6	233	Hodgkin lymphoma	<b>2</b>	0.2	<b>0.2</b>	0.1	2428
Leukaemia, other	<b>3</b>	0.2	<b>0.4</b>	0.3	4375	NHL	<b>47</b>	4.1	<b>3.6</b>	0.6	229
Stomach	<b>61</b>	4.1	<b>5.3</b>	0.7	208	Brain	<b>43</b>	3.8	<b>3.6</b>	0.6	304
Lymphoma	<b>60</b>	4.1	<b>5.1</b>	0.7	186	Leukaemia	<b>43</b>	3.8	<b>3.4</b>	0.6	314
Lymphoma NOS	<b>7</b>	0.5	<b>0.6</b>	0.2	1277	Leukaemia NOS	<b>3</b>	0.3	<b>0.2</b>	0.1	4621
Hodgkin lymphoma	<b>1</b>	0.1	<b>0.1</b>	0.1	*	Lymphoid leukaemia	<b>12</b>	1.1	<b>1.0</b>	0.3	1325
NHL	<b>52</b>	3.5	<b>4.4</b>	0.6	217	Myeloid leukaemia	<b>27</b>	2.4	<b>2.2</b>	0.5	451
Mesothelioma	<b>48</b>	3.3	<b>4.3</b>	0.6	201	Leukaemia, other	<b>1</b>	0.1	<b>0.0</b>	0.0	*
Bladder	<b>45</b>	3.1	<b>3.8</b>	0.6	285	Stomach	<b>36</b>	3.2	<b>2.9</b>	0.5	280
Kidney	<b>43</b>	2.9	<b>4.2</b>	0.7	223	Uterus	<b>29</b>	2.5	<b>2.1</b>	0.4	402
Melanoma (skin)	<b>41</b>	2.8	<b>3.9</b>	0.6	263	Kidney	<b>29</b>	2.5	<b>1.9</b>	0.4	452
Brain	<b>41</b>	2.8	<b>4.2</b>	0.7	212	Oesophagus	<b>27</b>	2.4	<b>1.9</b>	0.4	414
Oesophagus	<b>35</b>	2.4	<b>3.1</b>	0.5	295	Melanoma (skin)	<b>24</b>	2.1	<b>1.8</b>	0.4	536
Liver	<b>33</b>	2.2	<b>3.1</b>	0.6	288	Cervix	<b>22</b>	1.9	<b>1.7</b>	0.4	558
Skin (not melanoma)	<b>26</b>	1.8	<b>2.3</b>	0.5	340	Gallbladder / bile ducts	<b>20</b>	1.8	<b>1.2</b>	0.3	989
Myeloma	<b>24</b>	1.6	<b>2.1</b>	0.5	376	Myeloma	<b>17</b>	1.5	<b>0.8</b>	0.2	1913
Myelodysplastic diseases	<b>15</b>	1.0	<b>1.3</b>	0.4	794	Liver	<b>9</b>	0.8	<b>0.7</b>	0.2	1091
<b>All cancers</b>	<b>1471</b>	100.0	<b>133.5</b>	3.6	7	<b>All cancers</b>	<b>1142</b>	100.0	<b>86.0</b>	2.8	11

### Western Australia

Males						Females					
	Total	%	ASR	SE	Risk		Total	%	ASR	SE	Risk
Lung	<b>464</b>	25.0	<b>33.2</b>	1.6	25	Breast	<b>231</b>	16.4	<b>16.0</b>	1.1	53
Colorectal	<b>228</b>	12.3	<b>16.0</b>	1.1	58	Lung	<b>222</b>	15.8	<b>13.4</b>	1.0	64
Colon	<b>123</b>	6.6	<b>8.5</b>	0.8	107	Colorectal	<b>180</b>	12.8	<b>10.7</b>	0.9	83
Rectum	<b>105</b>	5.7	<b>7.5</b>	0.8	125	Colon	<b>128</b>	9.1	<b>7.7</b>	0.8	111
Prostate	<b>187</b>	10.1	<b>11.8</b>	0.9	113	Rectum	<b>52</b>	3.7	<b>3.0</b>	0.5	325
Unknown primary	<b>101</b>	5.4	<b>7.0</b>	0.7	137	Unknown primary	<b>98</b>	7.0	<b>5.0</b>	0.6	217
Pancreas	<b>86</b>	4.6	<b>6.2</b>	0.7	135	Pancreas	<b>73</b>	5.2	<b>4.0</b>	0.5	250
Stomach	<b>77</b>	4.1	<b>5.3</b>	0.6	201	Ovary	<b>72</b>	5.1	<b>4.7</b>	0.6	182
Lymphoma	<b>73</b>	3.9	<b>4.9</b>	0.6	198	Lymphoma	<b>70</b>	5.0	<b>4.4</b>	0.6	184
Lymphoma NOS	<b>8</b>	0.4	<b>0.5</b>	0.2	1642	Lymphoma NOS	<b>8</b>	0.6	<b>0.5</b>	0.2	1709
Hodgkin lymphoma	<b>2</b>	0.1	<b>0.1</b>	0.1	5345	Hodgkin lymphoma	<b>3</b>	0.2	<b>0.2</b>	0.1	2523
NHL	<b>63</b>	3.4	<b>4.3</b>	0.6	234	NHL	<b>59</b>	4.2	<b>3.7</b>	0.5	225
Leukaemia	<b>73</b>	3.9	<b>5.5</b>	0.7	181	Brain	<b>48</b>	3.4	<b>3.4</b>	0.6	331
Leukaemia NOS	<b>2</b>	0.1	<b>0.1</b>	0.1	13264	Leukaemia	<b>48</b>	3.4	<b>3.0</b>	0.5	378
Lymphoid leukaemia	<b>24</b>	1.3	<b>1.8</b>	0.4	672	Leukaemia NOS	<b>4</b>	0.3	<b>0.2</b>	0.1	5714
Myeloid leukaemia	<b>42</b>	2.3	<b>3.2</b>	0.5	276	Lymphoid leukaemia	<b>13</b>	0.9	<b>0.8</b>	0.3	1706
Leukaemia, other	<b>5</b>	0.3	<b>0.4</b>	0.2	2790	Myeloid leukaemia	<b>30</b>	2.1	<b>2.0</b>	0.4	530
Mesothelioma	<b>61</b>	3.3	<b>4.4</b>	0.6	199	Leukaemia, other	<b>1</b>	0.1	<b>0.0</b>	0.0	*
Kidney	<b>60</b>	3.2	<b>4.6</b>	0.6	197	Stomach	<b>39</b>	2.8	<b>2.5</b>	0.4	343
Brain	<b>58</b>	3.1	<b>4.6</b>	0.6	191	Oesophagus	<b>34</b>	2.4	<b>2.0</b>	0.4	427
Melanoma (skin)	<b>55</b>	3.0	<b>4.0</b>	0.6	274	Uterus	<b>34</b>	2.4	<b>1.9</b>	0.3	462
Bladder	<b>54</b>	2.9	<b>3.6</b>	0.5	280	Kidney	<b>34</b>	2.4	<b>1.8</b>	0.3	471
Liver	<b>46</b>	2.5	<b>3.4</b>	0.5	247	Cervix	<b>29</b>	2.1	<b>1.9</b>	0.4	514
Oesophagus	<b>44</b>	2.4	<b>3.0</b>	0.5	303	Gallbladder / bile ducts	<b>27</b>	1.9	<b>1.4</b>	0.3	845
Skin (not melanoma)	<b>33</b>	1.8	<b>2.2</b>	0.4	421	Melanoma (skin)	<b>27</b>	1.9	<b>1.6</b>	0.3	620
Myeloma	<b>33</b>	1.8	<b>2.4</b>	0.4	352	Myeloma	<b>20</b>	1.4	<b>0.9</b>	0.2	1332
Myelodysplastic diseases	<b>18</b>	1.0	<b>1.3</b>	0.3	860	Bladder	<b>19</b>	1.3	<b>0.9</b>	0.2	1127
<b>All cancers</b>	<b>1858</b>	100.0	<b>131.8</b>	3.2	7	<b>All cancers</b>	<b>1408</b>	100.0	<b>85.7</b>	2.5	11