



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

Cancer Incidence, Mortality and Survival in Western Australia, 2019

Cancer incidence, mortality and survival in Western Australia, 2019

A report of the Western Australian Cancer Registry

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Executive Summary

In 2019, there were 14,164 new diagnoses of cancer in Western Australian residents, comprising 7,920 cancers diagnosed in males (56%) and 6,244 in females (44%).

Cancer survival varies dependent upon the type of cancer diagnosed, but overall cancer survival has improved, with 71.9% of all people diagnosed with cancer (excluding basal cell carcinomas (BCC) and squamous cell carcinomas (SCC)) surviving at least five years after diagnosis; up from 60.9% about 20 years ago. This is likely linked to factors such as changes in diagnostic guidelines, early detection of cancer via national screening programs (e.g. breast, cervical, colorectal) [1], education and awareness of possible cancer related signs and symptoms and advances in medical treatments.

Cancer was responsible for 4,177 deaths by Western Australian residents in 2019 and accounted for 14,164 new diagnoses of cancer. The age-standardised incidence rate of cancer has decreased from a peak of 510.7 cases per 100,000 people in 1994, to an estimated 478.6 cases per 100,000 people in 2019.

Cancer mortality rates continue to fall with a sharper decline for males than for females. On the whole, between 1993 and 2019, age-standardised cancer mortality rates have declined for both males and females from 270.4 to an estimated 170.8 deaths per 100,000 males, and from 170.7 to an estimated 111.8 deaths per 100,000 females.

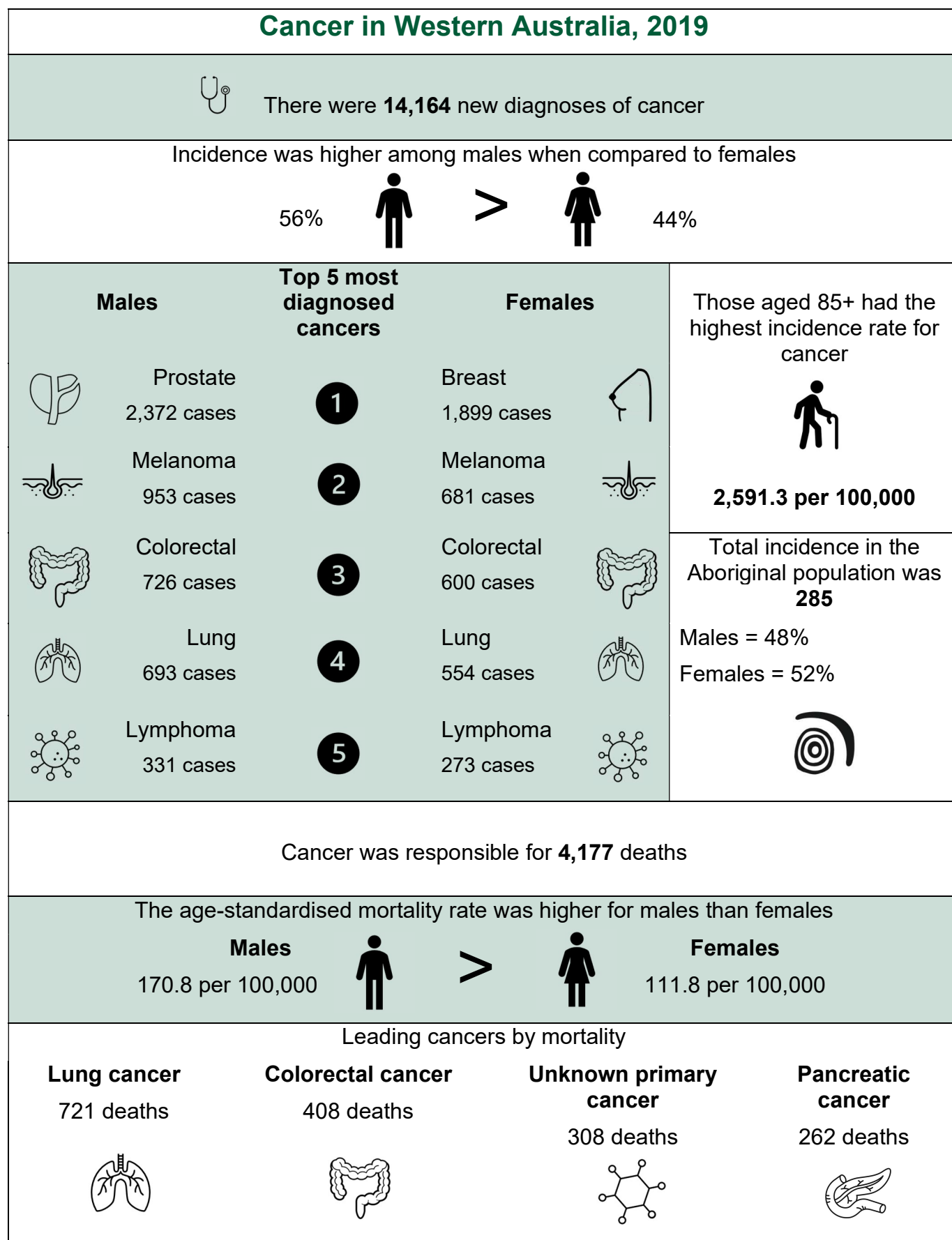
The top 5 cancers by incidence in Western Australia are prostate, breast, melanoma, colorectal and lung cancer and represented 60% of new cancer diagnoses in 2019. Prostate cancer was the most frequently diagnosed cancer for males and breast cancer was the most common cancer diagnosed for females in Western Australia. Alternatively, melanoma was the most common cancer diagnosed for males and females, together.

In 2019, newly diagnosed cancer incidence for the Western Australian Aboriginal population occurred at a rate of 587.4 per 100,000 Aboriginal people, a 23% higher than the whole Western Australian population (478.6 per 100,000 people). This higher rate was also apparent when comparing mortality rates for Aboriginal Western Australians with the whole of Western Australia, reporting a 58% higher mortality rate for the Aboriginal population (219.1 per 100,000 Aboriginal people) compared to the Western Australian population (138.4 per 100,000 people).

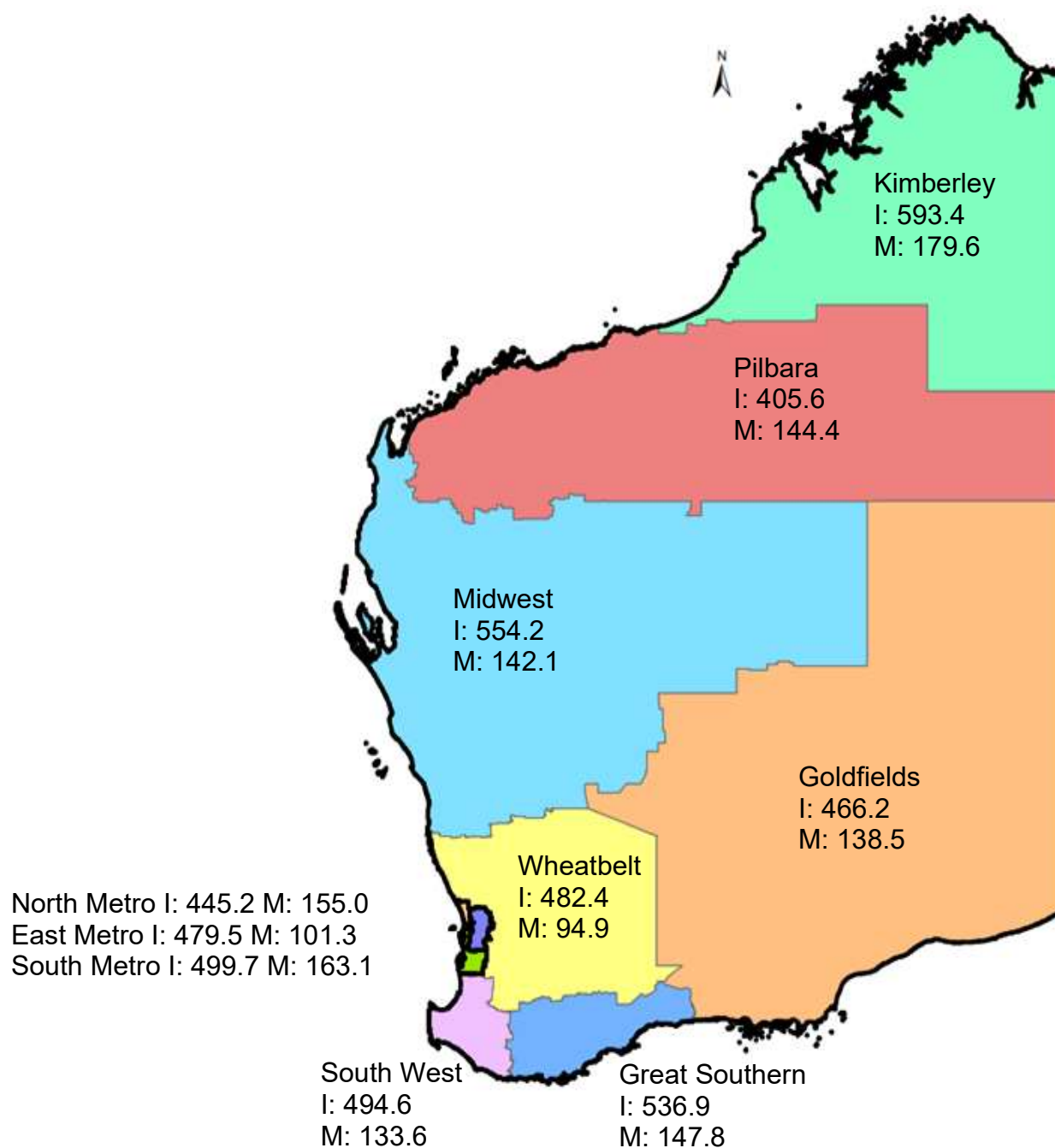
Cancer incidence and survival are not evenly spread across the Western Australian population. Cancer incidence rates were highest in the Kimberley health region with 593.4 per 100,000 people in 2019. The lowest rate of incidence was in the Pilbara health region with 405.6 per 100,000 people, for the same time-period, however the Pilbara was the only region where the age-standardised cancer mortality rates were higher in females (197.6 per 100,000 females) than in males (105.1 per 100,000 males). The higher female mortality rates of cancer in the Pilbara health region are likely to be the result of the population distribution of females in the region, whereby in 2019, males outnumber females by three to two (that is, for every three males in the Pilbara health region, there were only two females residing in the area).

Both cancer incidence and mortality rates increase with age. The incidence rate of new cancer diagnosed among adults aged 60 years and older were 77 times higher than among people aged <30 years and 6 times higher than among those aged 30 to 59 years. Similarly, mortality due to cancer increased with age and was highest in those aged 85 years and older in 2019. Among people aged 60 years and older, the age-specific mortality rates were significantly higher in males than in females.

2019 Data Visualisation



Age-standardised incidence (I) and mortality (M) rates (per 100,000) of all newly diagnosed cancers by health region, 2019



Abbreviations

ABS	Australia Bureau of Statistics
AIHW	Australian Institute of Health and Welfare
ASR	Age standardised rate
CI	Lower and upper limits of 95% confidence interval for ASR
EMHS	East Metropolitan Health Service
HMDS	Hospital Morbidity Data System
NMHS	North Metropolitan Health Service
Risk	Lifetime risk to age 75 years
SMHS	South Metropolitan Health Service
WA	Western Australia
WACHS	WA Country Health Service
WACR	Western Australian Cancer Registry

Introduction

Western Australian Cancer Registry

The Western Australian Cancer Registry (WACR) is a population-based cancer registry established in 1981, operating within the Western Australian Department of Health. Since 1982, the WACR has provided population-based cancer data for use in the planning of health care services and the support of cancer-related research at local, national and international levels. The main sources of information to the WACR are reports from pathologists, haematologists and radiation oncologists, supplemented by death registrations, hospital statistical discharge records, as well as information from hospital files and clinical information systems, and responses to enquiries directed to treating medical practitioners.

Currently, the WACR is managed within the Information and Performance Governance branch of the Purchasing and System Performance Division of the Western Australian Department of Health.

Legislative basis

The WACR operates under *the Health (Western Australian Cancer Register) Regulations 2011*. This legislation describes the legal requirement to notify WACR of a malignant neoplasm within 30 days by appropriate health practitioners. This information is to be maintained in the register and used to:

- monitor the number of cases of cancer in Western Australia
- plan, monitor and evaluate services for the control of cancer and the care of cancer patients in Western Australia
- compile and publish general or statistical information relating to cancer
- carry out research into the causes, prevention, screening and treatment of cancer.

Report overview

This is the latest in the Registry's series of incidence, mortality and survival reports, and represents Western Australian cancer incidence, mortality and survival for 2019. This report is primarily concerned with invasive tumours, or "cancers", diagnosed in Western Australia using standardised collection, coding and epidemiological practices aligned with Australian and international cancer registries.

The latest data on notifiable cancers collected for a complete calendar year by the WACR is presented in this report. Incidence, mortality and risk are presented for 2019 and trends over time where appropriate. Survival is presented for all cases diagnosed in five-year windows from 1995-1999 to 2015-2019.

Information is presented for all cancers combined, common cancers, Aboriginal persons, and detailed summary statistics for 21 common and selected cancers. The main statistics presented for each cancer are the incidence and cancer-related mortality counts and age-standardised rates, cancer risk and cancer survival in Western Australian residents.

Statistical Methods

Statistics from the Registry commonly fall into one of two major groups: incidence is reported for all malignancies except primary squamous cell and basal cell skin cancers (SCC and BCC), and mortality for all malignancies (including SCC and BCC) and certain other tumours or tumour-like conditions.

Incidence and mortality rates are calculated separately for males and females, expressed as events (diagnosed cases or deaths) per 100,000 person-years:

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

Age-standardised rates (ASR) are calculated by the direct method, as a summation of weighted age-specific rates. Throughout this report, the Australian 2001 standard population has been used to derive the ASRs.

Cumulative incidence and cumulative risk are closely related. Cumulative incidence is an estimate of the proportion of persons, up to a specific age, who have been affected by a particular condition at some time. In Registry reports, this is expressed as a percentage. Cumulative risk estimates the probability of having cancer (incidence) or dying of it (mortality), up to a specific age. This is derived from the relevant cumulative incidence figures and calculated for ages 0 to 74 years. In this report, cumulative risk is expressed as a “1 in n” chance of diagnosis or death.

Interpretation

The Cancer Registry is continually updated in light of the most recent available information. Accordingly, numbers in this report for earlier years may vary slightly from those in previous publications, as some Western Australian cases are eventually found to have been diagnosed elsewhere or in earlier years, and case-counts necessarily rise and fall as new information is available to the registry. Mortality information sheds new light on a person’s cancer history and often leads to the initiation of new enquiries. The data used in this report was current as of 14 August 2023.

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

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

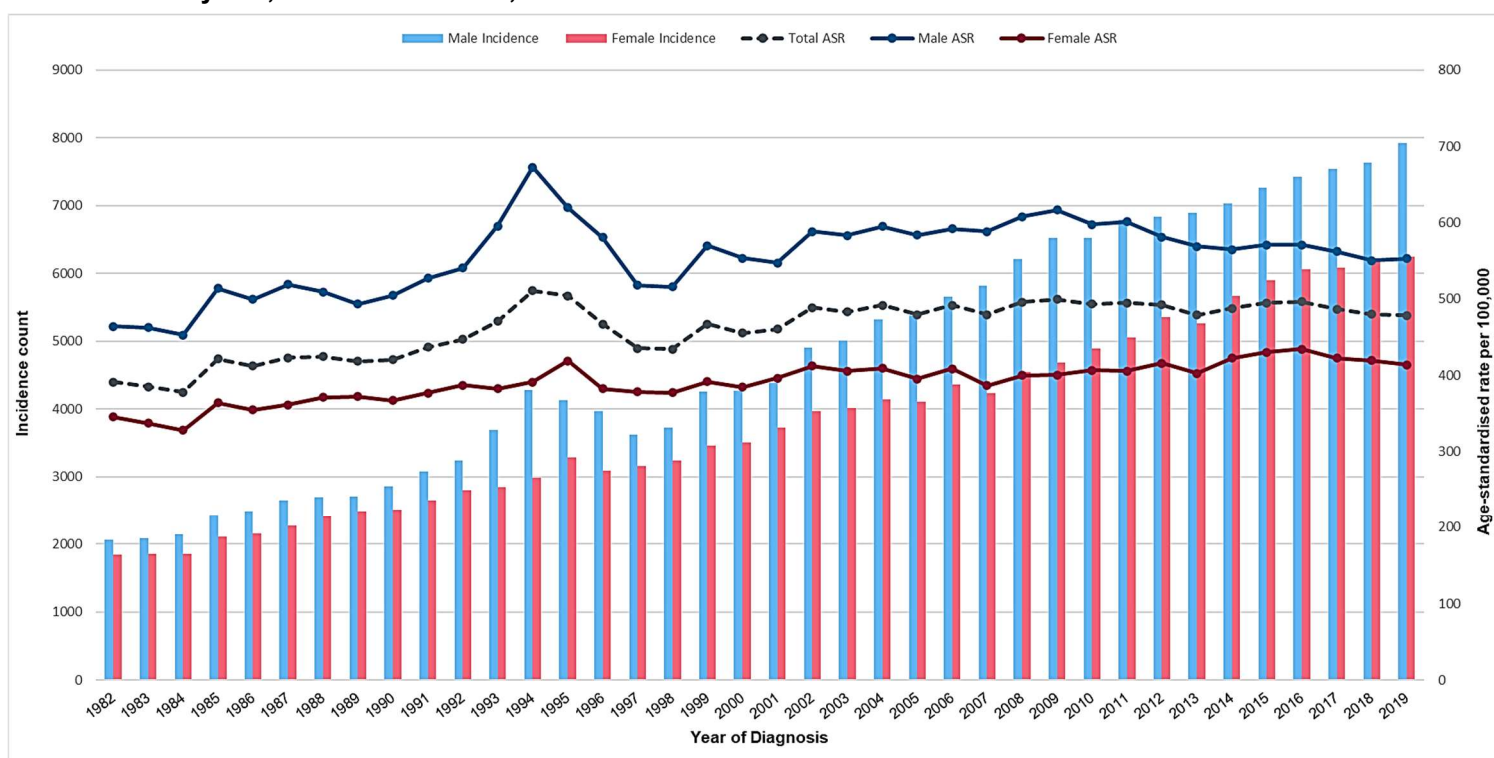
Small numbers: Rates in this report relating to small-number case counts (especially <20 counts) have not been provided. This is because small numbers are subject to much larger relative variance, and random variations by chance in the absolute number of events can have a significant but less reliable effect on outcomes (rates).

All Cancers - 2019

Incidence

There were 14,164 new diagnoses of cancer in Western Australia in 2019, equating to an overall age-standardised rate (ASR) of 478.6 per 100,000 population (95% CI: 470.7, 486.4). Since 2016, there has been a gradual decline in the overall age-standardised cancer incidence rates – compared to 2016 (ASR: 496.6 per 100,000, 95% CI: 488.2, 505.0), the 2019 ASR represented a 3.6% decline (p-value: <0.001); Figure 1. It should be noted that the absolute numbers of newly diagnosed cancers and the crude rates have increased over the years (Appendix 1: Supplementary Table 88).

Figure 1. Incidence counts and age-standardised incidence rates (per 100,000) of all newly diagnosed cancers by sex, Western Australia, 1982 to 2019



Approximately 56% of all newly diagnosed cases in 2019 were males (n=7920; ASR: 553.1 per 100,000 males, 95% CI: 541.0, 565.3) and 44% were females (n=6244; ASR: 413.5 per 100,000 females, 95% CI: 403.2, 423.8); Figure 1. The age-standardised cancer rates among males have significantly decreased by 3% in the past 5 years (ASR in 2015: 571.0 per 100,000, 95% CI: 557.9, 584.1), whilst the rates have decreased by nearly 4% among females (ASR in 2015: 430.1 per 100,000, 95% CI: 419.0, 441.1); Appendix 1: Supplementary Table 88.

Of the newly diagnosed cancers in 2019, in terms of absolute numbers, the highest proportion of cases occurred in the 70 to 74 years age group among males (17.0%, n=1344) and in the 65 to 69 years age group among females (13.0%, n=812); Figure 2.

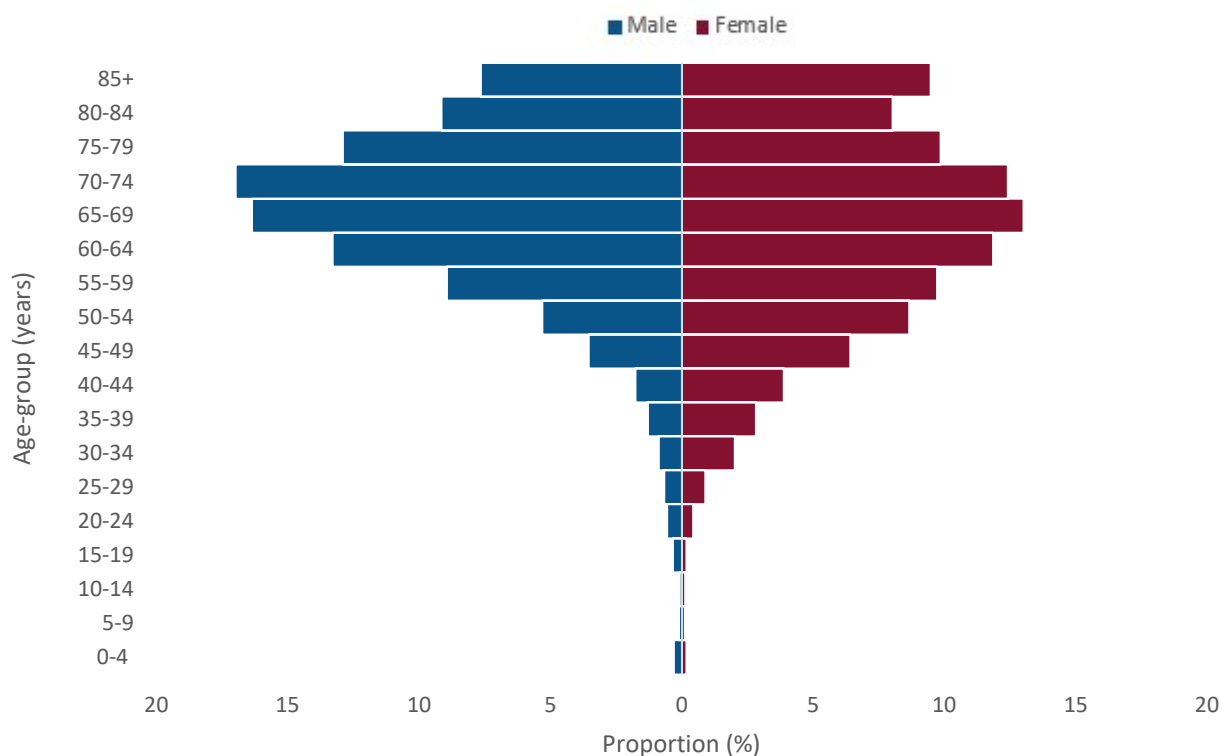


Figure 2. Proportion (%) of all newly diagnosed cancers by age-group and sex, Western Australia, 2019

The incidence rate of newly diagnosed cancers in 2019 increased with age (

Figure 3). The incidence rate of new cancer diagnosed among adults aged 60 years and older were 78 times higher than among people aged <30 years and 7 times higher than among those aged 30 to 59 years. In each of the 5-year age groups, the age-specific incidence rates were significantly higher (p-value <0.001) for females than males among people aged 30 to 54 years. Among those aged 55 years or older, the age-specific rates were significantly higher for males than females (Appendix 1: Supplementary Table 89). The age-specific incidence rates were similar among females and males in the younger age groups.

In 2019, the age-standardised cancer incidence rates were lowest in the Pilbara region (ASR: 405.6, 95% CI: 303.0, 508.2) and highest in the Kimberley region (ASR: 593.4, 95% CI: 483.3, 703.6); Figure 4. In contrast to all other regions, the Pilbara region experienced higher age-standardised cancer incidence rates among females compared to males. The breakdown of the number of newly diagnosed cancers in WA in 2019 by health region are provided in Appendix 1: Supplementary Table 90.

The estimated cumulative risk of all cancers combined to age 75 years was 1 in 3 for males and 1 in 4 for females in 2019.

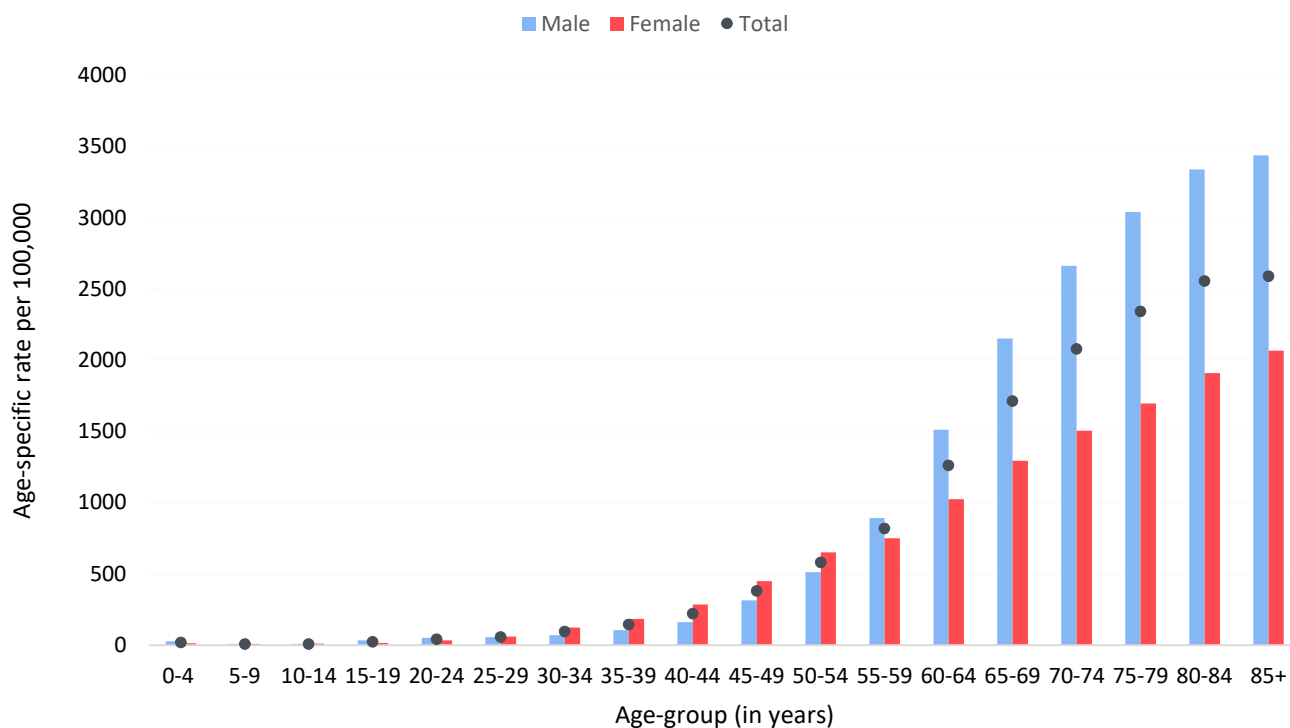
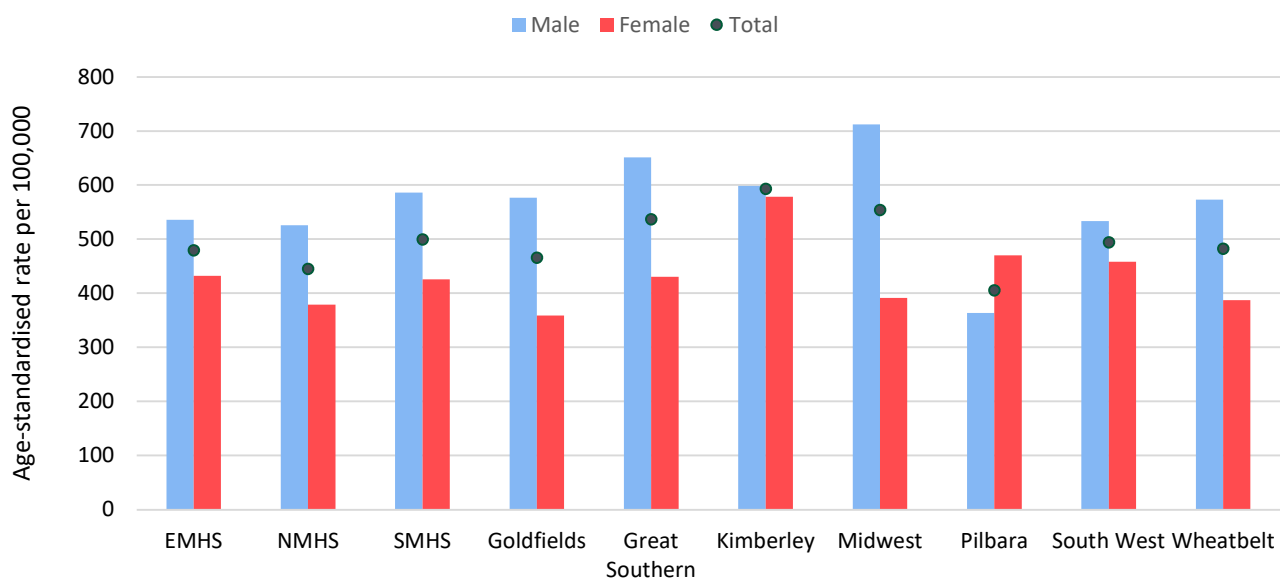


Figure 3. Age-specific incidence rates (per 100,000) of all newly diagnosed cancers by sex, Western Australia, 2019



EMHS: East metropolitan health service; NMHS: North metropolitan health service; SMHS: metropolitan health service

Figure 4. Age-standardised incidence rates (per 100,000) of all newly diagnosed cancers by health region and sex, Western Australia, 2019

Mortality

There were 4,177 deaths due to cancer (overall ASR: 138.4; 95% CI: 134.1, 142.6) among Western Australian residents in 2019. There has been a decline in the overall age-standardised cancer mortality in the last decade - compared to 2009 (ASR: 178.1; 95% CI: 172.6, 183.7), the 2019 ASR represented a 22.3% decline (p-value: <0.001); Figure 5.

In 2019, there were 2,381 (57%) deaths in males and 1,796 (43%) deaths in females. Compared to 2009 (Appendix 1: Supplementary Table 91), the age-standardised cancer mortality rates declined by approximately 23% among males and females (from 221.1 to 170.8 per 100,000 for males; from 145.4 to 111.8 per 100,000 for females) in 2019 (Figure 5).

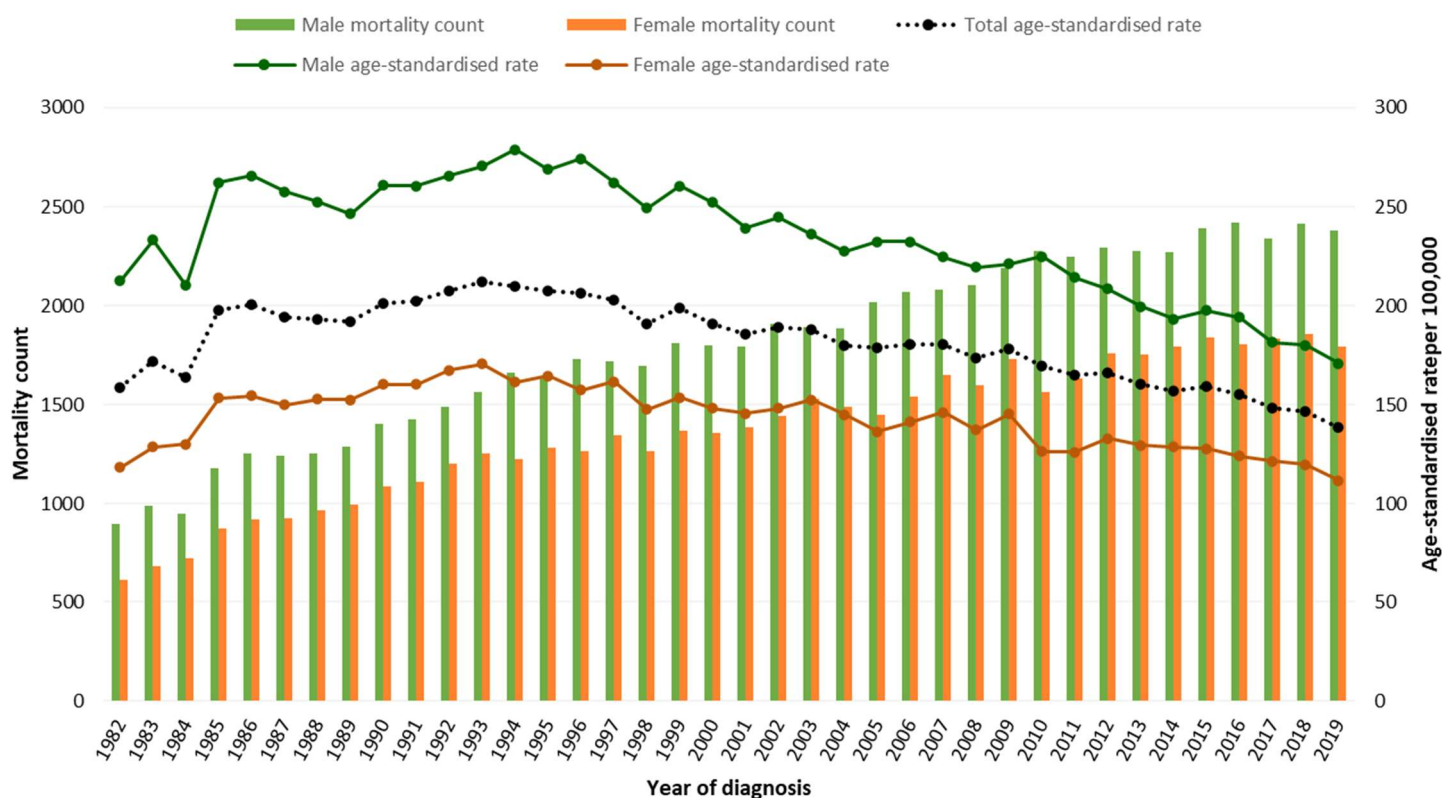


Figure 5. Mortality counts and age-standardised mortality rates (per 100,000) of all cancers by sex, Western Australia, 1982 to 2019

Mortality due to cancer increased with age and was highest in those aged 85 years and older in 2019, with 491 (21%) deaths among males (Age-specific rate: 2785.8; 95% CI: 2544.8, 3043.5) and 425 (24%) deaths among females (Age-specific rate: 1487.7; 95% CI: 1349.6, 1636.1) (Appendix 1: Supplementary Table 92); Figure 6 and Figure 7. Among those aged less than 60 years, although the point estimates among males were higher than women in most age groups, the rates were not significantly different. Among people aged 60 years and older, the age-specific mortality rates were significantly higher in males than in females (Figure 7).

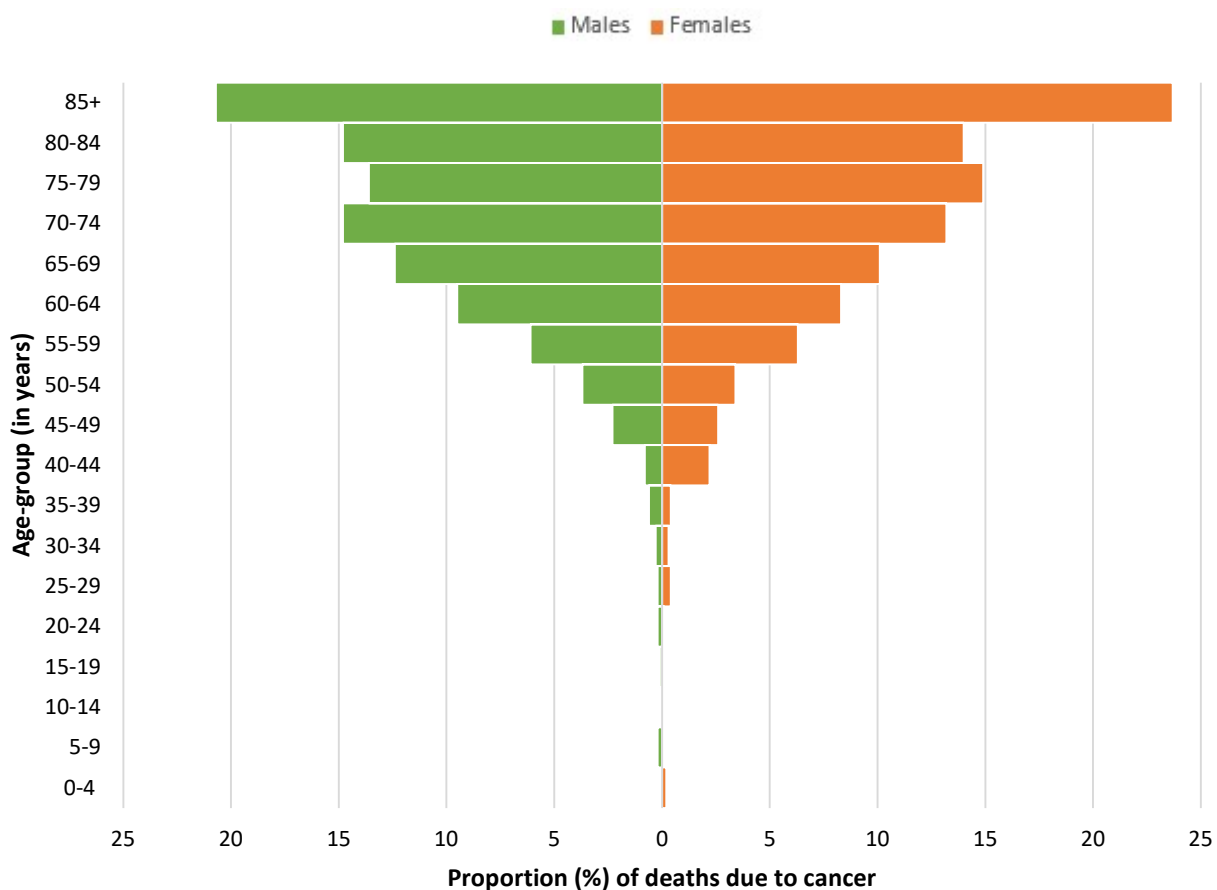


Figure 6. Proportion (%) of deaths due to all cancers by age-group and sex, Western Australia, 2019

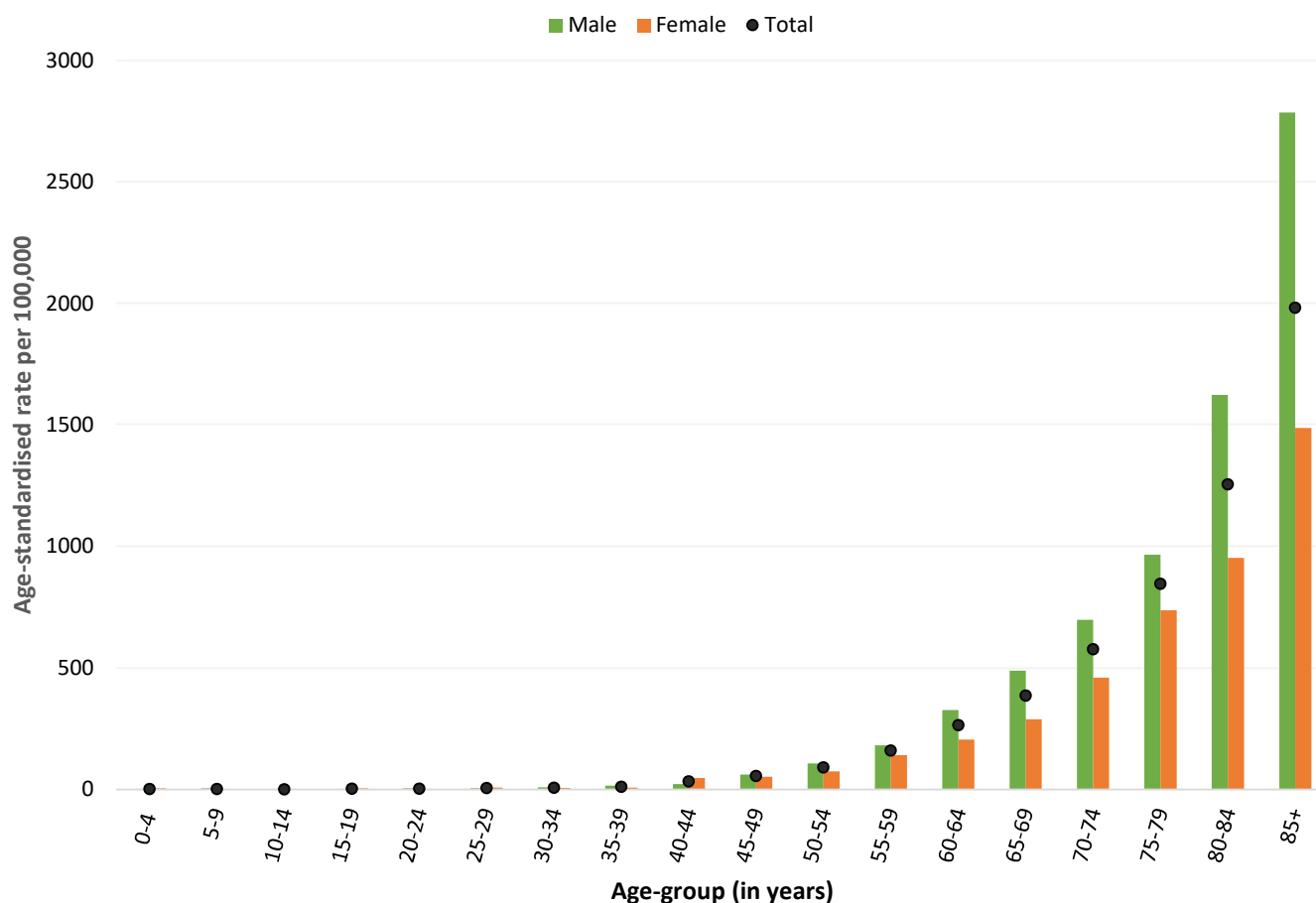
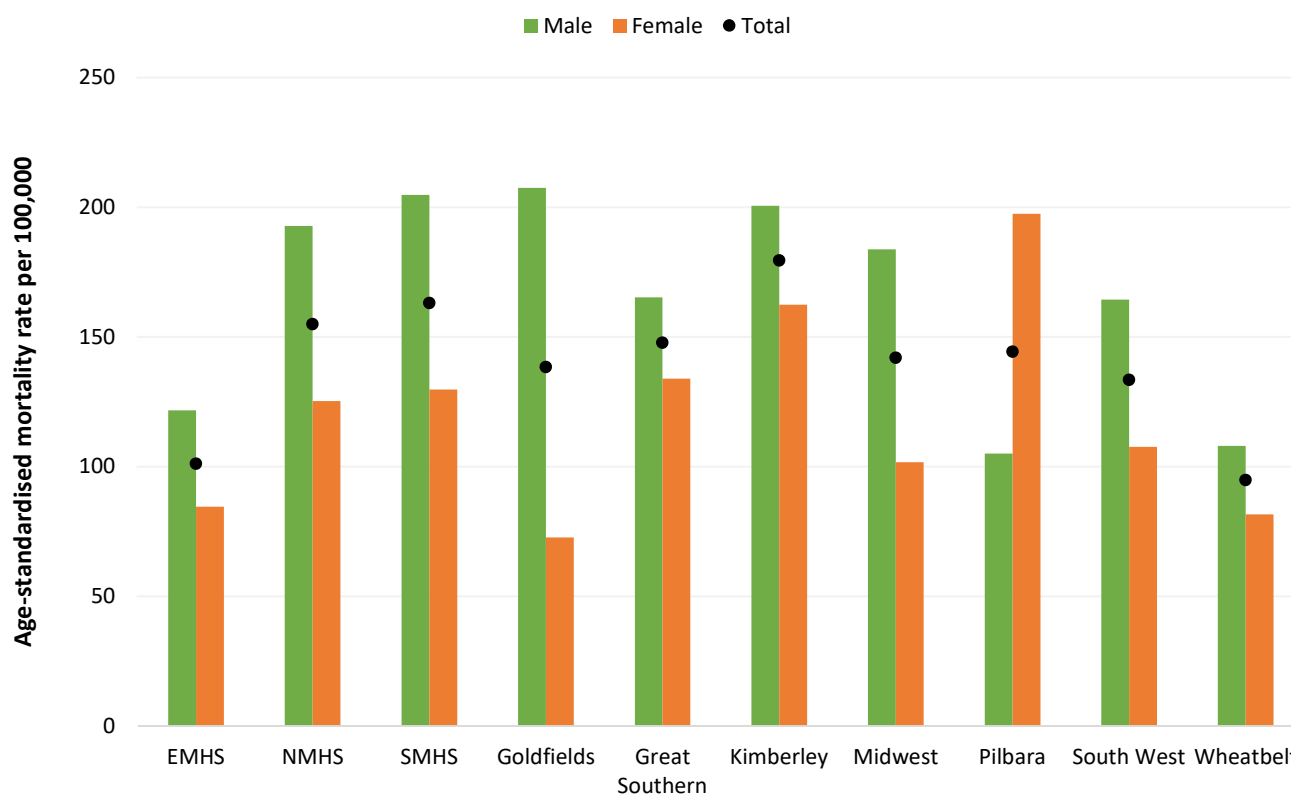


Figure 7. Age-specific mortality rates (per 100,000) of all cancers by sex, Western Australia, 2019

Among the health regions, the overall age-standardised mortality rate for all cancers was the highest in the Kimberley region (ASR: 179.6; 95% CI: 113.5, 245.7) and lowest in the Wheatbelt region (ASR: 94.9; 95% CI: 76.8, 113.0) (Appendix 1: Supplementary Table 93); Figure 8. Among males, the Goldfields region had the highest age-standardised cancer mortality rate and among females, the Pilbara had the highest rate. Pilbara was the only region where the age-standardised cancer mortality rates were higher in females than in males (Figure 8).



EMHS: East metropolitan health service; NMHS: North metropolitan health service; SMHS: metropolitan health service

Figure 8. Age-standardised mortality rates (per 100,000) of all cancers by health region and sex, Western Australia, 2019

The estimated cumulative risk of death due to cancer before age 75 years was 1 in 11 for males and 1 in 16 for females.

Survival

Survival is defined as the proportion of people who are alive after a certain time period (such as one or five years) following the initial diagnosis of a specific disease. Cancer survival is generally used as an indicator of cancer prognosis and the effectiveness of cancer treatments available (<https://www.aihw.gov.au/getmedia/0ea708eb-dd6e-4499-9080-1cc7b5990e64/aihw-can-144.pdf.aspx?inline=true>).

The primary measure of survival used in this report is relative survival. Relative survival is a way of comparing the survival in people who have the disease to survival in those who are disease free – in other words, it is a measure of the excess mortality observed among cancer patients compared to mortality (due to all-cause deaths) in a corresponding general population.

Estimation of relative survival adjusts for non-cancer related deaths (i.e. it does not depend on the specific cause of death) and therefore, enables comparisons of relative survival across time and across jurisdictions where the general population mortality can differ.

Relative survival is expressed as the proportion (probability) of people being alive for a given amount of time after diagnosis of cancer. For example, a 5-year survival of 70% among men with prostate cancer means that approximately 70 out of 100 men with prostate cancer will be alive 5 years after diagnosis.

Throughout this report, relative survival was calculated using the period method for all reported time periods. This method calculates survival from a given follow-up or at-risk period. Survival estimates are based on the survival experience of people who were diagnosed before or during this period, and who are at risk of dying during this period. The period method as described by Paul Dickman [2], a well-established and widely used method for relative survival analysis, was used for this analysis. For a detailed explanation of the Dickman method see [2].

For all cancers combined, the 5-year relative survival rate in WA was 71.9%, which was an increase of 2.3 percentage points compared to the previous 5-year time-period 2010-2014. The survival rates for all cancers combined have increased over the last two decades. For example, the 1-year relative survival increased from 75.6% for period 1995-1999 to 84.7% for period 2015-2019. The 5-year relative survival increased from 59.9% for period 1995-1999 to 71.9% for period 2015-2019 (Table 1). Increases in survival times over the years may be due to early detection of cases (such as through routine screening), better detection of cases (due to improvements in diagnostic methods) and improvement in cancer therapeutic treatments.

Table 1. Relative survival for all cancers by time period, Western Australia, 1995-1999 to 2015-2019

Number of years following initial diagnosis	Relative survival %				
	1995-1999	2000-2004	2005-2009	2010-2014	2015-2019
1	75.6%	78.3%	80.6%	83.3%	84.7%
2	68.5%	71.1%	74.1%	77.0%	79.1%
3	64.6%	67.1%	70.6%	73.5%	75.8%
4	62.0%	64.5%	68.1%	71.2%	73.6%
5	59.9%	62.6%	66.3%	69.6%	71.9%

Common Cancers – 2019

Incidence

Overall, the five most common cancers were prostate, breast, melanoma, colorectal (bowel) and lung cancer, accounting for 60% (n=8503) of all newly diagnosed cancers in Western Australia in 2019. The breakdown of all cancers by sex and cancer type are detailed in Appendix 1: Supplementary Table 94.

Among males, prostate cancer (n=2,372; 29.9%) was the most commonly diagnosed cancer in 2019, followed by melanoma (n=953; 12.0%) and colorectal cancer (n=726; 9.2%); Figure 9. Among females, the most commonly diagnosed cancer in 2019 was breast cancer (n=1,899; 30.4%), followed by melanoma (n=681; 10.9%) and colorectal cancer (n=600; 9.6%); Figure 9.

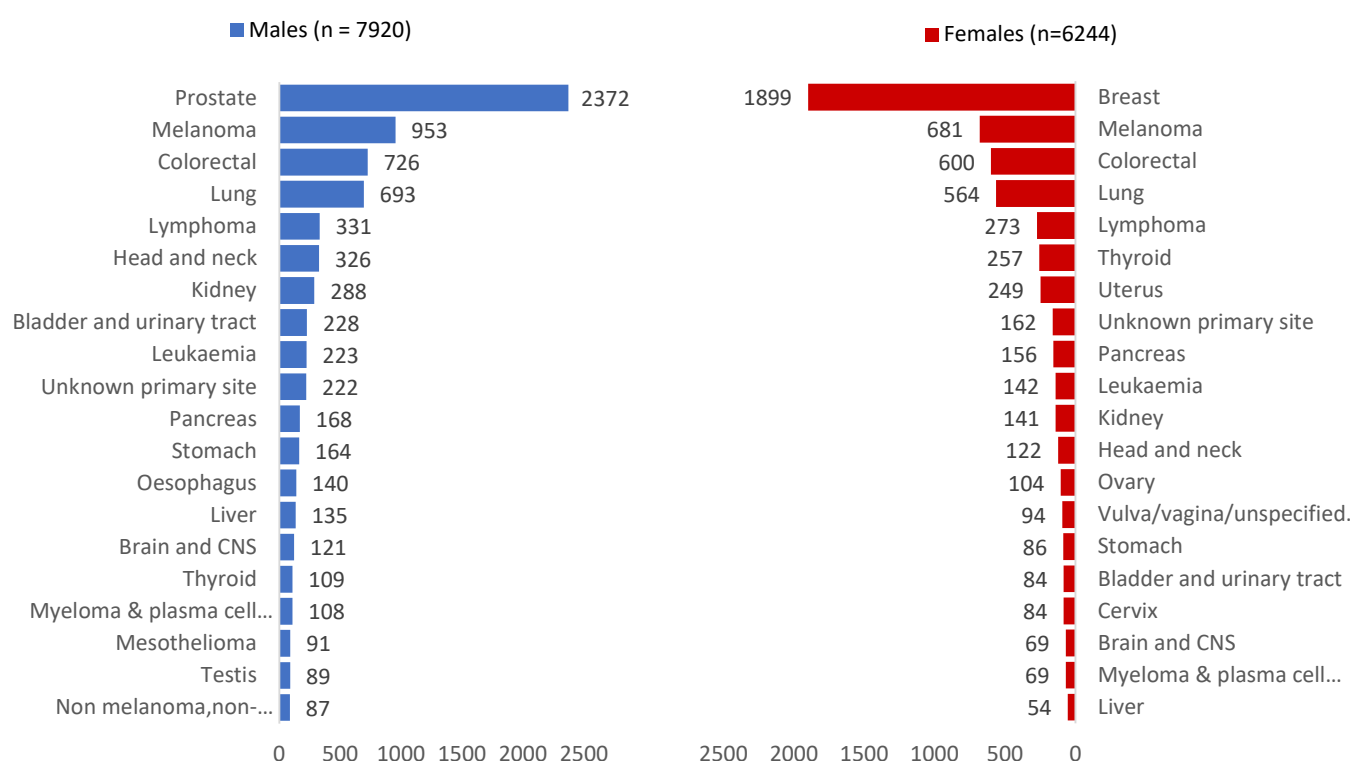


Figure 9. Incidence count for the top 20 most common cancers by sex, Western Australia, 2019

Leukaemia was the most common cancer diagnosed among children aged 0 to 14 years (Figure 10). Among those aged 15 to 24 years, testicular cancer was the most common among males (22.9%) and thyroid cancer among females (36.8%). Among males aged 45 years and older, prostate cancer was the most common cancer, whilst breast cancer was the most common cancer females aged 25 years and older.

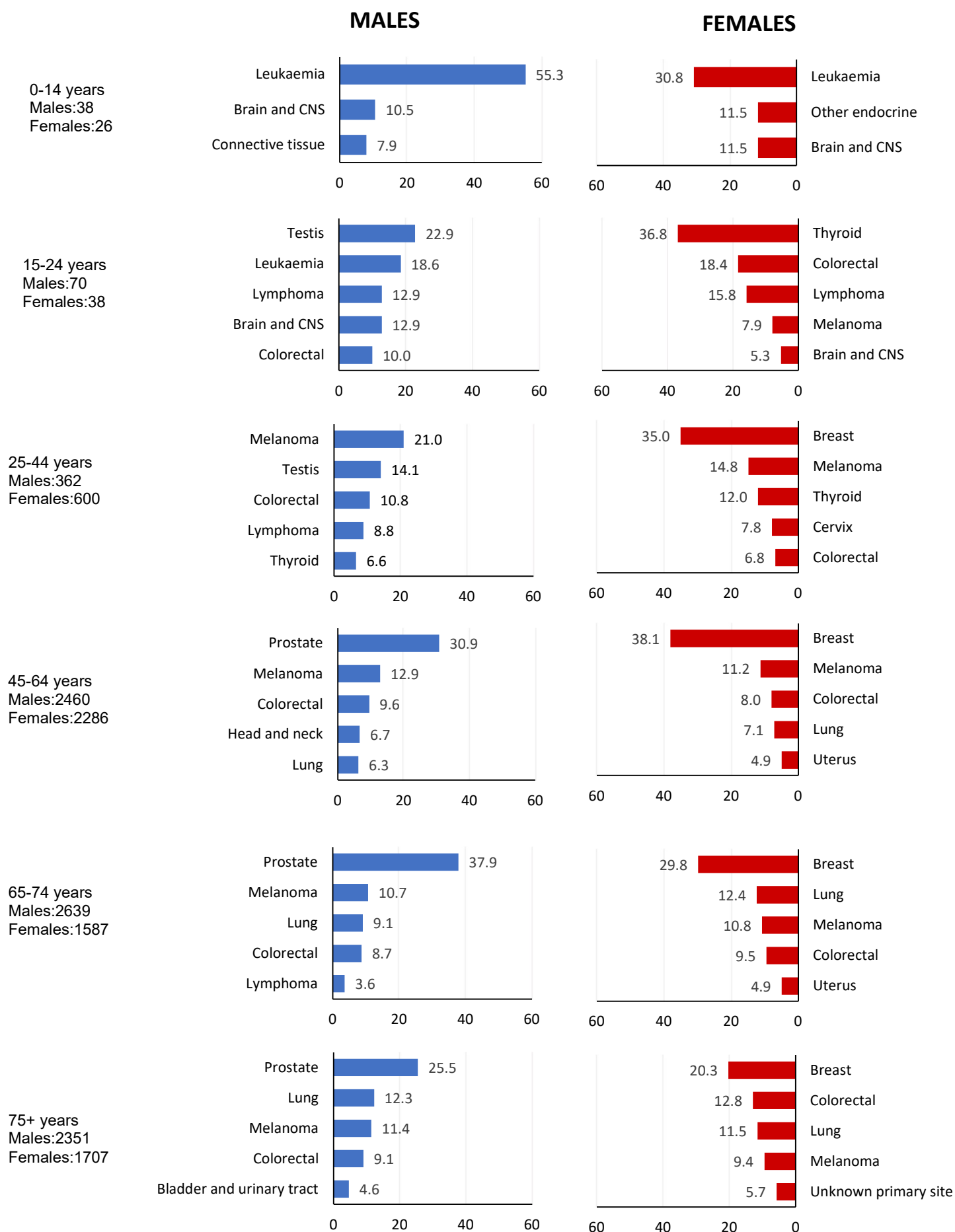


Figure 10. Incidence proportion and count of the most common cancers by age group and sex, Western Australia, 2019

Mortality

Overall, lung cancer (n=721; 17.3%) was the most commonly reported cancer death in Western Australian in 2019, followed by colorectal cancer (n=408; 9.8%) and unknown primary cancers (n=308; 7.4%). The breakdown of all cancer deaths by sex and cancer type are detailed in Appendix 1: Supplementary Table 95.

Lung cancer was the leading cause of cancer deaths in both males (17.9%) and females (16.4%), followed by prostate cancer (10.8%) in males and breast cancer (14.4%) among females. Colorectal, unknown primary, and pancreatic cancer types were the next most common cancer deaths among males and females in 2019 (

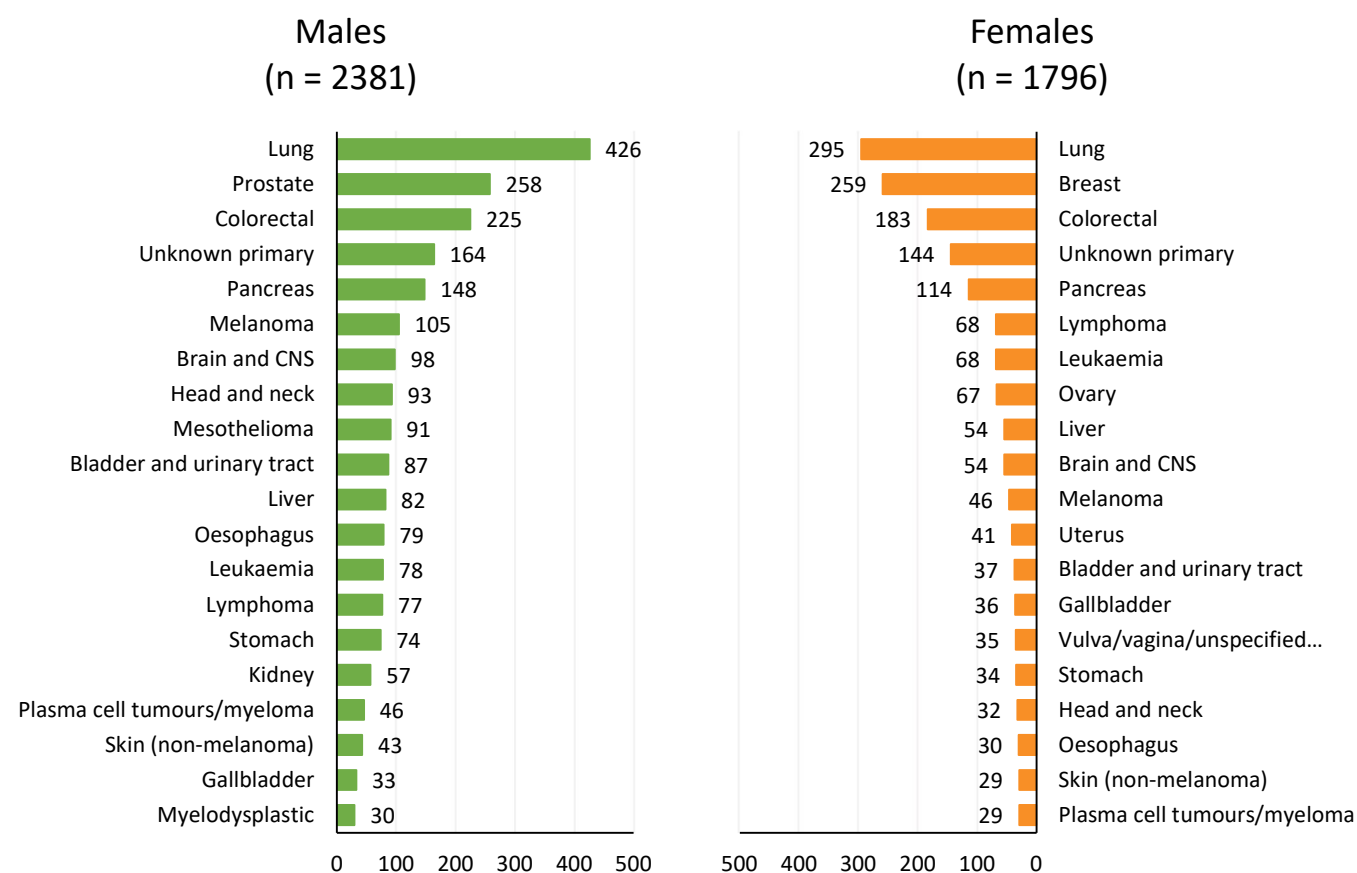


Figure 11).

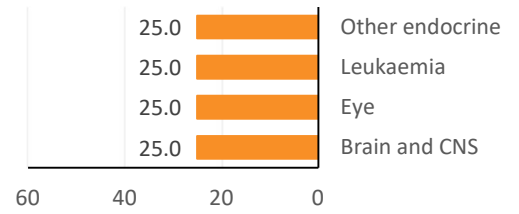
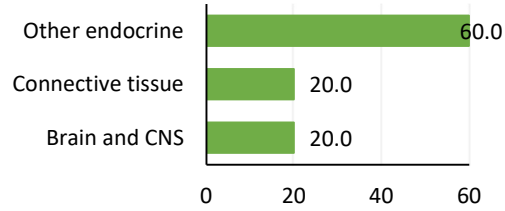
Figure 11. Mortality count for the top 20 most common cancer deaths by sex, Western Australia, 2019

Almost half of all cancer deaths among males (n=1167; 49.0%) and females (n=942; 52.4%) occurred in those aged 75 years and older. Lung cancer was the most common cancer death among males aged 45 years and older, with approximately 1 out of 6 male cancer deaths in this age group being attributable to lung cancer. Breast cancer was the most commonly reported cancer death among females aged 25 to 44 years (n=17; 28.3%) and 45-64 years (n=85; 23.1%).

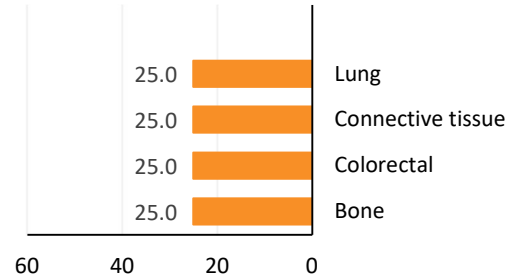
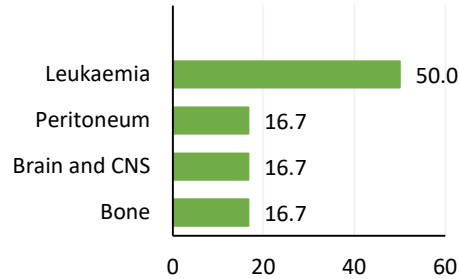
MALES

FEMALES

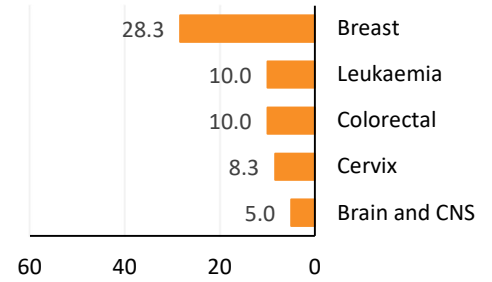
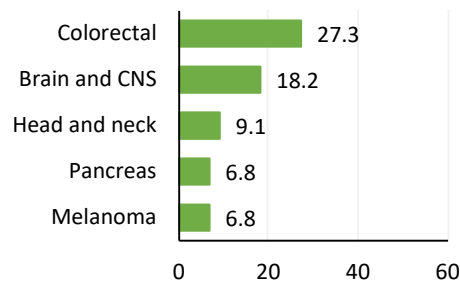
0-14 years
Males: 5
Females: 4



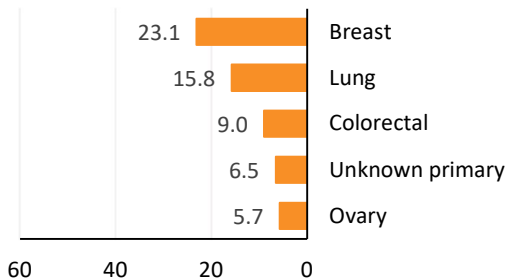
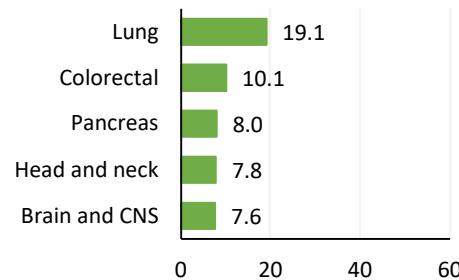
15-24 years
Males: 6
Females: 4



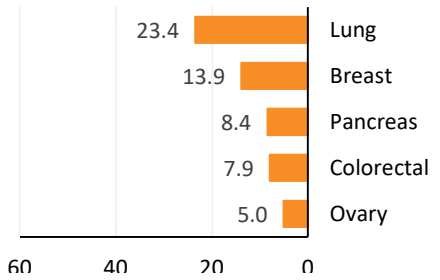
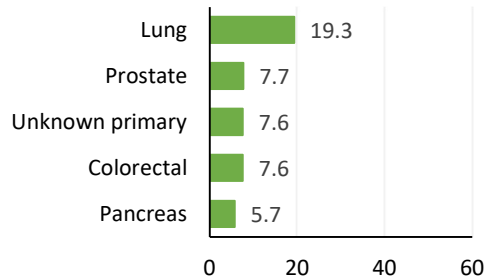
25-44 years
Males: 44
Females: 60



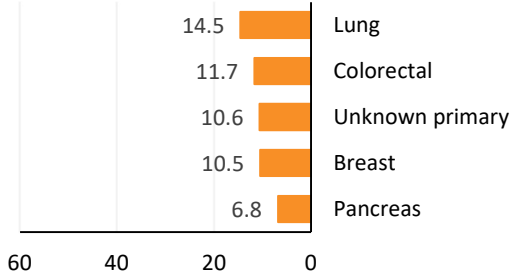
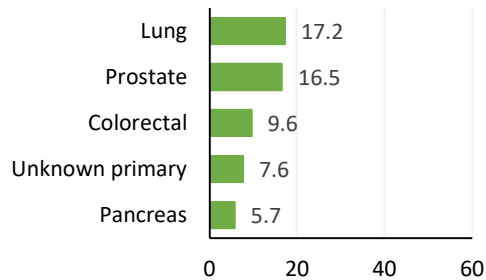
45-64 years
Males: 513
Females: 368



65-74 years
Males: 646
Females: 418



≥ 75 years
Males: 1167
Females: 942



Proportion (%)

Figure 12. Mortality proportion and count of the top five most common cancer deaths by age group and sex, Western Australia, 2019

Survival

The 5-year relative survival was highest for prostate cancer with a rate of 96.3%, followed by thyroid (96.0%), melanoma (94.9%), breast (92.4%) and uterine cancer (84.1%) for the period 2015-2019 in Western Australia (Figure 13). Mesothelioma had the lowest 5-year survival rate of only 5.9%.

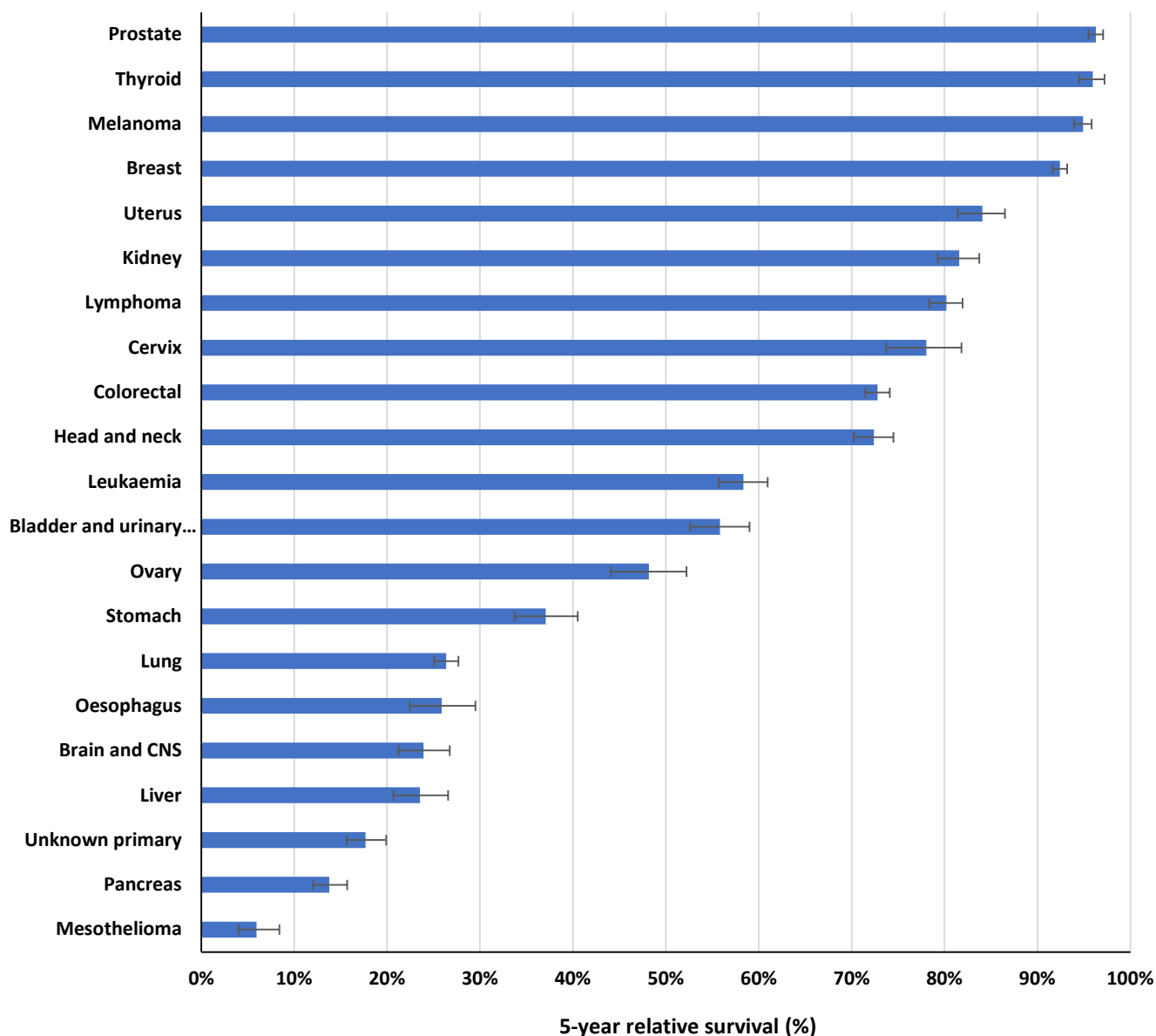


Figure 13. Five-year relative survival (with 95% confidence intervals) for selected cancers, Western Australia, 2015-2019

Cancer in the Aboriginal population in Western Australia

As of June 2019, 3.9% of the Western Australian population identify as being Aboriginal and or Torres/Strait Islander. For the purposes of this report, the term Aboriginal is respectfully used in preference to Aboriginal and Torres Strait Islander to recognise that the Aboriginal people are the original inhabitants of Western Australia. The primary data sources for identifying Aboriginality include pathology forms, hospital morbidity records, clinician letters, and death registration certificates. Of the 14,164 new cancer diagnoses in 2019, Aboriginal status was not recorded or unknown for 72 cases.

Incidence

There were 285 new diagnoses of cancer in the Aboriginal population in Western Australia in 2019. The overall age-standardised cancer incidence rate of 587.4 per 100,000 population (95% CI: 503.7, 671.1) represents a 42% increase compared to the 2017 incidence rate of 414.3 per 100,000 population (95% CI: 343.9, 484.8); (Figure 14 & Appendix 1: Supplementary Table 96).

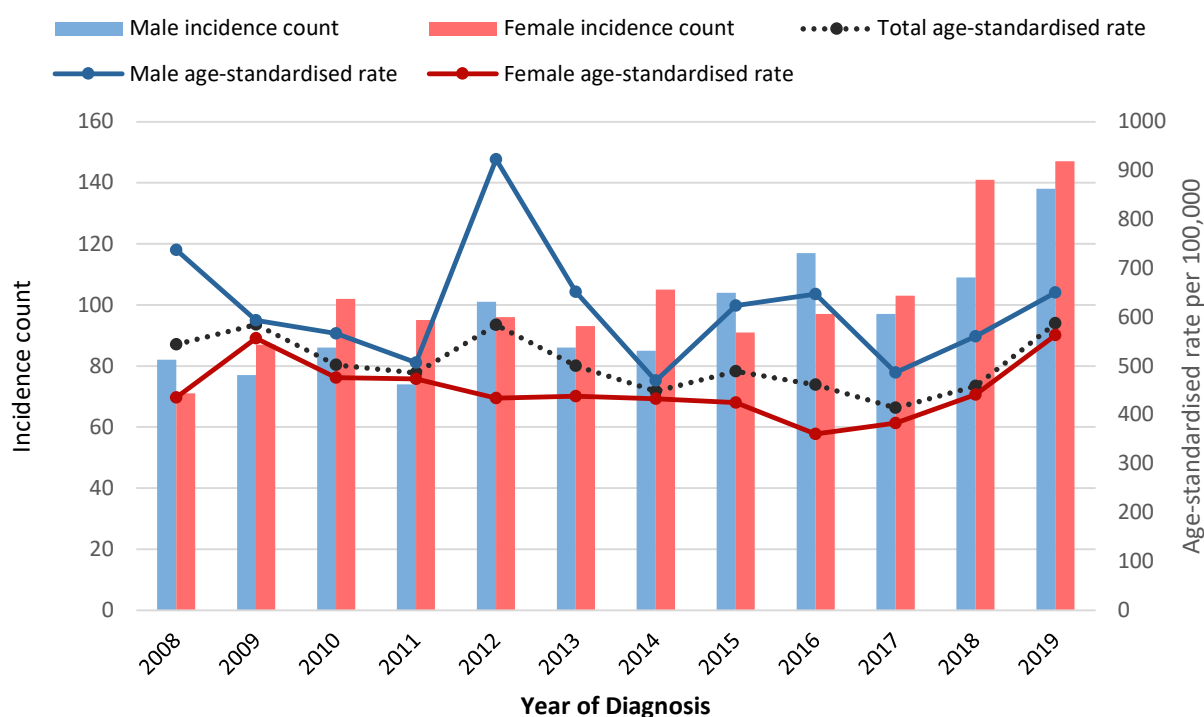


Figure 14. Incidence counts and age-standardised rates (per 100,000) of all newly diagnosed cancers by sex in the Aboriginal population, Western Australia, 2008 to 2019

In 2019, approximately 52% (n=147) of all newly diagnosed cases in the Aboriginal population were female; the age-standardised cancer incidence rate among females was 563.5 per 100,000 females (95% CI: 453.9, 673.0) and 650.1 per 100,000 males (95% CI: 495.7, 804.6) among males. Compared to 2017, the 2019 rates showed a 47% increase among females (ASR in 2017: 382.8; 95% CI: 296.6, 469.0). Approximately 80% of all newly diagnosed cases in the Aboriginal population in 2019 were aged 45 to 79 years (n=228) and this pattern was observed among both males and females.

A spike in the incidence rate by Aboriginal males is apparent for 2012 (see Figure 14). This increase is not reflected in population estimates and no evidence could be found to justify this increase, noting that counts return to normal for adjacent years.

Among the health regions, the absolute number of newly diagnosed cases in the Aboriginal population were the highest in the Kimberley region (56 new cases) and lowest in the Southwest region (13 new cases) in 2019 (Table 2 & Appendix 1: Supplementary Table 98).

Table 2. Incidence and mortality count for cancer in the Aboriginal population by health service region, Western Australia, 2019

Health region	Incidence			Mortality		
	Male	Female	Total	Male	Female	Total
WA Metropolitan region						
<i>East Metro</i>	16	20	36	5	7	12
<i>North Metro</i>	9	11	20	5	1	6
<i>South Metro</i>	24	21	45	8	4	12
WA Country Health Services						
<i>Goldfields</i>	9	5	14	4	2	6
<i>Great Southern</i>	6	9	15	4	3	7
<i>Kimberley</i>	23	33	56	11	9	20
<i>Midwest</i>	17	17	34	4	5	9
<i>Pilbara</i>	18	18	36	7	5	12
<i>South West</i>	7	6	13	3	0	3
<i>Wheatbelt</i>	7	7	14	2	2	4
Other WA address*	2		2			

*Note: Two cases existed whereby health region was unknown

The estimated cumulative risk of all cancers combined to age 75 years was approximately 1 in 3 for Aboriginal males and 1 in 3 for Aboriginal females in 2019.

Mortality

There were 91 cancer-related deaths in the Aboriginal population, in Western Australia in 2019, reflecting an overall age-standardised cancer death rate of 219.1 per 100,000 population (95% CI: 163.0, 275.1); Figure 15. Approximately 58% of the deaths were males (n=53) and the age-standardised death rate was 329.1 per 100,000 males (95% CI: 187.3, 470.9) and 183.6 per 100,000 females (95% CI: 114.3, 252.9) (Appendix 1: Supplementary Table 97). Majority of the deaths (n=85/90; 95%) occurred among those aged 45 years and older.

Among the health regions, similar to cancer incidence, the absolute number of cancer deaths in the Aboriginal population were the highest in the Kimberley region (20 deaths) and lowest in the South West region (3 deaths) in 2019 (Table 2 & Appendix 1: Supplementary Table 98).

The estimated cumulative risk of death due to cancer before age 75 years was 1 in 6 for males and 1 in 10 for females.

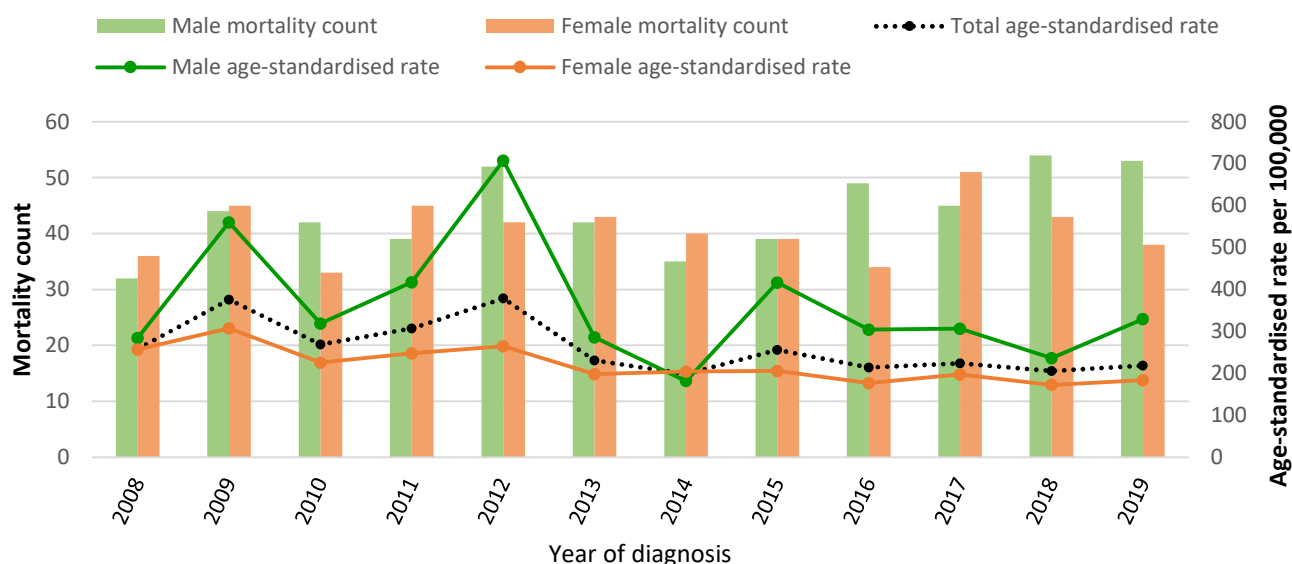


Figure 15. Mortality counts and age-standardised rates (per 100,000) by sex in the Aboriginal population, Western Australia, 2008 to 2019

Survival

The primary measure of survival used for the Aboriginal population in this section of the report is observed survival. As robust background mortality of the Aboriginal population was not available at the jurisdictional level, observed survival has been used in place of relative survival. Observed survival is the proportion of cancer patients who are still alive at some specified time after diagnosis of cancer. Estimation of observed survival adjusts for all deaths (cancer and non-cancer deaths) among those diagnosed with cancer, but it does not include comparison to mortality (due to all-cause deaths) in the corresponding general population. Relative survival estimates are always higher than the corresponding observed survival.

During the period 2015-2019, the 5-year observed survival rate for all cancers combined among the Aboriginal population was 50.3%, which was 14.6 percentage points lower than the observed survival rate among the non-Aboriginal population (Table 3).

Table 3. Observed survival for all cancers by Aboriginal status, Western Australia, 2015-2019

Number of years following initial diagnosis	Observed survival % (95% CI)	
	Aboriginal	Non-Aboriginal
1	72.7%	83.0%
2	63.8%	75.9%
3	57.7%	71.4%
4	53.5%	67.8%
5	50.3%	64.9%

Common cancers – 2019

Among Aboriginal males, prostate cancer (n=26; 18.8%) was the most commonly diagnosed cancer in 2019, followed by lung (n=18; 13.0%) and head and neck cancer (n=16; 11.6%);

Figure 16. Breast cancer (n=41; 27.9%) was the most commonly diagnosed cancer among Aboriginal women, followed by lung cancer (n=21; 14.3%) and uterine cancer (n=10; 6.8%) (Appendix 1: Supplementary Table 99).

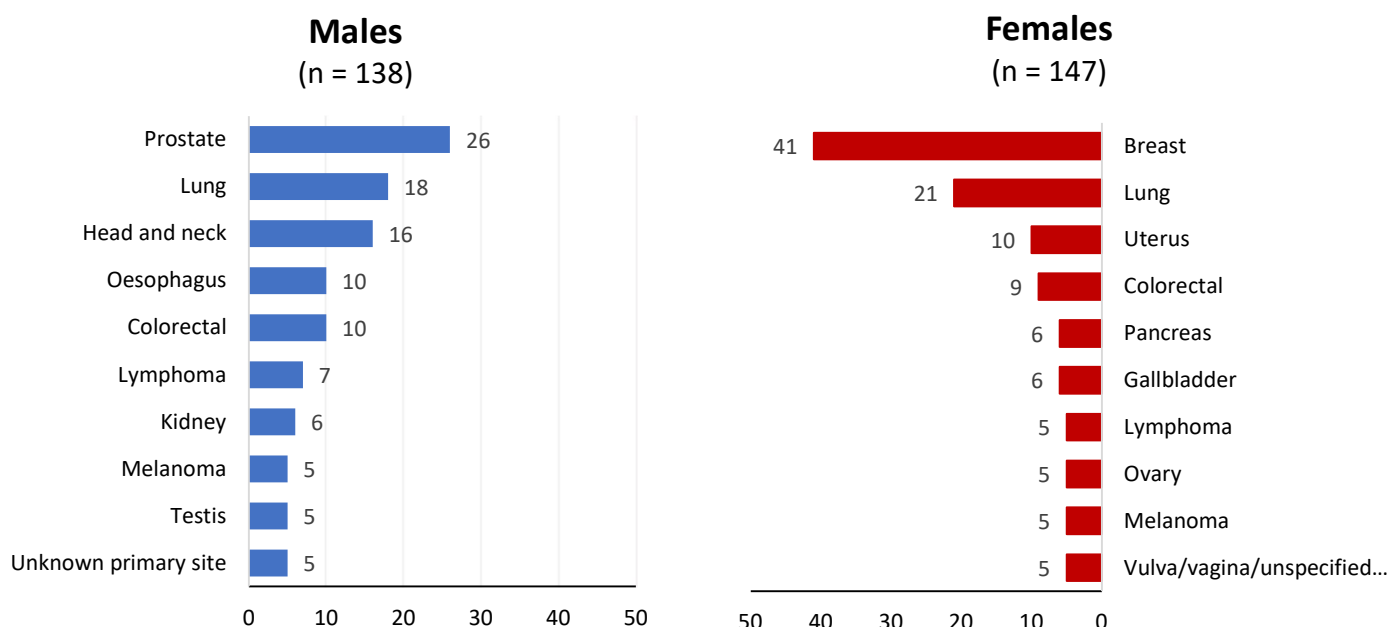


Figure 16. Incidence counts for the top ten most common cancers in the Aboriginal population by sex, Western Australia, 2019

Approximately two thirds of all cancer-related deaths among Aboriginal males were due to head and neck (n=11; 20.8%), lung (n=10; 18.9%), unknown primary cancer (n=5; 9.4%), liver cancer (n=5; 9.4%) and colorectal cancer (n=4; 7.5%). Among Aboriginal females, lung (n=7; 18.4%) was the most commonly reported cause of cancer death, followed by breast cancer (n=4; 10.5%) and unknown primary cancer (n=4; 10.5%) (Appendix 1: Supplementary Table 100).

Summary statistics for selected cancers

This section presents a suite of summary statistics for 21 selected cancers. The cancer types presented here are common cancers based on 2019 incidence and cancers of interest to various stakeholders throughout the past year. The following is intended to serve as a useful two-page reference, easily printed with summary details of the cancer of interest. Many information requests from health planners, clinicians, and the community are for statistics on specific cancer types and this section fulfils that need.

The summary statistics for each cancer include:

- Counts and age-specific rates for incidence and mortality, by age group and sex.
- Time trends for age-standardised incidence and mortality rates, by sex (where applicable), from 1982 to 2019.
Note: These rates have been standardised using the 2001 Australian standard population. These rates are not comparable to rates in other reports that have been generated using the 1960 world standard population.
- Age-specific incidence and mortality rates, by sex for 2019 calendar year.
- Five-year relative survival rates presented in five-year blocks from 1995-1999 to 2015-2019.
- Counts and age-specific rates for incidence and mortality, by health region and sex in 2019.
- Incidence and mortality cumulative risk to age 75 for 2019 calendar year.

The underlying data for each graph can be made available by contacting the WA Cancer Registry.

Bladder and urinary tract

Table 4. Bladder and urinary tract cancer: counts and age-specific rates (per 100,000) for incidence and mortality by sex, Western Australia, 2019

Age Group (years)	Incidence				Mortality			
	Male		Female		Male		Female	
	n	rate	n	rate	n	rate	n	rate
0-14	0	0.0	1	N/A	0	0.0	0	0.0
15-24	0	0.0	0	0.0	0	0.0	0	0.0
25-44	0	0.0	1	N/A	0	0.0	0	0.0
45-64	39	12.2	14	N/A	9	N/A	4	N/A
65-74	80	72.3	23	20.1	19	N/A	6	N/A
75+	109	149.6	45	49.4	59	81.0	27	29.7
Total*	228	16.1	84	5.1	87	6.4	37	2.2

*Age-standardised rates. Note: Incidence/mortality rates for counts <20 are not provided as they are not reliable.

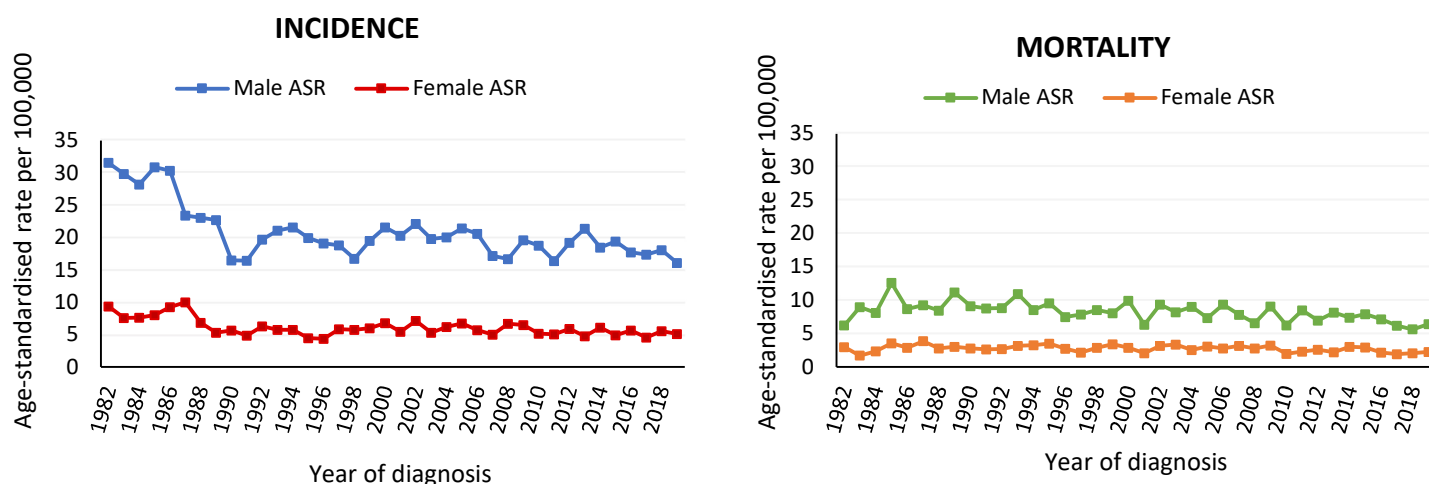


Figure 17. Bladder and urinary tract cancer: age-standardised incidence and mortality rates (per 100,000) by sex, Western Australia, 1982-2019

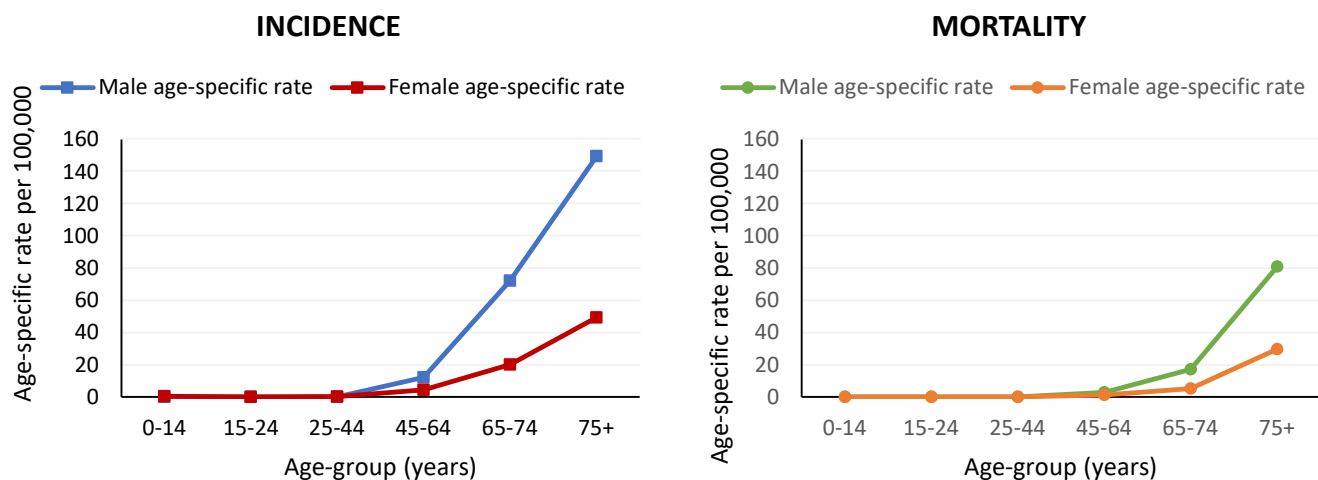


Figure 18. Bladder and urinary tract cancer: age-specific incidence and mortality rates (per 100,000) by age-group and sex, Western Australia, 1982-2019

Table 5. Bladder and urinary tract cancer: Relative survival (%) by time period, Western Australia, 1995-1999 to 2015-2019





Number of years following initial diagnosis	Relative survival				
	1995-1999	2000-2004	2005-2009	2010-2014	2015-2019
1	76.2%	76.3%	75.5%	77.3%	79.9%
2	64.5%	66.5%	64.7%	65.6%	70.1%
3	58.7%	58.9%	57.8%	58.8%	63.9%
4	54.4%	54.7%	54.4%	55.9%	59.4%
5	53.5%	50.9%	51.6%	53.8%	55.8%

Table 6. Bladder and urinary tract cancer: counts and crude rates (per 100,000) for incidence and mortality by health region and sex, Western Australia, 2019

Health region	Incidence				Mortality			
	Male		Female		Male		Female	
	n	rate	n	rate	n	rate	n	rate
WA Metropolitan region								
<i>East Metro</i>	52	14.5	22	6.2	18	N/A	2	N/A
<i>North Metro</i>	67	18.7	21	5.7	30	8.4	12	N/A
<i>South Metro</i>	58	18.0	23	7.0	26	8.1	14	N/A
WA Country Health Services								
<i>Goldfields</i>	3	N/A	2	N/A	1	N/A	3	N/A
<i>Great Southern</i>	15	N/A	4	N/A	0	0.0	1	N/A
<i>Kimberley</i>	1	N/A	0	0.0	0	0.0	0	0.0
<i>Midwest</i>	9	N/A	2	N/A	4	N/A	2	N/A
<i>Pilbara</i>	0	0.0	0	0.0	0	0.0	0	0.0
<i>South West</i>	14	N/A	5	N/A	6	N/A	3	N/A
<i>Wheatbelt</i>	9	N/A	5	N/A	2	N/A	0	0.0

Note: Incidence/mortality rates for counts <20 are not provided as they are not reliable.

Table 7. Bladder and urinary tract cancer: estimated cumulative risk to age 75 years by sex, Western Australia, 2019

Incidence risk		Mortality risk	
 in 100	 in 330	 in 419	 in 1264

Brain and Central Nervous System (CNS)

Table 8. Brain and CNS cancer: counts and age-specific rates (per 100,000) for incidence and mortality by sex, Western Australia, 2019

Age Group (years)	Incidence				Mortality			
	Male		Female		Male		Female	
	n	rate	n	rate	n	rate	n	rate
0-14	4	N/A	3	N/A	1	N/A	1	N/A
15-24	9	N/A	2	N/A	1	N/A	0	0.0
25-44	13	N/A	7	N/A	8	N/A	3	N/A
45-64	41	12.8	22	6.8	39	12.2	16	N/A
65-74	31	28.0	16	N/A	28	25.3	13	N/A
75+	23	31.6	19	N/A	21	28.8	21	23.1
Total*	121	8.6	69	4.6	98	6.9	54	3.5

*Age-standardised rates. Note: Incidence/mortality rates for counts <20 are not provided as they are not reliable.

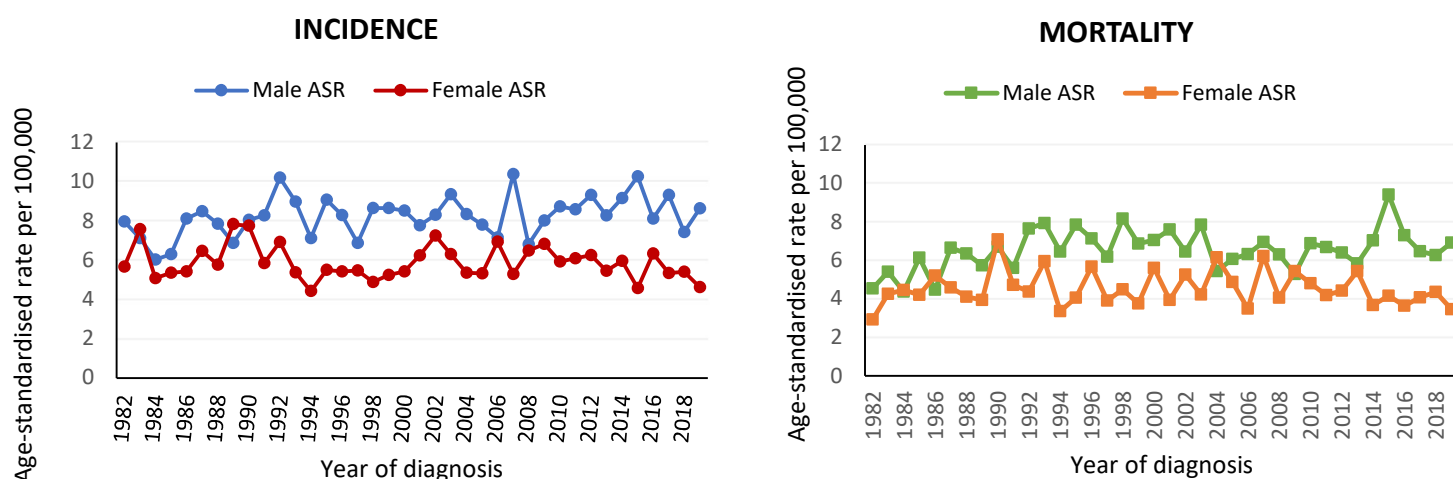


Figure 19. Brain and CNS cancer: age-standardised incidence and mortality rates (per 100,000) by sex, Western Australia, 1982-2019

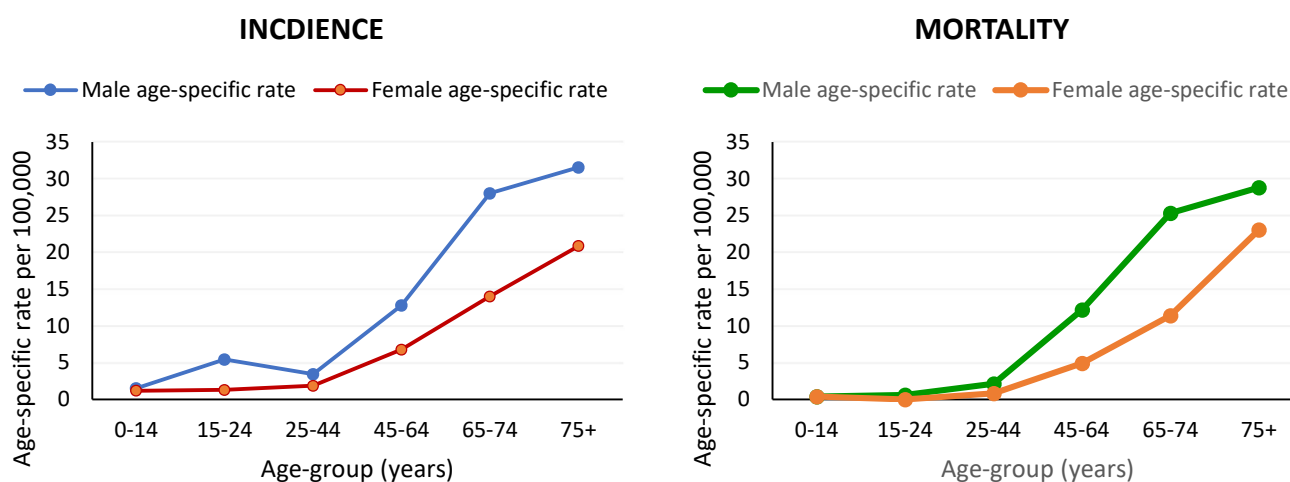


Figure 20. Brain and CNS cancer: age-specific incidence and mortality rates (per 100,000) by age-group and sex, Western Australia, 1982-2019

Table 9. Brain and CNS cancer: Relative survival (%) by time period, Western Australia, 1995-1999 to 2015-2019





Number of years following initial diagnosis	Relative survival				
	1995-1999	2000-2004	2005-2009	2010-2014	2015-2019
1	38.1%	45.5%	48.3%	55.8%	55.6%
2	25.9%	30.4%	32.2%	36.0%	37.0%
3	23.3%	26.4%	27.1%	30.2%	29.8%
4	20.9%	23.5%	25.8%	25.4%	25.8%
5	19.7%	21.2%	23.7%	23.7%	23.9%

Table 10. Brain and CNS cancer: counts and crude rates (per 100,000) for incidence and mortality by health region and sex, Western Australia, 2019

Health region	Incidence				Mortality			
	Male		Female		Male		Female	
	n	rate	n	rate	n	rate	n	rate
WA Metropolitan region								
<i>East Metro</i>	31	8.6	13	N/A	13	N/A	11	N/A
<i>North Metro</i>	28	7.8	19	N/A	37	10.4	15	N/A
<i>South Metro</i>	32	9.9	20	6.1	31	9.6	17	N/A
WA Country Health Services								
<i>Goldfields</i>	0	0.0	0	0.0	2	N/A	1	N/A
<i>Great Southern</i>	3	N/A	2	N/A	5	N/A	4	N/A
<i>Kimberley</i>	2	N/A	2	N/A	1	N/A	0	0.0
<i>Midwest</i>	3	N/A	1	N/A	0	0.0	1	N/A
<i>Pilbara</i>	4	N/A	1	N/A	0	0.0	0	0.0
<i>South West</i>	8	N/A	11	11.9	7	N/A	5	N/A
<i>Wheatbelt</i>	10	N/A	0	0.0	2	N/A	0	0.0

Note: Incidence/mortality rates for counts <20 are not provided as they are not reliable.

Table 11. Brain and CNS cancer: estimated cumulative risk to age 75 years by sex, Western Australia, 2019

Incidence risk		Mortality risk	
 in 145	 in 292	 in 178	 in 409

Breast

Table 12. Breast cancer: counts and age-specific rates (per 100,000) for incidence and mortality by sex, Western Australia, 2019

Age Group (years)	Incidence				Mortality			
	Male		Female		Male		Female	
	n	rate	n	rate	n	rate	n	rate
0-14	0	0.0	0	0.0	0	0.0	0	0.0
15-24	0	0.0	0	0.0	0	0.0	0	0.0
25-44	0	0.0	210	55.8	0	0.0	17	4.5
45-64	0	0.0	870	267.8	1	N/A	85	26.2
65-74	9	N/A	473	414.2	0	0.0	58	50.8
75+	6	N/A	346	380.0	0	0.0	99	108.7
Total*	15	N/A	1899	129.2	1	N/A	259	16.4

*Age-standardised rates. Note: Incidence/mortality rates for counts <20 are not provided as they are not reliable.

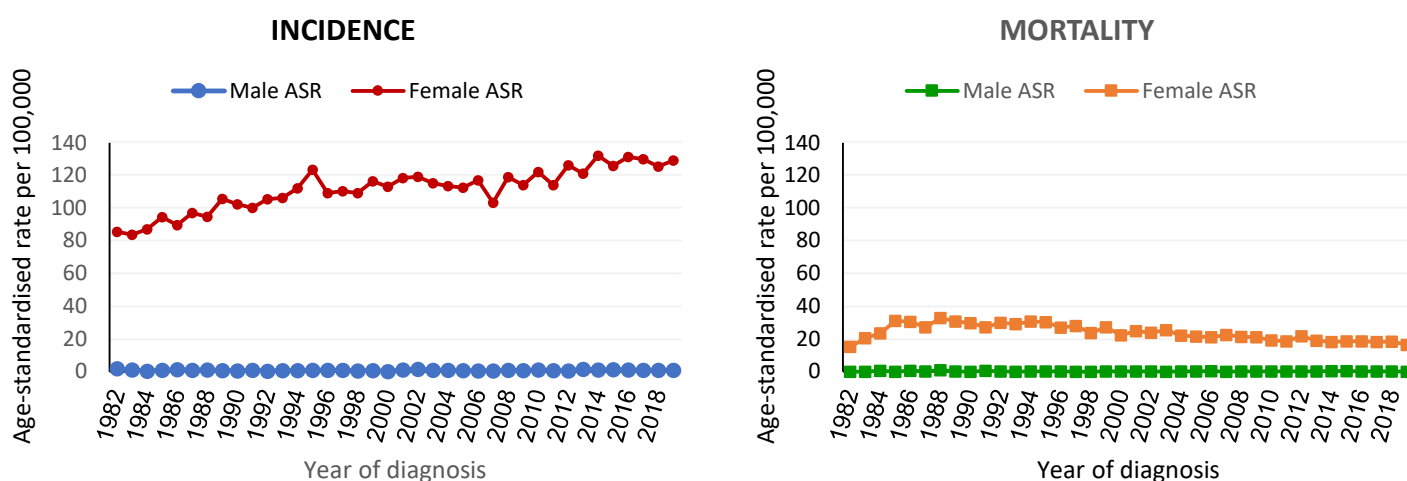


Figure 21. Breast cancer: age-standardised incidence and mortality rates (per 100,000) by sex, Western Australia, 1982-2019

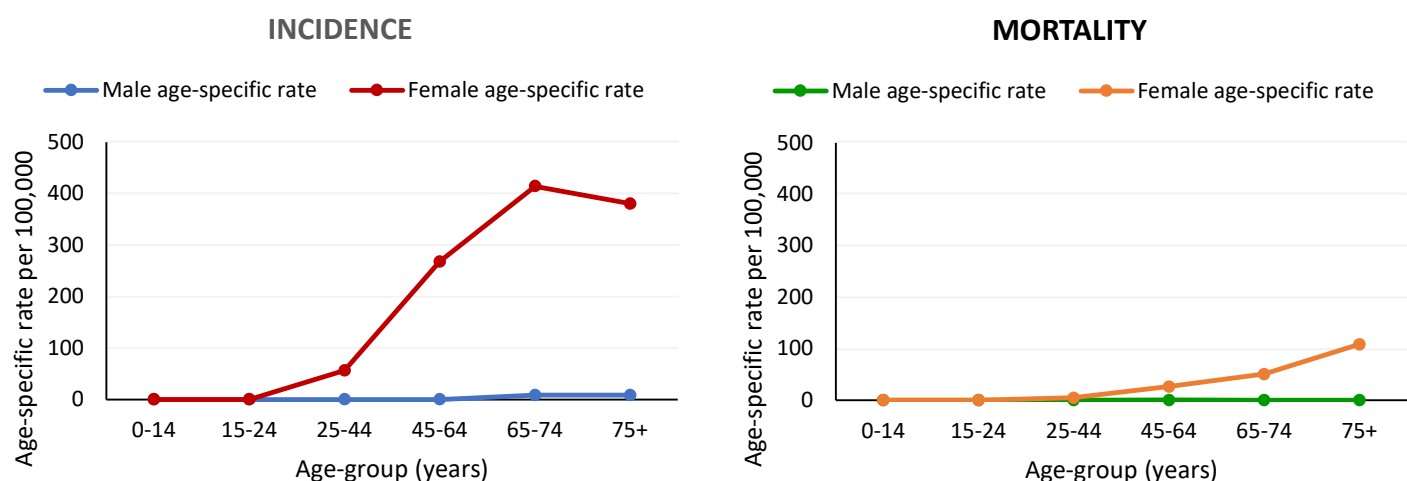


Figure 22. Breast cancer: age-specific incidence and mortality rates (per 100,000) by age-group and sex, Western Australia, 1982-2019

Table 13. Female breast cancer: Relative survival (%) by time period, Western Australia, 1995-99 to 2015-19





Number of years following initial diagnosis	Relative survival				
	1995-1999	2000-2004	2005-2009	2010-2014	2015-2019
1	96.8%	98.0%	97.7%	98.3%	98.5%
2	93.6%	95.3%	95.9%	96.3%	97.1%
3	89.8%	92.7%	93.8%	94.5%	95.8%
4	86.9%	90.4%	92.0%	92.6%	94.3%
5	84.7%	88.2%	90.6%	91.0%	92.5%

Table 14. Female breast cancer: counts and crude rates (per 100,000) for incidence and mortality by health region, Western Australia, 2019

Health region	Incidence		Mortality	
	n	rate	n	rate
WA Metropolitan region				
<i>East Metro</i>	503	142.6	43	12.2
<i>North Metro</i>	495	134.0	95	25.7
<i>South Metro</i>	523	158.5	70	21.2
WA Country Health Services				
<i>Goldfields</i>	20	76.1	4	N/A
<i>Great Southern</i>	54	176.9	9	N/A
<i>Kimberley</i>	26	140.9	2	N/A
<i>Midwest</i>	30	97.1	7	N/A
<i>Pilbara</i>	15	N/A	1	N/A
<i>South West</i>	180	195.5	21	22.8
<i>Wheatbelt</i>	53	143.1	7	N/A

Note: Incidence/mortality rates for counts <20 are not provided as they are not reliable.

Table 15. Breast cancer: estimated cumulative risk to age 75 years by sex, Western Australia, 2019

Incidence risk		Mortality risk	
 in 1257	 in 10	 -	 in 88

Cervix

Table 16. Cervical cancer: counts and age-specific rates (per 100,000) for incidence and mortality among females, Western Australia, 2019

Age Group (years)	Incidence		Mortality	
	Female		Female	
	n	rate	n	rate
0-14	0	0.0	0	0.0
15-24	0	0.0	0	0.0
25-44	47	12.5	5	N/A
45-64	24	7.4	5	N/A
65-74	8	N/A	6	N/A
75+	5	N/A	2	N/A
Total*	84	6.3	18	N/A

*Age-standardised rates.

Note: Incidence/mortality rates for counts <20 are not provided as they are not reliable.

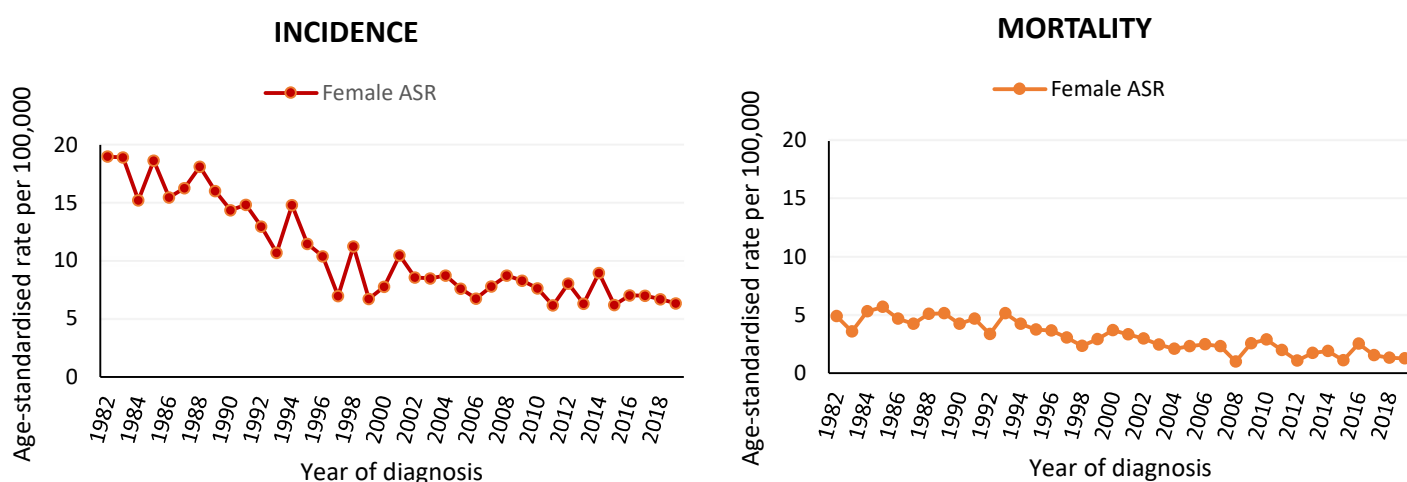


Figure 23. Cervical cancer: age-standardised incidence and mortality rates (per 100,000) among females, Western Australia, 1982-2019

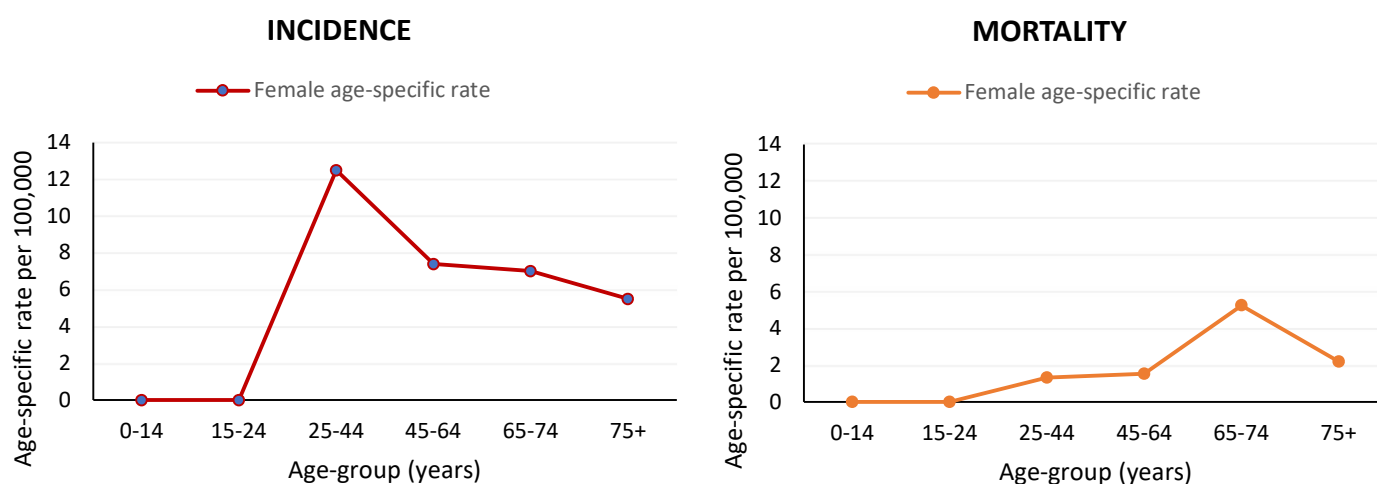


Figure 24. Cervical cancer: age-specific incidence and mortality rates (per 100,000) by age-group among females, Western Australia, 1982-2019

Table 17. Cervical cancer: Relative survival (%) by time period, Western Australia, 1995-1999 to 2015-2019



Number of years following initial diagnosis	Relative survival				
	1995-1999	2000-2004	2005-2009	2010-2014	2015-2019
1	87.9%	86.8%	90.0%	89.7%	92.6%
2	81.5%	78.6%	80.7%	82.0%	87.1%
3	76.6%	75.0%	77.4%	78.3%	81.7%
4	75.0%	72.8%	75.4%	75.9%	79.3%
5	73.0%	70.2%	73.3%	74.3%	78.0%

Table 18. Cervical cancer: counts and crude rates (per 100,000) for incidence and mortality among females by health region, Western Australia, 2019

Health region	Incidence		Mortality	
	n	rate	n	rate
WA Metropolitan region				
<i>East Metro</i>	26	7.4	5	N/A
<i>North Metro</i>	22	6.0	7	N/A
<i>South Metro</i>	21	6.4	5	N/A
WA Country Health Services				
<i>Goldfields</i>	7	N/A	0	0.0
<i>Great Southern</i>	2	N/A	0	0.0
<i>Kimberley</i>	1	N/A	0	0.0
<i>Midwest</i>	0	0.0	0	0.0
<i>Pilbara</i>	2	N/A	0	0.0
<i>South West</i>	3	N/A	1	N/A
<i>Wheatbelt</i>	0	0.0	0	0.0

Note: Incidence/mortality rates for counts <20 are not provided as they are not reliable.

Table 19. Cervical cancer: estimated cumulative risk to age 75 years in females, Western Australia, 2019

Incidence risk	Mortality risk
 in 215	 in 895

Colorectal

Table 20. Colorectal cancer: counts and age-specific rates (per 100,000) for incidence and mortality by sex, Western Australia, 2019

Age Group (years)	Incidence				Mortality			
	Male		Female		Male		Female	
	n	rate	n	rate	n	rate	n	rate
0-14	1	N/A	1	N/A	0	0.0	0	0.0
15-24	7	N/A	7	N/A	0	0.0	1	N/A
25-44	39	10.3	41	10.9	12	N/A	6	N/A
45-64	236	73.6	182	56.0	52	16.2	33	10.2
65-74	230	207.9	150	131.4	49	44.3	33	28.9
75+	213	292.3	219	240.5	112	153.7	110	120.8
Total*	726	51.0	600	39.0	225	16.4	183	11.1

*Age-standardised rates. Note: Incidence/mortality rates for counts <20 are not provided as they are not reliable.

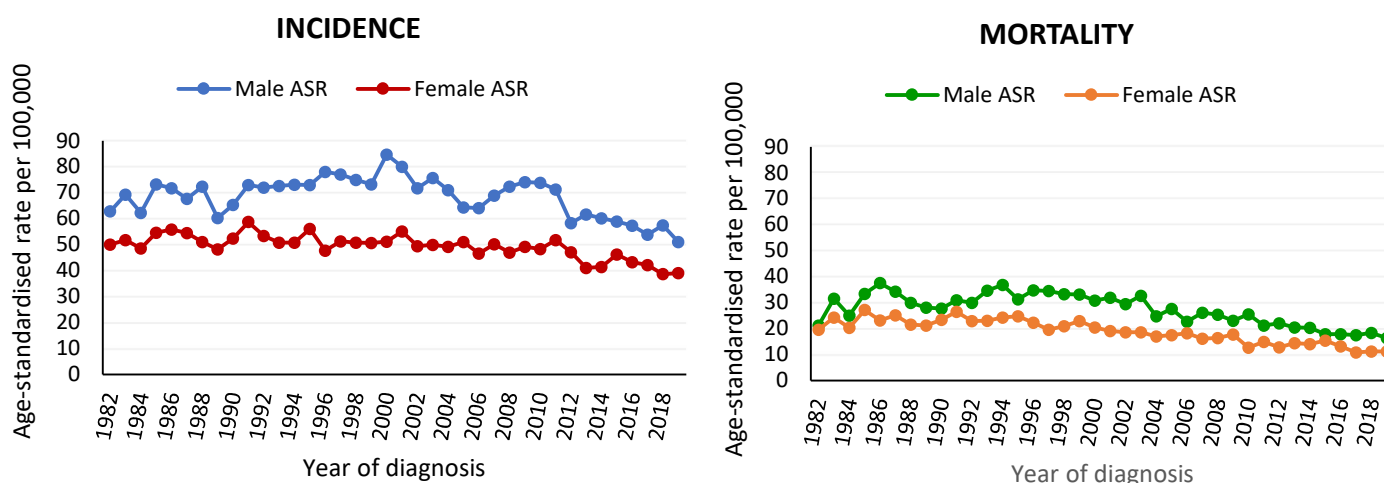


Figure 25. Colorectal cancer: age-standardised incidence and mortality rates (per 100,000) by sex, Western Australia, 1982-2019

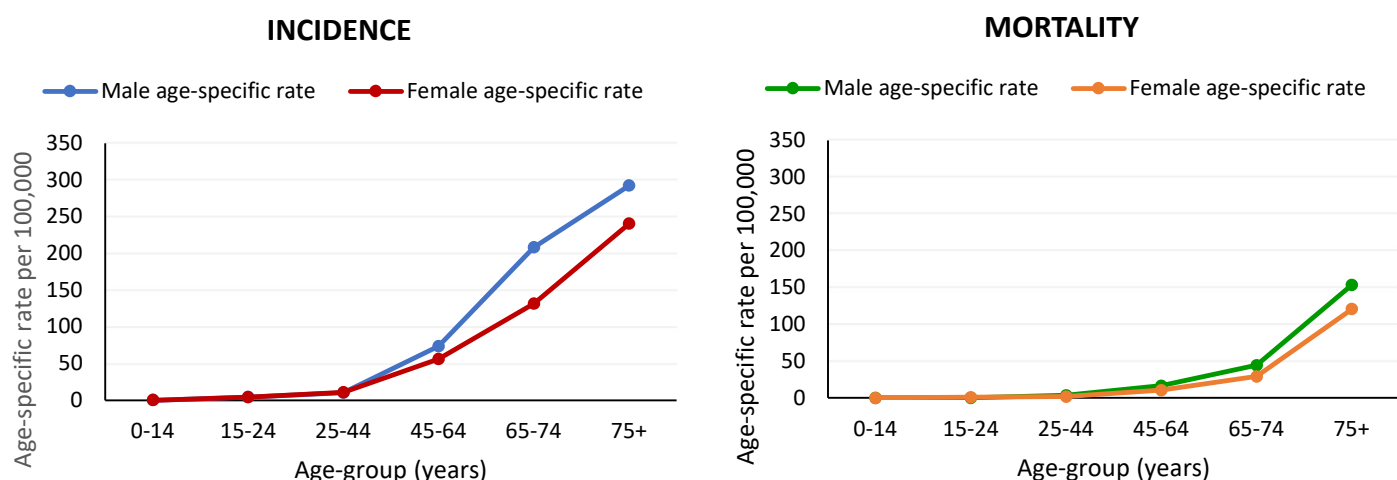


Figure 26. Colorectal cancer: age-specific incidence and mortality rates (per 100,000) by age-group and sex, Western Australia, 1982-2019

Table 21. Colorectal cancer: Relative survival (%) by time period, Western Australia, 1995-1999 to 2015-2019





Number of years following initial diagnosis	Relative survival				
	1995-1999	2000-2004	2005-2009	2010-2014	2015-2019
1	78.0%	82.0%	83.9%	86.9%	87.6%
2	68.8%	73.0%	76.5%	80.6%	82.1%
3	62.9%	68.1%	71.8%	76.6%	77.8%
4	58.8%	65.0%	68.3%	74.0%	74.7%
5	55.8%	63.0%	66.3%	72.3%	72.8%

Table 22. Colorectal cancer: counts and crude rates (per 100,000) for incidence and mortality by health region and sex, Western Australia, 2019

Health region	Incidence				Mortality			
	Male		Female		Male		Female	
	n	rate	n	rate	n	rate	n	rate
WA Metropolitan region								
<i>East Metro</i>	170	47.4	144	40.8	44	12.3	35	10.2
<i>North Metro</i>	164	45.9	139	37.6	71	19.9	46	12.4
<i>South Metro</i>	209	64.8	183	55.5	64	19.9	61	18.5
WA Country Health Services								
<i>Goldfields</i>	18	N/A	6	N/A	2	N/A	2	N/A
<i>Great Southern</i>	34	111.7	21	68.8	8	N/A	10	N/A
<i>Kimberley</i>	5	N/A	4	N/A	2	N/A	1	N/A
<i>Midwest</i>	34	108.4	16	N/A	13	N/A	3	N/A
<i>Pilbara</i>	7	N/A	4	N/A	1	N/A	1	N/A
<i>South West</i>	59	67.2	54	58.7	14	N/A	15	N/A
<i>Wheatbelt</i>	26	66.8	29	78.3	6	N/A	8	N/A

Note: Incidence/mortality rates for counts <20 are not provided as they are not reliable.

Table 23. Colorectal cancer: estimated cumulative risk to age 75 years by sex, Western Australia, 2019

Incidence risk		Mortality risk	
 in 26	 in 37	 in 118	 in 185

Head and neck

Table 24. Head and neck cancer: counts and age-specific rates (per 100,000) for incidence and mortality by sex, Western Australia, 2019

Age Group (years)	Incidence				Mortality			
	Male		Female		Male		Female	
	n	rate	n	rate	n	rate	n	rate
0-14	0	0.0	1	N/A	0	0.0	0	0.0
15-24	1	N/A	1	N/A	0	0.0	0	0.0
25-44	23	6.1	4	N/A	4	N/A	0	0.0
45-64	164	51.2	44	13.5	40	12.5	7	N/A
65-74	80	72.3	28	24.5	28	25.3	7	N/A
75+	58	79.6	44	48.3	21	28.8	18	N/A
Total*	326	22.8	122	8.0	93	6.4	32	1.8

*Age-standardised rates. Note: Incidence/mortality rates for counts <20 are not provided as they are not reliable.

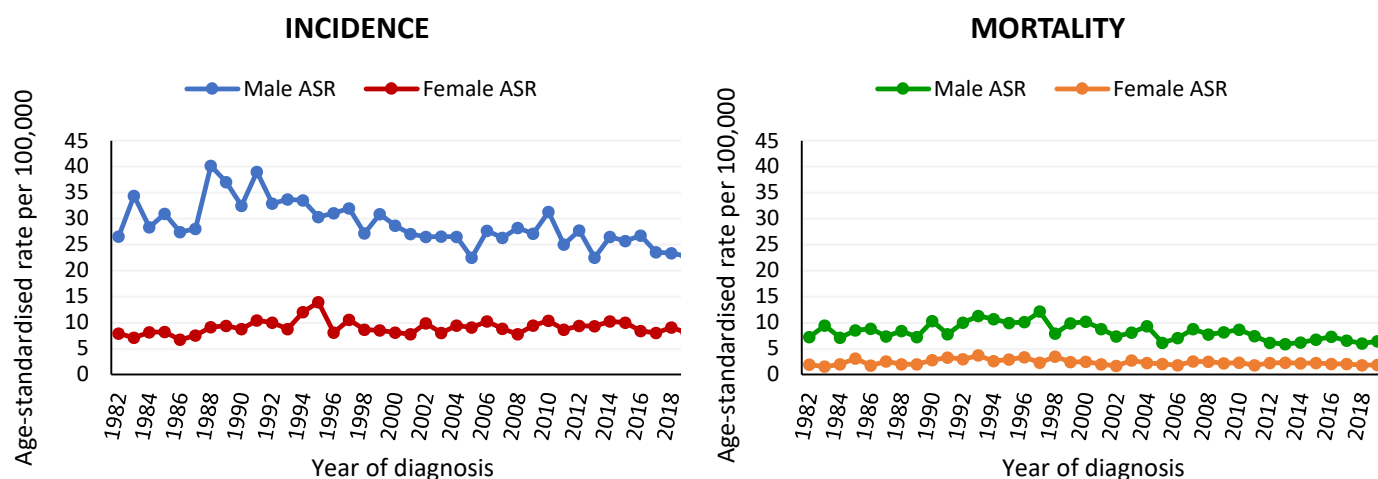


Figure 27. Head and neck cancer: age-standardised incidence and mortality rates (per 100,000) by sex, Western Australia, 1982-2019

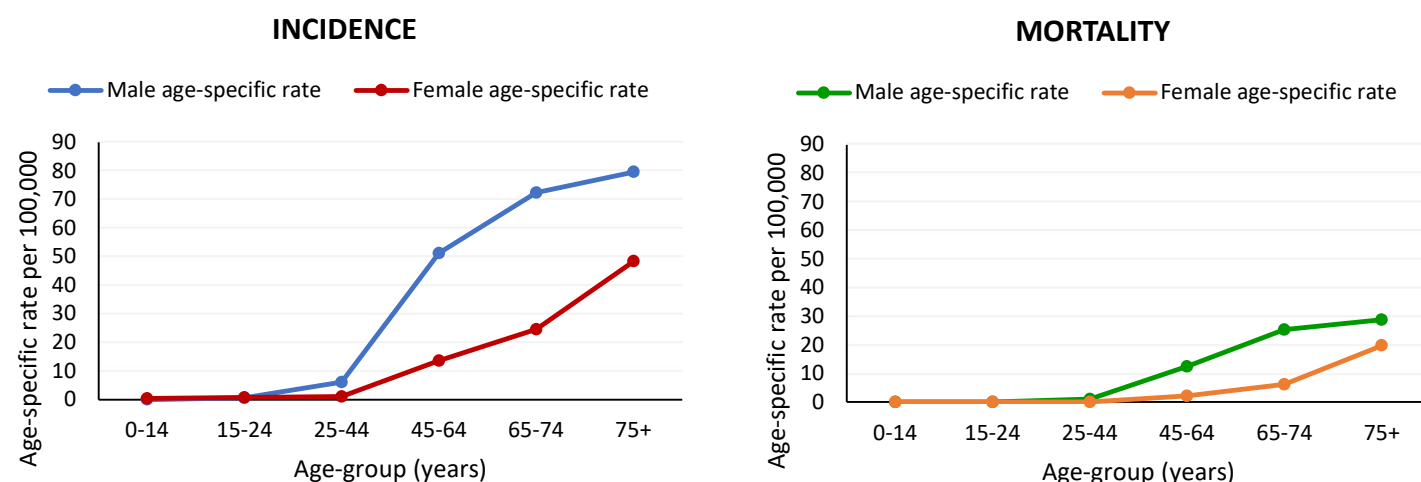


Figure 28. Head and neck cancer: age-specific incidence and mortality rates (per 100,000) by age-group and sex, Western Australia, 1982-2019

Table 25. Head and neck cancer: Relative survival (%) by time period, Western Australia, 1995-1999 to 2015-2019





Number of years following initial diagnosis	Relative survival				
	1995-1999	2000-2004	2005-2009	2010-2014	2015-2019
1	85.5%	85.9%	87.2%	88.3%	88.0%
2	77.2%	78.1%	79.5%	80.2%	81.8%
3	72.5%	73.7%	74.5%	76.7%	77.7%
4	68.4%	70.4%	70.9%	74.2%	74.1%
5	65.6%	67.5%	69.1%	71.2%	72.4%

Table 26. Head and neck cancer: counts and crude rates (per 100,000) for incidence and mortality by health region and sex, Western Australia, 2019

Health region	Incidence				Mortality			
	Male		Female		Male		Female	
	n	rate	n	rate	n	rate	n	rate
WA Metropolitan region								
<i>East Metro</i>	84	23.4	35	9.9	20	5.6	8	N/A
<i>North Metro</i>	67	18.7	28	7.6	27	7.6	11	N/A
<i>South Metro</i>	92	28.5	37	11.2	23	7.1	7	N/A
WA Country Health Services								
<i>Goldfields</i>	6	N/A	0	0.0	3	N/A	0	0.0
<i>Great Southern</i>	4	N/A	0	0.0	1	N/A	0	0.0
<i>Kimberley</i>	7	N/A	2	N/A	3	N/A	0	0.0
<i>Midwest</i>	22	70.1	4	N/A	3	N/A	1	N/A
<i>Pilbara</i>	8	N/A	1	N/A	3	N/A	1	N/A
<i>South West</i>	24	27.4	7	N/A	5	N/A	3	N/A
<i>Wheatbelt</i>	12	N/A	8	N/A	5	N/A	1	N/A

Note: Incidence/mortality rates for counts <20 are not provided as they are not reliable.

Table 27. Head and neck cancer: estimated cumulative risk to age 75 years by sex, Western Australia, 2019

Incidence risk		Mortality risk	
 in 52	 in 179	 in 188	 in 943

Kidney

Table 28. Kidney cancer: counts and age-specific rates (per 100,000) for incidence and mortality by sex, Western Australia, 2019

Age Group (years)	Incidence				Mortality			
	Male		Female		Male		Female	
	n	rate	n	rate	n	rate	n	rate
0-14	2	N/A	0	0.0	0	0.0	0	0.0
15-24	0	0.0	0	0.0	0	0.0	0	0.0
25-44	22	5.8	10	N/A	1	N/A	0	0.0
45-64	112	34.9	60	18.5	24	7.5	3	N/A
65-74	94	85.0	40	35.0	11	N/A	5	N/A
75+	58	79.6	31	34.0	21	28.8	7	N/A
Total*	288	20.1	141	9.4	57	4.0	15	N/A

*Age-standardised rates. Note: Incidence/mortality rates for counts <20 are not provided as they are not reliable.

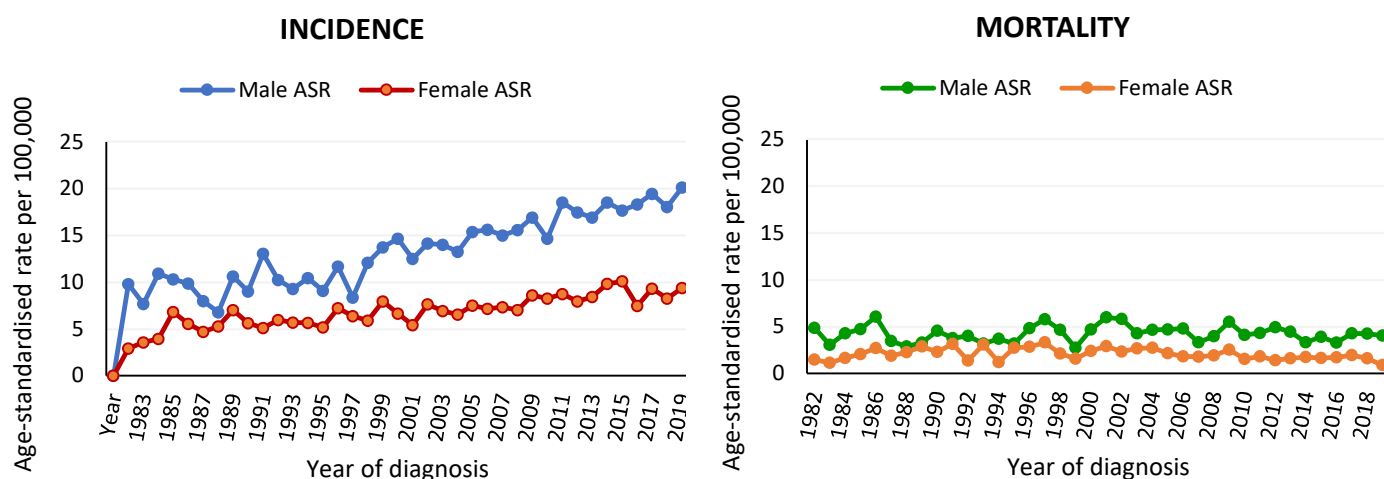


Figure 29. Kidney cancer: age-standardised incidence and mortality rates (per 100,000) by sex, Western Australia, 1982-2019

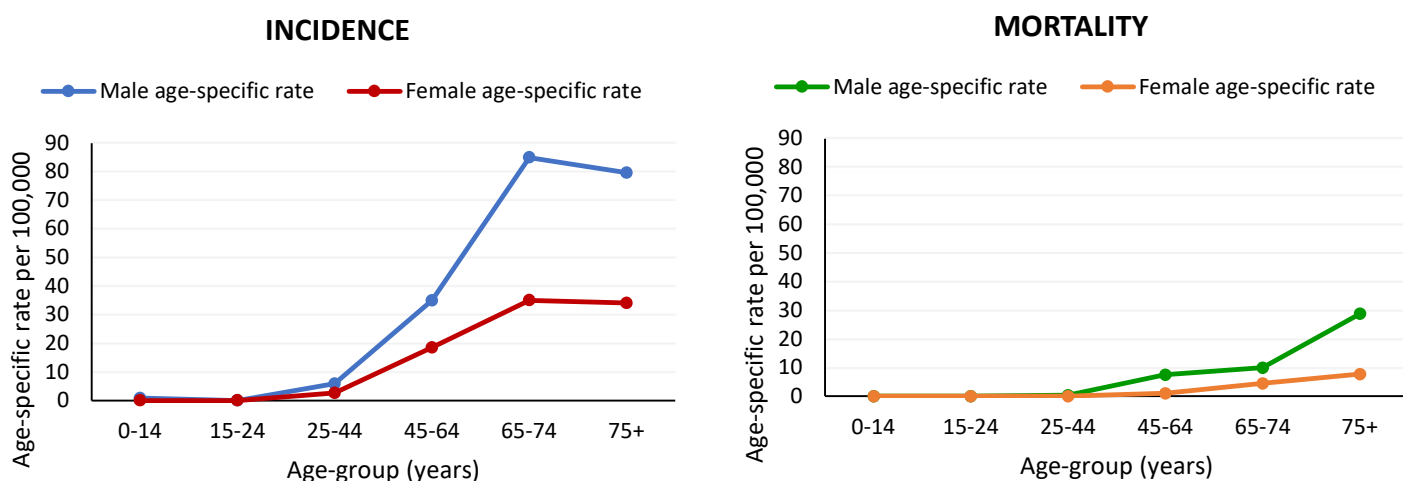


Figure 30. Kidney cancer: age-specific incidence and mortality rates by age-group and sex, Western Australia, 1982-2019

Table 29. Kidney cancer: Relative survival (%) by time period, Western Australia, 1995-1999 to 2015-2019





Number of years following initial diagnosis	Relative survival				
	1995-1999	2000-2004	2005-2009	2010-2014	2015-2019
1	75.6%	80.1%	86.0%	89.9%	91.0%
2	70.0%	73.2%	81.3%	85.8%	86.7%
3	66.8%	69.1%	77.9%	81.7%	84.4%
4	63.9%	66.8%	75.1%	79.4%	83.0%
5	61.9%	64.5%	72.4%	78.2%	81.6%

Table 30. Kidney cancer: counts and crude rates (per 100,000) for incidence and mortality by health region and sex, Western Australia, 2019

Health region	Incidence				Mortality			
	Male		Female		Male		Female	
	n	rate	n	rate	n	rate	n	rate
WA Metropolitan region								
<i>East Metro</i>	80	22.3	47	13.3	10	N/A	4	N/A
<i>North Metro</i>	61	17.1	30	8.1	17	N/A	4	N/A
<i>South Metro</i>	76	23.6	35	10.6	16	N/A	3	N/A
WA Country Health Services								
<i>Goldfields</i>	7	N/A	0	0.0	2	N/A	0	0.0
<i>Great Southern</i>	13	N/A	8	N/A	3	N/A	1	N/A
<i>Kimberley</i>	1	N/A	1	N/A	1	N/A	0	0.0
<i>Midwest</i>	11	N/A	2	N/A	0	0.0	0	0.0
<i>Pilbara</i>	4	N/A	1	N/A	1	N/A	0	0.0
<i>South West</i>	24	27.4	10	N/A	6	N/A	2	N/A
<i>Wheatbelt</i>	11	N/A	7	N/A	1	N/A	1	N/A

Note: Incidence/mortality rates for counts <20 are not provided as they are not reliable.

Table 31. Kidney cancer: estimated cumulative risk to age 75 years by sex, Western Australia, 2019

Incidence risk		Mortality risk	
 in 60	 in 127	 in 388	 in 1547

Leukaemia

Table 32. Leukaemia: counts and age-specific rates (per 100,000) for incidence and mortality by sex, Western Australia, 2019

Age Group (years)	Incidence				Mortality			
	Male		Female		Male		Female	
	n	rate	n	rate	n	rate	n	rate
0-14	21	8.0	8	N/A	0	0.0	1	N/A
15-24	13	N/A	1	N/A	3	N/A	0	0.0
25-44	15	N/A	11	N/A	1	N/A	6	N/A
45-64	55	17.2	32	9.9	11	N/A	10	N/A
65-74	47	42.5	37	32.4	24	21.7	16	N/A
75+	72	98.8	53	58.2	39	53.5	35	38.4
Total*	223	16.3	142	9.2	78	5.7	68	4.3

*Age-standardised rates. Note: Incidence/mortality rates for counts <20 are not provided as they are not reliable.

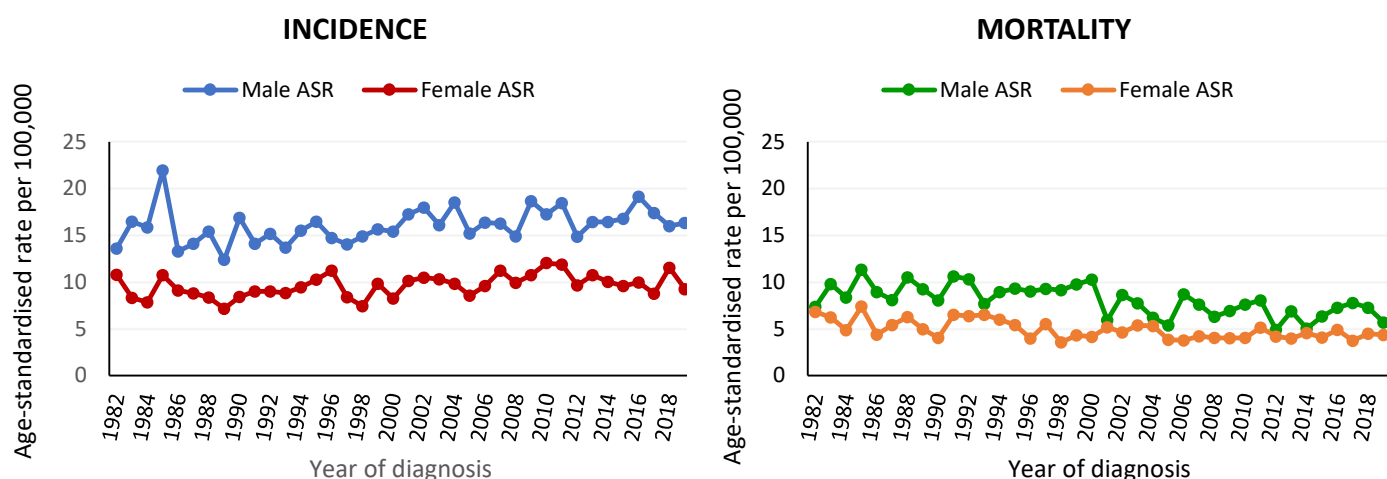


Figure 31. Leukaemia: age-standardised incidence and mortality rates (per 100,000) by sex, Western Australia, 1982-2019

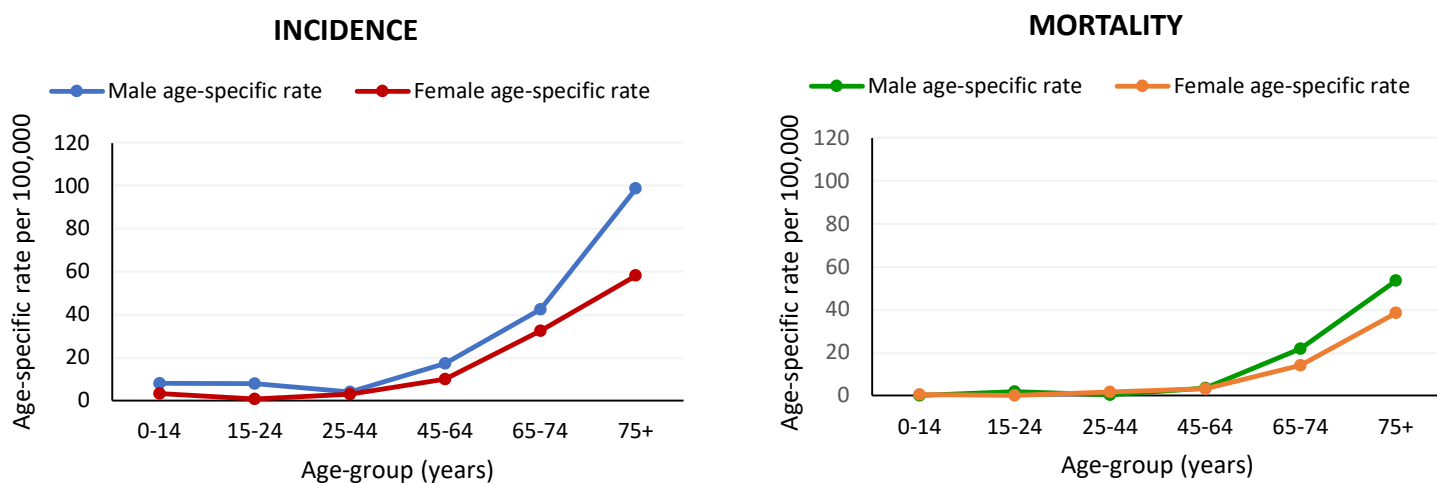


Figure 32. Leukaemia: age-specific incidence and mortality rates (per 100,000) by age-group and sex, Western Australia, 1982-2019

Table 33. Leukaemia: Relative survival (%) by time period, Western Australia, 1995-1999 to 2015-2019





Number of years following initial diagnosis	Relative survival				
	1995-1999	2000-2004	2005-2009	2010-2014	2015-2019
1	68.1%	73.2%	75.5%	76.3%	72.8%
2	58.8%	63.5%	68.6%	69.9%	65.6%
3	54.3%	58.7%	63.8%	65.1%	62.0%
4	51.3%	54.3%	61.3%	62.6%	59.9%
5	46.0%	51.4%	58.6%	59.6%	58.3%

Table 34. Leukaemia: counts and crude rates (per 100,000) for incidence and mortality by health region and sex, Western Australia, 2019

Health region	Incidence				Mortality			
	Male		Female		Male		Female	
	n	rate	n	rate	n	rate	n	rate
WA Metropolitan region								
<i>East Metro</i>	70	19.5	36	10.2	12	N/A	10	N/A
<i>North Metro</i>	43	12.0	42	11.4	29	8.1	24	6.5
<i>South Metro</i>	56	17.4	37	11.2	25	7.8	26	7.9
WA Country Health Services								
<i>Goldfields</i>	5	N/A	7	N/A	3	N/A	1	N/A
<i>Great Southern</i>	9	N/A	5	N/A	4	N/A	1	N/A
<i>Kimberley</i>	0	0.0	1	N/A	1	N/A	2	N/A
<i>Midwest</i>	6	N/A	0	0.0	0	0.0	1	N/A
<i>Pilbara</i>	4	N/A	4	N/A	0	0.0	0	0.0
<i>South West</i>	18	N/A	5	N/A	4	N/A	3	N/A
<i>Wheatbelt</i>	12	N/A	5	N/A	0	0.0	0	0.0

Note: Incidence/mortality rates for counts <20 are not provided as they are not reliable.

Table 35. Leukaemia cancer: estimated cumulative risk to age 75 years by sex, Western Australia, 2019

Incidence risk		Mortality risk	
 in 94	 in 157	 in 319	 in 399

Liver

Table 36. Liver cancer: counts and age-specific rates (per 100,000) for incidence and mortality by sex, Western Australia, 2019

Age Group (years)	Incidence				Mortality			
	Male		Female		Male		Female	
	n	rate	n	rate	n	rate	n	rate
0-14	0	0.0	0	0.0	0	0.0	0	0.0
15-24	0	0.0	0	0.0	0	0.0	0	0.0
25-44	1	N/A	3	N/A	0	0.0	3	N/A
45-64	57	17.8	21	6.5	23	7.2	14	N/A
65-74	40	36.2	10	N/A	26	23.5	11	N/A
75+	37	50.8	20	22.0	33	45.3	26	28.6
Total*	135	9.3	54	3.5	82	5.8	54	3.5

*Age-standardised rates. Note: Incidence/mortality rates for counts <20 are not provided as they are not reliable.

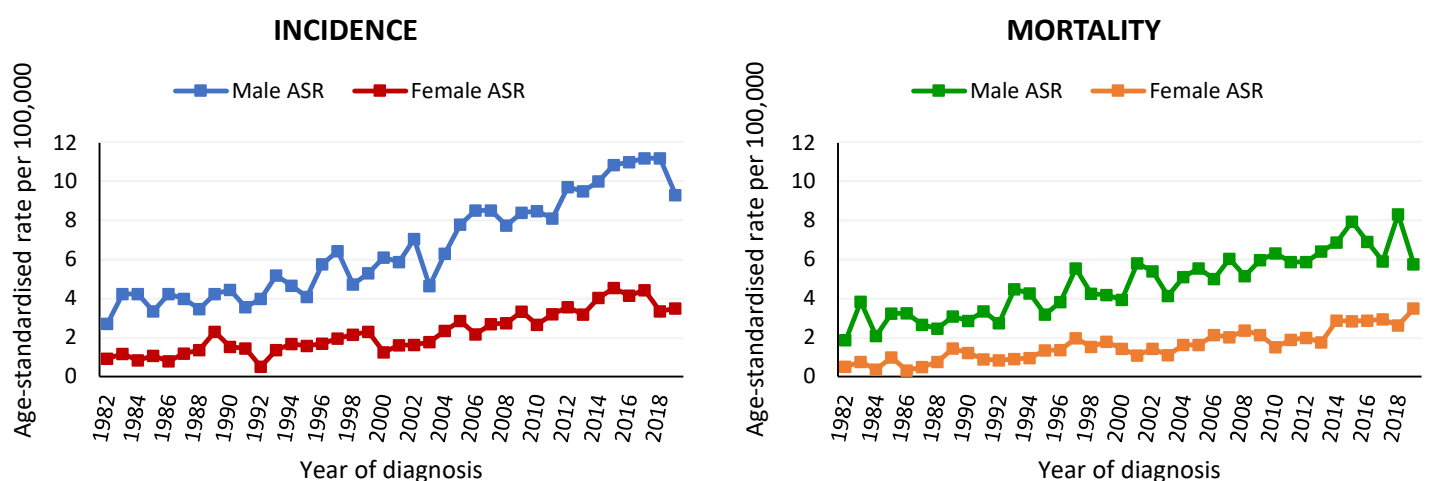


Figure 33. Liver cancer: age-standardised incidence and mortality rates (per 100,000) by sex, Western Australia, 1982-2019

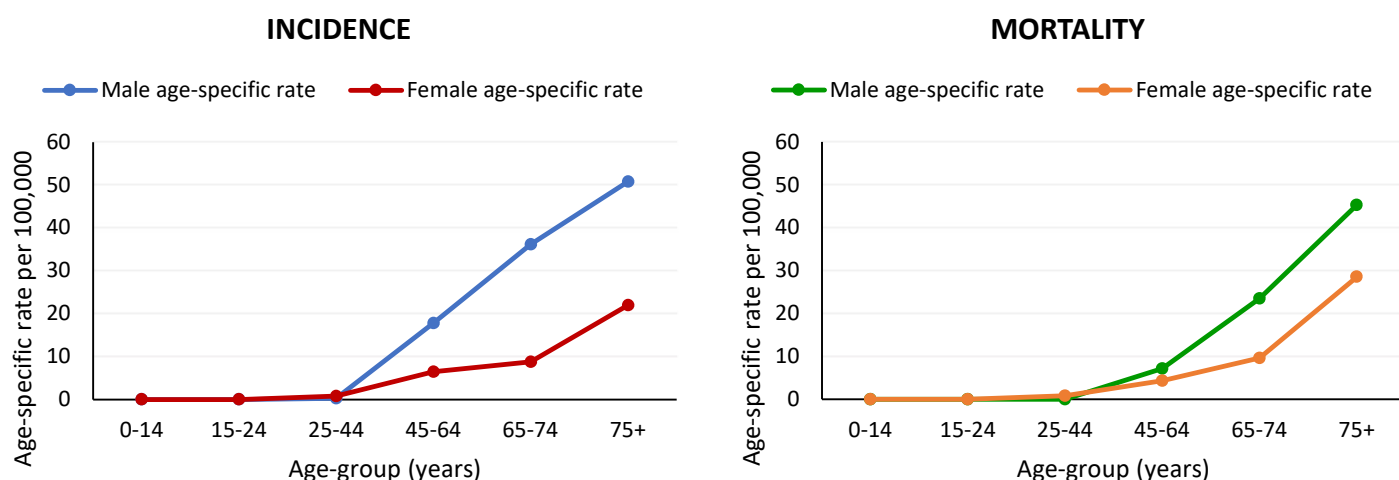


Figure 34. Liver cancer: age-specific incidence and mortality rates (per 100,000) by age-group and sex, Western Australia, 1982-2019

Table 37. Liver cancer: Relative survival (%) by time period, Western Australia, 1995-1999 to 2015-2019





Number of years following initial diagnosis	Relative survival				
	1995-1999	2000-2004	2005-2009	2010-2014	2015-2019
1	23.4%	26.9%	40.8%	48.7%	51.3%
2	14.5%	16.3%	28.5%	34.5%	40.4%
3	9.6%	14.1%	24.2%	27.9%	31.8%
4	9.2%	11.5%	17.8%	24.6%	26.9%
5	8.8%	10.0%	15.5%	21.2%	23.5%

Table 38. Liver cancer: counts and crude rates (per 100,000) for incidence and mortality by health region and sex, Western Australia, 2019

Health region	Incidence				Mortality			
	Male		Female		Male		Female	
	n	rate	n	rate	n	rate	n	rate
WA Metropolitan region								
<i>East Metro</i>	40	11.2	17	N/A	18	N/A	14	N/A
<i>North Metro</i>	31	8.7	16	N/A	29	8.1	14	N/A
<i>South Metro</i>	43	13.3	11	N/A	20	6.2	18	N/A
WA Country Health Services								
<i>Goldfields</i>	2	N/A	1	N/A	2	N/A	0	0.0
<i>Great Southern</i>	2	N/A	2	N/A	3	N/A	0	0.0
<i>Kimberley</i>	4	N/A	1	N/A	2	N/A	0	0.0
<i>Midwest</i>	4	N/A	0	0.0	2	N/A	1	N/A
<i>Pilbara</i>	3	N/A	1	N/A	1	N/A	1	N/A
<i>South West</i>	4	N/A	4	N/A	4	N/A	6	N/A
<i>Wheatbelt</i>	2	N/A	1	N/A	1	N/A	0	0.0

Note: Incidence/mortality rates for counts <20 are not provided as they are not reliable.

Table 39. Liver cancer: estimated cumulative risk to age 75 years by sex, Western Australia, 2019

Incidence risk		Mortality risk	
	in 137		in 419
	in 260		in 488

Lung

Table 40. Lung cancer: counts and age-specific rates (per 100,000) for incidence and mortality by sex, Western Australia, 2019

Age Group (years)	Incidence				Mortality			
	Male		Female		Male		Female	
	n	rate	n	rate	n	rate	n	rate
0-14	0	0.0	0	0.0	0	0.0	0	0.0
15-24	1	N/A	0	0.0	0	0.0	1	N/A
25-44	7	N/A	9	N/A	2	N/A	1	N/A
45-64	155	48.4	163	50.2	98	30.6	58	17.9
65-74	241	217.9	196	171.7	125	113.0	98	85.8
75+	289	396.6	196	215.3	201	275.9	137	150.5
Total*	693	48.7	564	35.8	426	30.3	295	18.6

*Age-standardised rates. Note: Incidence/mortality rates for counts <20 are not provided as they are not reliable.

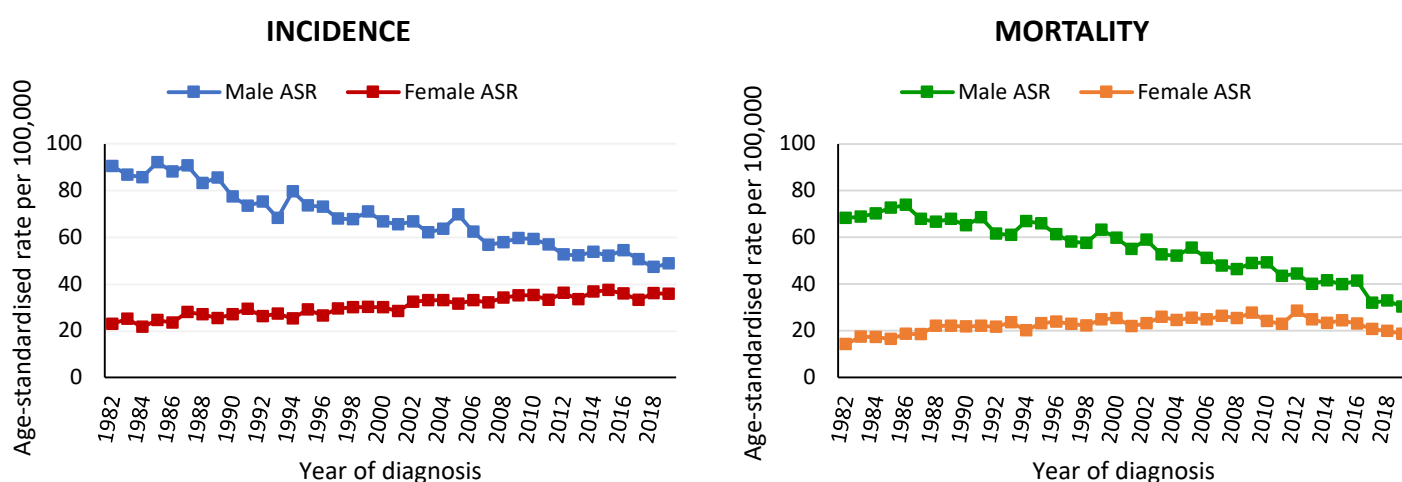


Figure 35. Lung cancer: age-standardised incidence and mortality rates (per 100,000) by sex, Western Australia, 1982-2019

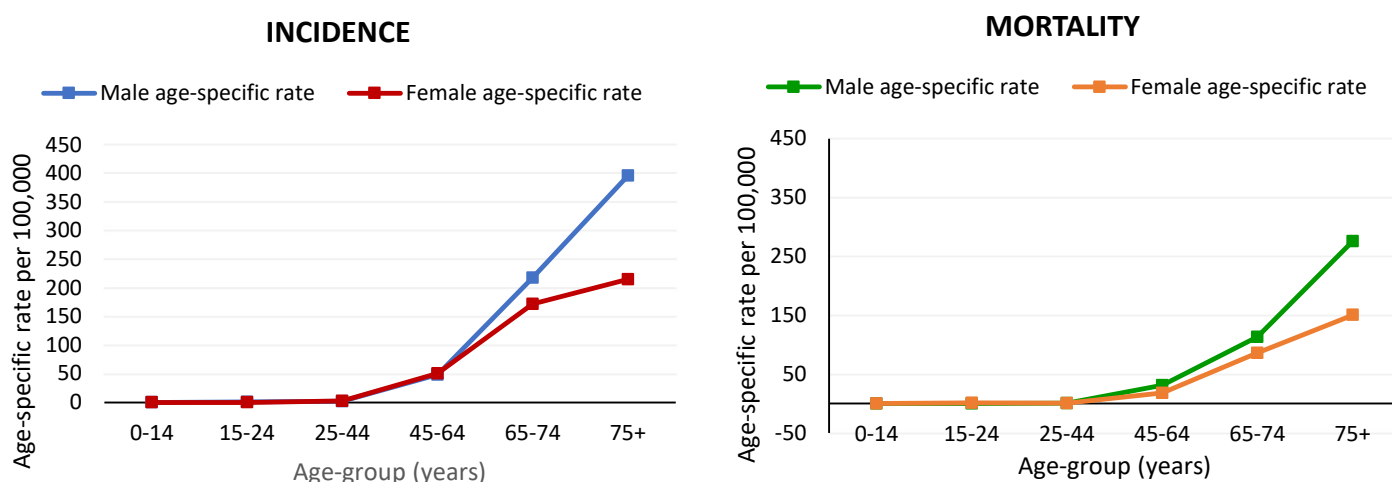


Figure 36. Lung cancer: age-specific incidence and mortality rates (per 100,000) by age-group and sex, Western Australia, 1982-2019

Table 41. Lung cancer: Relative survival (%) by time period, Western Australia, 1995-1999 to 2015-2019





Number of years following initial diagnosis	Relative survival				
	1995-1999	2000-2004	2005-2009	2010-2014	2015-2019
1	32.9%	36.2%	38.3%	45.3%	53.0%
2	19.9%	21.9%	24.2%	30.5%	39.6%
3	15.4%	16.7%	18.8%	23.2%	33.5%
4	13.6%	14.0%	16.0%	19.6%	29.5%
5	11.9%	12.3%	14.3%	17.5%	26.3%

Table 42. Lung cancer: counts and crude rates (per 100,000) for incidence and mortality by health region and sex, Western Australia, 2019

Health region	Incidence				Mortality			
	Male		Female		Male		Female	
	n	rate	n	rate	n	rate	n	rate
WA Metropolitan region								
<i>East Metro</i>	169	47.2	158	44.8	72	20.1	64	18.2
<i>North Metro</i>	152	42.5	134	36.3	115	32.2	77	20.8
<i>South Metro</i>	181	56.2	158	47.9	136	42.2	95	28.8
WA Country Health Services								
<i>Goldfields</i>	15	N/A	10	N/A	11	N/A	2	N/A
<i>Great Southern</i>	22	72.3	15	N/A	14	N/A	12	N/A
<i>Kimberley</i>	13	N/A	5	N/A	4	N/A	4	N/A
<i>Midwest</i>	31	98.8	12	N/A	21	67.0	6	N/A
<i>Pilbara</i>	9	N/A	9	N/A	1	N/A	4	N/A
<i>South West</i>	61	69.5	45	48.9	34	38.8	22	23.9
<i>Wheatbelt</i>	39	100.2	18	N/A	18	N/A	9	N/A
Other WA Address*	1	N/A	0	0.0	0	0.0	0	0.0

*Note: One case exists whereby health region is unknown. Incidence/mortality rates for counts <20 are not provided as they are not reliable.

Table 43. Lung cancer: estimated cumulative risk to age 75 years by sex, Western Australia, 2019

Incidence risk		Mortality risk	
 in 31	 in 36	 in 56	 in 79

Lymphoma

Table 44. Lymphoma: counts and age-specific rates (per 100,000) for incidence and mortality by sex, Western Australia, 2019

Age Group (years)	Incidence				Mortality			
	Male		Female		Male		Female	
	n	rate	n	rate	n	rate	n	rate
0-14	2	N/A	2	N/A	0	0.0	0	0.0
15-24	9	N/A	6	N/A	0	0.0	0	0.0
25-44	32	8.5	23	6.1	2	N/A	1	N/A
45-64	104	32.4	87	26.8	12	N/A	7	N/A
65-74	96	86.8	65	56.9	23	20.8	17	N/A
75+	88	120.8	90	98.9	40	54.9	43	47.2
Total*	331	23.5	273	17.8	77	5.5	68	4.2

*Age-standardised rates. Note: Incidence/mortality rates for counts <20 are not provided as they are not reliable.

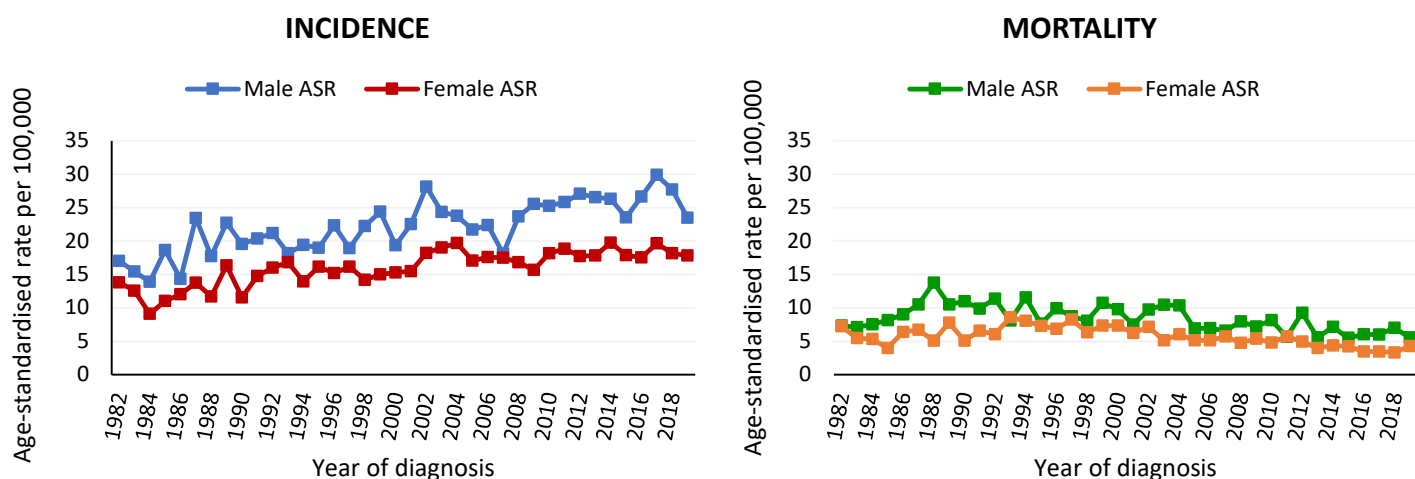


Figure 37. Lymphoma: age-standardised incidence and mortality rates (per 100,000) by sex, Western Australia, 1982-2019

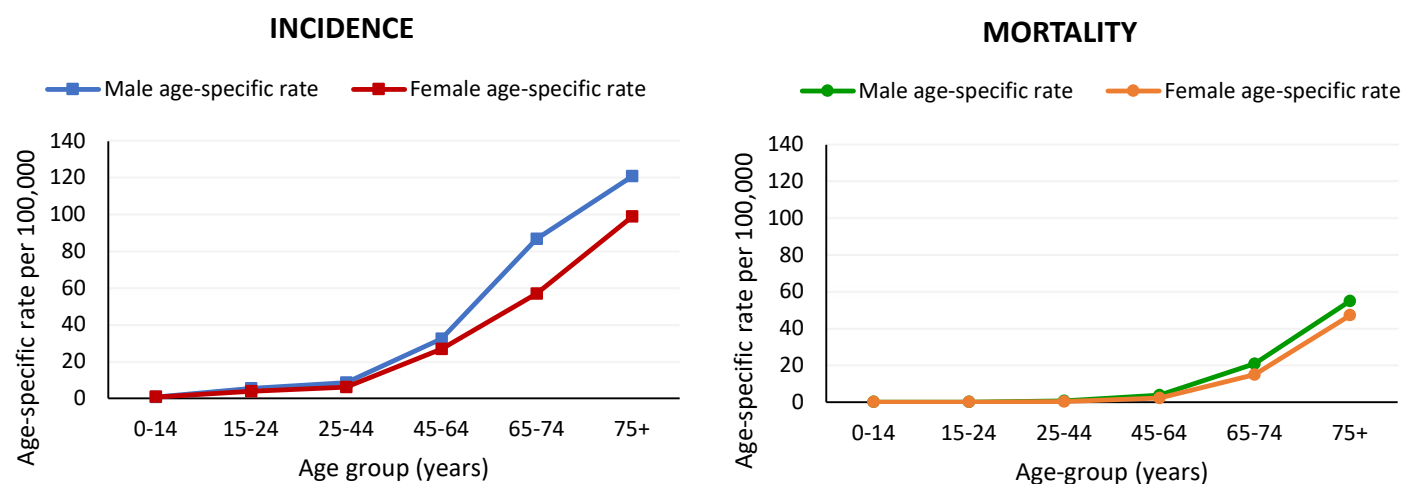


Figure 38. Lymphoma: age-specific incidence and mortality rates (per 100,000) by age-group and sex, Western Australia, 1982-2019

Table 45. Lymphoma: Relative survival (%) by time period, Western Australia, 1995-1999 to 2015-2019





Number of years following initial diagnosis	Relative survival				
	1995-1999	2000-2004	2005-2009	2010-2014	2015-2019
1	77.2%	78.8%	84.6%	87.1%	89.4%
2	68.9%	73.2%	79.5%	83.2%	85.8%
3	64.2%	69.2%	77.0%	80.0%	83.1%
4	61.3%	66.2%	74.1%	77.7%	81.1%
5	59.1%	64.3%	72.2%	75.8%	80.2%

Table 46. Lymphoma: counts and crude rates (per 100,000) for incidence and mortality by health region and sex, Western Australia, 2019

Health region	Incidence				Mortality			
	Male		Female		Male		Female	
	n	rate	n	rate	n	rate	n	rate
WA Metropolitan region								
<i>East Metro</i>	80	22.3	55	15.6	16	N/A	10	N/A
<i>North Metro</i>	73	20.4	83	22.5	22	6.2	25	6.8
<i>South Metro</i>	96	29.8	77	23.3	23	7.1	27	8.2
WA Country Health Services								
<i>Goldfields</i>	9	N/A	3	N/A	3	N/A	0	0.0
<i>Great Southern</i>	17	N/A	8	N/A	2	N/A	3	N/A
<i>Kimberley</i>	4	N/A	2	N/A	1	N/A	1	N/A
<i>Midwest</i>	12	N/A	6	N/A	1	N/A	0	0.0
<i>Pilbara</i>	4	N/A	2	N/A	0	0.0	0	0.0
<i>South West</i>	22	25.1	25	27.2	9	N/A	1	N/A
<i>Wheatbelt</i>	13	N/A	12	N/A	0	0.0	1	N/A
Other WA Address*	1	N/A	0	0.0	0	0.0	0	0.0

*Note: One case exists whereby health region is unknown. Incidence/mortality rates for counts <20 are not provided as they are not reliable.

Table 47. Lymphoma cancer: estimated cumulative risk to age 75 years by sex, Western Australia, 2019

Incidence risk		Mortality risk	
 in 56	 in 77	 in 326	 in 488

Melanoma

Table 48. Melanoma: counts and age-specific rates (per 100,000) for incidence and mortality by sex, Western Australia, 2019

Age Group (years)	Incidence				Mortality			
	Male		Female		Male		Female	
	n	rate	n	rate	n	rate	n	rate
0-14	1	N/A	1	N/A	0	0.0	0	0.0
15-24	7	N/A	3	N/A	0	0.0	0	0.0
25-44	76	20.1	89	23.7	3	N/A	3	N/A
45-64	317	98.9	257	79.1	21	6.6	7	N/A
65-74	283	255.8	171	149.8	25	22.6	9	N/A
75+	269	369.2	160	175.7	56	76.9	27	29.7
Total*	953	67.6	681	45.3	105	7.7	46	2.9

*Age-standardised rates. Note: Incidence/mortality rates for counts <20 are not provided as they are not reliable.

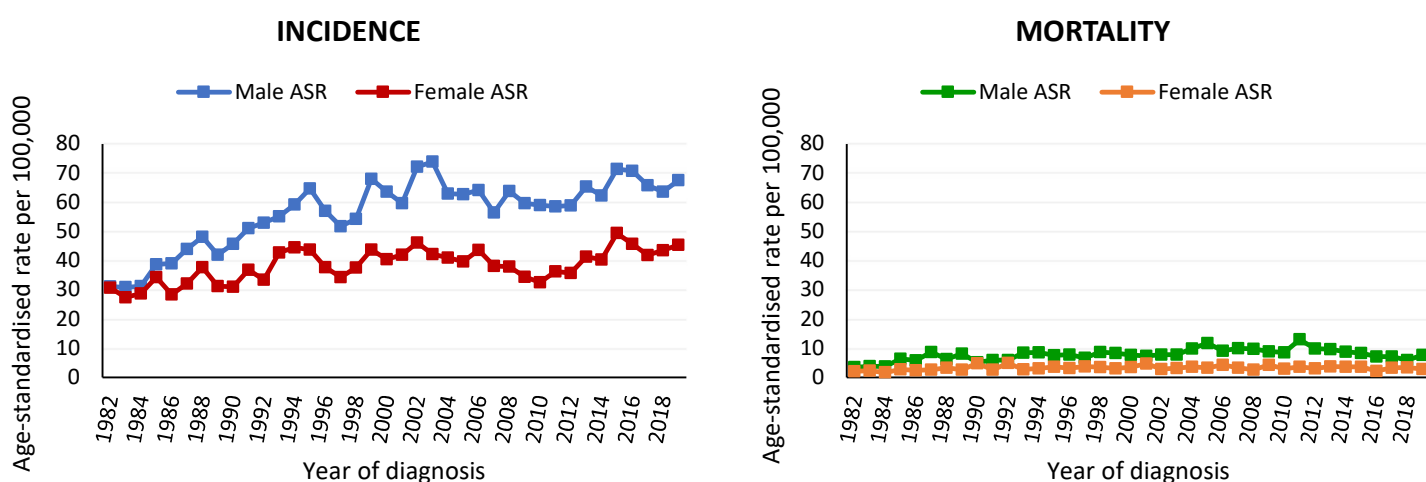


Figure 39. Melanoma: age-standardised incidence and mortality rates (per 100,000) by sex, Western Australia, 1982-2019

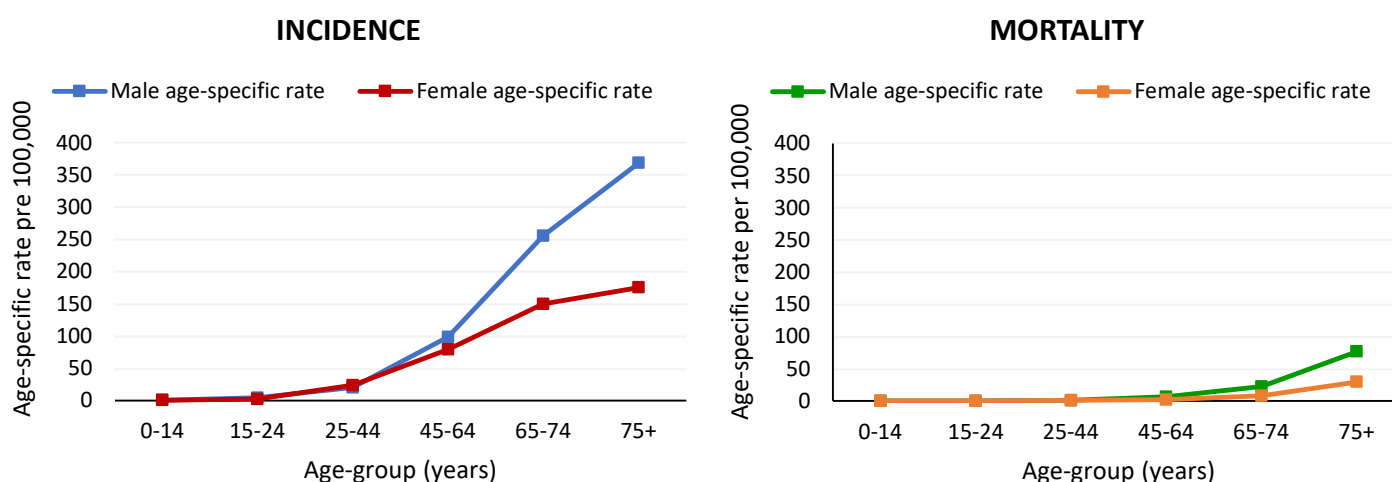


Figure 40. Melanoma: age-specific incidence and mortality rates (per 100,000) by age-group and sex, Western Australia, 1982-2019

Table 49. Melanoma: Relative survival (%) by time period, Western Australia, 1995-1999 to 2015-2019





Number of years following initial diagnosis	Relative survival				
	1995-1999	2000-2004	2005-2009	2010-2014	2015-2019
1	97.9%	98.3%	97.8%	97.6%	98.3%
2	96.2%	96.9%	95.6%	95.6%	97.4%
3	94.8%	95.0%	94.0%	93.5%	96.5%
4	93.8%	93.9%	92.7%	91.5%	95.8%
5	93.1%	92.8%	91.2%	90.6%	94.9%

Table 50. Melanoma: counts and crude rates (per 100,000) for incidence and mortality by health region and sex, Western Australia, 2019

Health region	Incidence				Mortality			
	Male		Female		Male		Female	
	n	rate	n	rate	n	rate	n	rate
WA Metropolitan region								
<i>East Metro</i>	207	57.8	161	45.7	12	N/A	8	N/A
<i>North Metro</i>	279	78.0	194	52.5	37	10.4	17	N/A
<i>South Metro</i>	255	79.1	173	52.4	38	11.8	13	N/A
WA Country Health Services								
<i>Goldfields</i>	10	N/A	12	N/A	0	0.0	0	0.0
<i>Great Southern</i>	28	92.0	11	N/A	3	N/A	0	0.0
<i>Kimberley</i>	9	N/A	7	N/A	0	0.0	0	0.0
<i>Midwest</i>	28	89.3	26	84.2	3	N/A	0	0.0
<i>Pilbara</i>	6	N/A	7	N/A	0	0.0	0	0.0
<i>South West</i>	97	110.6	65	70.6	9	N/A	5	N/A
<i>Wheatbelt</i>	34	87.3	25	67.5	3	N/A	3	N/A

Note: Incidence/mortality rates for counts <20 are not provided as they are not reliable.

Table 51. Melanoma cancer: estimated cumulative risk to age 75 years by sex, Western Australia, 2019

Incidence risk		Mortality risk	
 in 20	 in 28	 in 263	 in 728

Mesothelioma

Table 52. Mesothelioma: counts and age-specific rates (per 100,000) for incidence and mortality by sex, Western Australia, 2019

Age Group (years)	Incidence				Mortality			
	Male		Female		Male		Female	
	n	rate	n	rate	n	rate	n	rate
0-14	0	0.0	0	0.0	0	0.0	0	0.0
15-24	0	0.0	0	0.0	0	0.0	0	0.0
25-44	1	N/A	0	0.0	1	N/A	0	0.0
45-64	14	N/A	4	N/A	11	N/A	2	N/A
65-74	34	30.7	9	N/A	33	29.8	6	N/A
75+	42	57.6	12	N/A	46	63.1	14	N/A
Total*	91	6.5	25	1.5	91	6.5	22	1.4

*Age-standardised rates. Note: Incidence/mortality rates for counts <20 are not provided as they are not reliable.

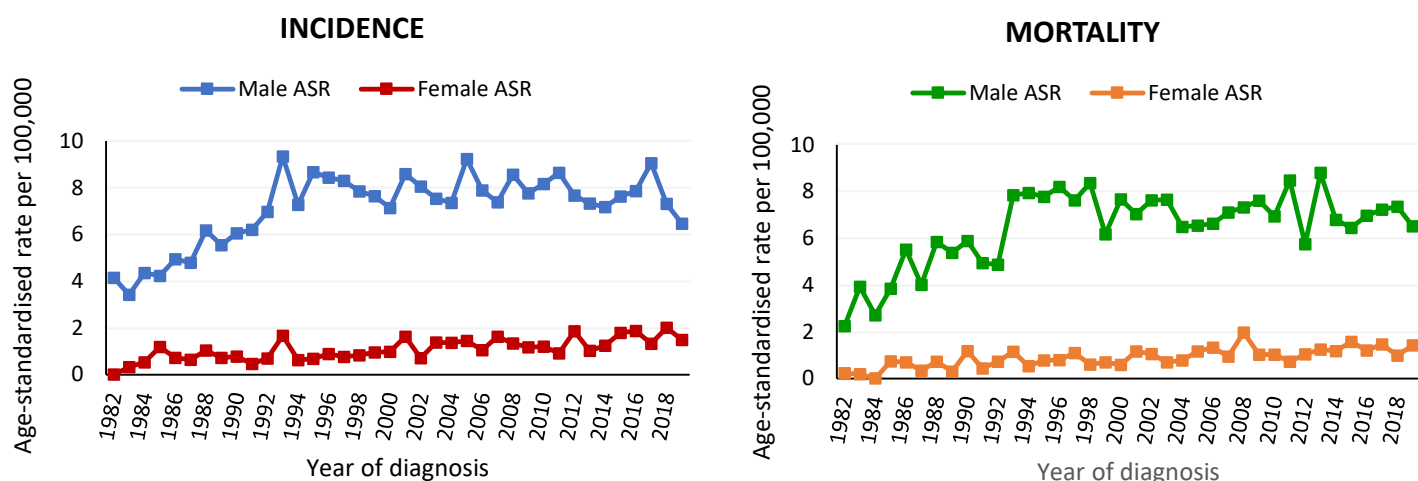


Figure 41. Mesothelioma: age-standardised incidence and mortality rates (per 100,000) by sex, Western Australia, 1982-2019

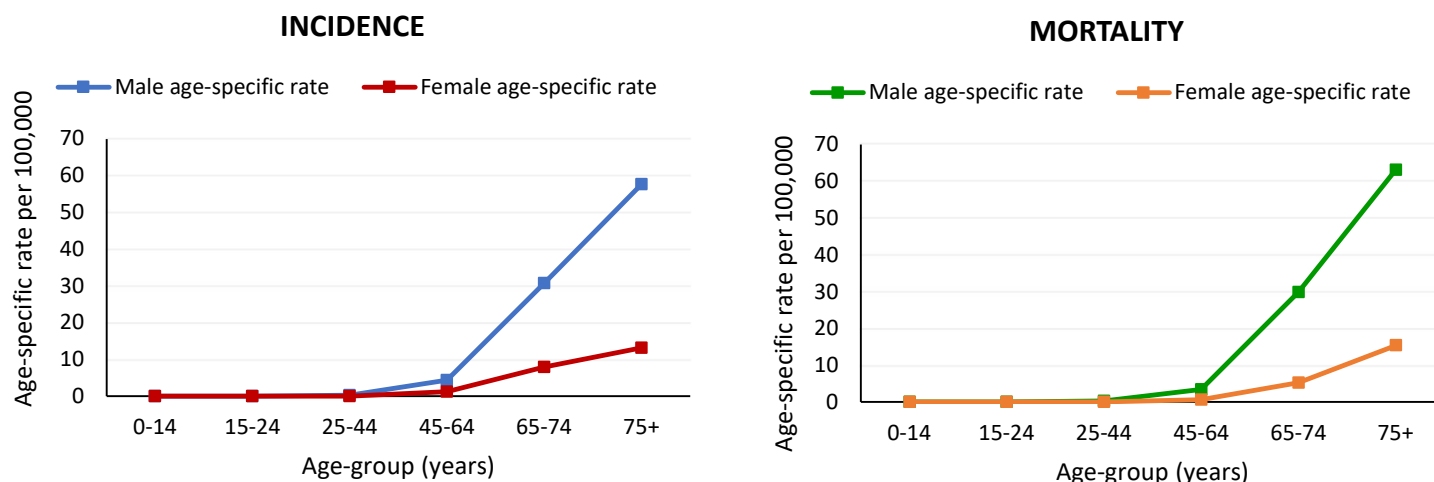


Figure 42. Mesothelioma: age-specific incidence and mortality rates (per 100,000) by age-group and sex, Western Australia, 1982-2019

Table 53. Mesothelioma: Relative survival (%) by time period, Western Australia, 1995-1999 to 2015-2019





Number of years following initial diagnosis	Relative survival				
	1995-1999	2000-2004	2005-2009	2010-2014	2015-2019
1	34.6%	44.5%	47.6%	51.1%	54.0%
2	12.8%	18.6%	21.7%	23.9%	26.3%
3	6.6%	5.9%	10.5%	12.9%	13.4%
4	1.8%	3.6%	6.4%	8.8%	8.7%
5	1.2%	3.3%	5.3%	5.9%	5.9%

Table 54. Mesothelioma: counts and crude rates (per 100,000) for incidence and mortality by health region and sex, Western Australia, 2019

Health region	Incidence				Mortality			
	Male		Female		Male		Female	
	n	rate	n	rate	n	rate	n	rate
WA Metropolitan region								
<i>East Metro</i>	25	7.0	8	N/A	15	N/A	2	N/A
<i>North Metro</i>	26	7.3	7	N/A	25	7.0	4	N/A
<i>South Metro</i>	21	6.5	5	N/A	28	8.7	9	N/A
WA Country Health Services								
<i>Goldfields</i>	1	N/A	0	0.0	2	N/A	0	0.0
<i>Great Southern</i>	2	N/A	1	N/A	4	N/A	1	N/A
<i>Kimberley</i>	0	0.0	0	0.0	0	0.0	0	0.0
<i>Midwest</i>	2	N/A	2	N/A	1	N/A	0	0.0
<i>Pilbara</i>	1	N/A	0	0.0	1	N/A	0	0.0
<i>South West</i>	10	N/A	2	N/A	14	N/A	4	N/A
<i>Wheatbelt</i>	3	N/A	0	0.0	1	N/A	2	N/A

Note: Incidence/mortality rates for counts <20 are not provided as they are not reliable.

Table 55. Mesothelioma cancer: estimated cumulative risk to age 75 years by sex, Western Australia, 2019

Incidence risk		Mortality risk	
 in 239	 in 961	 in 264	 in 1458

Oesophagus

Table 56. Oesophageal cancer: counts and age-specific rates (per 100,000) for incidence and mortality by sex, Western Australia, 2019

Age Group (years)	Incidence				Mortality			
	Male		Female		Male		Female	
	n	rate	n	rate	n	rate	n	rate
0-14	0	0.0	0	0.0	0	0.0	0	0.0
15-24	0	0.0	0	0.0	0	0.0	0	0.0
25-44	5	N/A	1	N/A	0	0.0	1	N/A
45-64	49	15.3	9	N/A	29	9.0	4	N/A
65-74	51	46.1	9	N/A	23	20.8	8	N/A
75+	35	48.0	15	N/A	27	37.1	17	N/A
Total*	140	9.7	34	2.1	79	5.5	30	1.8

*Age-standardised rates. Note: Incidence/mortality rates for counts <20 are not provided as they are not reliable.

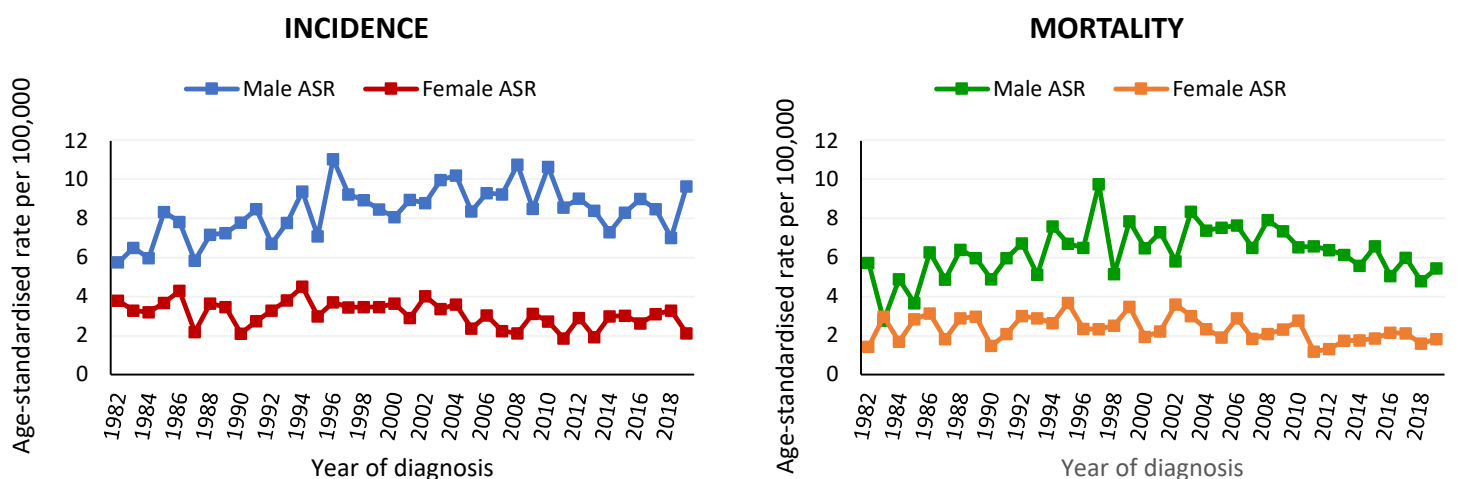


Figure 43. Oesophageal cancer: age-standardised incidence and mortality rates (per 100,000) by sex, Western Australia, 1982-2019

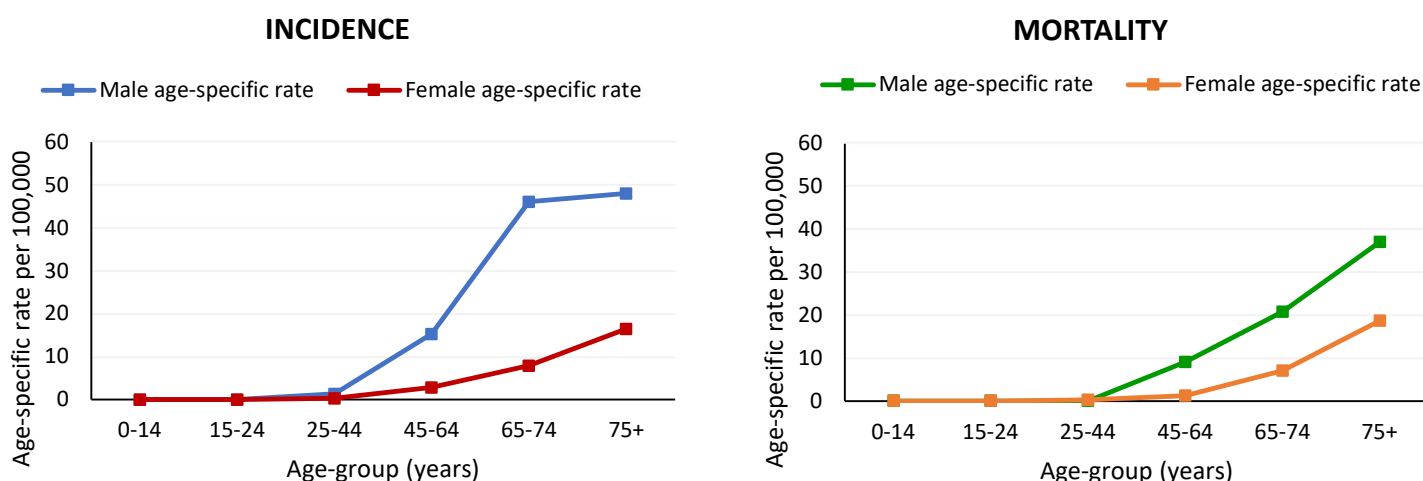


Figure 44. Oesophageal cancer: age-specific incidence and mortality rates (per 100,000) by age-group and sex, Western Australia, 1982-2019

Table 57. Oesophageal cancer: Relative survival (%) by time period, Western Australia, 1995-1999 to 2015-2019





Number of years following initial diagnosis	Relative survival				
	1995-1999	2000-2004	2005-2009	2010-2014	2015-2019
1	37.9%	45.1%	49.4%	56.2%	58.7%
2	22.0%	24.6%	29.1%	36.2%	39.8%
3	16.8%	18.6%	23.0%	29.8%	32.7%
4	15.8%	16.1%	18.8%	25.3%	28.4%
5	14.6%	15.1%	17.8%	23.7%	25.9%

Table 58. Oesophageal cancer: counts and crude rates (per 100,000) for incidence and mortality by health region and sex, Western Australia, 2019

Health region	Incidence				Mortality			
	Male		Female		Male		Female	
	n	rate	n	rate	n	rate	n	rate
WA Metropolitan region								
<i>East Metro</i>	34	9.5	7	N/A	11	N/A	4	N/A
<i>North Metro</i>	27	7.6	10	N/A	20	5.6	9	N/A
<i>South Metro</i>	36	11.2	7	N/A	34	10.6	10	N/A
WA Country Health Services								
<i>Goldfields</i>	6	N/A	0	0.0	2	N/A	0	0.0
<i>Great Southern</i>	6	N/A	1	N/A	3	N/A	1	N/A
<i>Kimberley</i>	1	N/A	1	N/A	0	0.0	1	N/A
<i>Midwest</i>	5	N/A	3	N/A	2	N/A	0	0.0
<i>Pilbara</i>	4	N/A	0	0.0	2	N/A	0	0.0
<i>South West</i>	10	N/A	4	N/A	4	N/A	3	N/A
<i>Wheatbelt</i>	11	N/A	1	N/A	1	N/A	2	N/A

Note: Incidence/mortality rates for counts <20 are not provided as they are not reliable.

Table 59. Oesophageal cancer: estimated cumulative risk to age 75 years by sex, Western Australia, 2019

Incidence risk		Mortality risk	
 in 125	 in 723	 in 254	 in 945

Ovary

Table 60. Ovarian cancer: counts and age-specific rates (per 100,000) for incidence and mortality among females, Western Australia, 2019

Age Group (years)	Incidence		Mortality	
	Female		Female	
	n	rate	n	rate
0-14	0	0.0	0	0.0
15-24	2	N/A	0	0.0
25-44	10	N/A	3	N/A
45-64	39	12.0	21	6.5
65-74	27	23.6	21	18.4
75+	26	28.6	22	24.2
Total*	104	6.9	67	4.2

*Age-standardised rates.

Note: Incidence/mortality rates for counts <20 are not provided as they are not reliable.

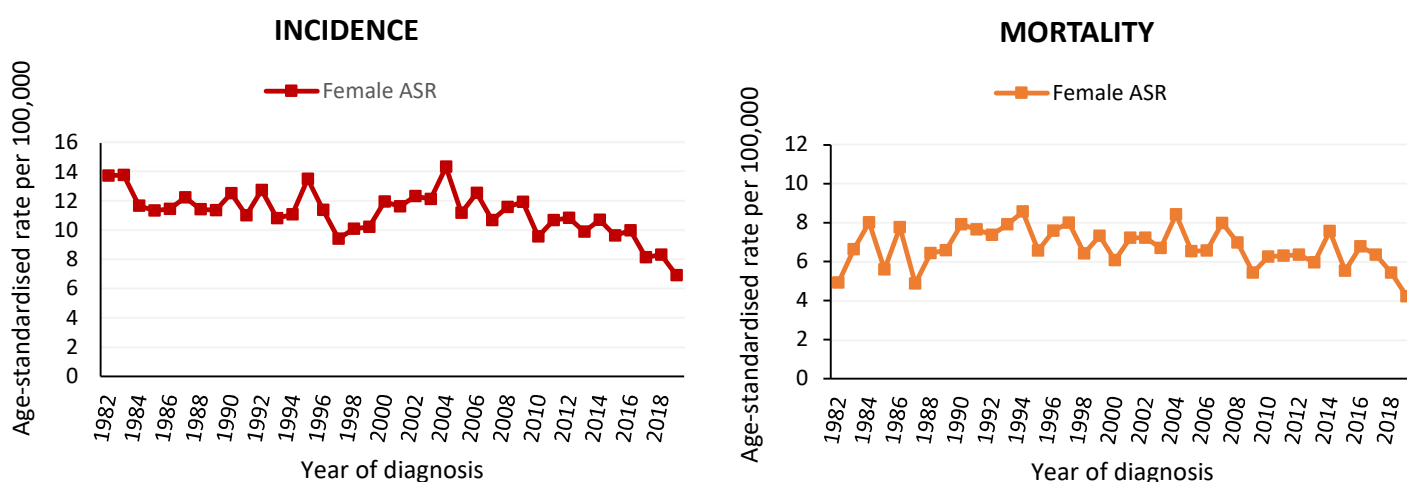


Figure 45. Ovarian cancer: age-standardised incidence and mortality rates (per 100,000) among females, Western Australia, 1982-2019

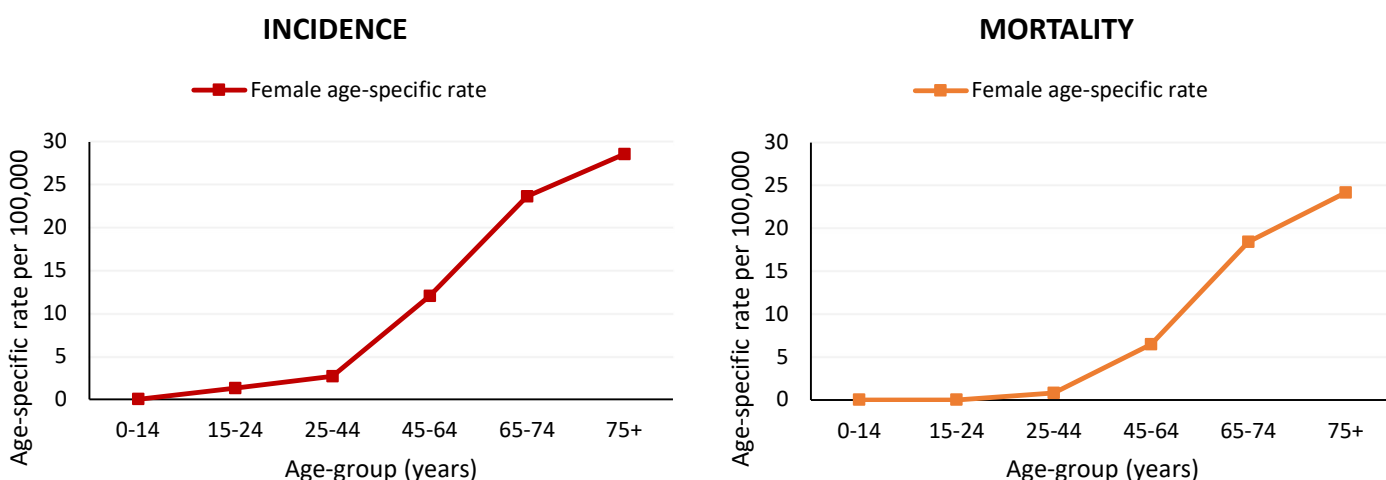


Figure 46. Ovarian cancer: age-specific incidence and mortality rates (per 100,000) by age-group among females, Western Australia, 1982-2019

Table 61. Ovarian cancer: Relative survival (%) by time period, Western Australia, 1995-1999 to 2015-2019



Number of years following initial diagnosis	Relative survival				
	1995-1999	2000-2004	2005-2009	2010-2014	2015-2019
1	70.4%	75.1%	79.1%	80.3%	78.7%
2	56.3%	61.5%	66.3%	68.3%	68.7%
3	48.2%	49.8%	59.0%	58.2%	61.1%
4	42.2%	38.8%	51.6%	51.6%	52.7%
5	38.8%	36.3%	46.9%	47.8%	48.2%

Table 62. Ovarian cancer: counts and crude rates (per 100,000) for incidence and mortality among females by health region, Western Australia, 2019

Health region	Incidence		Mortality	
	n	rate	n	rate
WA Metropolitan region				
<i>East Metro</i>	29	8.2	10	N/A
<i>North Metro</i>	22	6.0	26	7.0
<i>South Metro</i>	32	9.7	23	7.0
WA Country Health Services				
<i>Goldfields</i>	1	N/A	1	N/A
<i>Great Southern</i>	0	0.0	1	N/A
<i>Kimberley</i>	2	N/A	0	0.0
<i>Midwest</i>	2	N/A	1	N/A
<i>Pilbara</i>	4	N/A	0	0.0
<i>South West</i>	9	N/A	3	N/A
<i>Wheatbelt</i>	3	N/A	2	N/A

Note: Incidence/mortality rates for counts <20 are not provided as they are not reliable.

Table 63. Ovarian cancer: estimated cumulative risk to age 75 years in females, Western Australia, 2019

Incidence risk	Mortality risk
 in 180	 in 295

Pancreas

Table 64. Pancreatic cancer: counts and age-specific rates (per 100,000) for incidence and mortality by sex, Western Australia, 2019

Age Group (years)	Incidence				Mortality			
	Male		Female		Male		Female	
	n	rate	n	rate	n	rate	n	rate
0-14	0	0.0	0	0.0	0	0.0	0	0.0
15-24	0	0.0	0	0.0	0	0.0	0	0.0
25-44	4	N/A	7	N/A	3	N/A	1	N/A
45-64	45	14.0	43	13.2	41	12.8	14	N/A
65-74	46	41.6	41	35.9	37	33.4	35	30.7
75+	73	100.2	65	71.4	67	92.0	64	70.3
Total*	168	12.0	156	10.0	148	10.6	114	7.1

*Age-standardised rates. Note: Incidence/mortality rates for counts <20 are not provided as they are not reliable.

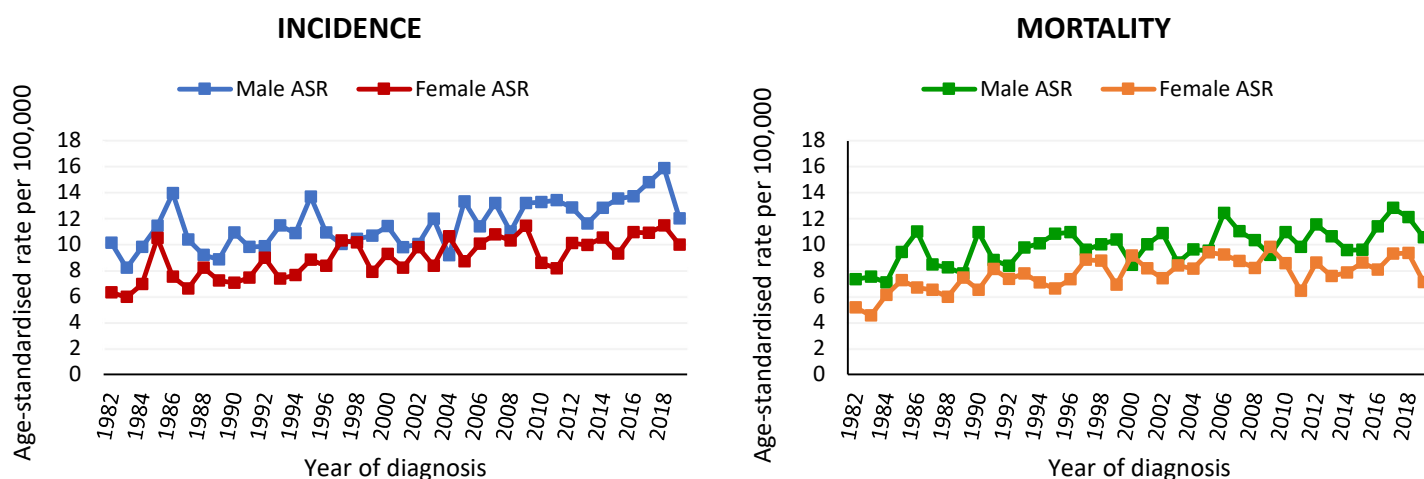


Figure 47. Pancreatic cancer: age-standardised incidence and mortality rates (per 100,000) by sex, Western Australia, 1982-2019

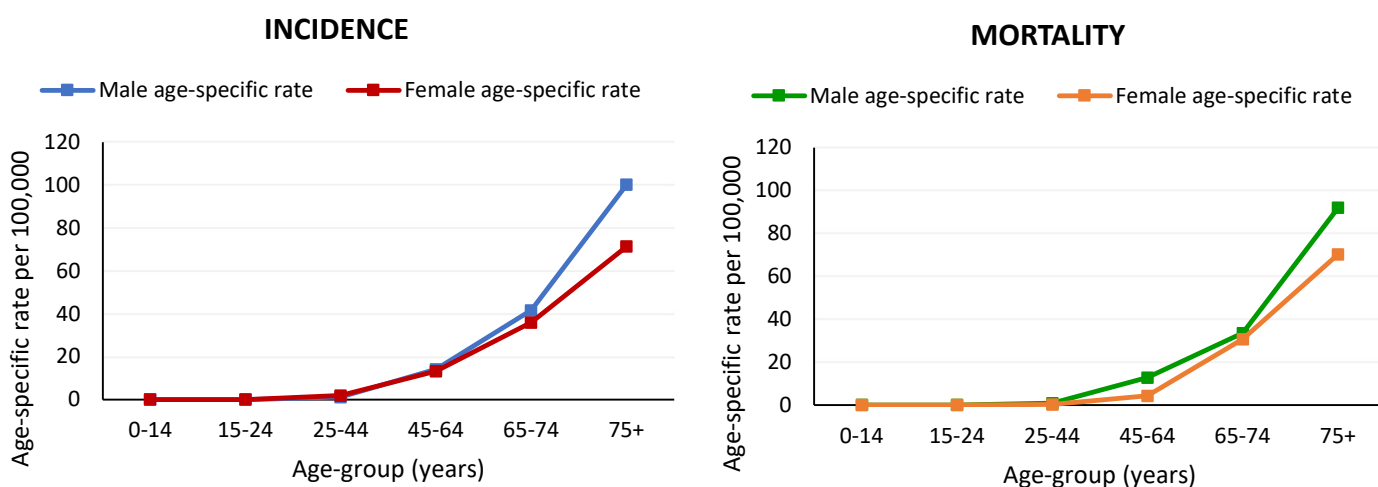


Figure 48. Pancreatic cancer: age-specific incidence and mortality rates (per 100,000) by age-group and sex, Western Australia, 1982-2019

Table 65. Pancreatic cancer: Relative survival (%) by time period, Western Australia, 1995-1999 to 2015-2019

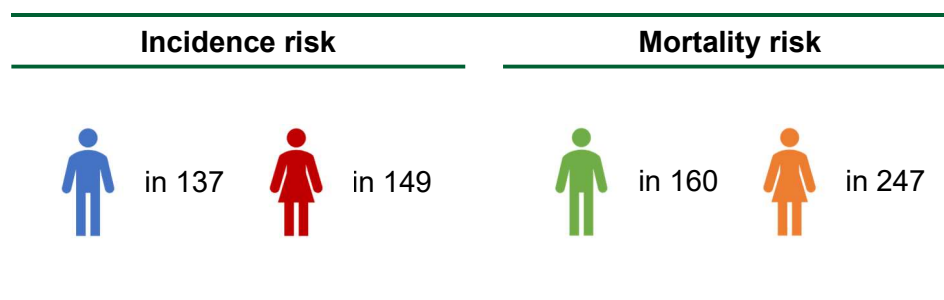
Number of years following initial diagnosis	Relative survival				
	1995-1999	2000-2004	2005-2009	2010-2014	2015-2019
1	16.5%	20.7%	24.1%	37.4%	41.5%
2	7.4%	8.6%	12.0%	19.9%	24.4%
3	6.3%	6.0%	8.2%	15.1%	18.3%
4	6.0%	4.8%	6.7%	13.1%	15.3%
5	5.3%	4.9%	5.7%	11.6%	13.8%

Table 66. Pancreatic cancer: counts and crude rates (per 100,000) for incidence and mortality by health region and sex, Western Australia, 2019

Health region	Incidence				Mortality			
	Male		Female		Male		Female	
	n	rate	n	rate	n	rate	n	rate
WA Metropolitan region								
<i>East Metro</i>	48	13.4	42	11.9	23	6.4	24	6.8
<i>North Metro</i>	44	12.3	41	11.1	51	14.3	44	11.9
<i>South Metro</i>	37	11.5	36	10.9	46	14.3	25	7.6
WA Country Health Services								
<i>Goldfields</i>	2	N/A	3	N/A	2	N/A	1	N/A
<i>Great Southern</i>	4	N/A	6	N/A	4	N/A	4	N/A
<i>Kimberley</i>	2	N/A	1	N/A	0	0.0	0	0.0
<i>Midwest</i>	3	N/A	2	N/A	4	N/A	1	N/A
<i>Pilbara</i>	0	0.0	2	N/A	0	0.0	0	0.0
<i>South West</i>	19	N/A	19	N/A	14	N/A	13	N/A
<i>Wheatbelt</i>	9	N/A	4	N/A	4	N/A	2	N/A

Note: Incidence/mortality rates for counts <20 are not provided as they are not reliable.

Table 67. Pancreatic cancer: estimated cumulative risk to age 75 years by sex, Western Australia, 2019



Prostate

Table 68. Prostate cancer: counts and age-specific rates (per 100,000) for incidence and mortality among males, Western Australia, 2019

Age Group (years)	Incidence		Mortality	
	Male		Male	
	n	rate	n	rate
0-14	0	0.0	0	0.0
15-24	0	0.0	0	0.0
25-44	14	N/A	0	0.0
45-64	759	236.8	15	N/A
65-74	1000	904.0	50	45.2
75+	599	822.1	193	264.9
Total*	2372	160.1	258	19.1

*Age-standardised rates.

Note: Incidence/mortality rates for counts <20 are not provided as they are not reliable.

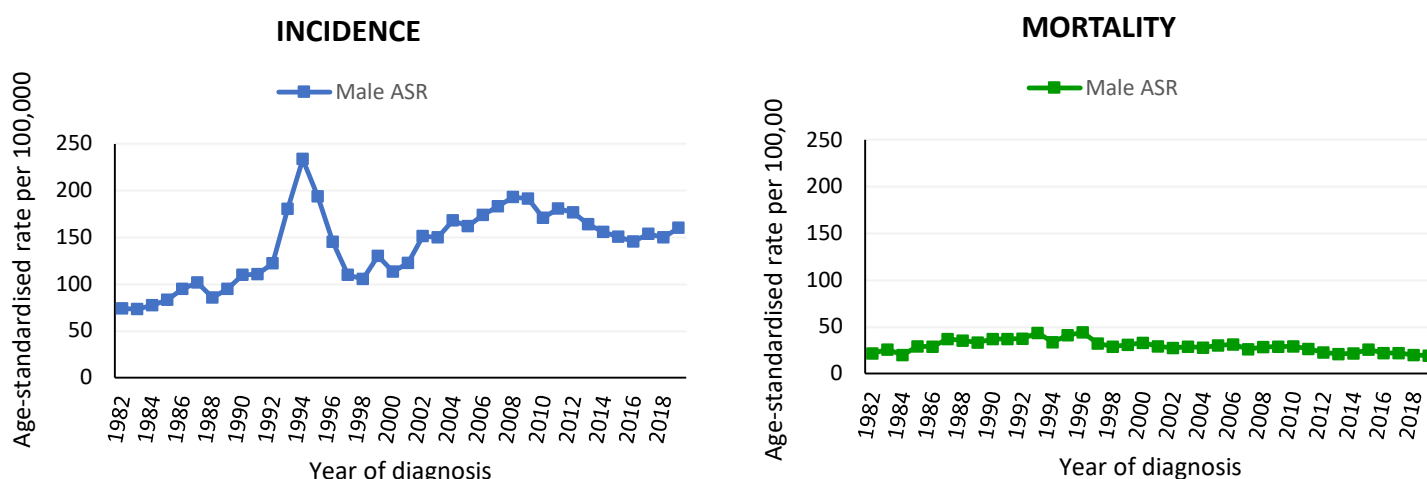


Figure 49. Prostate cancer: age-standardised incidence and mortality rates (per 100,000) among males, Western Australia, 1982-2019

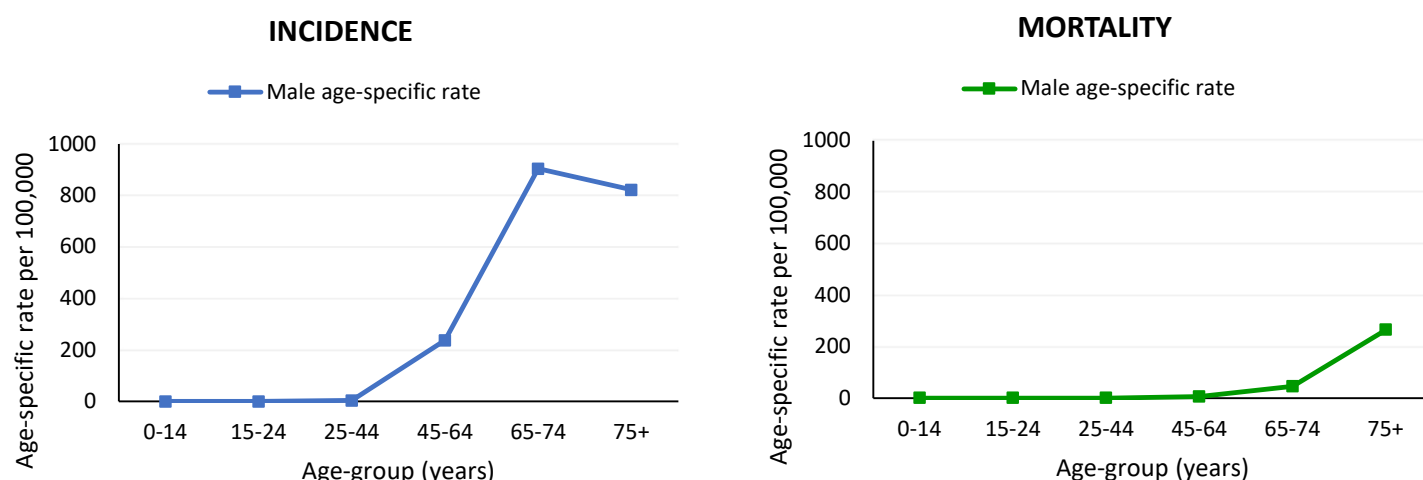


Figure 50. Prostate cancer: age-specific incidence and mortality rates (per 100,000) by age-group among males, Western Australia, 1982-2019

Table 69. Prostate cancer: Relative survival (%) by time period, Western Australia, 1995-1999 to 2015-2019

Number of years following initial diagnosis	Relative survival				
	1995-1999	2000-2004	2005-2009	2010-2014	2015-2019
1	97.0%	96.7%	98.2%	99.0%	98.8%
2	94.1%	94.3%	96.7%	98.2%	97.7%
3	91.7%	91.8%	95.3%	97.5%	97.3%
4	89.4%	90.2%	93.7%	96.9%	96.8%
5	86.7%	88.5%	92.4%	96.1%	96.3%

Table 70. Prostate cancer: counts and crude rates (per 100,000) for incidence and mortality among males by health region, Western Australia, 2019

Health region	Incidence		Mortality	
	n	rate	n	rate
WA Metropolitan region				
<i>East Metro</i>	502	140.1	49	13.7
<i>North Metro</i>	672	188.0	77	21.5
<i>South Metro</i>	684	212.2	79	24.5
WA Country Health Services				
<i>Goldfields</i>	46	163.7	4	N/A
<i>Great Southern</i>	92	302.3	9	N/A
<i>Kimberley</i>	16	N/A	1	N/A
<i>Midwest</i>	82	261.4	7	N/A
<i>Pilbara</i>	13	N/A	1	N/A
<i>South West</i>	161	183.5	22	25.1
<i>Wheatbelt</i>	104	267.1	9	N/A

Note: Incidence/mortality rates for counts <20 are not provided as they are not reliable.

Table 71. Prostate cancer: estimated cumulative risk to age 75 years in males, Western Australia, 2019

Incidence risk	Mortality risk
 in 8	 in 179

Stomach

Table 72. Stomach cancer: counts and age-specific rates (per 100,000) for incidence and mortality by sex, Western Australia, 2019

Age Group (years)	Incidence				Mortality			
	Male		Female		Male		Female	
	n	rate	n	rate	n	rate	n	rate
0-14	0	0.0	0	0.0	0	0.0	0	0.0
15-24	0	0.0	0	0.0	0	0.0	0	0.0
25-44	6	N/A	6	N/A	0	0.0	0	0.0
45-64	46	14.3	29	8.9	24	7.5	11	N/A
65-74	57	51.5	18	N/A	24	21.7	3	N/A
75+	55	75.5	33	36.2	26	35.7	20	22.0
Total*	164	11.4	86	5.6	74	5.1	34	2.2

*Age-standardised rates. Note: Incidence/mortality rates for counts <20 are not provided as they are not reliable.

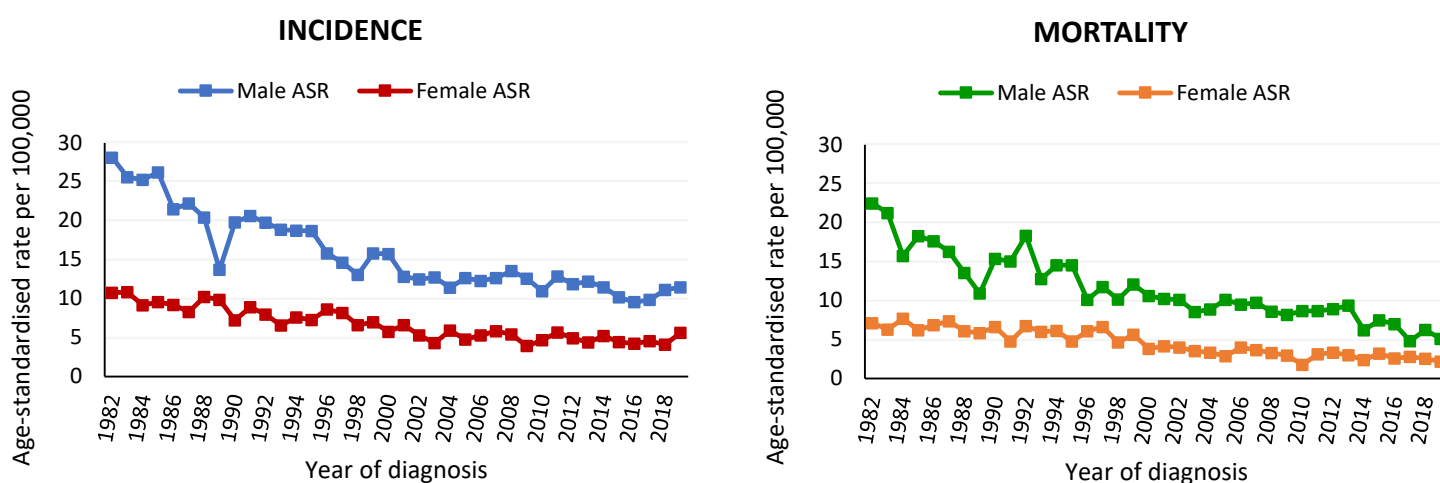


Figure 51. Stomach cancer: age-standardised incidence and mortality rates (per 100,000) by sex, Western Australia, 1982-2019

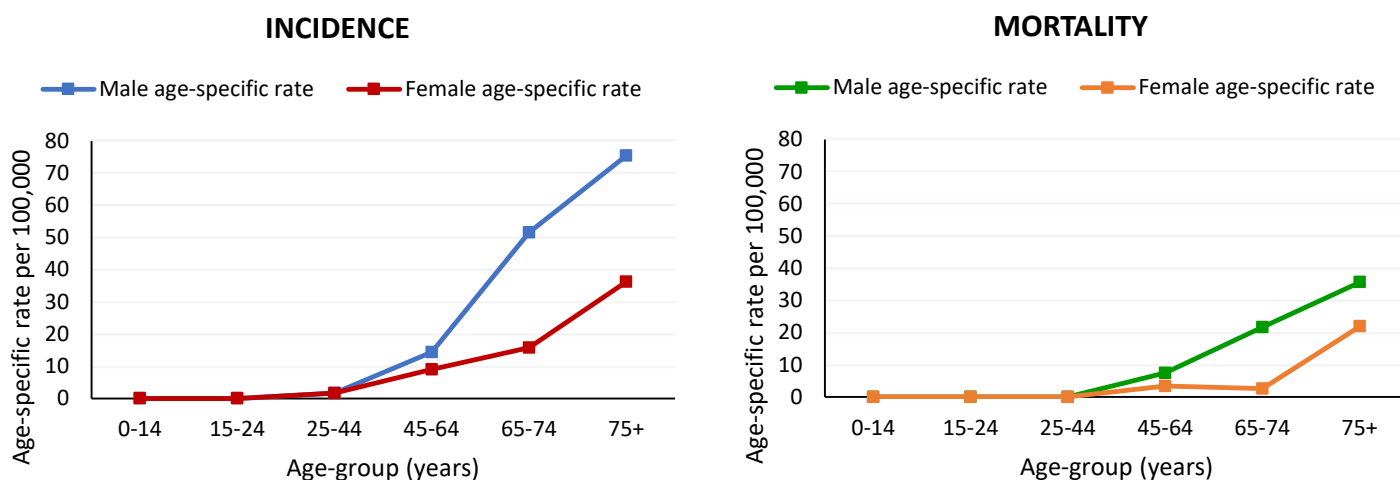


Figure 52. Stomach cancer: age-specific incidence and mortality rates (per 100,000) by age-group and sex, Western Australia, 1982-2019

Table 73. Stomach cancer: Relative survival (%) by time period, Western Australia, 1995-1999 to 2015-2019





Number of years following initial diagnosis	Relative survival				
	1995-1999	2000-2004	2005-2009	2010-2014	2015-2019
1	44.3%	47.4%	52.6%	57.2%	63.9%
2	31.1%	35.1%	36.1%	43.3%	49.0%
3	24.9%	29.3%	30.4%	37.4%	42.0%
4	22.5%	26.4%	27.8%	34.6%	38.4%
5	20.8%	24.9%	25.9%	33.5%	37.1%

Table 74. Stomach cancer: counts and crude rates (per 100,000) for incidence and mortality by health region and sex, Western Australia, 2019

Health region	Incidence				Mortality			
	Male		Female		Male		Female	
	n	rate	n	rate	n	rate	n	rate
WA Metropolitan region								
<i>East Metro</i>	48	13.4	23	6.5	9	N/A	4	N/A
<i>North Metro</i>	38	10.6	16	N/A	23	6.4	12	N/A
<i>South Metro</i>	48	14.9	26	7.9	29	9.0	14	N/A
WA Country Health Services								
<i>Goldfields</i>	3	N/A	0	0.0	1	N/A	0	0.0
<i>Great Southern</i>	5	N/A	0	0.0	4	N/A	0	0.0
<i>Kimberley</i>	1	N/A	2	N/A	2	N/A	1	N/A
<i>Midwest</i>	3	N/A	6	N/A	1	N/A	1	N/A
<i>Pilbara</i>	0	0.0	1	N/A	0	0.0	0	0.0
<i>South West</i>	9	N/A	6	N/A	3	N/A	1	N/A
<i>Wheatbelt</i>	9	N/A	6	N/A	2	N/A	1	N/A

Note: Incidence/mortality rates for counts <20 are not provided as they are not reliable.

Table 75. Stomach cancer: estimated cumulative risk to age 75 years by sex, Western Australia, 2019

Incidence risk		Mortality risk	
	in 115		in 276
	in 261		in 1037

Thyroid

Table 76. Thyroid cancer: counts and age-specific rates (per 100,000) for incidence and mortality by sex, Western Australia, 2019

Age Group (years)	Incidence				Mortality			
	Male		Female		Male		Female	
	n	rate	n	rate	n	rate	n	rate
0-14	1	N/A	0	0.0	0	0.0	0	0.0
15-24	2	N/A	14	N/A	0	0.0	0	0.0
25-44	24	6.4	72	19.1	0	0.0	0	0.0
45-64	38	11.9	104	32.0	1	N/A	1	N/A
65-74	29	26.2	48	42.0	0	0.0	1	N/A
75+	15	N/A	19	N/A	4	N/A	2	N/A
Total*	109	7.9	257	18.5	5	N/A	4	N/A

*Age-standardised rates. Note: Incidence/mortality rates for counts <20 are not provided as they are not reliable.

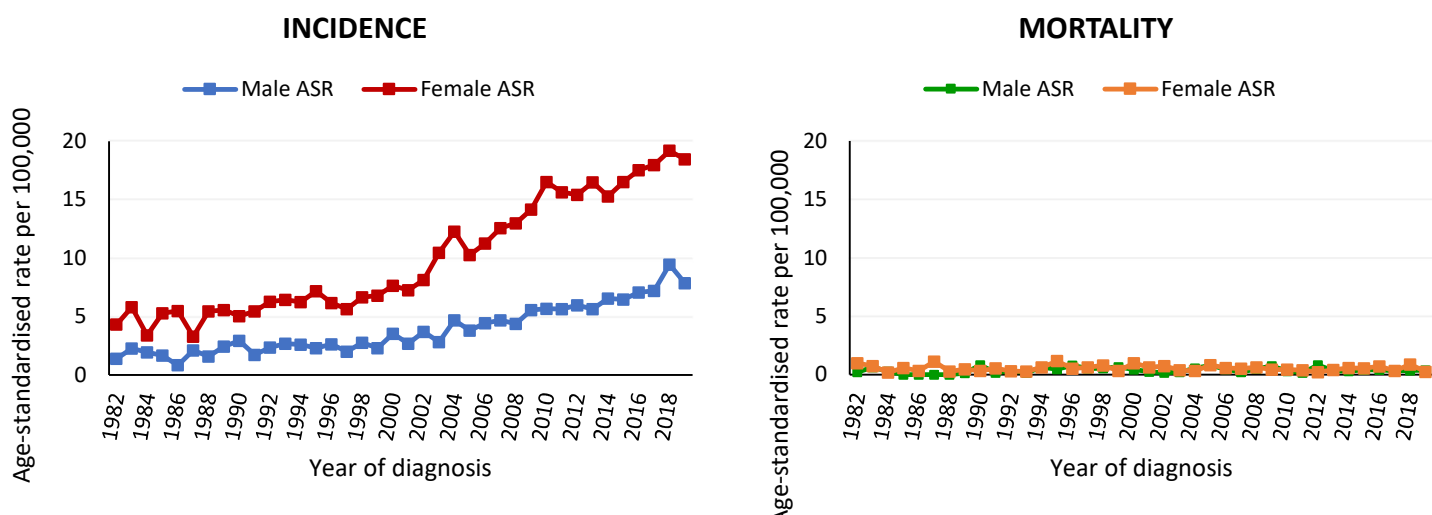


Figure 53. Thyroid cancer: age-standardised incidence and mortality rates (per 100,000) by sex, Western Australia, 1982-2019

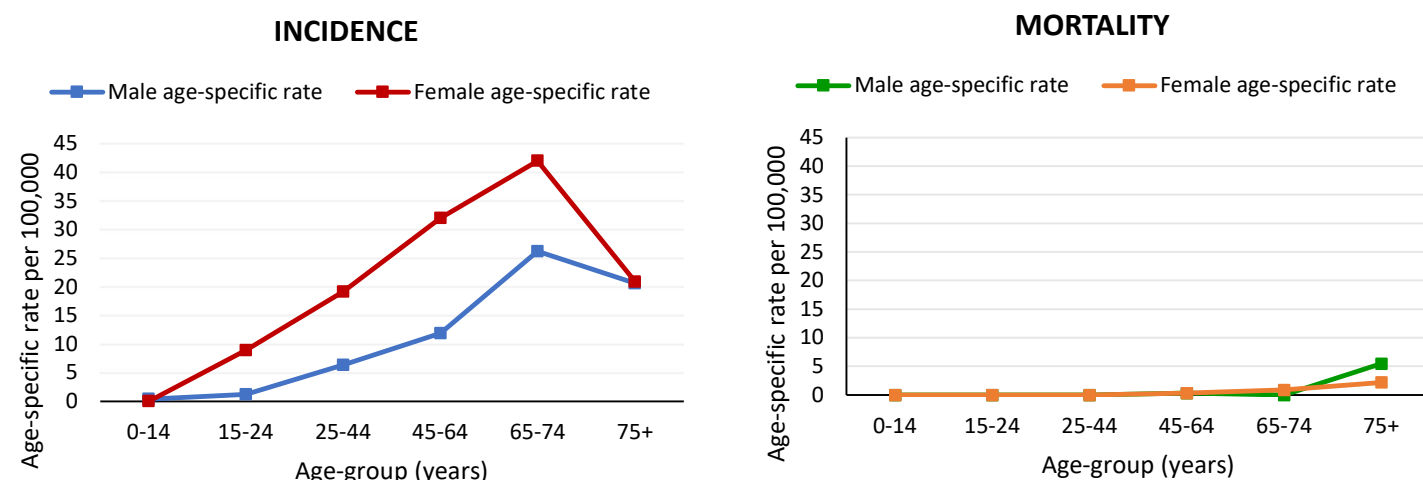


Figure 54. Thyroid cancer: age-specific incidence and mortality rates (per 100,000) by age-group and sex, Western Australia, 1982-2019

Table 77. Thyroid cancer: Relative survival (%) by time period, Western Australia, 1995-1999 to 2015-2019





Number of years following initial diagnosis	Relative survival				
	1995-1999	2000-2004	2005-2009	2010-2014	2015-2019
1	93.1%	96.6%	96.2%	98.5%	98.4%
2	92.9%	96.5%	95.7%	97.8%	97.6%
3	92.7%	95.3%	95.0%	97.4%	97.0%
4	91.3%	93.7%	94.4%	96.9%	96.4%
5	90.7%	92.3%	93.8%	97.0%	96.0%

Table 78. Thyroid cancer: counts and crude rates (per 100,000) for incidence and mortality by health region and sex, Western Australia, 2019

Health region	Incidence				Mortality			
	Male		Female		Male		Female	
	n	rate	n	rate	n	rate	n	rate
WA Metropolitan region								
<i>East Metro</i>	42	11.7	63	17.9	1	N/A	1	N/A
<i>North Metro</i>	29	8.1	77	20.8	2	N/A	1	N/A
<i>South Metro</i>	18	N/A	64	19.4	2	N/A	1	N/A
WA Country Health Services								
<i>Goldfields</i>	1	N/A	3	N/A	0	0.0	0	0.0
<i>Great Southern</i>	3	N/A	9	N/A	0	0.0	0	0.0
<i>Kimberley</i>	1	N/A	5	N/A	0	0.0	1	N/A
<i>Midwest</i>	4	N/A	4	N/A	0	0.0	0	0.0
<i>Pilbara</i>	1	N/A	2	N/A	0	0.0	0	0.0
<i>South West</i>	8	N/A	19	N/A	0	0.0	0	0.0
<i>Wheatbelt</i>	2	N/A	11	N/A	0	0.0	0	0.0

Note: Incidence/mortality rates for counts <20 are not provided as they are not reliable.

Table 79. Thyroid cancer: estimated cumulative risk to age 75 years by sex, Western Australia, 2019

Incidence risk		Mortality risk	
	in 155		in 66
	-		in 6015

Unknown primary

Table 80. Unknown primary cancer: counts and age-specific rates (per 100,000) for incidence and mortality by sex, Western Australia, 2019

Age Group (years)	Incidence				Mortality			
	Male		Female		Male		Female	
	n	rate	n	rate	n	rate	n	rate
0-14	0	0.0	0	0.0	0	0.0	0	0.0
15-24	0	0.0	0	0.0	0	0.0	0	0.0
25-44	2	N/A	6	N/A	1	N/A	3	N/A
45-64	51	15.9	29	8.9	25	7.8	24	7.4
65-74	62	56.0	30	26.3	49	44.3	17	N/A
75+	107	146.8	97	106.5	89	122.1	100	109.8
Total*	222	15.8	162	9.9	164	11.8	144	8.5

*Age-standardised rates. Note: Incidence/mortality rates for counts <20 are not provided as they are not reliable.

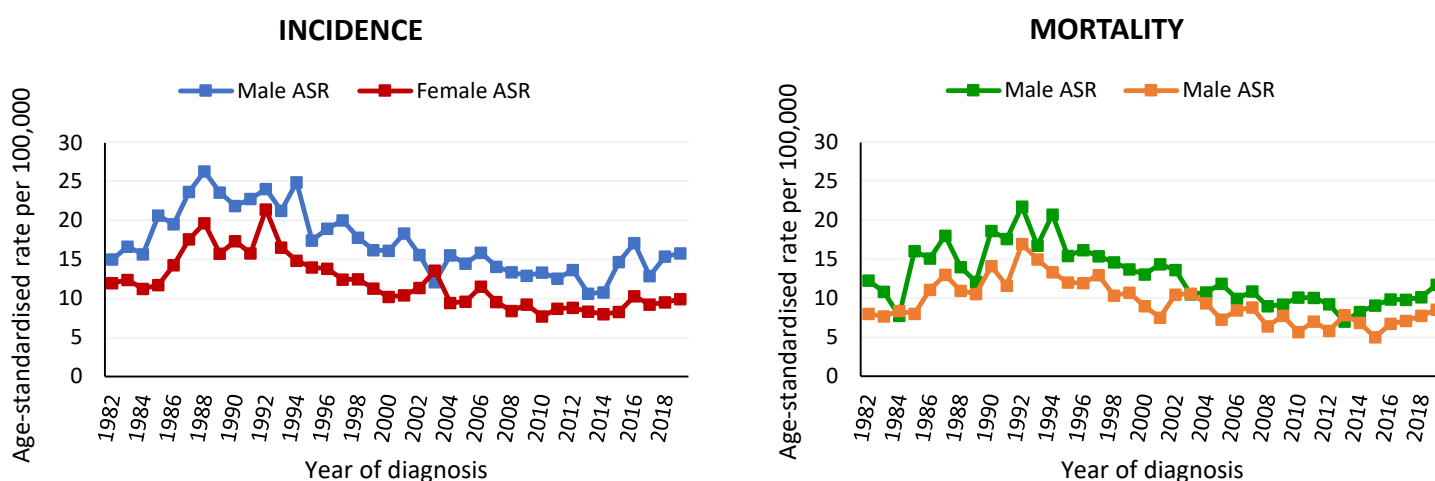


Figure 55. Unknown primary cancer: age-standardised incidence and mortality rates (per 100,000) by sex, Western Australia, 1982-2019

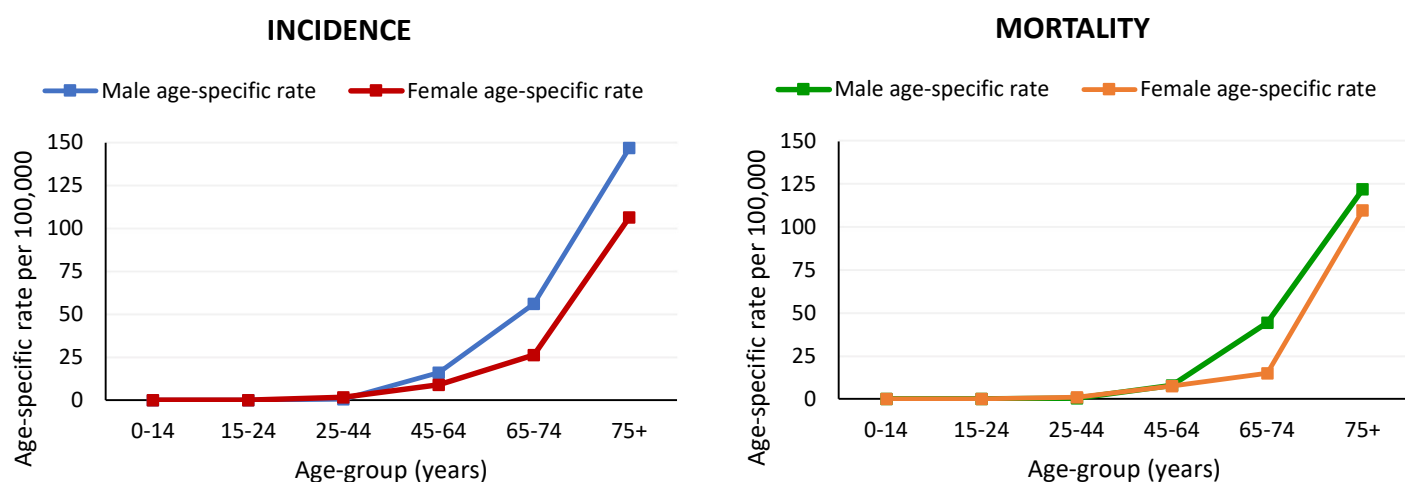


Figure 56. Unknown primary cancer: age-specific incidence and mortality rates (per 100,000) by age-group and sex, Western Australia, 1982-2019

Table 81. Unknown primary cancer: Relative survival (%) by time period, Western Australia, 1995-1999 to 2015-2019





Number of years following initial diagnosis	Relative survival				
	1995-1999	2000-2004	2005-2009	2010-2014	2015-2019
1	11.3%	14.2%	18.6%	18.5%	28.3%
2	7.5%	10.1%	14.1%	14.9%	22.9%
3	6.5%	8.9%	12.8%	13.7%	19.7%
4	6.3%	8.0%	12.3%	12.8%	18.1%
5	6.0%	7.7%	11.7%	12.4%	17.7%

Table 82. Unknown primary cancer: counts and crude rates (per 100,000) for incidence and mortality by health region and sex, Western Australia, 2019

Health region	Incidence				Mortality			
	Male		Female		Male		Female	
	n	rate	n	rate	n	rate	n	rate
WA Metropolitan region								
<i>East Metro</i>	61	17.0	48	13.6	21	5.9	29	8.2
<i>North Metro</i>	59	16.5	39	10.6	51	14.3	43	11.6
<i>South Metro</i>	63	19.5	41	12.4	61	18.9	39	11.8
WA Country Health Services								
<i>Goldfields</i>	3	N/A	2	N/A	3	N/A	1	N/A
<i>Great Southern</i>	4	N/A	9	N/A	3	N/A	7	N/A
<i>Kimberley</i>	3	N/A	2	N/A	2	N/A	4	N/A
<i>Midwest</i>	8	N/A	3	N/A	6	N/A	6	N/A
<i>Pilbara</i>	1	N/A	0	0.0	1	N/A	2	N/A
<i>South West</i>	11	N/A	14	N/A	12	N/A	10	N/A
<i>Wheatbelt</i>	9	N/A	4	N/A	4	N/A	3	N/A

Note: Incidence/mortality rates for counts <20 are not provided as they are not reliable.

Table 83. Unknown primary cancer: estimated cumulative risk to age 75 years by sex, Western Australia, 2019

Incidence risk		Mortality risk	
 in 108	 in 209	 in 159	 in 303

Uterus

Table 84. Uterine cancer: counts and age-specific rates (per 100,000) for incidence and mortality among females, Western Australia, 2019

Age Group (years)	Incidence		Mortality	
	Female		Female	
	n	rate	n	rate
0-14	0	0.0	0	0.0
15-24	0	0.0	0	0.0
25-44	12	N/A	1	N/A
45-64	113	34.8	8	N/A
65-74	78	68.3	15	N/A
75+	46	50.5	17	N/A
Total*	249	16.2	41	2.6

*Age-standardised rates.

Note: Incidence/mortality rates for counts <20 are not provided as they are not reliable.

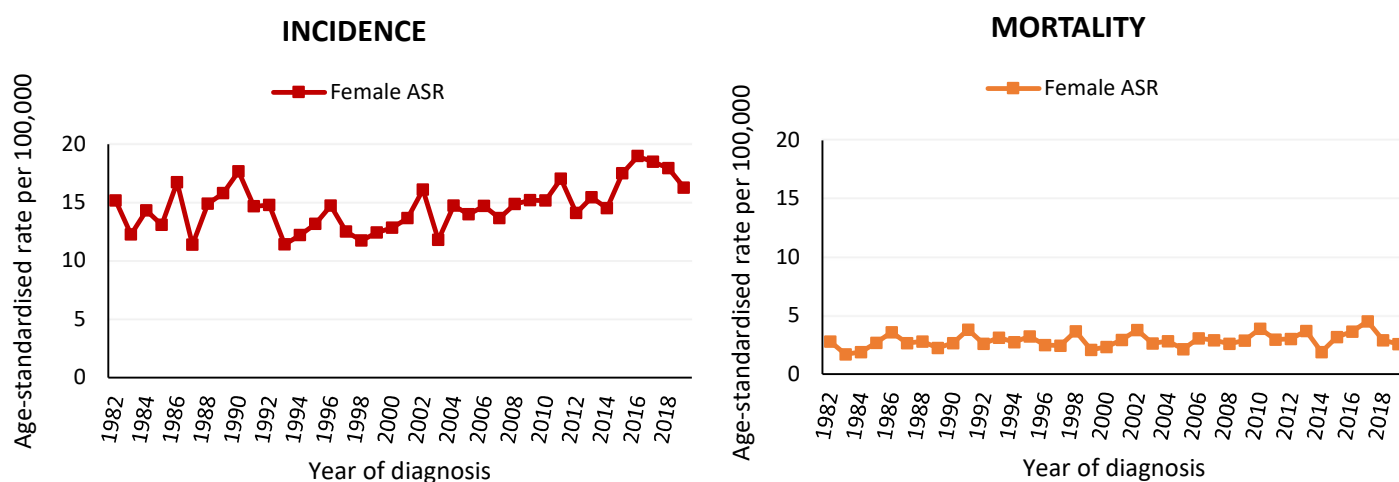


Figure 57. Uterine cancer: age-standardised incidence and mortality rates (per 100,000) among females, Western Australia, 1982-2019

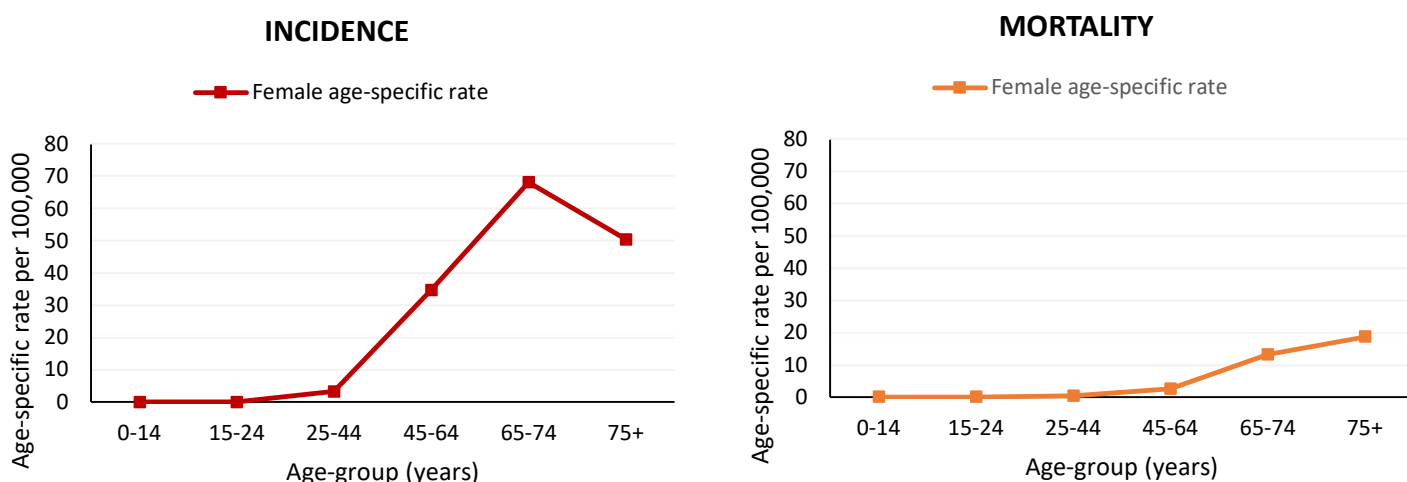


Figure 58. Uterine cancer: age-specific incidence and mortality rates (per 100,000) by age-group among females, Western Australia, 1982-2019

Table 85. Uterine cancer: Relative survival (%) by time period, Western Australia, 1995-1999 to 2015-2019


Number of years following initial diagnosis	Relative survival				
	1995-1999	2000-2004	2005-2009	2010-2014	2015-2019
1	89.0%	91.2%	92.9%	94.2%	93.9%
2	84.7%	85.7%	87.9%	88.6%	90.2%
3	83.1%	82.1%	85.8%	86.1%	86.7%
4	79.5%	80.4%	84.8%	84.0%	84.9%
5	77.0%	79.2%	82.6%	82.6%	84.1%

Table 86. Uterine cancer: counts and crude rates (per 100,000) for incidence and mortality among females by health region, Western Australia, 2019

Health region	Incidence		Mortality	
	n	rate	n	rate
WA Metropolitan region				
<i>East Metro</i>	60	17.0	9	N/A
<i>North Metro</i>	69	18.7	17	N/A
<i>South Metro</i>	66	20.0	6	N/A
WA Country Health Services				
<i>Goldfields</i>	6	N/A	1	N/A
<i>Great Southern</i>	9	N/A	5	N/A
<i>Kimberley</i>	4	N/A	0	0.0
<i>Midwest</i>	7	N/A	1	N/A
<i>Pilbara</i>	0	0.0	0	0.0
<i>South West</i>	21	22.8	2	N/A
<i>Wheatbelt</i>	7	N/A	0	0.0

Note: Incidence/mortality rates for counts <20 are not provided as they are not reliable.

Table 87. Uterine cancer: estimated cumulative risk to age 75 years in females, Western Australia, 2019

Incidence risk	Mortality risk
 in 69	 in 526

References

1. Australian Institute of Health and Welfare, *Cancer in Australia 2017*. 2017: Cancer Series no. 101. Cat. No. CAN 100. Canberra: AIHW.
2. Dickman, P., et al., *Regression models for relative survival*. Statistics in Medicine, 2004. **23**: p. 51-64.

Appendix: Supplementary Tables

Table 88. Incidence counts, crude incidence rate (per 100,000) and age-standardised incidence rate (per 100,000) of all newly diagnosed cancers by sex, Western Australia, 1982 to 2019.

Year	Total Incidence	Total crude rate	Total ASR	Male Incidence	Male crude rate	Male ASR	Female Incidence	Female crude rate	Female ASR
1982	3905	291.5	391.0	2064	304.6	464.3	1841	278.1	345.3
1983	3930	287.1	385.0	2082	301.0	462.4	1848	272.8	337.0
1984	3996	287.1	377.7	2141	304.6	452.8	1855	269.2	327.9
1985	4541	320.0	421.7	2434	340.1	513.9	2107	299.6	363.9
1986	4644	318.2	412.0	2491	338.1	499.5	2153	297.8	354.6
1987	4927	329.3	422.8	2653	351.5	519.3	2274	306.7	361.3
1988	5102	332.3	424.4	2697	348.4	509.2	2405	316.0	371.0
1989	5203	329.6	418.3	2715	341.3	493.2	2488	317.8	372.3
1990	5371	333.0	420.6	2861	352.2	504.9	2510	313.5	367.0
1991	5728	350.1	437.1	3078	374.0	527.5	2650	325.9	376.5
1992	6044	364.4	447.2	3238	388.2	540.6	2806	340.3	387.2
1993	6540	389.6	470.7	3695	437.6	595.9	2845	341.0	382.2
1994	7265	426.2	510.7	4282	499.5	672.5	2983	352.1	391.2
1995	7413	427.0	504.4	4128	472.8	620.0	3285	380.7	418.7
1996	7052	398.8	467.2	3966	446.1	580.7	3086	351.0	382.3
1997	6785	377.3	435.3	3627	401.4	518.1	3158	352.9	378.3
1998	6963	381.2	434.1	3727	406.5	515.9	3236	355.8	377.2
1999	7725	416.7	467.3	4263	458.4	570.1	3462	374.7	391.8
2000	7769	413.4	455.3	4267	453.2	553.5	3502	373.5	384.5
2001	8116	425.8	460.6	4387	459.8	547.2	3729	391.6	396.1
2002	8877	460.3	488.8	4905	507.6	588.6	3972	412.8	412.2
2003	9025	462.2	483.1	5014	511.8	583.2	4011	412.2	405.6
2004	9461	477.9	492.1	5319	534.5	595.1	4142	420.7	409.0
2005	9483	471.5	479.7	5378	531.0	583.7	4105	411.1	395.0
2006	10027	489.0	491.9	5659	547.0	592.3	4368	429.9	408.4
2007	10060	477.7	479.3	5823	548.5	588.2	4237	405.7	386.3
2008	10754	495.2	495.8	6212	567.4	608.0	4542	421.8	400.0
2009	11211	500.4	499.7	6530	578.2	616.5	4681	421.4	400.4
2010	11427	498.8	493.6	6530	565.8	597.5	4897	430.8	406.7
2011	11857	503.8	494.8	6795	573.4	601.1	5062	433.3	405.4
2012	12198	502.9	492.2	6837	558.8	581.0	5361	446.0	416.0
2013	12163	489.1	478.8	6898	549.9	569.1	5265	427.1	402.4
2014	12710	504.8	487.7	7039	555.6	564.9	5671	453.4	422.5
2015	13168	518.3	495.1	7268	569.3	571.0	5900	466.8	430.1
2016	13499	528.1	496.6	7432	579.7	570.7	6067	476.2	434.2
2017	13627	529.4	486.9	7547	585.5	562.1	6080	473.1	422.7
2018	13816	532.6	480.2	7635	588.8	550.7	6181	476.4	419.4
2019	14164	540.3	478.6	7920	604.8	553.2	6244	475.8	413.5

Table 89. Incidence counts and age-specific incidence rates (per 100,000) for all newly diagnosed cancers by sex, Western Australia, 2019.

Age-group (years)	Total incidence	Age-specific rate	Male incidence	Age-specific rate	Female incidence	Age-specific rate
0-4	35	20.3	24	27.0	11	13.2
5-9	15	8.7	8	9.0	7	8.3
10-14	14	8.4	6	7.1	8	9.9
15-19	37	24.0	26	33.0	11	14.6
20-24	71	42.3	44	50.9	27	33.2
25-29	108	57.8	52	55.3	56	60.3
30-34	195	96.0	69	68.4	126	123.1
35-39	278	144.4	102	105.4	176	184.0
40-44	381	222.7	139	161.8	242	284.3
45-49	680	381.0	280	313.2	400	449.0
50-54	960	581.8	420	510.9	540	652.1
55-59	1314	820.8	708	891.4	606	751.2
60-64	1792	1263.3	1052	1512.4	740	1023.6
65-69	2107	1715.1	1295	2152.7	812	1295.2
70-74	2119	2078.5	1344	2663.5	775	1505.2
75-79	1636	2343.5	1021	3041.8	615	1696.8
80-84	1225	2557.0	724	3340.6	501	1909.7
85+	1197	2591.3	606	3438.3	591	2068.7

Table 90. Total incidence counts and age-standardised incidence rates (per 100,000) of all newly diagnosed cancers by health region and sex, Western Australia, 2019.

Health region	Total Incidence	Total ASR	Male Incidence	Male ASR	Female Incidence	Female ASR
EMHS	3507	479.5	1898	535.8	1609	432.0
NMHS	3654	445.2	2035	525.6	1619	379.0
SMHS	3859	499.7	2171	585.8	1688	425.4
Goldfields	244	466.2	152	576.6	92	358.6
Great Southern	468	536.9	285	651.4	183	430.3
Kimberley	153	593.4	74	598.4	79	578.5
Midwest	436	554.2	286	711.9	150	391.6
Pilbara	137	405.6	74	363.2	63	470.3
South West	1146	494.6	600	533.6	546	458.1
Wheatbelt	558	482.4	343	573.1	215	387.0
Unknown	2	-	2	-	0	-

*EMHS = East Metropolitan Health service, NMHS = North Metropolitan Health Service and SMHS = South Metropolitan Health Service

Table 91. Mortality counts, crude mortality rate (per 100,000) and age-standardised mortality rates (per 100,000) of all cancers by sex, Western Australia, 1982 to 2019.

Year	Total mortality	Total crude rate	Total ASR	Male mortality	Male crude rate	Male ASR	Female mortality	Female crude rate	Female ASR
1982	1507	112.6	158.6	899	132.8	212.4	608	91.8	118.3
1983	1670	122.0	172.0	988	142.8	233.3	682	100.7	128.7
1984	1669	120.0	163.6	948	135.0	210.1	721	104.7	130.1
1985	2051	144.6	197.7	1177	164.5	262.3	874	124.3	153.4
1986	2173	148.9	200.6	1253	170.2	265.7	920	127.3	154.5
1987	2168	144.9	194.2	1243	164.7	257.5	925	124.7	150.0
1988	2221	144.7	193.0	1253	161.8	252.4	968	127.2	152.7
1989	2287	144.9	191.9	1290	162.2	246.4	997	127.3	152.6
1990	2490	154.4	201.4	1405	173.0	260.8	1085	135.5	160.2
1991	2535	154.9	202.3	1424	173.0	260.3	1111	136.6	160.3
1992	2693	162.4	207.4	1488	178.4	265.5	1205	146.2	167.4
1993	2817	167.8	212.0	1565	185.4	270.4	1252	150.0	170.7
1994	2886	169.3	209.9	1663	194.0	278.7	1223	144.3	161.6
1995	2927	168.6	207.5	1643	188.2	268.7	1284	148.8	164.7
1996	3001	169.7	206.2	1733	194.9	274.2	1268	144.2	157.5
1997	3065	170.4	203.1	1718	190.2	262.2	1347	150.5	161.6
1998	2964	162.3	191.0	1696	185.0	249.2	1268	139.4	147.7
1999	3178	171.4	198.7	1812	194.8	260.3	1366	147.9	153.7
2000	3159	168.1	191.1	1802	191.4	252.2	1357	144.7	148.2
2001	3184	167.0	185.6	1796	188.2	239.2	1388	145.8	145.7
2002	3348	173.6	189.3	1906	197.2	244.7	1442	149.9	148.1
2003	3419	175.1	187.8	1892	193.1	236.1	1527	156.9	152.6
2004	3377	170.6	180.0	1887	189.6	227.4	1490	151.4	145.1
2005	3470	172.5	178.7	2020	199.5	232.4	1450	145.2	136.5
2006	3610	176.0	180.5	2070	200.1	232.4	1540	151.6	141.4
2007	3732	177.2	180.6	2082	196.1	224.5	1650	158.0	146.2
2008	3700	170.4	173.4	2102	192.0	219.5	1598	148.4	137.2
2009	3923	175.1	178.1	2191	194.0	221.1	1732	155.9	145.4
2010	3843	167.8	169.4	2278	197.4	224.8	1565	137.7	126.3
2011	3884	165.0	164.8	2249	189.8	214.3	1635	139.9	126.2
2012	4051	167.0	166.1	2294	187.5	208.5	1757	146.2	132.9
2013	4027	161.9	160.4	2275	181.4	199.7	1752	142.1	129.6
2014	4067	161.5	157.0	2272	179.3	193.2	1795	143.5	128.7
2015	4231	166.5	159.3	2389	187.1	197.7	1842	145.7	127.9
2016	4226	165.3	155.3	2419	188.7	194.1	1807	141.8	124.0
2017	4177	162.3	148.5	2341	181.6	181.4	1836	142.9	121.5
2018	4271	164.6	146.8	2413	186.1	180.0	1858	143.2	119.8
2019	4177	159.3	138.4	2381	181.8	170.8	1796	136.9	111.8

Table 92. Mortality counts and age-specific mortality rates (per 100,000) of all cancers by sex, Western Australia, 2019.

Age-group (years)	Total mortality	Age-specific rate	Male mortality	Age-specific rate	Female mortality	Age-specific rate
0-4	4	2.3	0	0.0	4	4.8
5-9	4	2.3	4	4.5	0	0.0
10-14	1	0.6	1	1.2	0	0.0
15-19	5	3.2	2	2.5	3	4.0
20-24	5	3.0	4	4.6	1	1.2
25-29	11	5.9	4	4.3	7	7.5
30-34	14	6.9	8	7.9	6	5.9
35-39	21	10.9	14	14.5	7	7.3
40-44	58	33.9	18	20.9	40	47.0
45-49	100	56.0	54	60.4	46	51.6
50-54	149	90.3	88	107.1	61	73.7
55-59	257	160.5	144	181.3	113	140.1
60-64	375	264.4	227	326.3	148	204.7
65-69	475	386.6	294	488.7	181	288.7
70-74	589	577.7	352	697.6	237	460.3
75-79	591	846.6	324	965.3	267	736.7
80-84	602	1256.6	352	1624.1	250	952.9
85+	916	1983.0	491	2785.8	425	1487.7

Table 93. Mortality counts and age-standardised mortality rates (per 100,000) of all cancers by health region and sex, Western Australia, 2019.

Health region	Total mortality	Total ASR	Male mortality	Male ASR	Female mortality	Female ASR
EMHS	743	101.3	411	121.8	332	84.6
NMHS	1309	155.0	736	192.8	573	125.3
SMHS	1308	163.1	755	204.8	553	129.8
Goldfields	65	138.5	48	207.5	17	72.7
Great Southern	142	147.9	76	165.3	66	134.0
Kimberley	39	179.6	22	200.6	17	162.4
Midwest	112	142.1	71	183.9	41	101.7
Pilbara	23	144.4	13	105.1	10	197.6
South West	327	133.6	186	164.4	141	107.6
Wheatbelt	109	94.9	63	108.0	46	81.6

*EMHS = East Metropolitan Health service, NMHS = North Metropolitan Health Service and SMHS = South Metropolitan Health Service

Table 94. Incidence counts for the top 20 most common cancers by sex, Western Australia, 2019.

Cancer type	Total Incidence	Cancer type	Male Incidence	Cancer type	Female Incidence
Prostate	2372	Prostate	2372	Breast	1899
Breast	1914	Melanoma	953	Melanoma	681
Melanoma	1634	Colorectal	726	Colorectal	600
Colorectal	1326	Lung	693	Lung	564
Lung	1257	Lymphoma	331	Lymphoma	273
Lymphoma	604	Head and neck	326	Thyroid	257
Head and neck	448	Kidney	288	Uterus	249
Kidney	429	Bladder and urinary tract	228	Unknown primary site	162
Unknown primary site	384	Leukaemia	223	Pancreas	156
Thyroid	366	Unknown primary site	222	Leukaemia	142
Leukaemia	365	Pancreas	168	Kidney	141
Pancreas	324	Stomach	164	Head and neck	122
Bladder and urinary tract	312	Oesophagus	140	Ovary	104
Stomach	250	Liver	135	Vulva/vagina/unspecified female genital	94
Uterus	249	Brain and CNS	121	Stomach	86
Brain and CNS	190	Thyroid	109	Bladder and urinary tract	84
Liver	189	Myeloma & plasma cell tumours	108	Cervix	84
Myeloma & plasma cell tumours	177	Mesothelioma	91	Brain and CNS	69
Oesophagus	174	Testis	89	Myeloma & plasma cell tumours	69
Non melanoma, non-SCC/BCC skin	128	Non melanoma, non-SCC/BCC skin	87	Liver	54
Others	1072	Others	346	Others	354

Table 95. Mortality counts for the top 20 most common cancer deaths by sex, Western Australia, 2019.

Cancer type	Total mortality	Cancer type	Male mortality	Cancer type	Female mortality
Lung	721	Lung	426	Lung	295
Colorectal	408	Prostate	258	Breast	259
Unknown primary	308	Colorectal	225	Colorectal	183
Pancreas	262	Unknown primary	164	Unknown primary	144
Breast	260	Pancreas	148	Pancreas	114
Prostate	258	Melanoma	105	Leukaemia	68
Brain and CNS	152	Brain and CNS	98	Lymphoma	68
Melanoma	151	Head and neck	93	Ovary	67
Leukaemia	146	Mesothelioma	91	Brain and CNS	54
Lymphoma	145	Bladder and urinary tract	87	Liver	54
Liver	136	Liver	82	Melanoma	46
Head and neck	125	Oesophagus	79	Uterus	41
Bladder and urinary tract	124	Leukaemia	78	Bladder and urinary tract	37
Mesothelioma	113	Lymphoma	77	Gallbladder	36
Oesophagus	109	Stomach	74	Vulva/vagina/unspecified female genital	35
Stomach	108	Kidney	57	Stomach	34
Plasma cell tumours/myeloma	75	Plasma cell tumours/myeloma	46	Head and neck	32
Kidney	72	Skin (non-melanoma)	43	Oesophagus	30
Skin (non-melanoma)	72	Gallbladder	33	Plasma cell tumours/myeloma	29
Gallbladder	69	Myelodysplastic	30	Skin (non-melanoma)	29
Others	363	Others	87	Others	141

Table 96. Incidence counts, crude incidence rate (per 100,000) and age-standardised incidence rate (per 100,000) of all newly diagnosed cancers by sex in the Aboriginal population, Western Australia, 2008-2019.

Year	Total Incidence	Total Crude rate	Total ASR	Male Incidence	Male crude rate	Male ASR	Female Incidence	Female crude rate	Female ASR
2008	153	179.5	544.0	82	192.5	737.5	71	166.5	435.4
2009	164	187.6	584.8	77	176.2	593.5	87	198.9	556.8
2010	188	210.1	502.5	86	192.2	566.5	102	228.0	475.8
2011	169	185.6	485.6	74	162.5	507.2	95	208.6	473.4
2012	197	212.3	584.0	101	217.8	923.0	96	206.8	434.0
2013	179	188.9	500.1	86	181.7	651.6	93	196.0	438.0
2014	190	195.9	448.8	85	175.5	469.9	105	216.3	432.7
2015	195	197.2	489.3	104	210.4	623.5	91	183.9	425.0
2016	214	213.1	462.0	117	233.0	647.3	97	193.2	360.8
2017	200	196.6	414.3	97	190.9	486.8	103	202.3	382.8
2018	250	241.7	458.8	109	210.8	560.3	141	272.6	441.7
2019	285	272.5	587.4	138	264.1	650.1	147	281.0	563.5

Table 97. Mortality counts, crude mortality rate (per 100,000) and age-standardised mortality rate (per 100,000) by sex in the Aboriginal population, Western Australia, 2008-2019.

Year	Total mortality	Total crude rate	Total ASR	Male mortality	Male crude rate	Male ASR	Female mortality	Female crude rate	Female ASR
2008	68	79.8	258.6	32	75.1	284.3	36	84.4	257.2
2009	89	101.8	376.1	44	100.7	559.9	45	102.9	307.4
2010	75	83.8	269.0	42	93.9	318.9	33	73.8	225.5
2011	84	92.2	307.0	39	85.6	417.2	45	98.8	247.5
2012	94	101.3	378.8	52	112.1	707.5	42	90.5	264.5
2013	85	89.7	230.6	42	88.7	286.2	43	90.6	198.1
2014	75	77.3	198.3	35	72.3	181.7	40	82.4	204.3
2015	78	78.9	256.1	39	78.9	416.3	39	78.8	205.5
2016	83	82.6	214.5	49	97.6	304.5	34	67.7	176.9
2017	96	94.4	224.0	45	88.6	306.7	51	100.2	197.0
2018	97	93.8	205.8	54	104.4	235.9	43	83.1	172.7
2019	91	87.0	219.1	53	101.4	329.1	38	72.6	183.6

Table 98. Incidence and mortality counts and age-standardised rate (per 100,000) of all cancers by health region in the Aboriginal population, Western Australia, 2019.

Health region	Total incidence	Total ASR	Total mortality	Total ASR
EMHS	36	365.9	12	N/A
NMHS	20	601.8	6	N/A
SMHS	45	927.9	12	N/A
Goldfields	14	N/A	6	N/A
Great Southern	15	N/A	7	N/A
Kimberley	56	560.7	20	240.6
Midwest	34	671.3	9	N/A
Pilbara	36	700.1	12	N/A
South West	13	N/A	3	N/A
Wheatbelt	14	N/A	4	N/A
Unknown	2		0	

*EMHS = East Metropolitan Health service, NMHS = North Metropolitan Health Service and SMHS = South Metropolitan Health Service

Table 99. Incidence counts for the top 10 most common cancers in the Aboriginal population by sex, Western Australia, 2019.

Cancer type	Total Incidence	Cancer type	Male Incidence	Cancer type	Female Incidence
Breast	41	Prostate	26	Breast	41
Lung	39	Lung	18	Lung	21
Prostate	26	Head and neck	16	Uterus	10
Head and neck	20	Colorectal	10	Colorectal	9
Colorectal	19	Oesophagus	10	Gallbladder	6
Oesophagus	13	Lymphoma	7	Pancreas	6
Lymphoma	12	Kidney	6	Lymphoma	5
Melanoma	10	Melanoma	5	Melanoma	5
Pancreas	10	Testis	5	Ovary	5
Uterus	10	Unknown primary site	5	Vulva/vagina/unspecified female genital	5
Others	85	Others	30	Others	34

Table 100. Mortality counts for the top 10 most common cancers in the Aboriginal population by sex, Western Australia, 2019.

Cancer type	Total Mortality	Cancer type	Male Mortality	Cancer type	Female Mortality
Lung	17	Head and neck	11	Lung	7
Head and neck	13	Lung	10	Breast	4
Unknown primary site	9	Liver	5	Unknown primary site	4
Liver	8	Unknown primary site	5	Leukaemia	3
Colorectal	6	Colorectal	4	Liver	3
Breast	5	Oesophagus	3	Pancreas	3
Pancreas	5	Mesothelioma	2	Colorectal	2
Leukaemia	4	Pancreas	2	Gallbladder	2
Oesophagus	4	Stomach	2	Head and neck	2
Stomach	3	Bladder and urinary tract	1	Bladder and urinary tract	1
Others	17	Others	8	Others	7

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