

Lung Cancer in Queensland

An Overview

2012



Acknowledgements

The authors acknowledge and appreciate the work of Queensland Health staff who contribute to and participate in the development and maintenance of Queensland Oncology Repository, Queensland Oncology Online and the Oncology Analysis System which supports the collection, analysis and interpretation of cancer information in Queensland.

The report was prepared by Michael Blake, Shoni Colquist, Danica Cossio, Tracey Guan, Hazel Harden and Dannie Zarate.

We also wish to thank Associate Professor Rayleen Bowman and Professor Kwun Fong for reviewing the report and providing valuable comments.

For more information:

Queensland Cancer Control Analysis Team
Queensland Health
GPO Box 48 Brisbane, Queensland, 4001 Australia
Ph: +61 (07) 3239 0886
Fax: +61 (07) 3239 0930
Email: qccat@health.qld.gov.au
<https://qccat.health.qld.gov.au>

Lung Cancer in Queensland: An Overview 2012

Suggested citation:

Queensland Government. Lung Cancer in Queensland: An overview 2012. Queensland Health, Brisbane, 2012

Copyright protects this publication. However, the Queensland Government has no objection to this material being reproduced with acknowledgement, except for commercial purposes.

Permission to reproduce for commercial purposes should be sought from:

The Manager
Queensland Cancer Control Analysis Team
Queensland Health
GPO Box 48 Brisbane, Queensland, 4001 Australia

ISBN: 978-1-921707-91-9

Published by Queensland Health
November 2012

©The State of Queensland,
Queensland Health 2012



Table of Contents

Foreword.....	1
Highlights	2
Lung Cancer Projections	3
Incidence.....	4
Expected mortality.....	7
Lung Cancer in Queensland	8
Incidence and mortality	9
Regional, national and international variation in incidence and mortality.....	15
Prevalence	17
Survival.....	18
Lung Cancer by Hospital and Health Service	19
Patient Characteristics	19
Incidence and Mortality.....	21
Survival.....	23
Multi-disciplinary Lung Cancer Care in Queensland	24
At a glance	29
The Prince Charles Hospital	31
Royal Brisbane & Women’s Hospital (RBWH).....	32
Nambour General Hospital	33
Princess Alexandra Hospital (PAH).....	34
Radiation Oncology Mater Centre	35
Gold Coast Hospital.....	36
Toowoomba General Hospital	37
Cairns Base Hospital.....	38
Future Directions	39
Appendix.....	40
Sources of Data	40
Glossary and common abbreviations.....	43
More on the QCCAT website.....	45
Citation Guidelines.....	45
References	46

Foreword

Lung cancer in Queensland: An overview 2012 provides clinicians, cancer patients and their families with up to date and relevant information on lung cancer in Queensland.

Lung cancer is the leading cause of cancer death in the world and this report examines the impact of lung cancer in Queensland. This report presents cancer data for 2009 and projections for 2013. It is one of a series of cancer specific reports and is part of the Oncology Analysis System (OASys) online library.

The report has four parts. Lung cancer projections for 2013 are presented in part one, part two presents Queensland lung cancer statistics and part three presents lung cancer statistics for Queensland Hospital and Health Services. The report focuses on patterns and trends for lung cancer and helps to monitor whether the trends are in the desired direction, for example, whether mortality from lung cancer is decreasing. Part four features multidisciplinary lung cancer care and describes the extent, patterns and characteristics of patients reviewed by multidisciplinary lung cancer teams in public hospitals in Queensland.

We hope that the inclusion of multidisciplinary care and Hospital and Health Services information provides a new perspective to assist in the planning and management of lung cancer in Queensland.

Highlights

In 2013:

The projected incidence shows a 19% increase from 2009.

Lung cancer is expected to account for 21% of all cancer deaths making it the leading cause of cancer death in Queensland.

In 2009:

2,094 new cases of lung cancer were diagnosed in Queensland; of these 1,223 cases were reported in males and 871 in females.

There were an estimated 2,750 people living with a diagnosis of lung cancer in the previous five years.

The average five-year relative survival in 2005 to 2009 for lung cancer improved by 3% from 1982 to 1988. However it is estimated that only 13.4% of people diagnosed with lung cancer are alive at five years.

From 2007 to 2009:

Males and females aged over 55 years accounted for 83% of the total lung cancer incidence with a median age of 70.

The age-standardised incidence rate was 61 per 100,000 for males and 34 per 100,000 for females.

The female cancer rate showed a significant increase from 17 per 100,000 in 1982 to 34 per 100,000 which contributed to the overall increase in incidence.

Incidence rates for lung cancer varied by remoteness for both males and females. The highest rate was seen in males who lived in remote and very remote Queensland (78 per 100,000), for females the rate was 43 per 100,000.

Age-standardised incidence and mortality rates vary by Hospital and Health Service. Central West has the highest rate of lung cancer incidence and North West has the highest rate of lung cancer mortality.

Part 1

Lung Cancer Projections

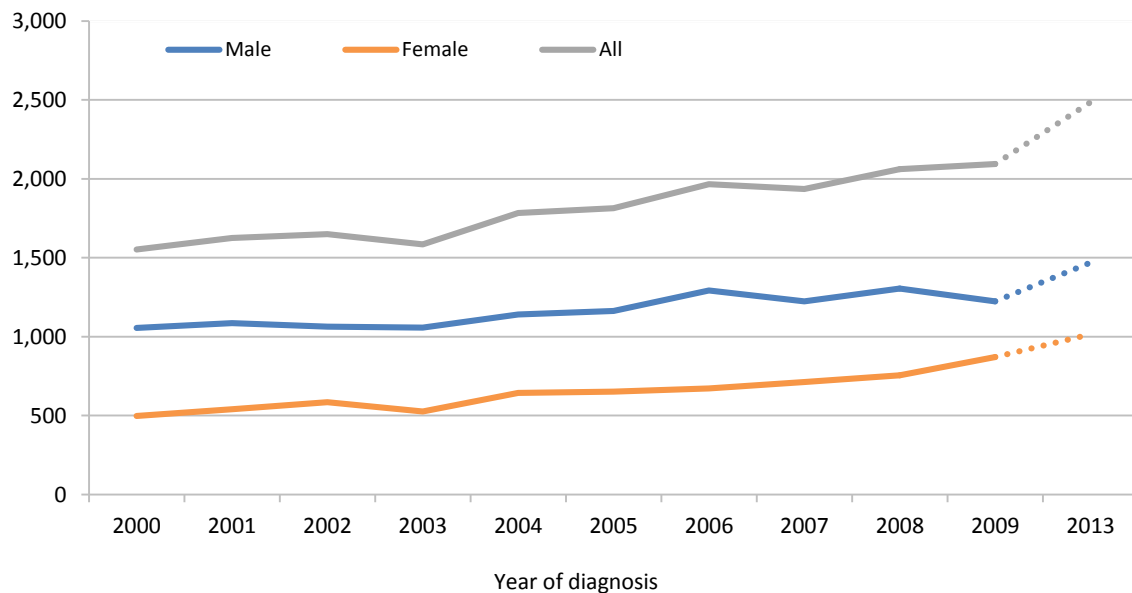


The International Classification of Diseases for Oncology (ICD-10-AM) has defined lung cancer as those with a primary site of C33 and C34 – trachea, bronchus and lung.¹ Patients with a diagnosis of mesothelioma and those patients who reside outside Queensland are not included in this report.

Incidence

In 2013, an estimated 2,485 new cases of invasive lung cancer will be diagnosed (Figure 1). The projected figures show that lung cancer is expected to continue to be more common in males (1,470 new cases) than in females (1,015 new cases). The projected incidence for 2013 shows a 19% increase from the 2009 incidence of 2,094 cases (Figure 1).

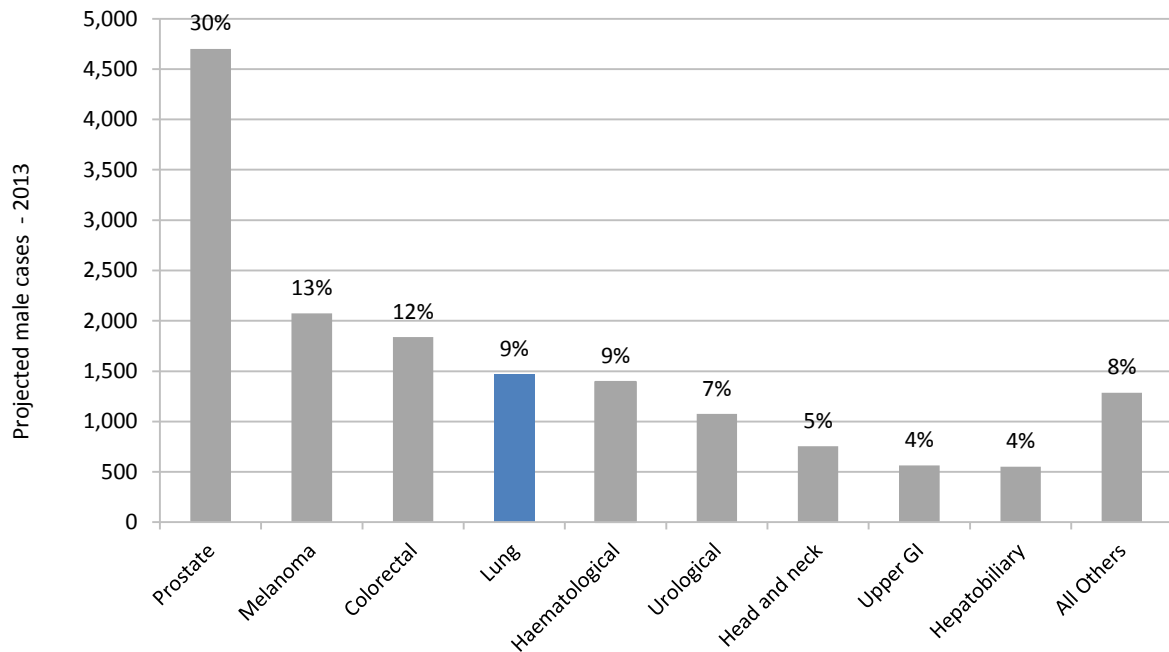
Figure 1: Actual and projected lung cancer incidence, Queensland, 2000-2013



Source: Oncology Analysis System, Queensland Cancer Control Analysis Team

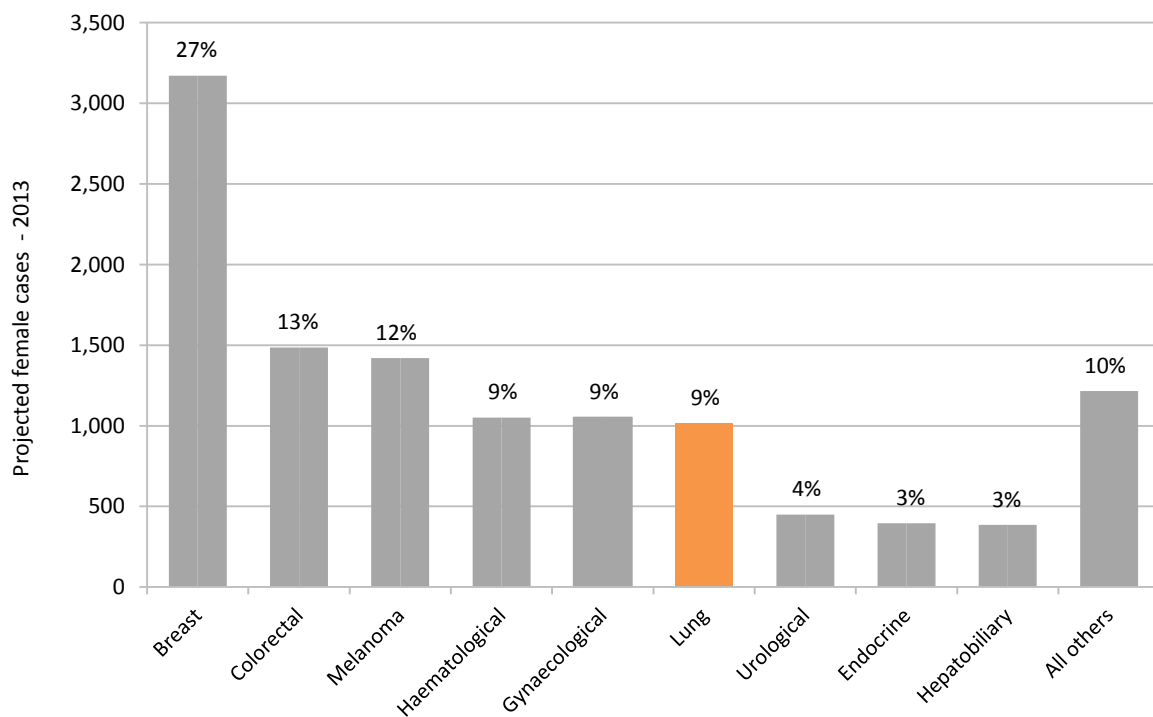
In 2013, lung cancer projected incidence is ranked 4th amongst all invasive cancers for males (Figure 2), and 6th for females (Figure 3).

Figure 2: Top 10 most commonly diagnosed cancers in males, Queensland, projected to 2013



Source: Oncology Analysis System, Queensland Cancer Control Analysis Team

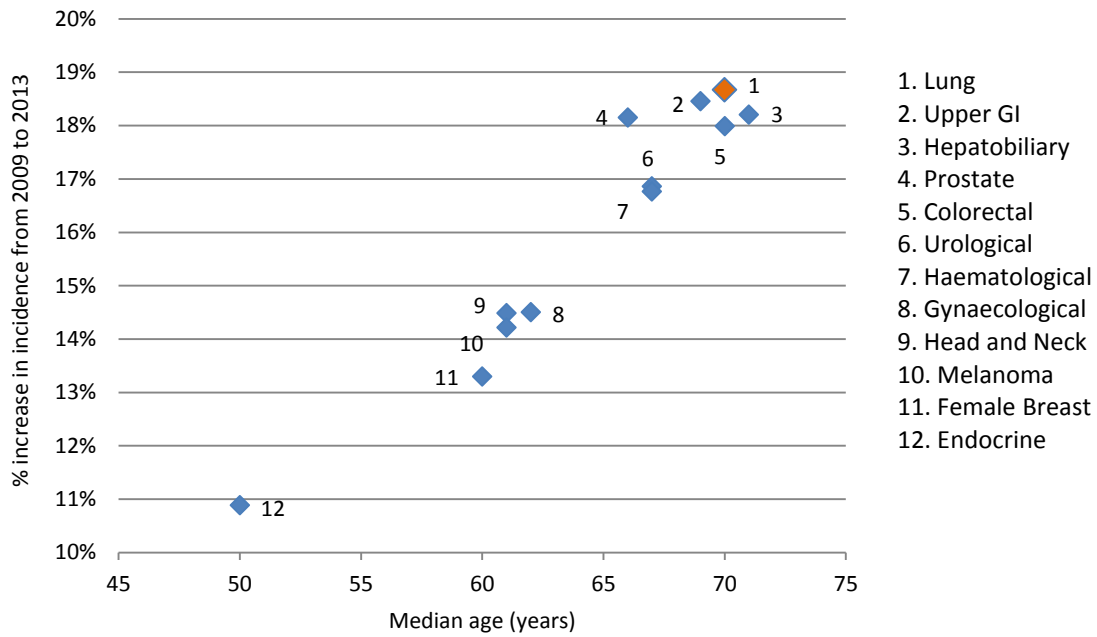
Figure 3: Top 10 most commonly diagnosed cancers in females, Queensland, projected to 2013



Source: Oncology Analysis System, Queensland Cancer Control Analysis Team

Figure 4 shows the expected relative increases in the incidence of common cancers from 2009 to 2013. Assuming no change in incidence rates during this period, lung cancer which is common in older persons is projected to show a relatively larger increase (19%) in the number of new cases compared to cancers common in younger persons. These trends are a direct consequence of the expected rapid increase in the number of people aged 65 years and older. These projections provide an indication of the likely burden of lung cancer and the demand for lung cancer services in 2013 and into the future.

Figure 4: Projected percentage change in cancer incidence for common cancers by median age of diagnosis, Queensland, 2009 to 2013

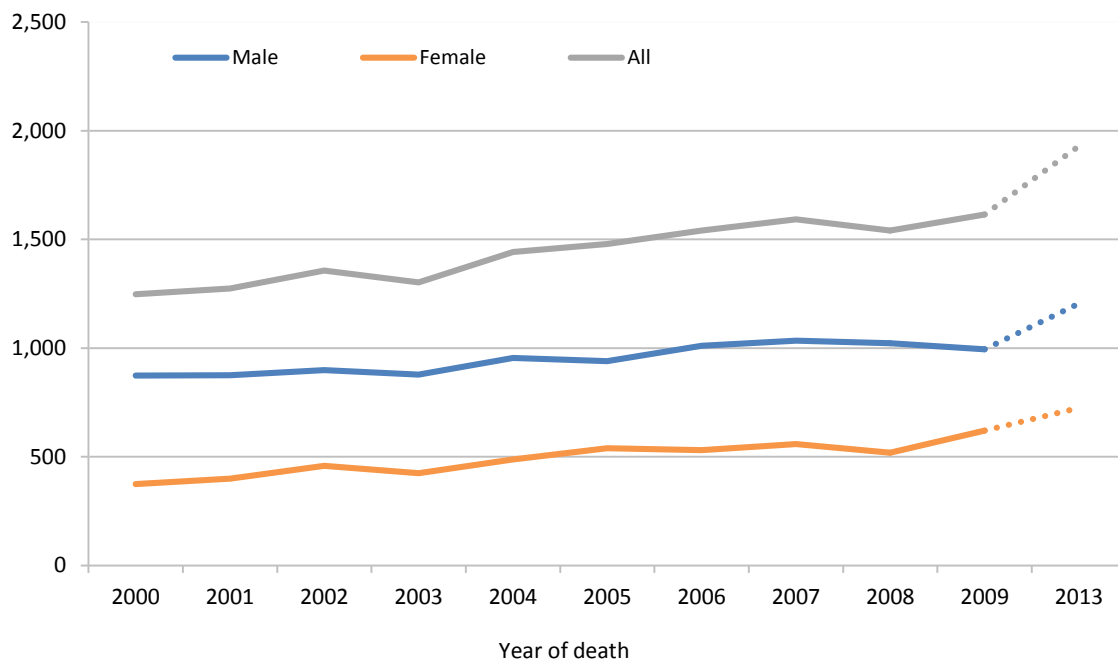


Source: Oncology Analysis System, Queensland Cancer Control Analysis Team

Expected mortality

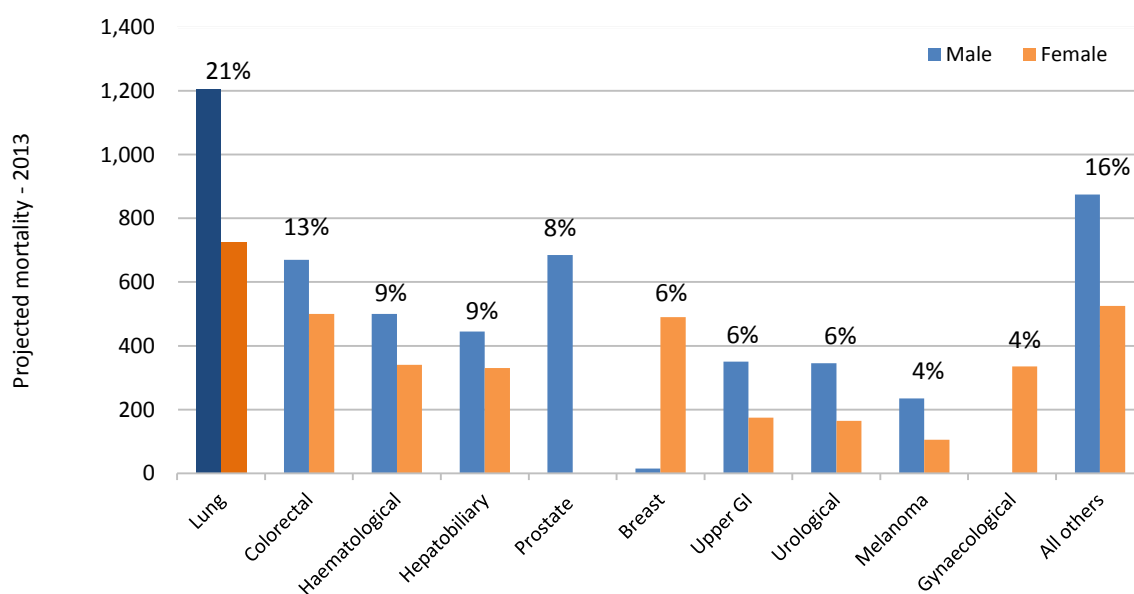
It is estimated that 1,930 Queenslanders may die of lung cancer in 2013. This represents a 20% increase since 2009 (Figure 5). More people are expected to die from lung cancer in 2013 than any other cancer (Figure 6).

Figure 5: Actual and expected lung cancer mortality, Queensland 2000-2013



Source: Oncology Analysis System, Queensland Cancer Control Analysis Team

Figure 6: Top 10 cancers by expected mortality, males and females, Queensland, 2013



Source: Oncology Analysis System, Queensland Cancer Control Analysis Team

Part 2

Lung Cancer in Queensland



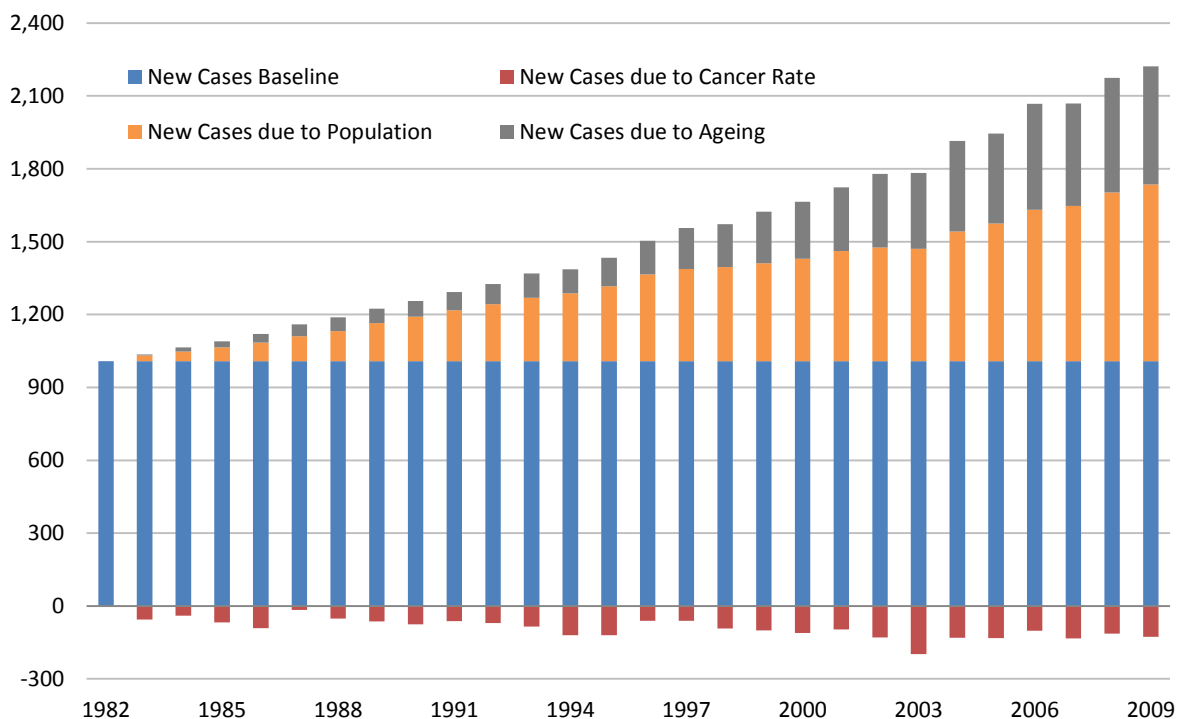
Incidence and mortality

Between 1982 and 2009 the number of new cases of lung cancer among Queensland residents has increased by 108%. In 1982, 1,008 cases of lung cancer were identified, increasing to 2,094 in 2009. This increase is largely due to population growth and ageing. Queensland is the fastest growing state in Australia and one of the fastest growing among developed countries. Queensland's population increased from 2.4 million in 1982 to 4.4 million in 2009, an increase of 83%. The proportion of persons 65 years and older also increased, from 9% in 1982 to 12% in 2009.

Although the total number of new cases of lung cancer in Queensland has increased each year between 1982 and 2009, when expressed as a proportion of the population and weighted to a fixed age distribution, the incidence, expressed as an *age-standardised rate*, has decreased. This means that despite the annual increase in the number of new cancer cases, the lung cancer rate, unlike many other cancers, has gradually decreased since 1982 (Figure 7).

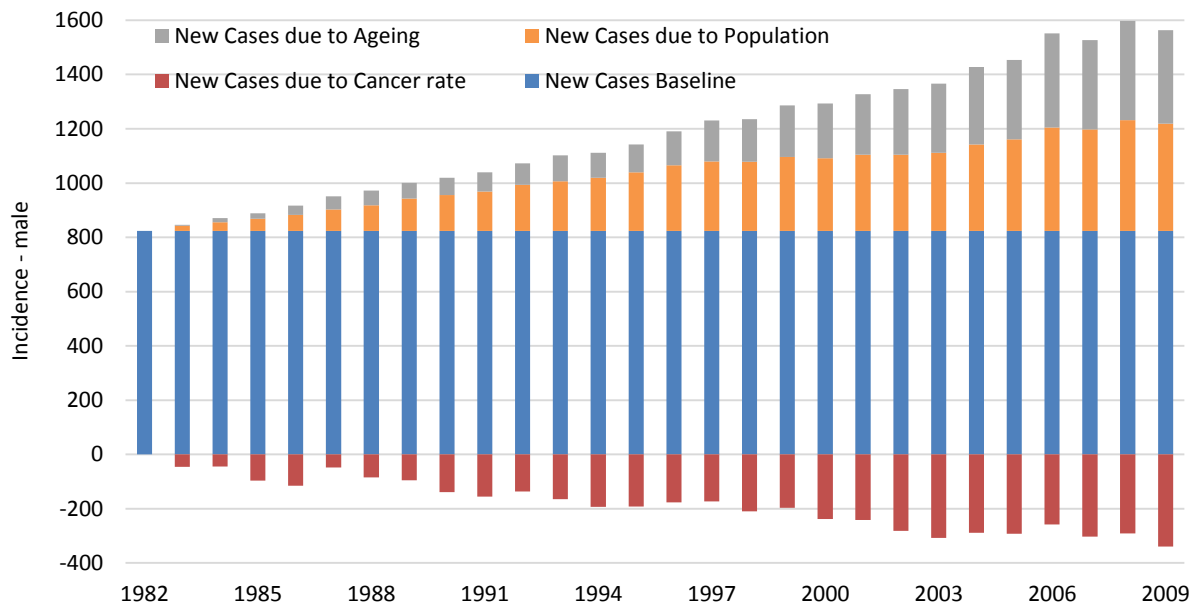
The decrease in cancer rate is being driven by the male lung cancer rate which has been steadily decreasing since 1982 (Figure 8). However, this is offset somewhat by the female lung cancer rate which has been gradually increasing since 1990 (Figure 9).

Figure 7: Growth in new cases of lung cancer, Queensland 1982-2009



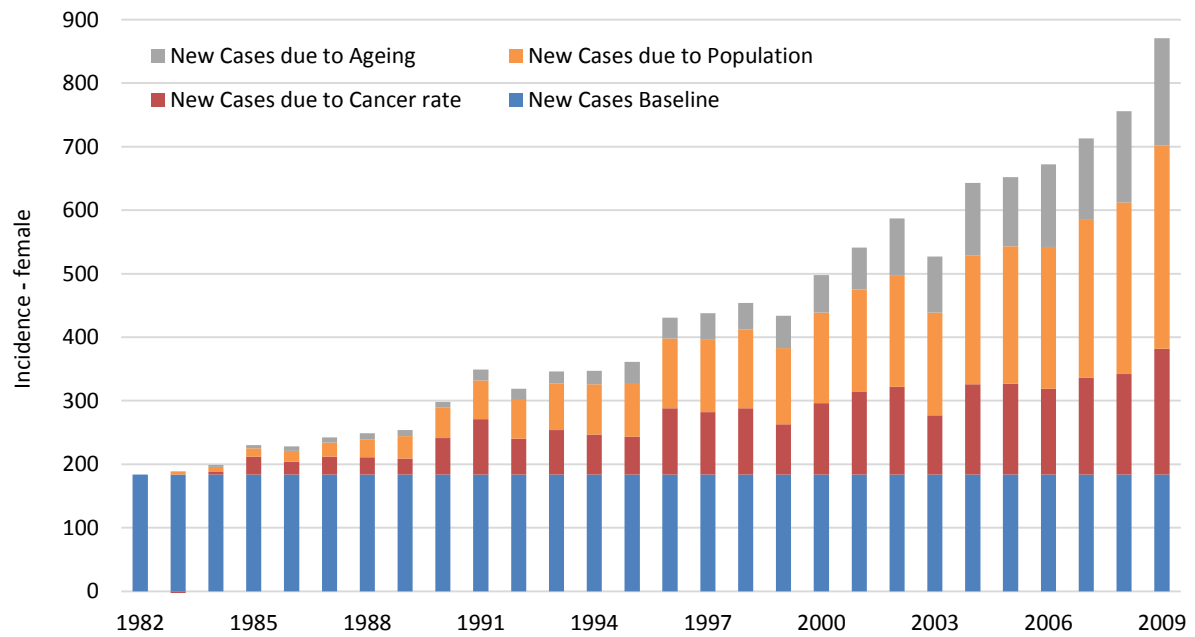
Source: Oncology Analysis System, Queensland Cancer Control Analysis Team

Figure 8: Growth in new cases of lung cancer for males, Queensland 1982-2009



Source: Oncology Analysis System, Queensland Cancer Control Analysis Team

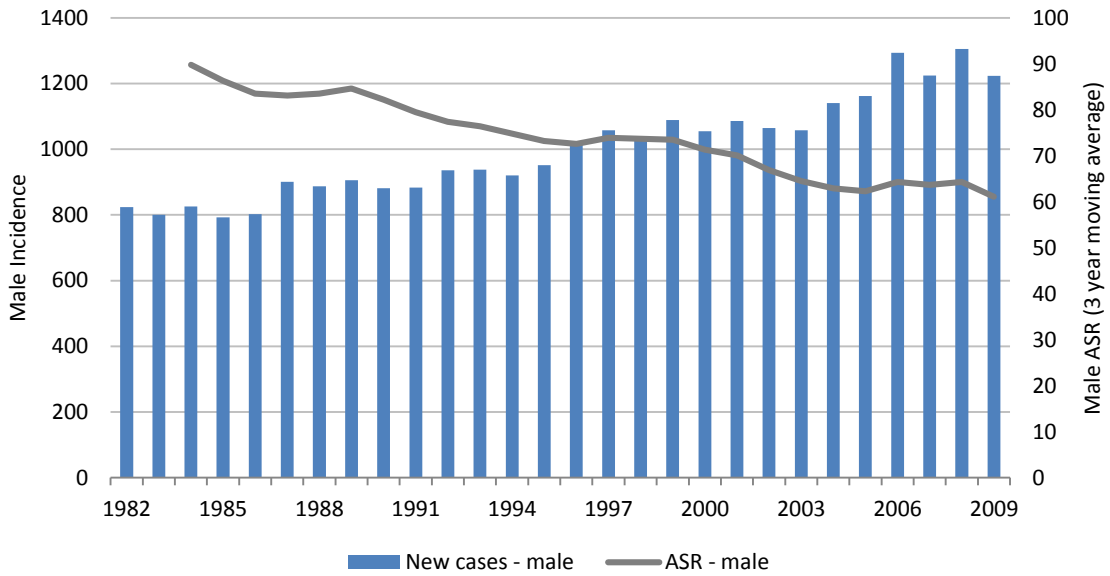
Figure 9: Growth in new cases of lung cancer for females, Queensland 1982-2009



Source: Oncology Analysis System, Queensland Cancer Control Analysis Team

For males, the number of new cases increased from 824 in 1982 to 1,223 in 2009; an increase of 48%. This increase is due to population growth and ageing (Figure 7), but not due to the cancer rate, which decreased by 38% over the same period (Figure 10).

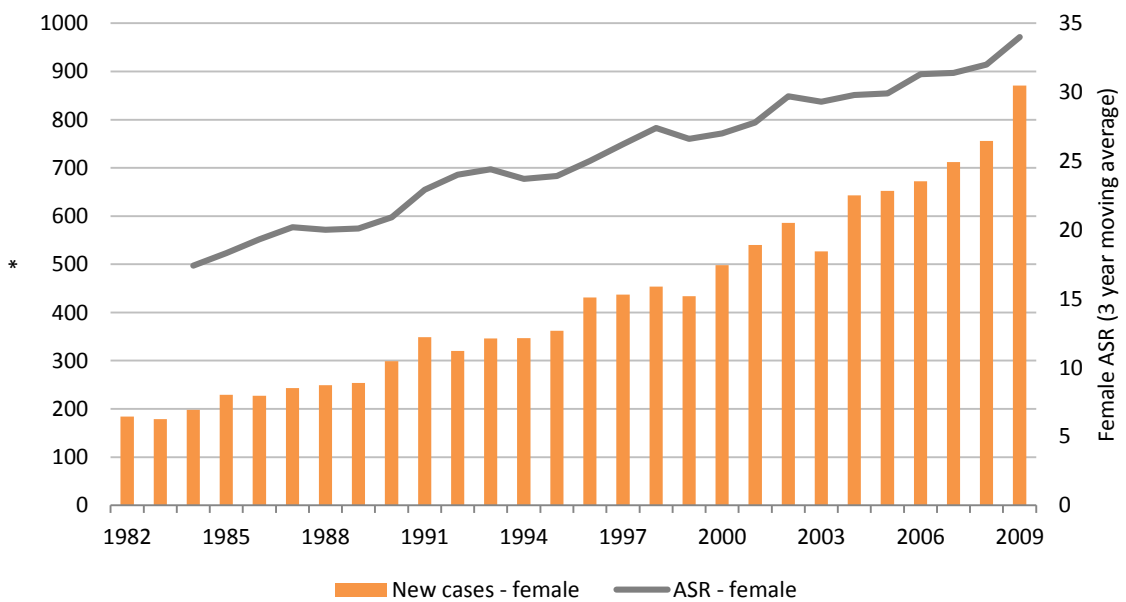
Figure 10: Male trends in number and rates for lung cancer incidence, Queensland 1982-2009



Source: Oncology Analysis System, Queensland Cancer Control Analysis Team

For females, the number of new cases increased from 184 in 1982 to 871 in 2009; an increase of 373%. Unlike males, a significant increase in the cancer rate, from 17 per 100,000 in 1982 to 34 per 100,000 in 2009, has contributed to the overall increase in incidence (Figure 11).

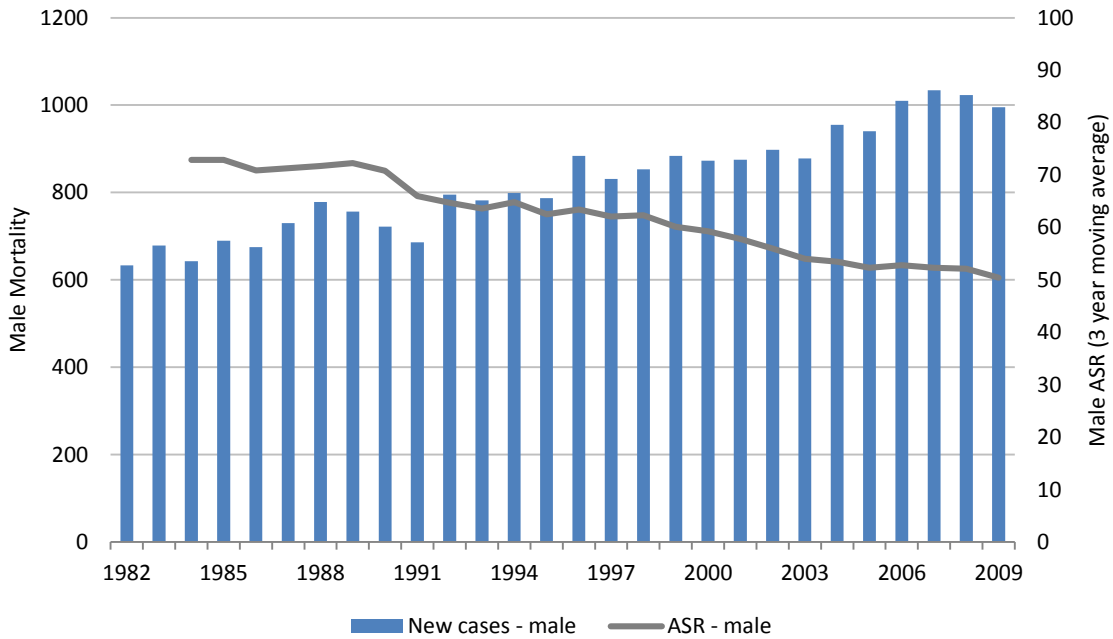
Figure 11: Female trends in number and rates for lung cancer incidence, Queensland 1982-2009



Source: Oncology Analysis System, Queensland Cancer Control Analysis Team

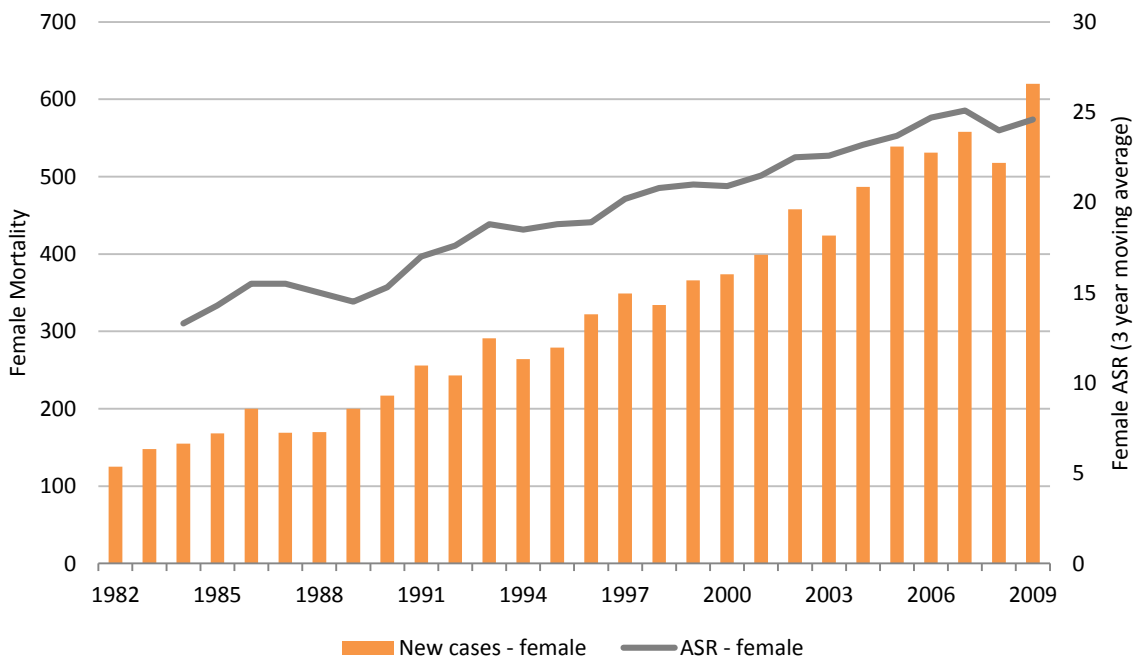
Lung cancer mortality rates for women in Queensland have almost doubled from 13 for every 100,000 women in 1982 to 25 for every 100,000 women in 2009 (Figure 13). Mortality rates for men however, have fallen from 73 for every 100,000 in 1982 to 50 per 100,000 in 2009 (Figure 12).

Figure 12: Male trends in numbers and rates for lung cancer mortality, Queensland 1982-2009



Source: Oncology Analysis System, Queensland Cancer Control Analysis Team

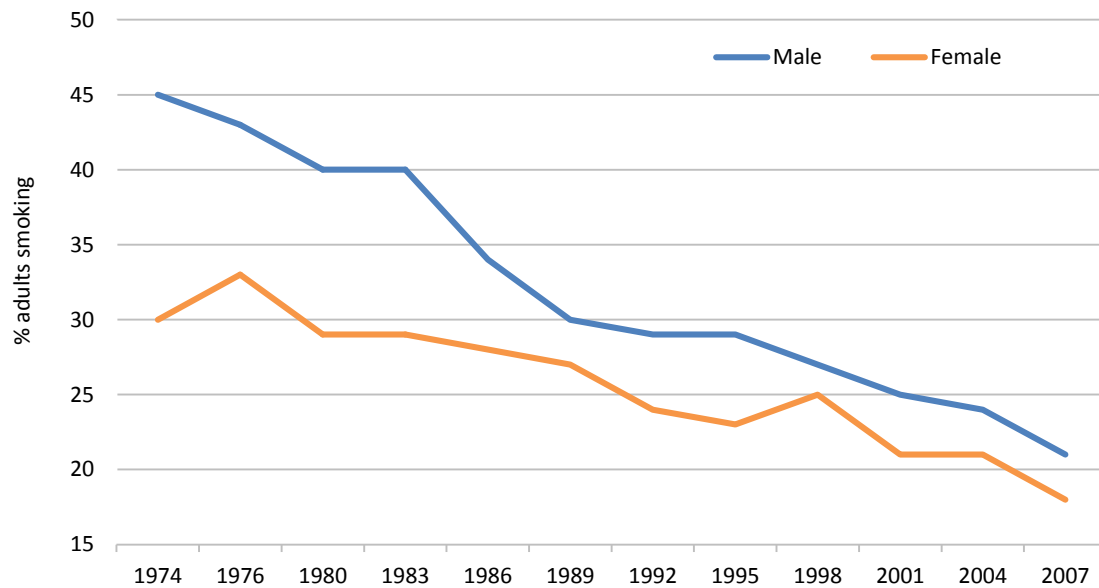
Figure 13: Female trends in numbers and rates for lung cancer mortality, Queensland 1982-2009



Source: Oncology Analysis System, Queensland Cancer Control Analysis Team

Smoking is responsible for around 80% of all lung cancer deaths in Australia.³ The prevalence of smoking is declining and has decreased from 49% in 1945 to 19% in 2007.⁴ The proportion of males smoking has decreased from 72% in 1945 to 21% in 2007. In women, smoking rates have decreased from 26% in 1945 to 18% in 2007 (Figure 14). With a lag period of 20 to 30 years, patterns of lung cancer incidence and mortality closely follow smoking prevalence.^{5,6,7}

Figure 14: Proportion of smokers in Australia aged 18 and over from 1974-2007⁺

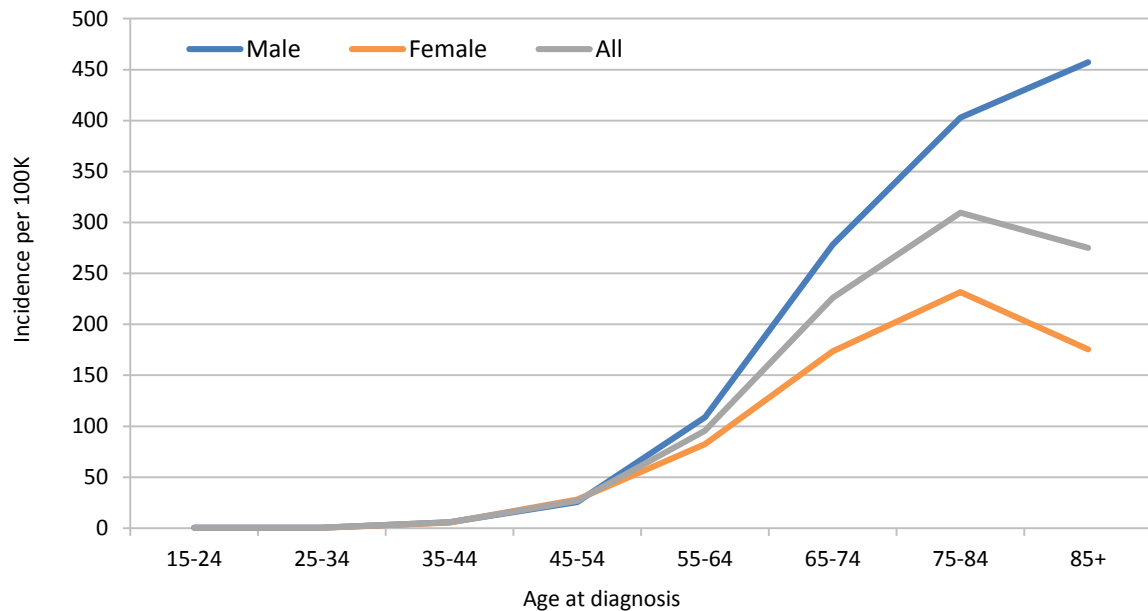


+ All data except 2007 weighted to 2001 census population data

Source: Scollo, MM and Winstanley, MH [Editors]. *Tobacco in Australia: Facts and Issues. Third Edition.* Melbourne: Cancer Council Victoria; 2008. Available from: <http://www.tabaccoinustralia.org.au>

On average, lung cancer incidence rates increased with age in both sexes. Males and females aged between 55-84 years account for 83% of the total incidence (Figure 15). The median age at diagnosis is 70 years.

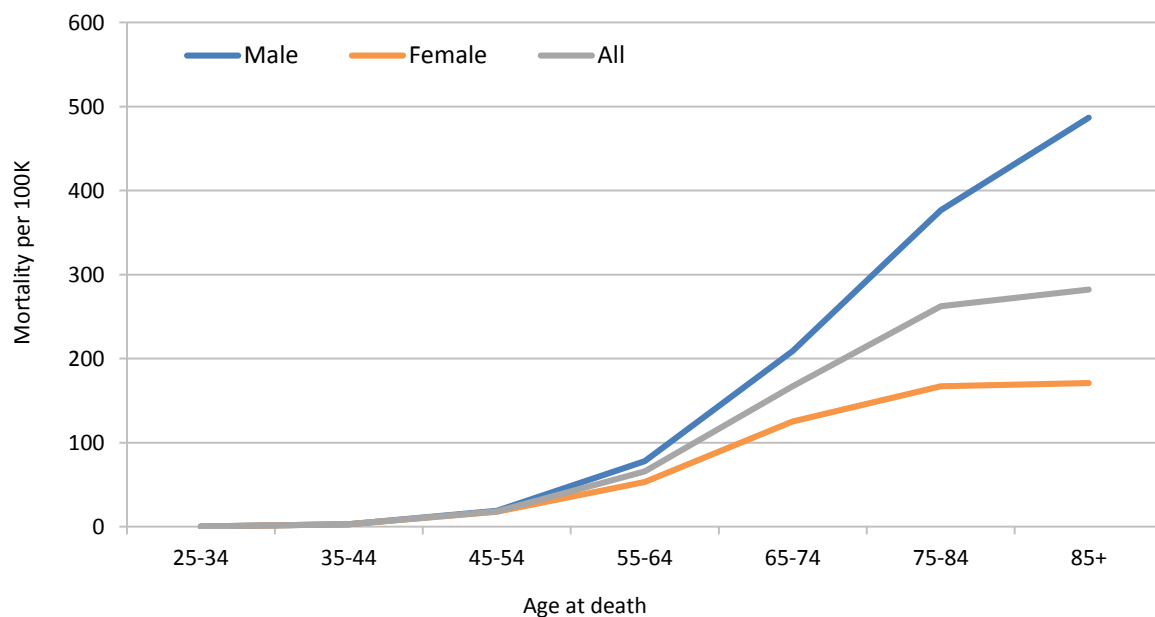
Figure 15: Lung cancer incidence rate by age and sex, Queensland, 2009



Source: Oncology Analysis System, Queensland Cancer Control Analysis Team

Lung cancer mortality is more common in adults aged over 55 years. Deaths due to lung cancer in persons under 55 years of age account for only 8% of all lung cancer deaths (Figure 16).

Figure 16: Lung cancer mortality rate by age and sex, Queensland, 2009

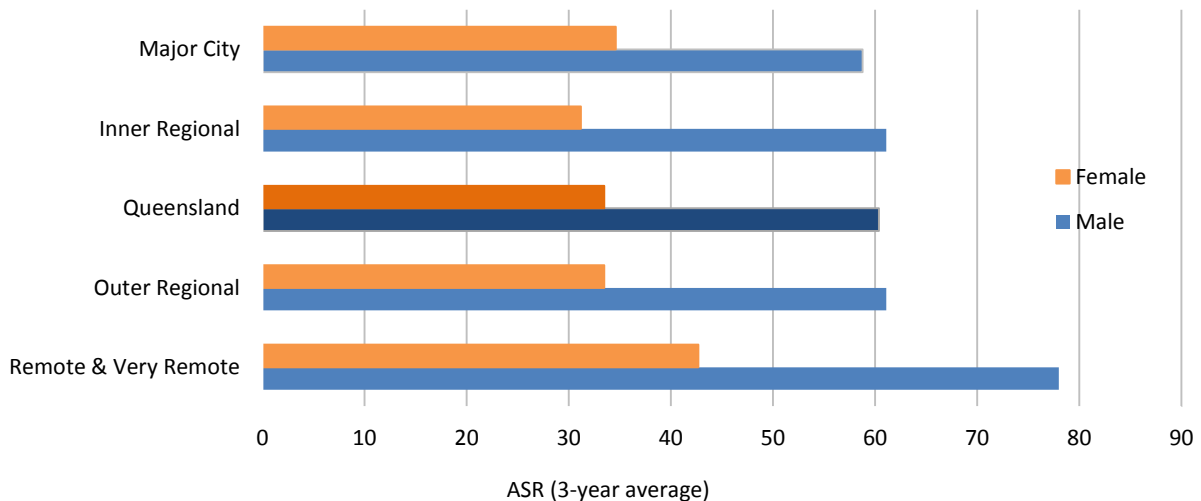


Source: Oncology Analysis System, Queensland Cancer Control Analysis Team

Regional, national and international variation in incidence and mortality

On average, incidence rates for lung cancer varied by remoteness of residence for both males and females from 2007 to 2009 (Figure 17). The highest average rate was seen in males who lived in remote and very remote Queensland (78 per 100,000), for females the rate was 43 per 100,000.

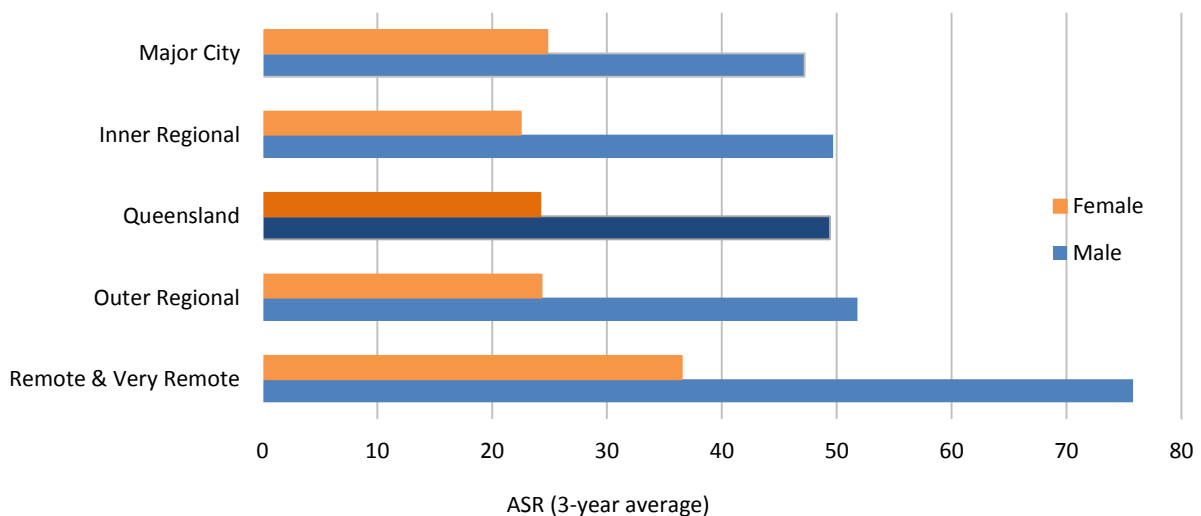
Figure 17: Lung cancer age-standardised average incidence rates by remoteness of residence, Queensland 2007-2009



Source: Oncology Analysis System, Queensland Cancer Control Analysis Team

Mortality rates for lung cancer varied by remoteness of residence for both males and females between 2007 to 2009 (Figure 18). Remote and very remote areas had higher lung cancer mortality rates amongst males and females than other areas. For males living in remote and very remote Queensland the average 3 year age standardised rate was 76 per 100,000. The female rate was 37 per 100,000.

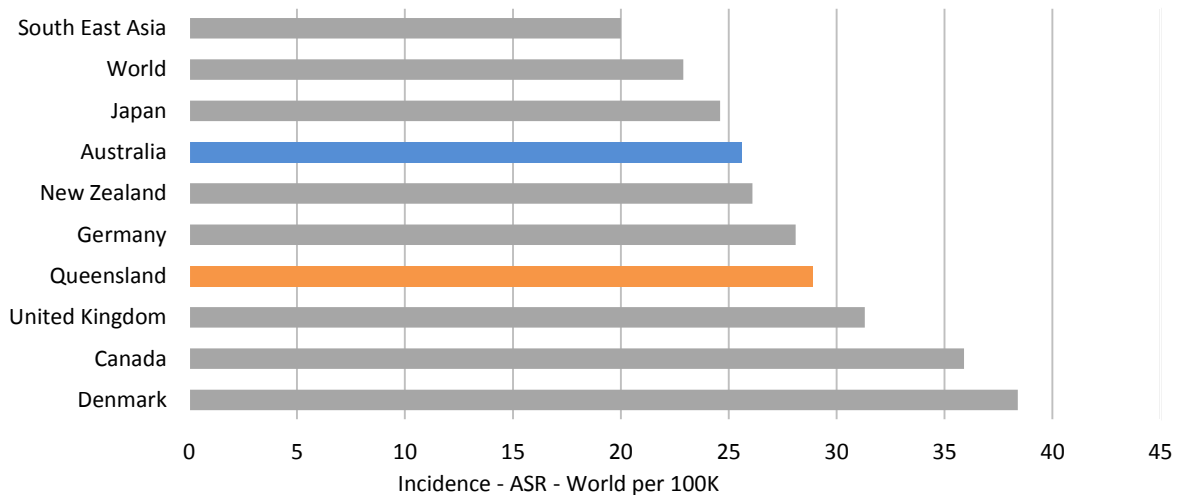
Figure 18: Lung cancer age-standardised average mortality rates by remoteness of residence, Queensland 2007-2009



Source: Oncology Analysis System, Queensland Cancer Control Analysis Team

Drawing from the most recent international data lung cancer is the most frequent cause of cancer deaths worldwide, accounting for more than 1.4 million cancer deaths per year.⁶ The Queensland incidence rate, 29 cases per 100,000 people per year is greater than Australia at 26 cases per 100,000 people and the World at 23 cases per 100,000 (Figure 19).

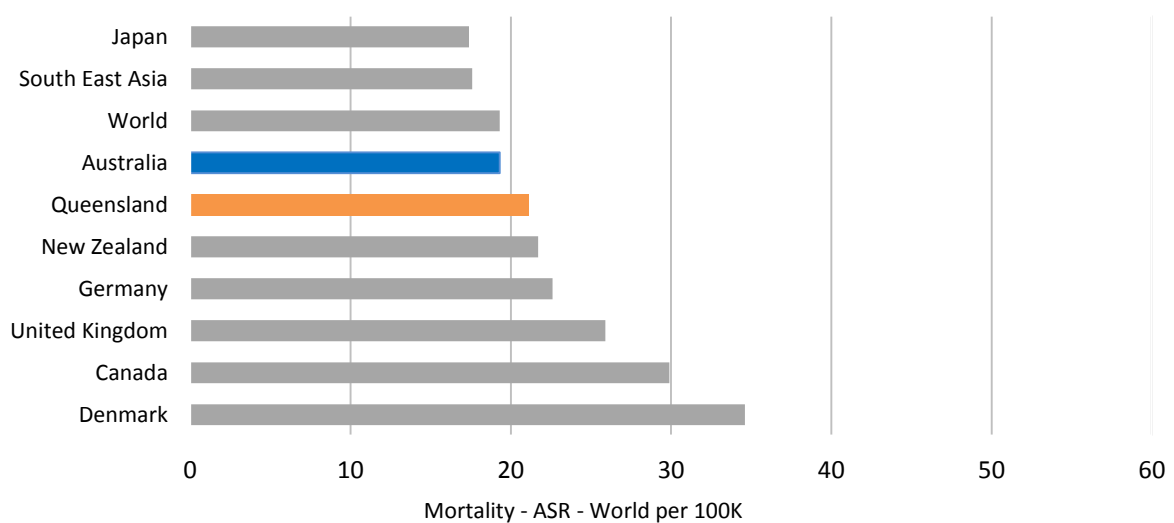
Figure 19: Lung cancer incidence age-standardised rate for selected international regions and Queensland, 2008



Source: Cancer incidence estimated by the International Agency for Research on Cancer (IARC) for 2008 (GLOBOCAN 2008)⁸ except for Queensland which is sourced from Oncology Analysis System, Queensland Cancer Control Analysis Team

The age-standardised mortality rate for lung cancer in Australia is the same as the World (19 cases per 100,000). The Queensland rate is slightly higher with 21 per 100,000 cases (Figure 20).

Figure 20: Lung cancer mortality age-standardised rate for selected international regions and Queensland, 2008

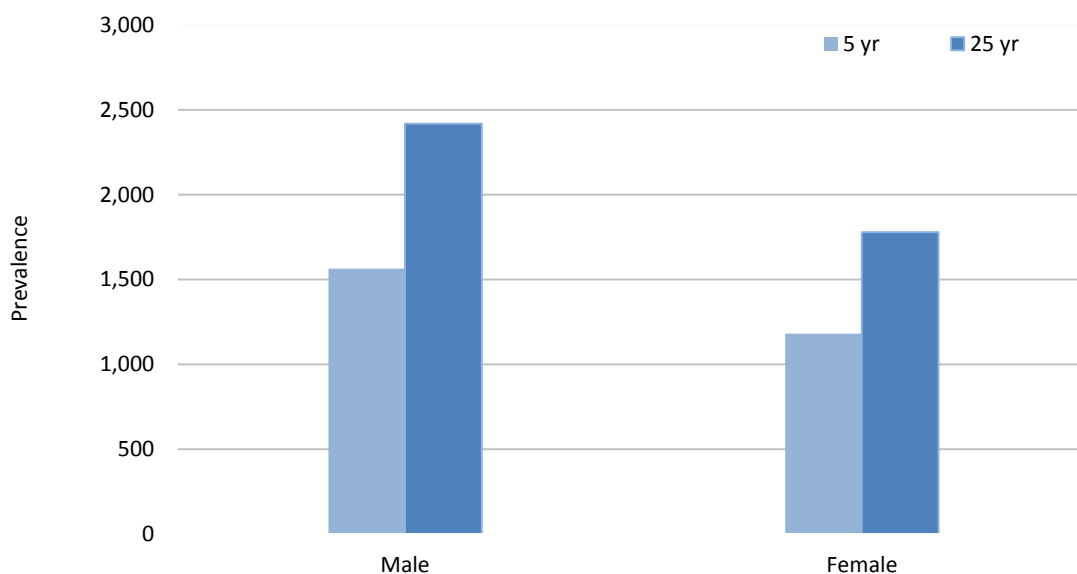


Source: Cancer incidence estimated by the International Agency for Research on Cancer (IARC) for 2008 (GLOBOCAN 2008)⁸ except for Queensland which is sourced from Oncology Analysis System, Queensland Cancer Control Analysis Team

Prevalence

Prevalence represents the number of people living with a cancer and is a measure of the burden of the disease for the individual, families and society. Lung cancer prevalence is low compared with other cancers due to short survival times. There were an estimated 2,743 people living in Queensland at the end of 2009 who had been diagnosed with lung cancer in the previous five years (Figure 21).

Figure 21: Prevalence of lung cancer, by time since diagnosis, Queensland, 2009



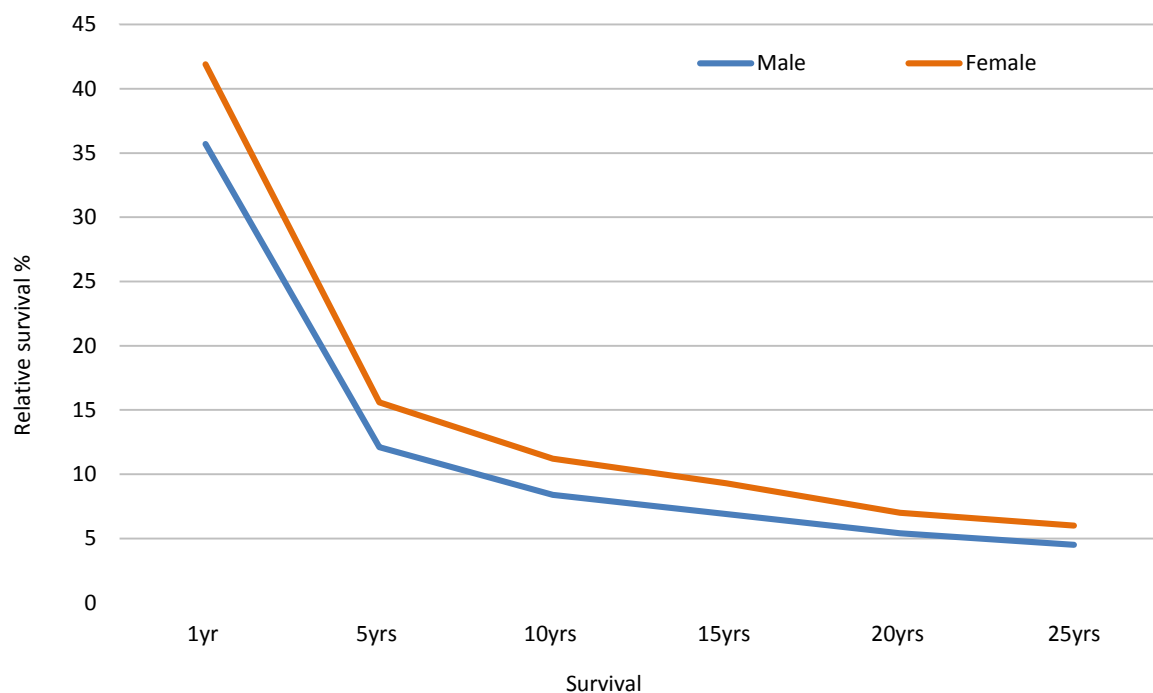
Source: Cancer in Queensland 1982-2009. Incidence, mortality, survival and prevalence. Queensland Cancer Registry, Cancer Council Queensland: Brisbane

Survival

Relative survival is a measure of the survival of a group of persons with a condition, such as cancer, relative to a comparable group from the general population without the condition. For cancer, five-year relative survival represents the proportion of patients alive five years after diagnosis, taking into account age, gender and year of diagnosis.

Female one year lung cancer survival was 42% compared to males 36% in the period 2005-2009. For females 16% of females survive 5 years compared with 12% of males (Figure 22).

Figure 22: Relative survival 1yr to 25yrs, Queensland, 2005-2009



Source: *Cancer in Queensland 1982-2009. Incidence, mortality, survival and prevalence. Queensland Cancer Registry, Cancer Council Queensland: Brisbane*

Part 3

Lung Cancer by Hospital and Health Service



Patient Characteristics

Lung cancer is more commonly diagnosed between 65-74 years of age. Median age ranges from 62-70 years across Hospital and Health Services (HHS). Lung cancer is more common in males representing between 55% and 79% of total incidence across the state. The majority of lung cancer patients reside in Metro South and Metro North who contribute 39% of the total incidence.

Literature suggests that poor prognosis is linked with living in rural and remote communities, lower socioeconomic areas and Aboriginal and Torres Strait Islander communities.⁹ Torres Strait-Northern Peninsula, Wide Bay and, South West Hospital and Health Services have three of the highest rates of socioeconomic disadvantage in Queensland (Table 1).

Table 1: Queensland lung cancer patients by Hospital and Health Service, 2007-2009

Hospital and Health Service	Incidence Annual Avg	Median Age	% Male	Socioeconomic status		
				% Affluent	% Middle	% Disadvantaged
Metro South	415	68	68	20	61	18
Metro North	381	69	69	30	61	9
Gold Coast	237	70	65	6	94	
Sunshine Coast	189	70	69		92	8
Wide Bay	141	69	74		36	64
Darling Downs	117	70	74	3	71	26
Central Queensland	105	67	76		93	7
Cairns and Hinterland	104	68	73		82	18
West Moreton	101	68	71	2	91	7
Townsville	97	67	72	8	76	15
Mackay	70	67	76		89	11
Qld Unknown	26	69	63			
South West	15	68	78		67	33
Mount Isa	14	63	76		92	8
Central West	12	68	78		83	17
Cape York	5	62	76		75	25
Torres Strait-Northern Peninsula	2	64	70			100
Total	2,031	69	70	11	73	16

Source: Oncology Analysis System, Queensland Cancer Control Analysis Team

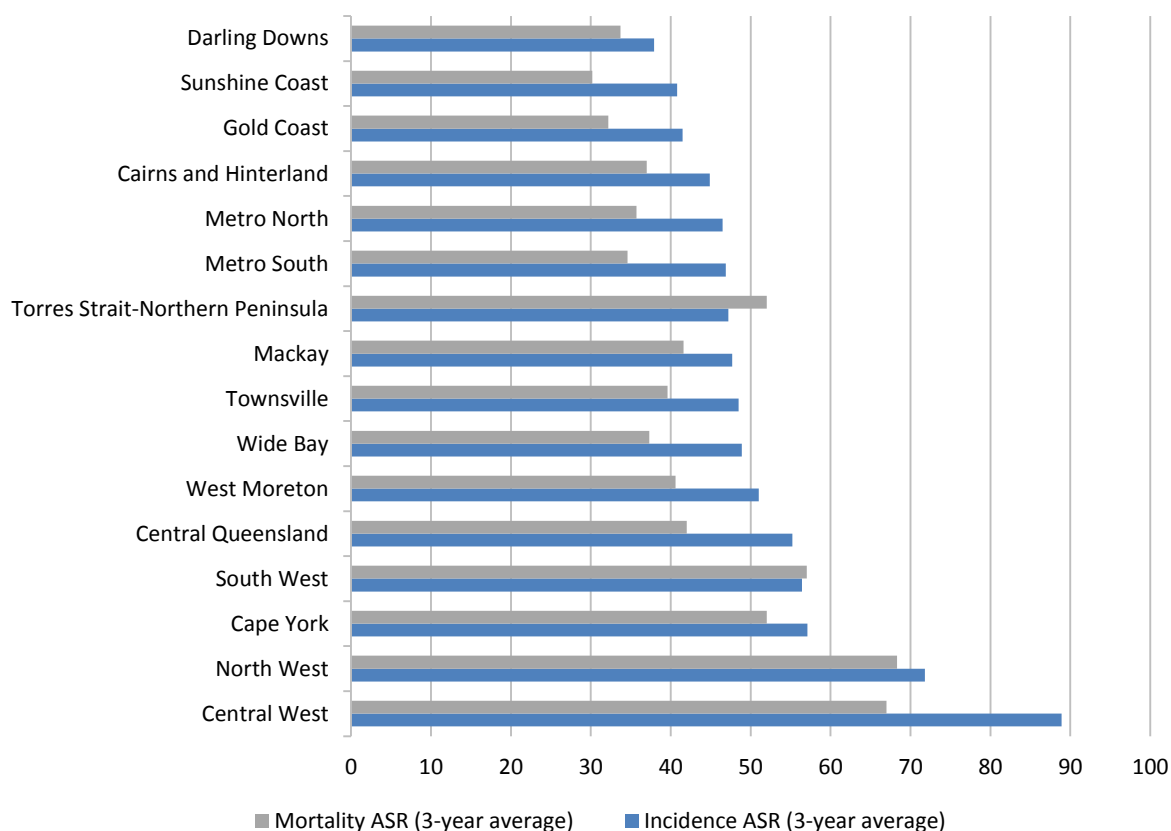
* Shading represents those who have more than 20% disadvantaged (Australian standard)

Incidence and Mortality

Age-standardised incidence and mortality rates vary by Hospital and Health Service (Figure 23). Central West has the highest rate of lung cancer incidence and North West has the highest rate of lung cancer mortality. Lung cancer incidence rates in Central West were 89 per 100,000 persons, compared with the Darling Downs which has the lowest incidence rate, 38 cases per 100,000 persons.

North West HHS lung cancer mortality rate was the highest in the state with 69 per 100,000 persons. Sunshine Coast HHS lung cancer mortality rate was the lowest with 30 per 100,000 persons.

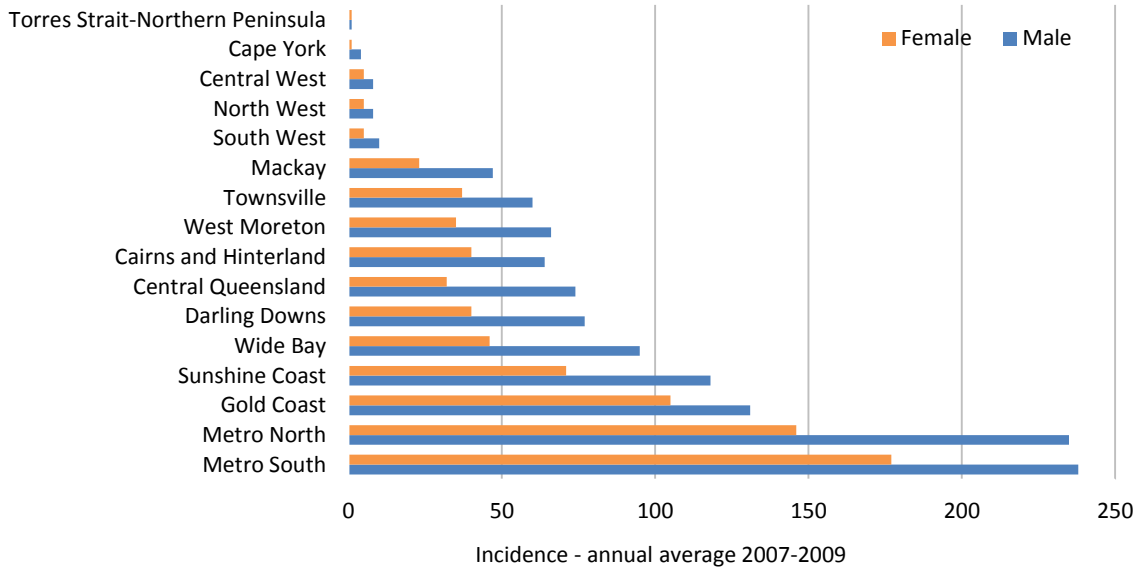
Figure 23: Lung cancer ASR 3-yr average incidence and mortality by Hospital and Health Service, Queensland, 2007-2009



Source: Oncology Analysis System, Queensland Cancer Control Analysis Team

Incidence rates are greater in HHS where high proportions of males reside. The annual average incidence (2007-2009) for lung cancer is highest in Metro South and Metro North HHS. Together these HHS account for 39% of the overall incidence in Queensland (Figure 24).

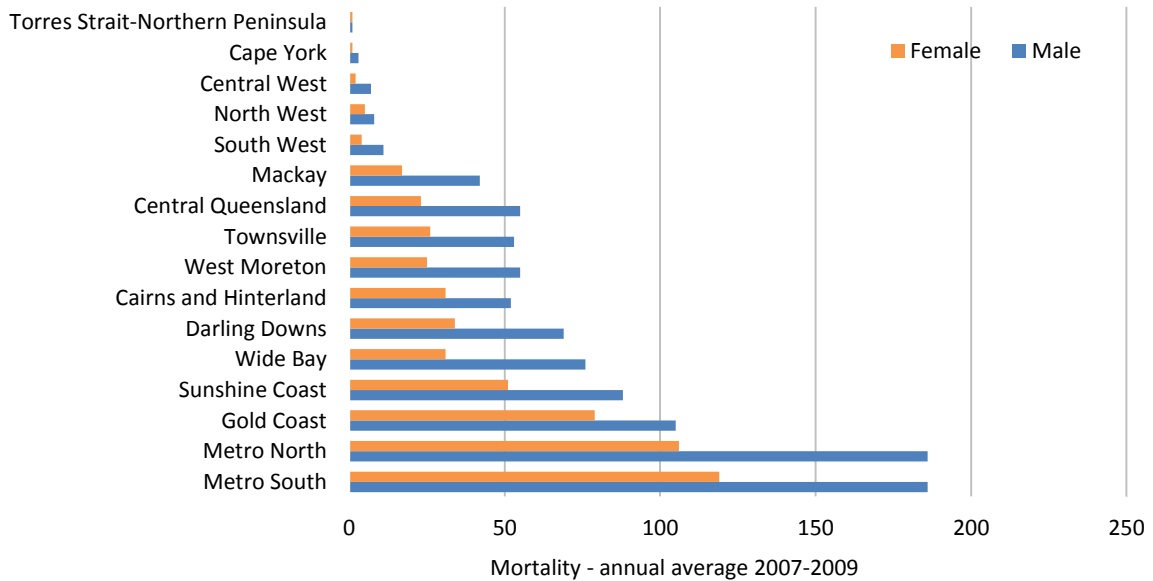
Figure 24: Lung cancer incidence, Hospital and Health Service, annual average, Queensland 2007-2009



Source: Oncology Analysis System, Queensland Cancer Control Analysis Team

The annual average mortality (2007-2009) for lung cancer is also highest in Metro South and Metro North HHS. These areas account for 39% of the overall mortality in Queensland (Figure 25). The annual average incidence and mortality (2007-2009), for males with lung cancer are almost double that of females.

Figure 25: Lung cancer mortality, Hospital and Health Service, annual average, Queensland 2007-2009

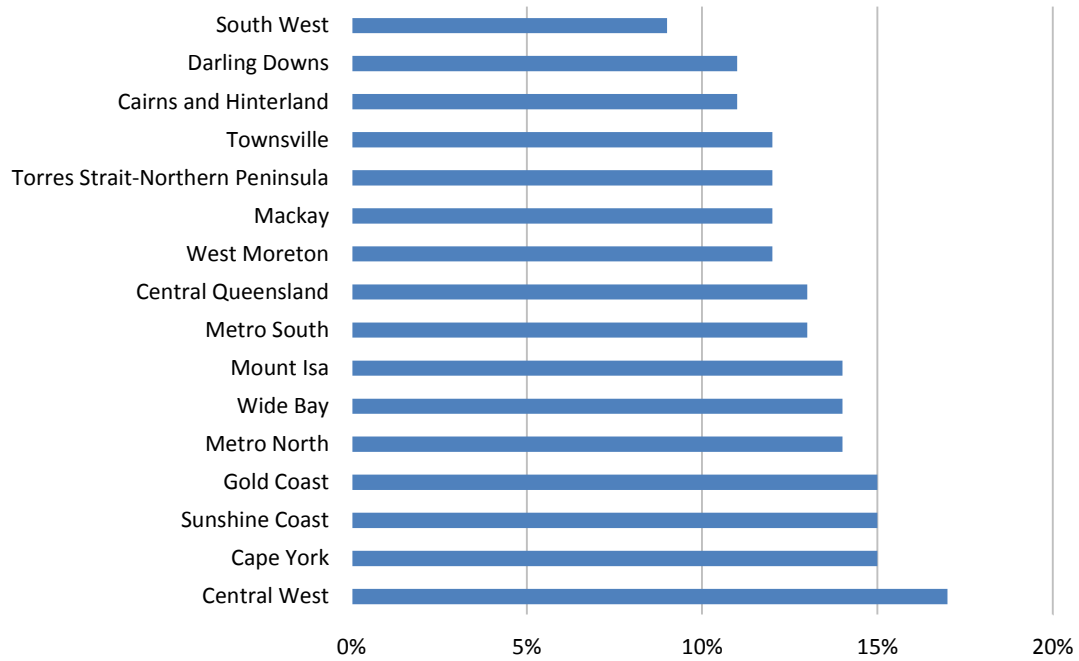


Source: Oncology Analysis System, Queensland Cancer Control Analysis Team

Survival

There is little regional variation for five year crude survival in lung cancer between Hospital and Health Services. Crude survival ranges from 17% in Central West to 9% in South West (Figure 26).

Figure 26: Lung cancer five year crude survival by Hospital and Health Service, Queensland 1982-2009



Source: Oncology Analysis System, Queensland Cancer Control Analysis Team

Multi-disciplinary Lung Cancer Care in Queensland



Review by a multi-disciplinary team is an important part of multi-disciplinary care for people with lung cancer. In Queensland public hospitals, multi-disciplinary review takes place in regular multidisciplinary meetings where clinicians come together to diagnose, stage and plan their patient's treatment.

In 2000 the Queensland Integrated Lung Cancer Outcomes Project (QILCOP) was established to obtain improved data on lung cancer clinical practice and outcomes with a view to improving lung cancer care by learning from the data. It was led by committed clinicians passionate about learning from daily practice in order to improve outcomes for people with lung cancer, including CIs Abraham, Armstrong, Bowman, Fong, Pratt, Windsor, and many others including cancer nurses and administration support staff.

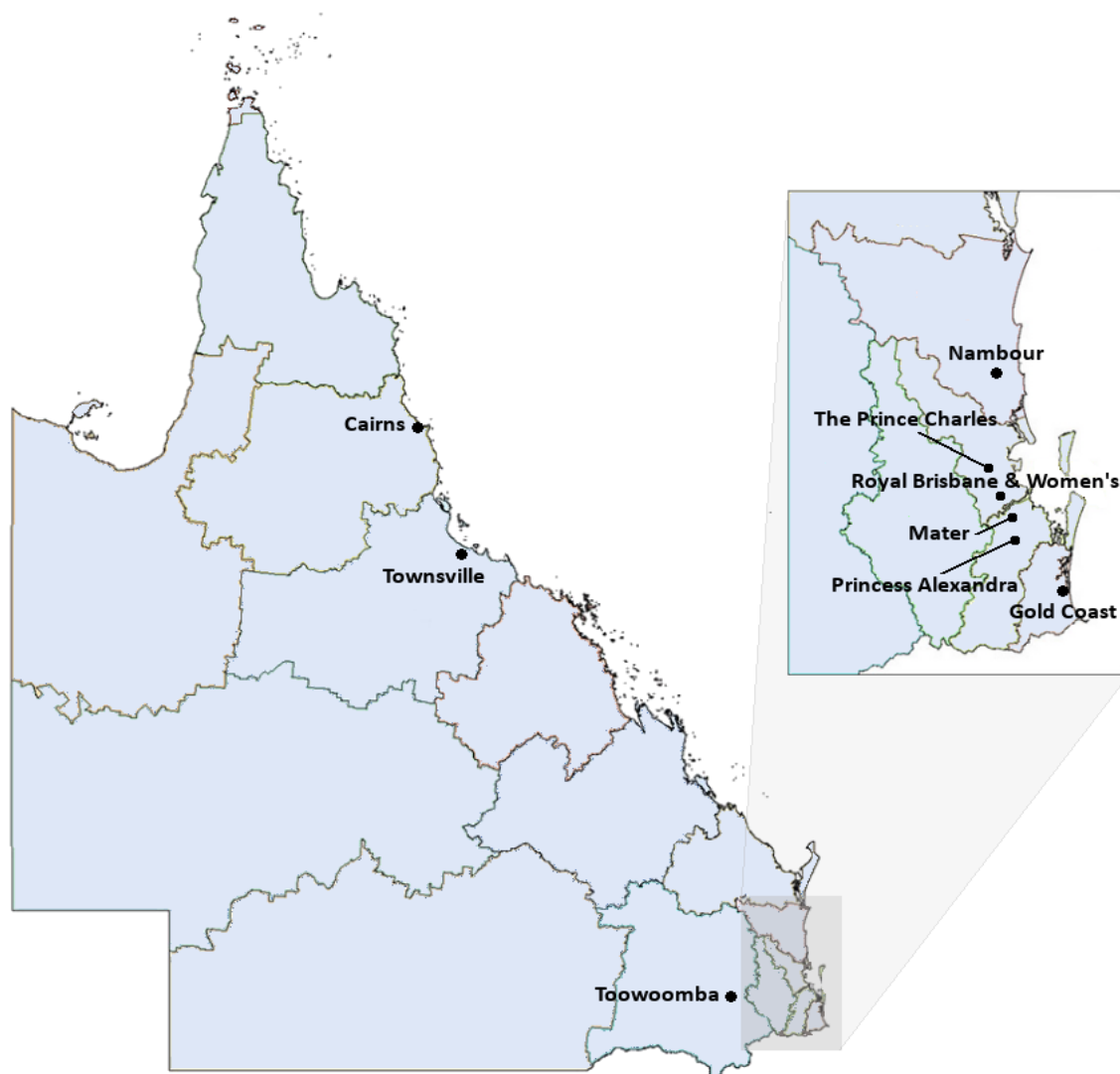
QILCOP supported the collection of routine clinical data needed for optimal patient care, and presented this to the multidisciplinary lung cancer teams in an electronic and standardised way at the regular clinical meetings. QILCOP ensured that clinicians were abreast of key clinical data, and facilitated cooperative group evaluation and treatment planning for individual patients. De-identified aggregate data then provided feedback to the teams, and allowed enhancements to the multi-disciplinary team (MDT) process and model of care, thereby closing the loop.

The principles of QILCOP have been adopted by multi-disciplinary lung cancer teams across Queensland. Review by a MDT has become a routine part of caring for people with lung cancer. QILCOP has provided the basis and framework for the subsequent development of Queensland Oncology Online (QOOL) which supports MDTs caring for all cancer types. QOOL aims to support cancer services throughout Queensland by providing solutions for routine and standard data capture, information sharing with a patient centric focus, and providing access to clinical outcomes and system performance data for quality improvement.

Clinicians use QOOL to refer patients for a multi-disciplinary review and electronically capture and communicate important clinical information such as diagnosis, cancer stage and recommended treatment. QOOL enables clinicians from across Queensland to participate in local and state-wide audit and peer review activities. QOOL supports clinician led service improvement.

In this section data sourced from QOOL will be presented to describe the extent, patterns and characteristics of patients reviewed by multidisciplinary lung cancer teams in public hospitals in Queensland.

Figure 27: Location of Lung Multidisciplinary Teams in Queensland, 2012

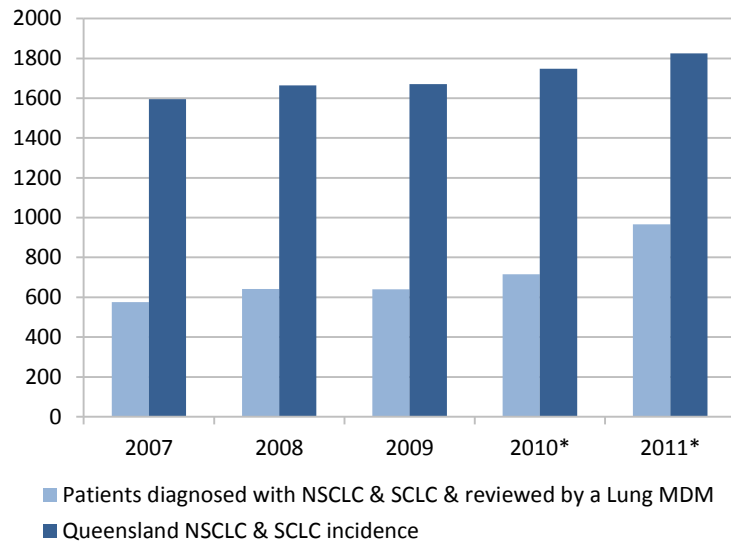


There are nine Queensland public hospitals across the state where people with lung cancer can have their management reviewed by a Lung multi-disciplinary team. In eight of these hospitals multi-disciplinary meetings are supported by multi-disciplinary meeting coordinators and Queensland Oncology Online (QOOL). These include Cairns Base Hospital, Nambour General Hospital, The Prince Charles Hospital, Royal Brisbane and Women's Hospital, Princess Alexandra Hospital, Radiation Oncology Mater Centre, Toowoomba General Hospital and Gold Coast Hospital. There are significantly less people in Far North Queensland recorded as having a multi-disciplinary team review because there are fewer hospitals in Far North Queensland capturing data using QOOL (Figure 27).

MULTIDISCIPLINARY MEETING REVIEW

In 2011 at least 968 NSCLC & SCLC lung cancer patients were reviewed at a Lung multidisciplinary meeting across Queensland; an increase of 68% since 2007.

NSCLC & SCLC patients reviewed at a Lung MDM compared to Queensland NSCLC & SCLC Incidence, 2007-2011



*Projected Queensland lung cancer incidence
Each patient reviewed by a lung MDM is counted once
Townsville Lung MDM data not included

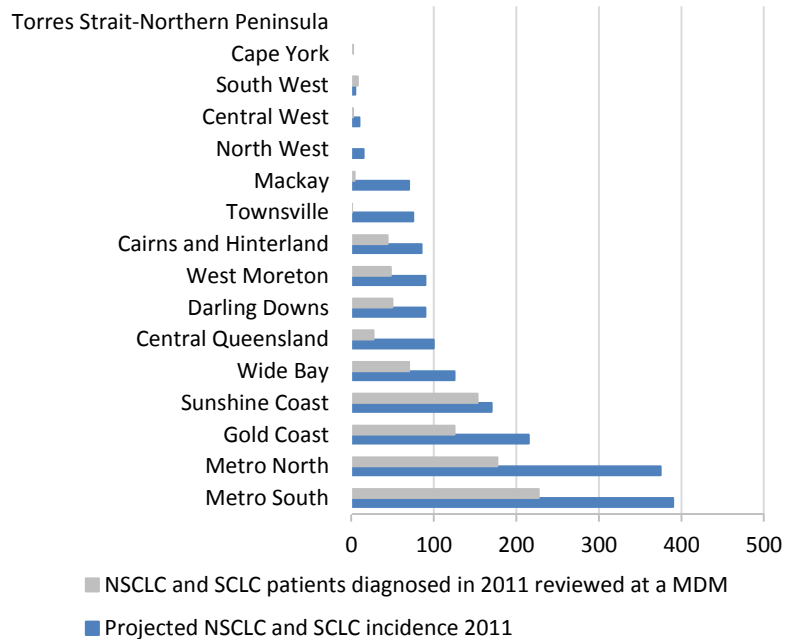
Source: Queensland Oncology Online, Queensland Cancer Control Analysis Team

AUDIT for HOSPITAL and HEALTH SERVICES

Hospital and Health Services have different patterns of care.

Lung cancer residents of Sunshine Coast HHS have the highest rate of MDM review in Queensland.

NSCLC & SCLC patients reviewed at a Lung MDM compared to Queensland NSCLC & SCLC Incidence, by Hospital and Health Service, 2011



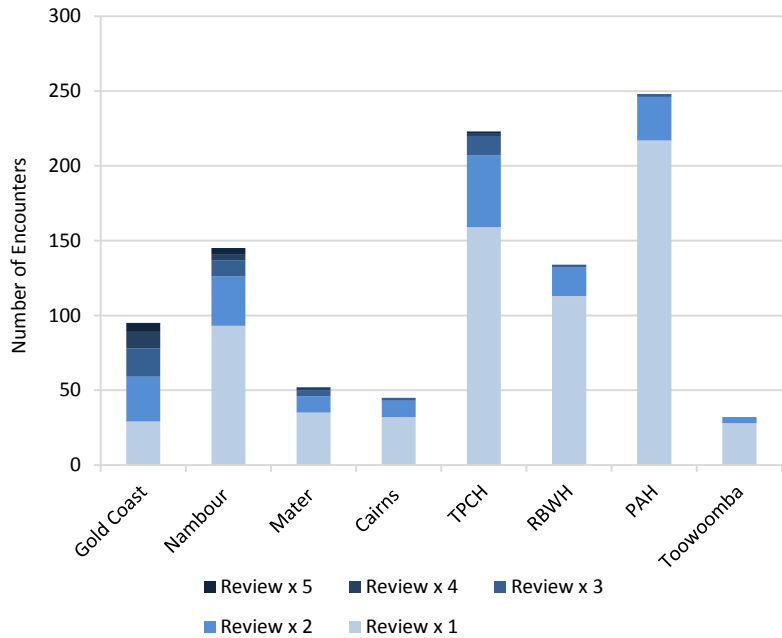
*Projected Queensland lung cancer incidence 2011
Each patient reviewed by a lung MDM is counted once
Townsville Lung MDM data not included

Source: Queensland Oncology Online, Queensland Cancer Control Analysis Team

MULTIDISCIPLINARY MEETING ENCOUNTERS

Every lung cancer patient should ideally be given the opportunity of having their treatment determined by a multidisciplinary team. Over 19% of lung cancer patients receive more than one review by a multidisciplinary team.

Number of encounters of NSCLC and SCLC patients reviewed at a Lung MDM, by Hospital, 2011



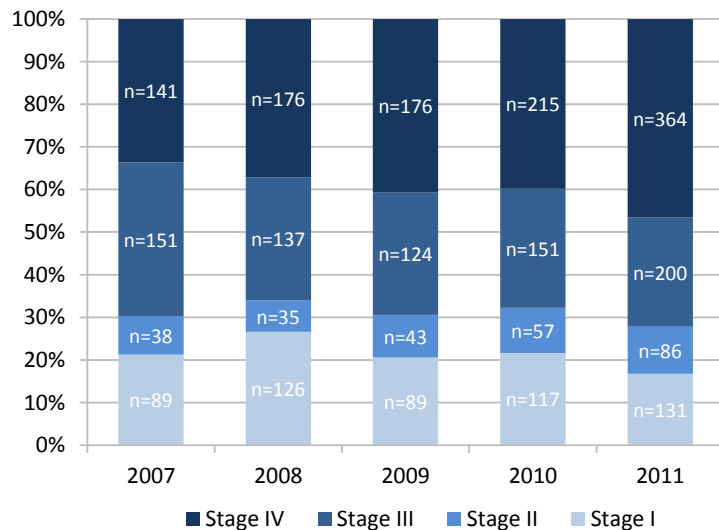
Source: Queensland Oncology Online, Queensland Cancer Control Analysis Team

STAGING PATTERNS FOR NSCLC

Staging describes the extent or severity of a cancer and is used by MDTs to plan treatment, assess prognosis and understand variation in outcomes.

47% of patients are diagnosed at Stage IV, when prognosis is poor.

Staging patterns for patients diagnosed with NSCLC and reviewed by a Lung MDM, 2007 - 2011.



Staging = TNM 6th or 7th edition, clinical or pathological
Townsville Lung MDM data not included

Source: Queensland Oncology Online, Queensland Cancer Control Analysis Team

At a glance

Table 2: Characteristics of NSCLC & SCLC patients reviewed by Lung MDMs, 2011, Queensland

74% of patients reviewed at Lung MDMs are diagnosed with either NSCLC or SCLC		
	n = 1391	%
Primary Non-Small Cell Lung Cancer	883	63
Primary Small Cell Lung Cancer	147	11
Mesothelioma	75	5
Metastases to lung (non-lung primary)	58	4
Other Lung Malignancy	45	3
Other	38	3
Unknown Primary	24	2
Unknown	121	9
NSCLC & SCLC patients reviewed at Lung MDMs in Qld		
	n = 1030	%
61% are male		
Male	627	61
Female	403	39
83% are aged over 55 years at diagnosis		
25-34	4	0
35-44	25	2
45-54	105	10
55-64	232	23
65-74	348	34
75-84	242	23
85+	36	3
Unknown	38	4
87% reside in major city or inner regional areas		
Major City	525	51
Inner Regional	375	36
Outer Regional	88	9
Remote & Very Remote	13	1
Not Qld	24	2
Unknown	5	0
83% of patients have a history of smoking		
Current	268	26
Never	75	7
Past	591	57
Unknown	96	9
77% of patients have a performance status of fully active or capable of light work		
(0) Fully active	342	33
(1) Ambulatory - capable of light work	452	44
(2) Bed < 50% - self caring - not working	136	13
(3) Bed > 50% - partially self caring	60	6
(4) Confined to bed or chair	20	2
Unknown	20	2

The main purpose of multidisciplinary team meetings is to diagnose, stage and decide on the best available treatment plan for the individual patient. Capturing this key clinical data and the outcomes of team meetings allows for improved communication between teams, within and between hospitals, and allows the implementation of local safety and quality audits to support clinicians to deliver safe, quality cancer care.

In 2011 the majority of patients attending Lung MDMs had a diagnosis, stage and recommended treatment plan recorded.

Table 3: Multidisciplinary team meeting outcomes for NSCLC & SCLC patients reviewed by Lung MDMs, 2011, Queensland

MDM Outcomes	n = 1030	%
87% of patients had a cytological or histological diagnosis		
Histology of Primary Tumour	527	51
Cytology or Haematology	275	27
Histology of Metastasis	86	8
Clinical Investigations	81	8
Histology (unknown if Primary or Metastasis)	7	1
Clinical Only	9	1
Other	2	0
Unknown	43	4
93% of patients diagnosed with NSCLC or SCLC had a TNM stage recorded		
Stage I	170	17
Stage II	102	10
Stage III	239	23
Stage IV	443	43
Incomplete	23	2
No Known Stage	53	5
99% of patients received a recommended treatment plan	1117	99
52% of patients had a documented contact with a Cancer Care Coordinator	536	52

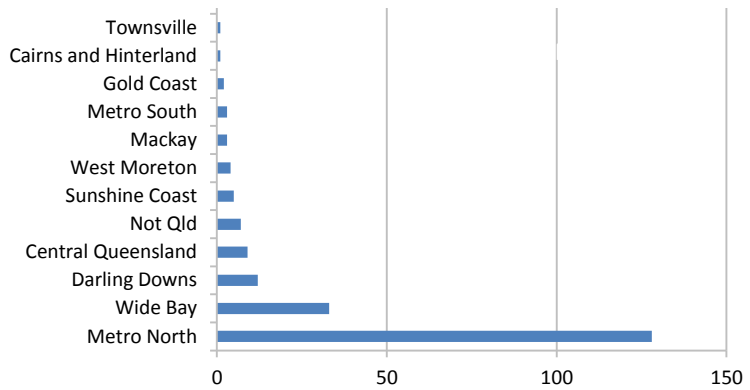
Source: Queensland Oncology Online, Queensland Cancer Control Analysis Team

The Prince Charles Hospital Pulmonary Malignancy Conference, 2011

WHERE DO PATIENTS REVIEWED AT TPCH PMC RESIDE?

39% of NSCLC & SCLC patients reviewed reside outside the Metro North HHS where this meeting is held

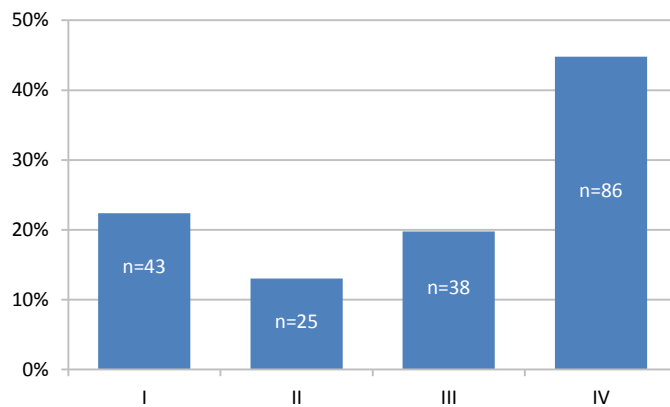
Residence of patients diagnosed with NSCLC & SCLC reviewed by TPCH PMC, 2011.



STAGING PATTERNS

45% of NSCLC & SCLC patients are Stage IV at diagnosis

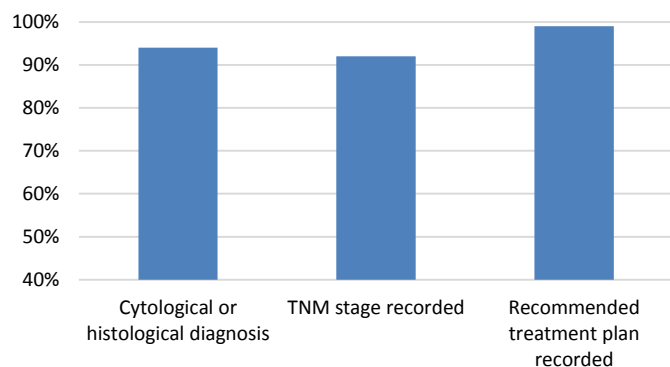
TNM Staging for patients diagnosed with NSCLC & SCLC reviewed by TPCH PMC, 2011.



MEETING OUTCOMES

Over 90% of key clinical data was electronically captured for NSCLC & SCLC patients

Meeting Outcomes for patients diagnosed with NSCLC & SCLC reviewed by TPCH PMC, 2011.

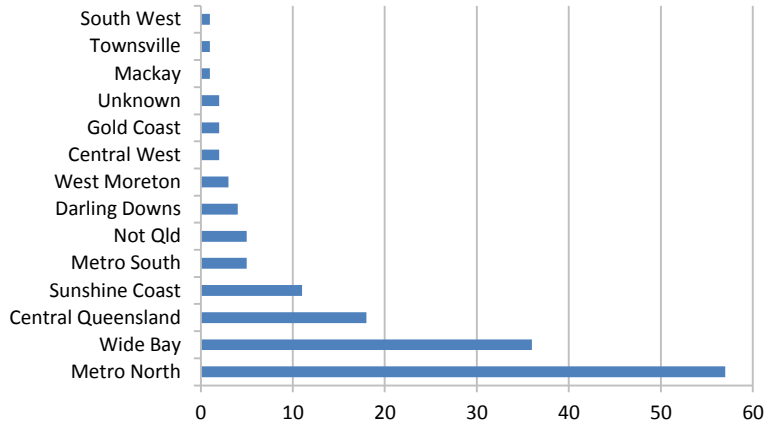


Royal Brisbane & Women's Hospital (RBWH) Lung MDT, 2011

WHERE DO PATIENTS REVIEWED AT RBWH LUNG MDT RESIDE?

61% of NSCLC & SCLC patients reviewed reside outside the Metro North HHS where this meeting is held

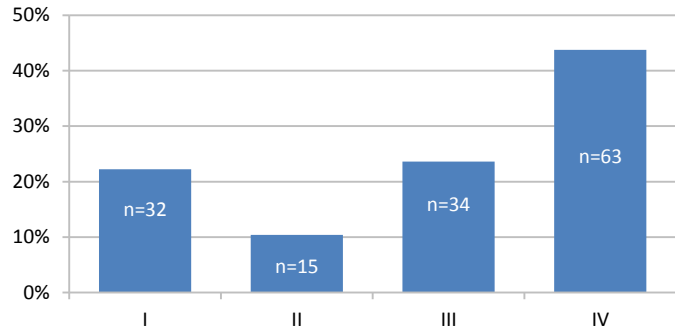
Residence of patients diagnosed with NSCLC & SCLC reviewed by RBWH Lung MDT, 2011.



STAGING PATTERNS

44% of NSCLC & SCLC patients are Stage IV at diagnosis

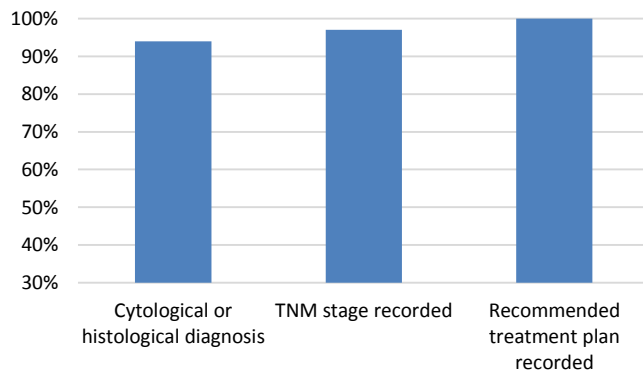
TNM Staging for patients diagnosed with NSCLC & SCLC reviewed by RBWH Lung MDT, 2011.



MEETING OUTCOMES

Over 90% of key clinical data was electronically captured for NSCLC & SCLC patients

Meeting outcomes for patients diagnosed with NSCLC & SCLC reviewed by RBWH Lung MDT, 2011.

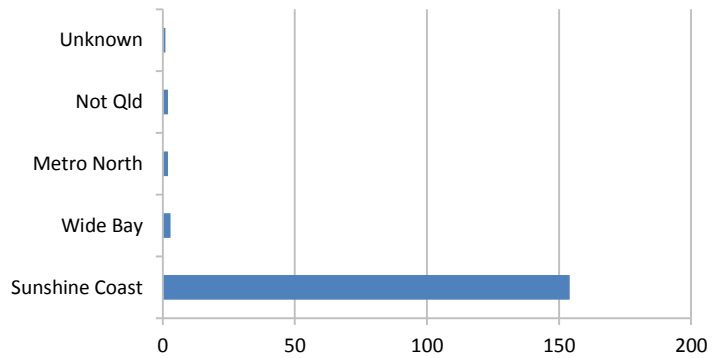


Nambour General Hospital Lung MDT, 2011

WHERE DO PATIENTS REVIEWED AT NAMBOUR LUNG MDT RESIDE?

5% of NSCLC & SCLC patients reviewed reside outside the Sunshine Coast HHS where this meeting is held

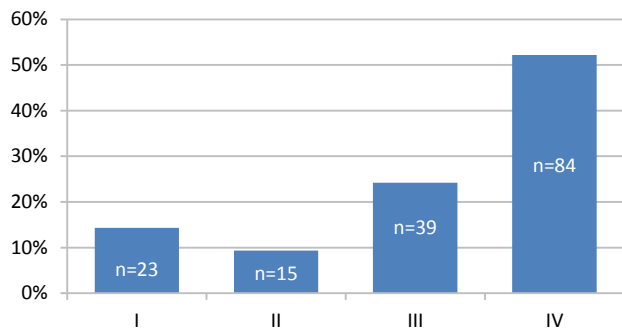
Residence of patients diagnosed with NSCLC & SCLC reviewed by Nambour Lung MDT, 2011.



STAGING PATTERNS

52% of NSCLC & SCLC patients are Stage IV at diagnosis

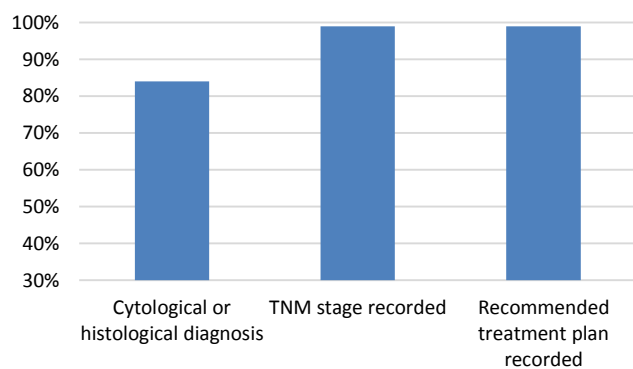
TNM Staging for patients diagnosed with NSCLC & SCLC reviewed by Nambour Lung MDT, 2011.



MEETING OUTCOMES

Over 90% of key clinical data was electronically captured for NSCLC & SCLC patients

Meeting outcomes for patients diagnosed with NSCLC & SCLC reviewed by Nambour Lung MDT, 2011.

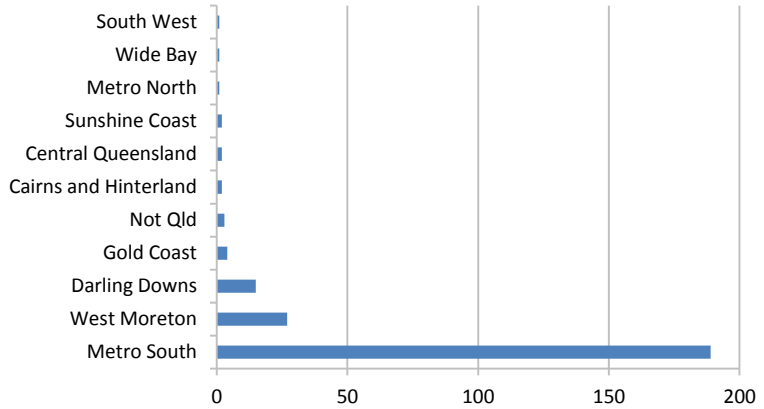


Princess Alexandra Hospital (PAH) Lung Cancer Conference, 2011

WHERE DO PATIENTS REVIEWED AT PAH LUNG MDT RESIDE?

23% of NSCLC & SCLC patients reviewed reside outside the Metro South HHS where this meeting is held

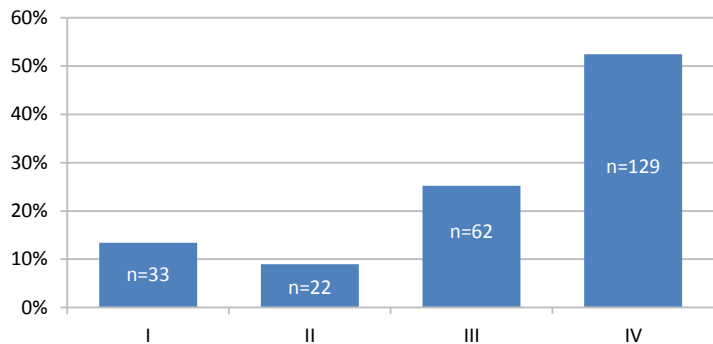
Residence of patients diagnosed with NSCLC & SCLC reviewed by PAH Lung Cancer Conference, 2011.



STAGING PATTERNS

52% of NSCLC & SCLC patients are Stage IV at diagnosis

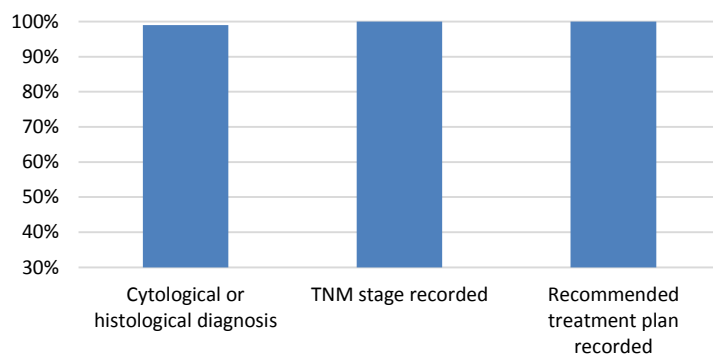
TNM Staging for patients diagnosed with NSCLC & SCLC reviewed by PAH Lung Cancer Conference, 2011.



MEETING OUTCOMES

Over 90% of key clinical data was electronically captured for NSCLC & SCLC patients

Meeting outcomes for patients diagnosed with NSCLC & SCLC reviewed by PAH Lung Cancer Conference, 2011.

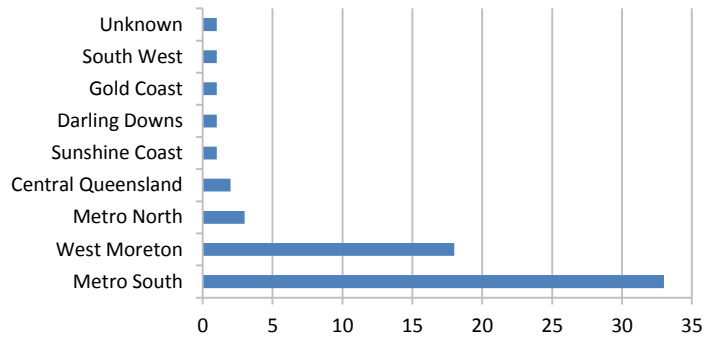


Radiation Oncology Mater Centre Combined PAH & MAH Lung Clinic, 2011

WHERE DO PATIENTS REVIEWED AT COMBINED PAH & MATER LUNG CLINIC RESIDE?

46% of NSCLC & SCLC patients reviewed reside outside the Metro South HHS where this meeting is held

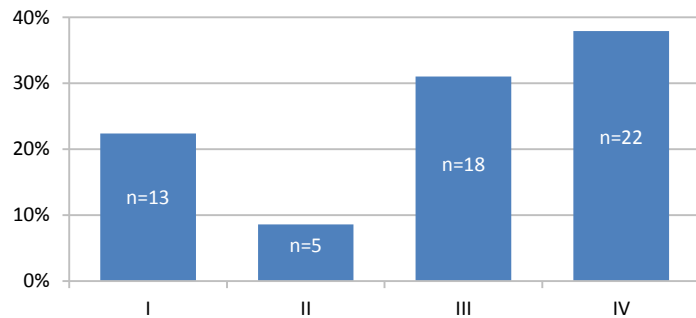
Residence of patients diagnosed with NSCLC & SCLC reviewed by Radiation Oncology Mater Centre Lung Clinic, 2011.



STAGING PATTERNS

38% of NSCLC & SCLC patients are Stage IV at diagnosis

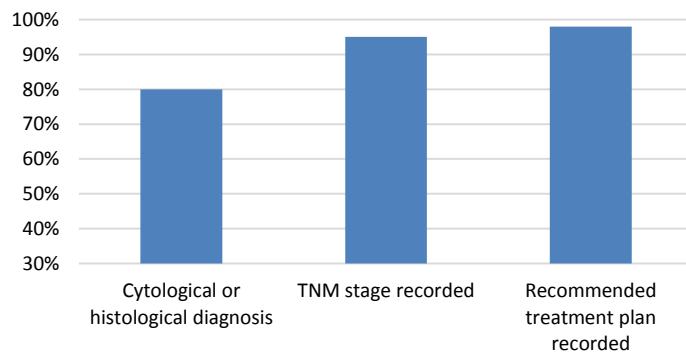
TNM Staging for patients diagnosed with NSCLC & SCLC reviewed by Radiation Oncology Mater Centre Lung Clinic, 2011.



MEETING OUTCOMES

Over 90% of key clinical data was electronically captured for NSCLC & SCLC patients

Meeting outcomes for patients diagnosed with NSCLC & SCLC reviewed by Radiation Oncology Mater Centre Lung Clinic, 2011.

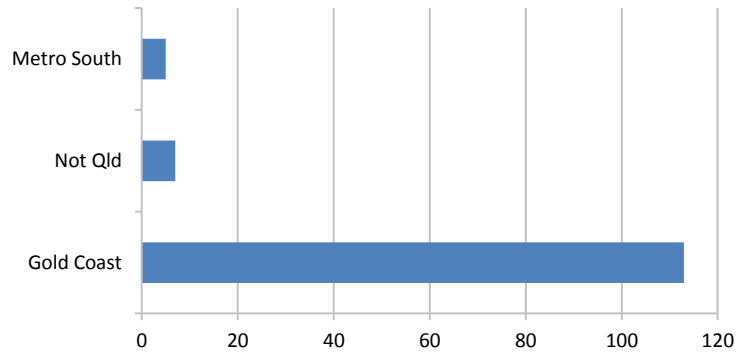


Gold Coast Hospital Lung MDT, 2011

WHERE DO PATIENTS REVIEWED AT GOLD COAST LUNG MDT RESIDE?

10% of NSCLC & SCLC patients reviewed reside outside the Gold Coast HHS where this meeting is held

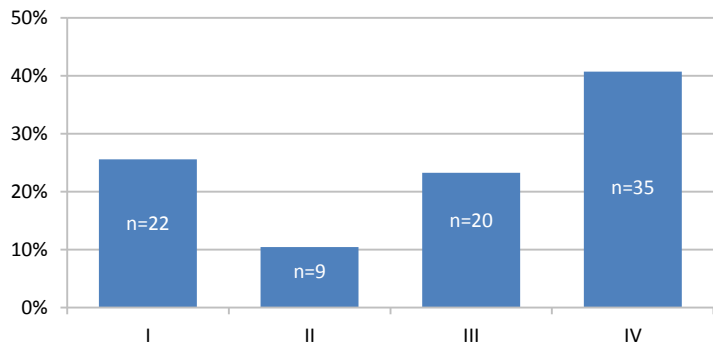
Residence of patients diagnosed with NSCLC & SCLC reviewed by Gold Coast Lung MDT, 2011.



STAGING PATTERNS

41% of NSCLC & SCLC patients are Stage IV at diagnosis

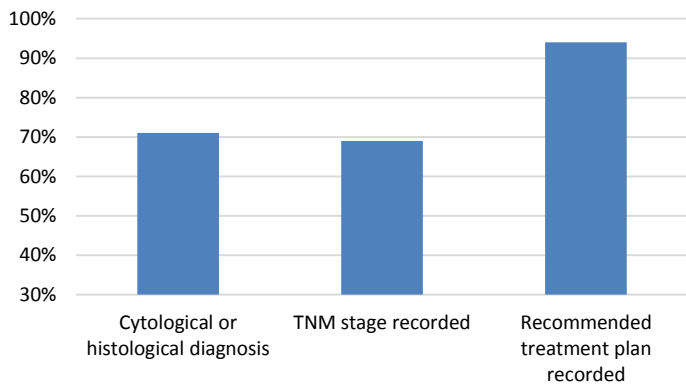
TNM Staging for patients diagnosed with NSCLC & SCLC reviewed by Gold Coast Lung MDT, 2011.



MEETING OUTCOMES

Over 70% of key clinical data was electronically captured for NSCLC & SCLC patients

Meeting outcomes for patients diagnosed with NSCLC & SCLC reviewed by Gold Coast Lung MDT, 2011.

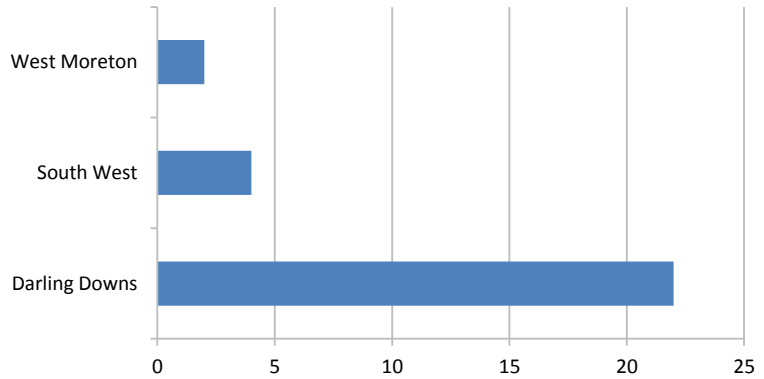


Toowoomba General Hospital Respiratory MDT, 2011

WHERE DO PATIENTS REVIEWED AT TOOWOOMBA RESPIRATORY MDT RESIDE?

21% of NSCLC & SCLC patients reviewed reside outside the Darling Downs HHS where this meeting is held

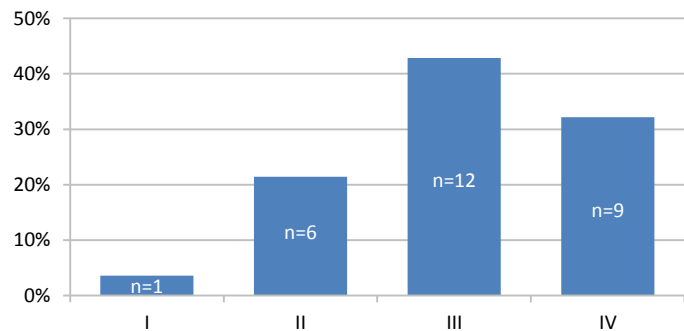
Residence of patients diagnosed with NSCLC & SCLC reviewed by Toowoomba Respiratory MDT, 2011.



STAGING PATTERNS

32% of NSCLC & SCLC patients are Stage IV at diagnosis

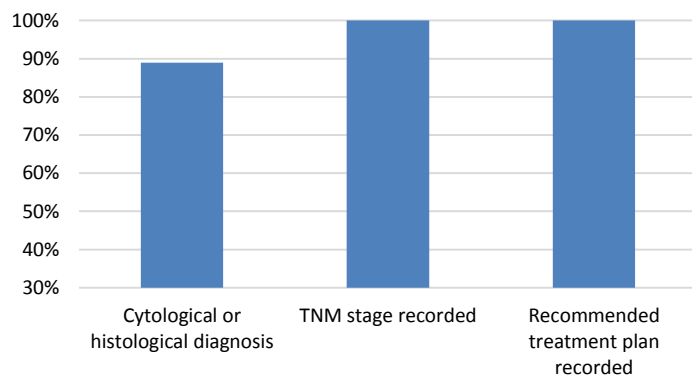
TNM Staging for patients diagnosed with NSCLC & SCLC reviewed by Toowoomba Respiratory MDT, 2011.



MEETING OUTCOMES

Over 90% of key clinical data was electronically captured for NSCLC & SCLC patients

Meeting Outcomes for patients diagnosed with NSCLC & SCLC reviewed by Toowoomba Respiratory MDT, 2011.

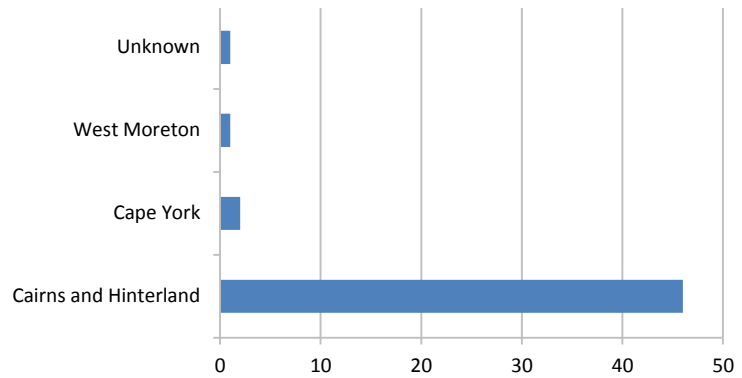


Cairns Base Hospital Lung Cancer MDT, 2011

WHERE DO PATIENTS REVIEWED AT CAIRNS LUNG MDT RESIDE?

7% of NSCLC & SCLC patients reviewed reside outside the Cairns and Hinterland HHS where this meeting is held

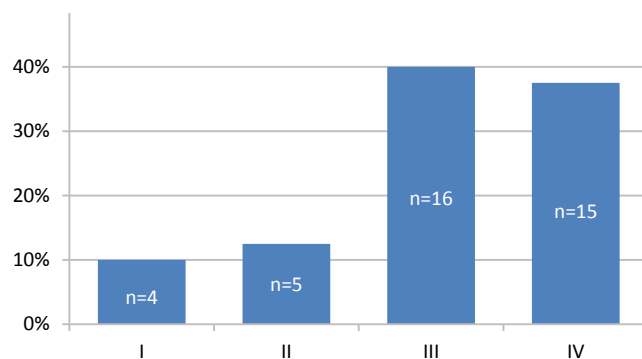
Residence of patients diagnosed with NSCLC & SCLC reviewed by Cairns Lung Cancer MDT, 2011.



STAGING PATTERNS

38% of NSCLC & SCLC patients are Stage IV at diagnosis

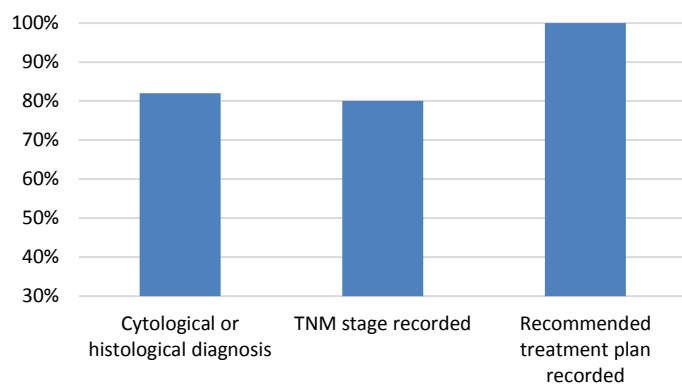
TNM Staging for patients diagnosed with NSCLC & SCLC reviewed by Cairns Lung Cancer MDT, 2011.



MEETING OUTCOMES

Over 80% of key clinical data was electronically captured for NSCLC & SCLC patients

Meeting outcomes for patients diagnosed with NSCLC & SCLC reviewed by Cairns Lung Cancer MDT, 2011.



Future Directions

To date QOOL has been used by clinicians to generate electronic cancer profiles for over 26,000 patients. Each cancer profile is a summary of the patient history, pathology, diagnostic, staging and treatment planning information. For lung cancer patients, 10,800 profiles have been created which include patients with NSCLC, SCLC as well as Mesothelioma, metastatic cancer and other lung malignancies.

Considerable progress in the collection of clinical data has been made in 2011 as a result of strategies such as:

- nomination of minimum dataset
- audit and feedback reporting for teams
- clinical practice improvement payments
- MDT coordinators commitment and support

In the next 18 months these cancer profiles will have treatment data linked to them from surgical, systemic therapy, radiotherapy and death data sources in order to complete the cancer profiles. Every complete cancer profile is a comprehensive source of patient, clinical and outcomes data for multidisciplinary teams.

This data will enable clinicians to audit their practice and monitor the outcomes of their patients to achieve the best possible care of Queenslanders with cancer, as well as enable the sharing of important clinical information between multidisciplinary teams.

Appendix



Sources of Data

Oncology Analysis System

Oncology Analysis System (OASys) is a state-wide clinical cancer database with diagnostic, treatment, and outcome data on registry-notifiable invasive cancers diagnosed among Queensland residents of all ages (including children) from 1982 to 2009. The database includes inpatient data for public and private admissions and information systems for radiation oncology, pharmacy and pathology. Benign (non-invasive) cancers are excluded. New cancer cases are counted following the rules for counting multiple primary cancers as defined by the International Association for Research on Cancer (IARC).

The data collection, linking and reporting of OASys data is performed under the auspices of Queensland Cancer Control Safety and Quality Partnership, a Quality Assurance Committee gazetted under Section 31, The Health Services Act 1991.

Queensland Oncology Repository

The Queensland Oncology Repository (QOR) is a cancer patient database developed and maintained by the Queensland Cancer Control Analysis Team (QCCAT; Queensland Health) to support Queensland's cancer control, safety, and quality assurance initiatives. QOR consolidates cancer patient information for the state and contains data on cancer diagnoses and deaths, surgery, chemotherapy, and radiotherapy. QOR also includes data collected by clinicians at multidisciplinary team (MDT) meetings across the state. For more information, visit <https://qccat.health.qld.gov.au/QOR>

Queensland Oncology Online

Queensland Oncology Online (QOOL) is an innovative web based system that integrates existing "data silos" and makes available just in time clinical information for multidisciplinary case conferencing, service improvement, monitoring safety and quality, and research.

QOOL has been developed to support clinicians to participate in multidisciplinary care and support the information needs of clinical networks and cancer services. This state-wide clinical registry aims to link patient information from multiple systems and facilitates the sharing of information between clinicians and facilities, producing a single patient summary view across the state.

QOOL provides the following functionality to cancer providers:

- Auto-population of demographic, pathology and death data from routine electronic sources, combined with additional clinical data, to provide an online clinical summary.
- Secure web access to the clinical summary for online scheduling, case conferencing, cancer care coordination and updating of clinical summary.
- Auto-generated GP/Specialist letter and case notes summary.
- Enables clinicians to record the critical information for each cancer episode, building a profile of the patient's journey, which is accessible by the multidisciplinary clinical team, independent of location of care.

As a result of collecting this information, clinicians are able to more effectively participate in audit and peer review activities as part of routine clinical practice. QCCAT in collaboration with partners and teams will apply a strong multidisciplinary approach to cancer service activities that includes primary care, community, allied health, clinicians and consumers. There is further hope that a strong partnership between public and private providers of oncology services will allow a greater focus on service improvement and safety.

In 2012 QOOL is being utilised by 23 hospitals across Queensland supporting 51 individual multidisciplinary meetings.

Glossary and common abbreviations

Age-standardised incidence/mortality rate (ASR)

The number of new cases or deaths per 100,000 that would have occurred in a given population if the age distribution of that population was the same as that of the Australian population in 2001 and if the age-specific rates observed in the population of interest had prevailed. In international comparisons, the World Standard Population was used as the reference population.

Age-standardised rates are independent of the age-structure of the population of interest and are therefore useful in making comparisons between different populations and time periods.

Except where noted, incidence and mortality rates are standardised to the Australian age-specific population in 2001.

All-cause crude survival

All-cause crude survival: the percentage of cancer cases still alive after a specified period of time from diagnosis.

Hospital and Health Services (HHS)

For residence considerations, a Hospital and Health Service is a geographic area defined by a collection of Statistical Local Areas (SLA). For public hospitals and health service facilities, the term Hospital and Health Service is synonymous with a group of Queensland Health facilities and staff responsible for providing and delivering health resources and services to an area which may consist of one or more residential districts.

Incidence (new cases)

The number of new cases of cancer diagnosed in a defined population during a specified time period. For example, 2009 incidence is the number of cancers which were first diagnosed between 1 January 2009 and 31 December 2009.

Mortality (deaths)

The number of deaths attributed to cancer in a defined population during a specified time period regardless of when the diagnosis of cancer was made.

Multidisciplinary Meeting

A regularly scheduled meeting of core and invited team members for the purpose of prospective treatment and care planning of newly diagnosed cancer patients as well as those requiring review of treatment plan or palliative care.

Multidisciplinary Team

Multidisciplinary teams are made up of medical and allied health practitioners required for all treatment and care decisions in a particular tumour stream

Non-small cell lung cancer (NSCLC)

One of the two main groups of lung cancers. This group includes squamous cell carcinoma, adenocarcinoma, large cell carcinoma and bronchiolo-alveolar cell carcinoma

Other Lung Cancer

Other lung cancer includes carcinoid lung cancers, sarcomas and other specified malignant tumours.

This group does not include mesothelioma.

Prevalence

The number of Queenslanders with a diagnosis of cancer who were alive on 31 December 2009.

Relative Survival

The rate of survival of persons diagnosed with cancer relative to the expected survival rate of the general population. Five-year relative survival represents the proportion of patients alive five years after diagnosis, taking into account age, gender and year of diagnosis.

Remoteness

The relative remoteness of residence at time of diagnosis, based on the Australian Standard Geographical Classification (ASGC). In this report, remoteness is classified into four groups: Major City, Inner Regional, Outer Regional, and Remote & Very Remote.

Small cell lung cancer (SCLC)

A type of lung cancer made up of small, round cells. Small cell lung cancer is less common than non-small cell lung cancer and often grows more quickly. It is strongly associated with cigarette smoking.

Staging - TNM Classification of Malignant Tumours

An international system of staging malignant tumours by describing the anatomical extent of the cancer. There are three major parameters of staging a cancer: Tumour – size or extent, as determined by clinical exam, investigative procedures or resection, Nodal involvement, and present or absence of Metastases. Cancer staging is divided into clinical stage and pathological stage. Clinical stage is based on all available information before surgery while pathological stage incorporates additional information gained by microscopic examination of the tumour.

More on the QCCAT website

Go to <https://qccat.health.qld.gov.au>

Citation Guidelines

Full Citation

Queensland Government. Lung Cancer in Queensland: An overview 2012. Queensland Health, Brisbane, 2012

Abbreviated Citation

Source: Lung Cancer in Queensland: An Overview 2012, Queensland Health

Which Citation to use

Use the Full Citation in journal articles or reports with a separate Reference section. Use the Abbreviated Citation at the bottom of graphs or tables in slides or reports where a separate Reference section is not provided.

References

1. Fritz A, Percy C, Jack A, Shanmugaratham K, Sobin L, Parkin D, Whelan S (ed.). 2000, International Classification of Diseases for Oncology, 3rd edition, World Health Organisation
2. Australian Institute of Health and Welfare & Cancer Australia 2011. Lung cancer in Australia: an overview. Cancer series no. 64. Cat. no. CAN 58. Canberra: AIHW.
3. 4831.0.55.001 - Tobacco Smoking in Australia: A Snapshot, 2004-05 ABS Tobacco Smoking in Australia: A snapshot, 2004-05, accessed 12th April 2012
4. Scollo, MM and Winstanley, MH [Editors]. *Tobacco in Australia: Facts and Issues*. Third Edition. Melbourne: Cancer Council Victoria; 2008. Available from: <http://www.tobaccoinaustralia.org.au>, accessed 12th April 2012
5. Jemal A, Ward E, Thun M (2010) Declining death rates reflect progress against cancer. PLoS ONE 5(3): e9584. doi:10.1371/journal.pone.0009584
6. Kamangar F, Dores GM, Anderson WF. Patterns of cancer incidence, mortality, and prevalence across five continents: defining priorities to reduce cancer disparities in different geographic regions of the world. *J Clin Oncol* 2006; 24: 2137–50
7. Wills R-A, Dinh B, Khor S-L, Coory M. Mortality and incidence trends for leading cancers in Queensland 1982 to 2004. Information Circular 76, Queensland Health, November 2007
8. Ferlay J, Shin HR, Bray F, Forman D, Mathers C and Parkin DM. GLOBOCAN 2008 v1.2, Cancer Incidence and Mortality Worldwide: IARC CancerBase No. 10 [Internet]. Lyon, France: International Agency for Research on Cancer; 2010. Available from: <http://globocan.iarc.fr>, accessed 12th April 2012
9. Commonwealth of Australia (2011). Report on Lung cancer in Australia. Literature review and consultation on factors impacting on lung cancer outcomes.