

7

Chapter

Surgery for Laryngeal Cancer

Infocus – access and flows for
public & private patients
2002-2011

Queensland Health

Queensland Cancer Control
Safety and Quality Partnership

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Cancer Surgery in Queensland: Infocus - access and flows for public & private patients 2002-2011

Chapter 7: Laryngeal Cancer

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Laryngeal cancer clinical lead
Ben Panizza

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Introduction

In 2014 an estimated 125 new cases of invasive laryngeal cancer will be diagnosed among Queensland residents¹. With the ageing population, the number of new cases is expected to reach 160 by 2021¹.

Laryngeal cancer is a chapter in the *Cancer Surgery in Queensland: Infocus - access and flows for public & private patients 2002-2011* series and should be read in conjunction with the background document, available at <https://qccat.health.qld.gov.au/>

Surgery is a critical component of the curative treatment of laryngeal cancer. This chapter is focused on two dimensions of access to cancer care services – surgery rates and patient flows. It provides population wide information on rates of surgery provision and flows based on patient Hospital and Health Service (HHS) of residence. The chapter contains information on laryngeal cancer surgery in Queensland from 2002 - 2011 and reflections on the trends in the data observed over the most recent three year time period 2009 - 2011.

For the first time, a population profile for laryngeal cancer surgery in Queensland and the HHSs is described including the characteristics of laryngeal cancer patients who receive surgery. Importantly, it provides information on the number and demographic characteristics of laryngeal cancer patients who do not receive surgery and where they live according to HHS of residence.

The baseline information provided in this chapter will inform the planning and funding of cancer services, provide HHSs with locally meaningful information and contribute to our understanding of variation in laryngeal cancer surgery across Queensland. This information enables Queensland to compare themselves with other Australian states and territories, internationally and published literature.

This chapter is framed around five important questions relevant to cancer surgery in Queensland.

1. How many Queenslanders who are newly diagnosed with laryngeal cancer have a surgical procedure as a result of their diagnosis?
2. What are the characteristics of Queenslanders who have a surgical procedure as a result of their laryngeal cancer diagnosis and those that do not have a surgical procedure?
3. What types of surgery are performed for patients who are diagnosed with laryngeal cancer?
4. What number of surgeries is performed by HHSs for Queenslanders newly diagnosed with laryngeal cancer?
5. Where do patients receive their surgery?

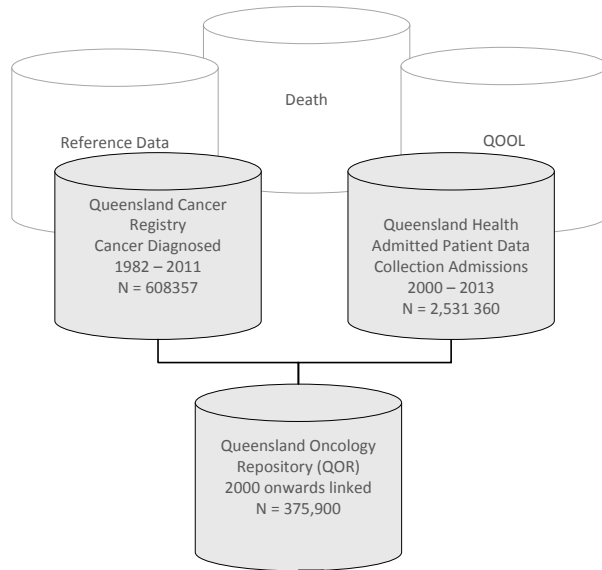
Data sources and methods

Key to QCCAT's program of work is our ability to link population based cancer information on an individual patient basis, using a master linkage key specifically developed by our team. This matched and linked data is housed in the Queensland Oncology Repository (QOR), a resource managed by QCCAT. This centralised repository, QOR, compiles and collates data from a range of source systems including Queensland Cancer Registry, hospital admissions data, death data, treatment systems, public and private pathology, hospital clinical data systems and QOOL. QOR contains approximately 32 million records between 1982 – 2013. Our matching and linking processes provide the 375 900 matched and linked records of cancer patients between 2000 – 2011, which are the starting point for this analysis. This chapter is structured around four cohorts of patients: **Queensland Cancer Cohort; Laryngeal Cancer Cohort; Laryngeal Surgery Cohort** and the **No Surgery Cohort**.

¹ Queensland Health. *Oncology Analysis System (OASys)*. Queensland Cancer Control Analysis Team: Brisbane; 2014. <https://qccat.health.qld.gov.au/OASys>. Accessed 01/08/2014

How the cohorts were identified

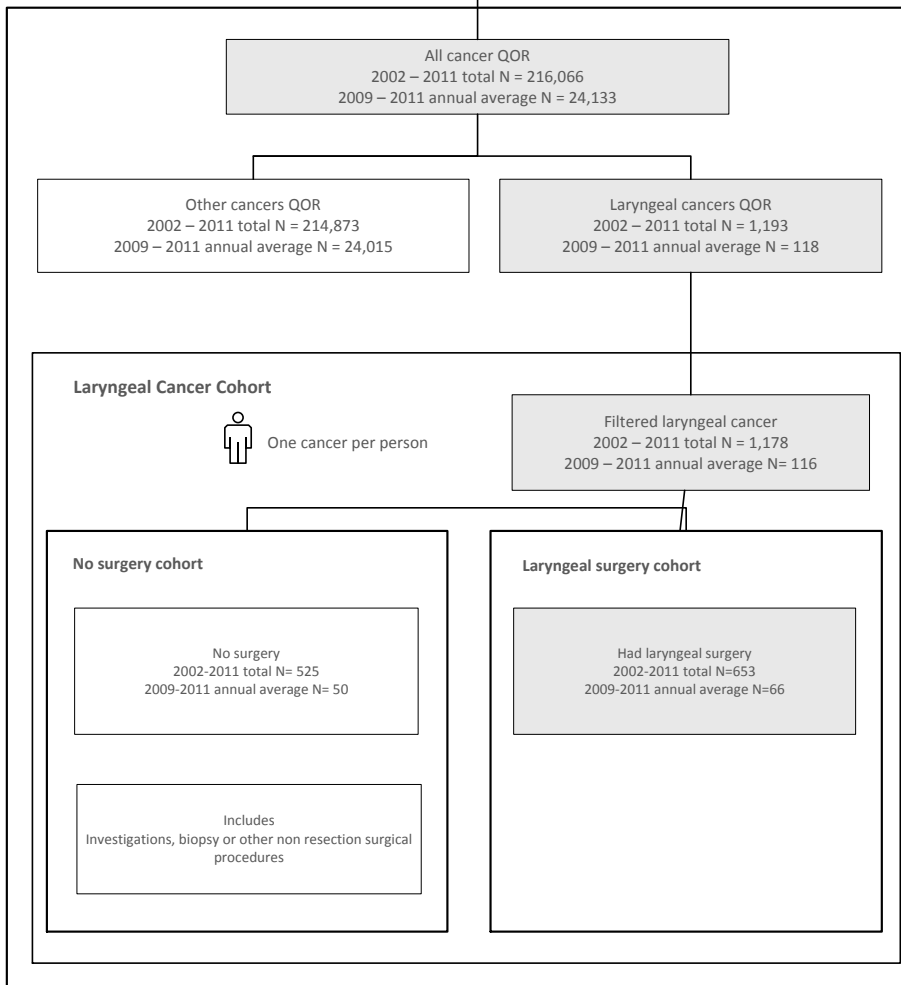
2002 – 2011 AND 2009 – 2011 ANNUAL AVERAGE
PUBLIC & PRIVATE HOSPITAL PATIENTS



Queensland Oncology Repository
QOR consolidates patient information for Queensland and contains data on invasive, benign and uncertain cancers, patient demographics, surgery, chemotherapy, radiotherapy and death. QOR also contains data collected by clinicians at MDT meetings

Sophisticated matching and linking is performed to identify all persons with cancer who had surgery

Queensland Cancer Cohort



Queensland Cancer Cohort
Includes: Queensland Invasive Cancer incidence
Discharged patients from public or private hospitals
Queensland residents
All ages

Laryngeal surgery cohort
Filtered cases
Potential duplicate records

Rules
If the surgery happened > 1 month before the date of diagnosis then the surgery is excluded

No surgery cohort
Includes Qld residents of all ages diagnosed with laryngeal cancer who did not undergo laryngeal surgery in the surgical cohort time period, as defined by the procedures on page 4.

Time periods

Time period – 01 December 2001 to 31 December 2012

Diagnosis year - 01 January 2002 to 31 December 2011

Cancer definitions - the site and morphology of the cancers have been coded according to the International Classification of Diseases for Oncology, 3rd edition (ICD-O-3).

Site	ICD-0-3	Morphology
Malignant neoplasm of larynx	C32	All
Glottis	C32.0	
Supraglottis	C32.1	
Subglottis	C32.2	
Laryngeal cartilage	C32.3	
Overlapping lesion of larynx	C32.8	
Larynx, unspecified	C32.9	

Exclusions

The following exclusions apply:

- Non Queensland residents
- People not admitted to a hospital in Queensland for invasive laryngeal cancer

Identification and categorisation of cancer related procedures

A laryngeal surgery performed up to one month prior to or anytime within twelve months following a cancer diagnosis was included. The following process was used to assign a laryngeal surgery to patients with cancer

- Potential cancer related procedures were identified for laryngeal cancer from the Australian Classification of Health Interventions (ACHI) International Classification of Diseases (ICD-10-AM) 7th Edition, 2010
- Identified procedures were reviewed by an expert clinician for completeness and accuracy

The following tables outlines the number of laryngeal procedures performed on Queensland residents (both public and private hospitals). The 'All cancers' column indicates the total number of each procedure performed by a HHS for any cancer. The 'Laryngeal cancer' column represents the number of procedures undertaken for patients diagnosed with laryngeal cancer which is the cohort for this report.

Total number of surgeries performed by HHS performing procedure

YEAR OF DIAGNOSIS 2002 – 2011
PUBLIC & PRIVATE HOSPITAL PATIENTS

	Hemilaryngectomy		Laryngopharyngectomy		Supraglottic laryngectomy		Total laryngectomy	
	All cancers	Laryngeal cancer	All cancers	Laryngeal cancer	All cancers	Laryngeal cancer	All cancers	Laryngeal cancer
HHS performing surgery								
Queensland	44	33	80	15	63	42	311	278
Cairns and Hinterland							2	2
Central Queensland			1				3	2
Darling Downs	1	1	7		4	3	18	15
Gold Coast			3		1		18	18
Metro North	40	30	35	7	44	30	131	122
Metro South	3	2	24	6	10	8	84	74
Sunshine Coast					1	1		
Townsville			1	1	1		39	36
West Moreton			9	1	2		16	9

The following table outlines the relevant laryngeal procedures included in this report for Queensland residents (both public & private) diagnosed with invasive laryngeal cancer:

ICD-10-AM	PROCEDURE/GROUPING
	LARYNGECTOMY
41837-00	Hemilaryngectomy
41840-00	Supraglottic Laryngectomy
41834-00	Total Laryngectomy
41843-00	Laryngopharyngectomy
	LARYNGOSCOPY WITH EXCISION
41852-00	Laryngoscopy with removal of lesion
41861-00	Microlaryngoscopy with removal of lesion by laser
41864-00	Microlaryngoscopy with removal of lesion
	OTHER EXCISION PROCEDURES ON LARYNX
90161-00	Excision of other lesion of larynx
	LYMPH NODE DISSECTION
31435-00	Radical excision of lymph nodes of neck
31423-01	Regional excision of lymph nodes of neck

Surgery rate for laryngeal cancer

ANNUAL AVERAGE YEAR OF DIAGNOSIS 2009 – 2011
PUBLIC & PRIVATE HOSPITAL PATIENTS

DEFINITIVE
SURGERY
MUTUALLY
EXCLUSIVE

Characteristic	Annual Average		Had Surgery		No Surgery	
	Laryngeal cancer cohort	(Qld %)	n	(row %)	n	(row %)
Queensland	116	(100%)	66	(57%)	49	(43%)
Gender						
Male	101	(87%)	60	(59%)	41	(41%)
Female	15	(13%)	7	(45%)	8	(55%)
Age Group						
< 55	16	(14%)	10	(64%)	6	(40%)
55-64	39	(34%)	21	(53%)	18	(47%)
65-74	34	(29%)	19	(57%)	14	(43%)
75-84	22	(19%)	12	(57%)	9	(43%)
85+	6	(5%)	4	(72%)	2	(28%)
Indigenous Status						
Indigenous	2	(2%)	1	(43%)	2	(71%)
Non-Indigenous	109	(94%)	63	(58%)	46	(42%)
Not Stated/Unknown	5		3	(57%)	2	(43%)
Socioeconomic Status						
Affluent	9	(7%)	5	(62%)	3	(38%)
Middle	78	(68%)	46	(58%)	33	(42%)
Disadvantaged	28	(24%)	15	(54%)	13	(46%)
Unknown	1	(1%)	1	(100%)	1	(100%)
Remoteness						
Major City	60	(52%)	37	(62%)	23	(38%)
Inner Regional	26	(23%)	14	(53%)	12	(47%)
Outer Regional	25	(22%)	12	(49%)	13	(51%)
Remote & Very Remote	4	(3%)	3	(73%)	1	(27%)
Qld Unknown	1	(1%)	1	(100%)	1	(100%)
Diagnosis Basis						
Histology	108	(94%)	66	(61%)	42	(39%)
Cytology	2	(2%)			2	(100%)
Clinical	4	(4%)			4	(100%)
Other	1	(1%)			1	(100%)
Comorbidity						
0	84	(73%)	48	(57%)	36	(43%)
1	22	(19%)	13	(58%)	9	(42%)
2+	9	(8%)	5	(57%)	4	(43%)

In the interest of completeness, annual average numbers have been included with fewer than 16 cases. Numbers < 16 should be interpreted with caution due to poor reliability of calculations based on small numbers. Annual average numbers have been rounded up to the nearest whole number for those with less than one, therefore the totals may not add up.

Surgery rate for laryngeal cancer by patient residence

ANNUAL AVERAGE YEAR OF DIAGNOSIS 2009 – 2011
PUBLIC & PRIVATE HOSPITAL PATIENTS

	Annual Average Laryngeal cancer cohort		Had Surgery		No Surgery	
	(Qld %)	n	(row %)	n	(row %)	
Queensland	116	(100%)	66	(57%)	49	(43%)
HHS (patient residence)						
Metro South	19	(16%)	11	(59%)	8	(41%)
Metro North	18	(16%)	11	(58%)	8	(42%)
Gold Coast	12	(11%)	8	(65%)	4	(35%)
Cairns and Hinterland	11	(10%)	6	(55%)	5	(45%)
Townsville	11	(10%)	5	(44%)	6	(56%)
Sunshine Coast	10	(8%)	7	(69%)	3	(31%)
Wide Bay	9	(8%)	5	(52%)	4	(48%)
Central Queensland	6	(5%)	4	(61%)	2	(39%)
Mackay	6	(5%)	3	(50%)	3	(50%)
West Moreton	5	(4%)	2	(47%)	3	(53%)
Darling Downs	4	(4%)	3	(69%)	1	(31%)
North West	2	(1%)	1	(60%)	1	(60%)
South West	1	(1%)			1	(100%)
Central West	1	(1%)	1	(100%)	1	(100%)
Torres Strait and Cape York	1	(1%)	1	(100%)		
Qld Unknown	1	(1%)	1	(100%)	1	(100%)

DEFINITIVE
SURGERY
MUTUALLY
EXCLUSIVE

In the interest of completeness, annual average numbers have been included with fewer than 16 cases. Numbers < 16 should be interpreted with caution due to the poor reliability of calculations based on small numbers. Annual average numbers have been rounded up to the nearest whole number for those with less than one. For example if a HHS performed one surgery from 2009 - 2011 the annual average will be rounded up to one to reflect that this HHS is performing surgery. Therefore the totals may not add up.

DEFINITIVE
SURGERY
MUTUALLY
EXCLUSIVE

Type of definitive surgery for laryngeal cancer

ANNUAL AVERAGE YEAR OF DIAGNOSIS 2009 – 2011
PUBLIC & PRIVATE HOSPITAL PATIENTS

Characteristic	Annual Average		Had Surgery		Hemilaryngectomy		Supraglottic Laryngectomy		Laryngopharyngectomy				Total Laryngectomy				Laryngeal Excision			
	Laryngeal cancer cohort	(Qld %)	n	(col %)	n	(row %)	n	(row %)	With Lymph Node Dissection	Without Lymph Node Dissection	With Lymph Node Dissection	Without Lymph Node Dissection	With Lymph Node Dissection	Without Lymph Node Dissection	With Lymph Node Dissection	Without Lymph Node Dissection	n	(row %)	n	(row %)
Queensland	116	(100%)	66	(57%)	3	(5%)	3	(5%)	1	(2%)	1	(2%)	13	(19%)	9	(13%)	1	(2%)	36	(55%)
Gender																				
Male	101	(87%)	60	(90%)	3	(6%)	3	(5%)	1	(2%)	1	(2%)	11	(19%)	8	(13%)			33	(55%)
Female	15	(13%)	7	(10%)			1	(15%)					1	(20%)	1	(15%)	1	(15%)	4	(55%)
Age Group																				
< 55	16	(14%)	10	(15%)	2	(20%)	2	(20%)					1	(10%)	1	(13%)			6	(60%)
55-64	39	(34%)	21	(32%)	1	(6%)	1	(5%)	1	(5%)			4	(21%)	2	(11%)			11	(54%)
65-74	34	(29%)	19	(29%)	1	(5%)	1	(5%)			1	(5%)	5	(24%)	4	(21%)			8	(43%)
75-84	22	(19%)	12	(19%)	1	(8%)	1	(8%)	1	(8%)			3	(22%)	1	(8%)	1	(8%)	7	(57%)
85+	6	(5%)	4	(7%)															4	(100%)
Indigenous Status																				
Indigenous	2	(2%)	1	(2%)											1	(100%)			1	(100%)
Non-Indigenous	109	(94%)	63	(95%)	3	(5%)	3	(5%)	1	(2%)	1	(2%)	12	(20%)	8	(13%)	1	(2%)	34	(53%)
Not Stated/Unknown	5	(4%)	3	(4%)									1	(38%)					2	(88%)
Socioeconomic Status																				
Affluent	9	(7%)	5	(8%)	1	(19%)			1	(19%)			1	(19%)	1	(19%)	1	(19%)	3	(56%)
Middle	78	(68%)	46	(69%)	2	(4%)	3	(7%)	1	(2%)			7	(16%)	6	(13%)			26	(58%)
Disadvantaged	28	(24%)	15	(23%)	1	(7%)	1	(7%)			1	(7%)	4	(29%)	2	(16%)			7	(44%)
Unknown	1	(1%)	1	(2%)															1	(100%)
Remoteness																				
Major City	60	(52%)	37	(56%)	2	(5%)	2	(5%)	1	(3%)			6	(17%)	5	(13%)	1	(3%)	21	(57%)
Inner Regional	26	(23%)	14	(21%)	1	(7%)	1	(10%)	1	(7%)	1	(7%)	3	(19%)	2	(14%)			7	(50%)
Outer Regional	25	(22%)	12	(19%)	1	(8%)							3	(24%)	1	(8%)			8	(62%)
Remote & Very Remote	4	(3%)	3	(4%)	1	(38%)	1	(38%)					1	(38%)	1	(38%)			1	(38%)
Qld Unknown	1	(1%)	1	(2%)															1	(100%)
Comorbidity																				
0	84	(73%)	48	(73%)	3	(7%)	3	(6%)	1	(2%)	1	(2%)	7	(14%)	5	(10%)	1	(2%)	29	(61%)
1	22	(19%)	13	(19%)			1	(8%)	1	(8%)			3	(24%)	3	(26%)			5	(42%)
2+	9	(8%)	5	(8%)									3	(56%)	1	(19%)			2	(31%)

In the interest of completeness, annual average numbers have been included with fewer than 16 cases. Numbers < 16 should be interpreted with caution due to poor reliability of calculations based on small numbers. Annual average numbers have been rounded up to the nearest whole number for those with less than one, therefore the totals may not add up.

Type of definitive surgery for laryngeal cancer by patient residence

AVERAGE YEAR OF DIAGNOSIS 2009 – 2011

PUBLIC & PRIVATE HOSPITAL PATIENTS

DEFINITIVE
SURGERY
MUTUALLY
EXCLUSIVE

	Annual Average		Had Surgery		Hemilaryngectomy		Supraglottic Laryngectomy		Laryngopharyngectomy		Total Laryngectomy		Laryngeal Excision							
	Laryngeal cancer cohort	(Qld %)	n	(col %)	n	(row %)	n	(row %)	With Lymph Node Dissection		Without Lymph Node Dissection		With Lymph Node Dissection		Without Lymph Node Dissection					
									n	(row %)	n	(row %)	n	(row %)	n	(row %)				
Queensland	116	(100%)	66	(57%)	3	(5%)	3	(5%)	1	(2%)	1	(2%)	13	(19%)	9	(13%)	1	(2%)	36	(55%)
HHS (patient residence)																				
Metro South	19	(16%)	11	(17%)	1	(9%)			1	(9%)			2	(18%)	2	(18%)			6	(52%)
Metro North	18	(16%)	11	(16%)	1	(9%)	1	(9%)	1	(9%)			2	(19%)	1	(13%)	1	(9%)	6	(53%)
Gold Coast	12	(11%)	8	(12%)			1	(13%)	1	(13%)			1	(13%)	1	(13%)			6	(75%)
Cairns and Hinterland	11	(10%)	6	(9%)	1	(17%)							1	(22%)					4	(67%)
Townsville	11	(10%)	5	(8%)									1	(20%)	1	(20%)			4	(73%)
Sunshine Coast	10	(8%)	7	(10%)	1	(15%)	1	(15%)					2	(25%)	1	(15%)			3	(40%)
Wide Bay	9	(8%)	5	(7%)			1	(21%)			1	(21%)	2	(36%)	1	(21%)			2	(36%)
Central Queensland	6	(5%)	4	(6%)	1	(27%)	1	(27%)	1	(27%)			1	(27%)	1	(27%)			1	(27%)
Mackay	6	(5%)	3	(5%)	1	(33%)							1	(33%)					2	(56%)
West Moreton	5	(4%)	2	(4%)					1	(43%)			1	(43%)					2	(71%)
Darling Downs	4	(4%)	3	(5%)									1	(33%)					2	(78%)
North West	2	(1%)	1	(2%)	1	(100%)	1	(100%)					1	(100%)						
South West	1	(1%)																		
Central West	1	(1%)	1	(2%)											1	(100%)				
Torres Strait and Cape York	1	(1%)	1	(2%)											1	(100%)				
Qld Unknown	1	(1%)	1	(2%)															1	(100%)

In the interest of completeness, annual average numbers have been included with fewer than 16 cases. Numbers < 16 should be interpreted with caution due to the poor reliability of calculations based on small numbers. Annual average numbers have been rounded up to the nearest whole number for those with less than one. For example if a HHS performed one surgery from 2009 - 2011 the annual average will be rounded up to one to reflect that this HHS is performing surgery. Therefore the totals may not add up.

Type of definitive surgery for laryngeal cancer by HHS performing surgery

AVERAGE YEAR OF DIAGNOSIS 2009 – 2011

PUBLIC & PRIVATE HOSPITAL PATIENTS

DEFINITIVE
SURGERY
MUTUALLY
EXCLUSIVE

	Annual Average		Hemilaryngectomy		Supraglottic Laryngectomy		Laryngopharyngectomy				Total Laryngectomy				Laryngeal Excision			
	Had Surgery	(col %)	n	(row %)	n	(row %)	With Lymph Node Dissection		Without Lymph Node Dissection		With Lymph Node Dissection		Without Lymph Node Dissection		With Lymph Node Dissection		Without Lymph Node Dissection	
							n	(row %)	n	(row %)	n	(row %)	n	(row %)	n	(row %)	n	(row %)
Queensland HHS (performing surgery)	66	(100%)	3	(5%)	3	(5%)	1	(2%)	1	(2%)	13	(19%)	9	(13%)	1	(2%)	36	(55%)
Metro North	28	(42%)	3	(100%)	3	(100%)	1	(75%)	1	(100%)	5	(42%)	5	(54%)			10	(28%)
Metro South	15	(23%)					1	(75%)			4	(32%)	2	(27%)	1	(100%)	8	(23%)
Townsville	7	(11%)									2	(18%)	1	(12%)			4	(11%)
Gold Coast	6	(9%)											1	(12%)			5	(15%)
Darling Downs	3	(5%)									1	(8%)					3	(7%)
Cairns and Hinterland	2	(3%)															2	(6%)
Sunshine Coast	1	(2%)															1	(3%)
Wide Bay	1	(2%)															1	(3%)
Central Queensland	1	(2%)															1	(3%)
Mackay	1	(2%)															1	(3%)
West Moreton	1	(2%)									1	(8%)					1	(3%)

*The North West, South West, Central West, Torres Strait & Cape York and Qld Unknown HHSs did not perform laryngeal cancer surgery.

~The Hemilaryngectomy and Supraglottic Laryngectomy procedures were performed without lymph node dissections.

In the interest of completeness, annual average numbers have been included with fewer than 16 cases. Numbers < 16 should be interpreted with caution due to the poor reliability of calculations based on small numbers. Annual average numbers have been rounded up to the nearest whole number for those with less than one. For example if a HHS performed one surgery from 2009 - 2011 the annual average will be rounded up to one to reflect that this HHS is performing surgery. Therefore the totals may not add up.

Characteristics of patients receiving laryngeal surgery by patient residence

ANNUAL AVERAGE YEAR OF DIAGNOSIS 2009 – 2011

PUBLIC & PRIVATE HOSPITAL PATIENTS

DEFINITIVE
SURGERY
MUTUALLY
EXCLUSIVE

	Had Surgery		Male		Median Age at Diagnosis yrs	Disadvantaged		Indigenous		One or more comorbidities		Private		Emergency	
	n	(Qld %)	n	(row %)		n	(row %)	n	(row %)	n	(row %)	n	(row %)	n	(row %)
Queensland	66	(57%)	60	(90%)	66 yrs	15	(23%)	1	(2%)	18	(27%)	33	(49%)	5	(8%)
HHS (patient residence)															
Metro South	11	(17%)	10	(94%)	67 yrs	2	(21%)			3	(30%)	4	(36%)	1	(9%)
Metro North	11	(16%)	10	(94%)	69 yrs	3	(28%)			3	(31%)	5	(50%)	1	(13%)
Gold Coast	8	(12%)	6	(79%)	61 yrs	1	(13%)			1	(13%)	6	(71%)	1	(13%)
Sunshine Coast	7	(10%)	6	(95%)	65 yrs	1	(15%)			2	(30%)	3	(50%)	1	(15%)
Cairns and Hinterland	6	(9%)	6	(94%)	61 yrs	2	(39%)			1	(17%)	2	(39%)	1	(17%)
Townsville	5	(8%)	4	(73%)	67 yrs	1	(20%)	1	(20%)	1	(27%)	2	(47%)		
Wide Bay	5	(7%)	4	(79%)	70 yrs	3	(71%)			1	(29%)	2	(50%)	1	(21%)
Central Queensland	4	(6%)	4	(100%)	70 yrs					1	(36%)	2	(45%)	1	(27%)
Mackay	3	(5%)	3	(89%)	63 yrs	1	(33%)			2	(56%)	2	(67%)	1	(33%)
Darling Downs	3	(5%)	3	(100%)	73 yrs	1	(33%)			1	(33%)	2	(78%)		
West Moreton	2	(4%)	2	(86%)	61 yrs					1	(57%)	1	(43%)	1	(43%)
North West	1	(2%)	1	(100%)	65 yrs							1	(100%)		
Central West	1	(2%)	1	(100%)	70 yrs					1	(100%)				
Torres Strait and Cape York	1	(2%)	1	(100%)	72 yrs	1	(100%)	1	(100%)	1	(100%)			1	(100%)
Qld Unknown	1	(2%)	1	(100%)	65 yrs										

*No patients from South West were reported as undergoing laryngeal surgery

In the interest of completeness, annual average numbers have been included with fewer than 16 cases. Numbers < 16 should be interpreted with caution due to the poor reliability of calculations based on small numbers. Annual average numbers have been rounded up to the nearest whole number for those with less than one. For example if a HHS performed one surgery from 2009 - 2011 the annual average will be rounded up to one to reflect that this HHS is performing surgery. Therefore the totals may not add up.

Patient flows



10 year laryngeal cancer patient flows for surgery

YEAR OF DIAGNOSIS 2002 – 2011 (COL% ROW %)

PUBLIC & PRIVATE HOSPITAL PATIENTS

Hospitals performing surgery* HHS (patient residence)	HHS of surgery					
	Metro South 6	Metro North 7	Gold Coast 6	Cairns and Hinterland 3	Townsville 3	Sunshine Coast 2
Metro South	79~ (51% 64%)	43 (17% 35%)	2 (3% 2%)			
Metro North	8 (5% 7%)	103 (41% 91%)		1 (4% 1%)		1 (7% 1%)
Gold Coast	18 (12% 21%)	10 (4% 12%)	58 (94% 67%)			
Cairns and Hinterland	16 (10% 29%)	6 (2% 11%)		26 (93% 47%)	7 (11% 13%)	
Townsville	8 (5% 16%)	2 (1% 4%)			40 (65% 80%)	
Sunshine Coast	9 (6% 18%)	27 (11% 54%)				13 (87% 26%)
Wide Bay	9 (6% 19%)	29 (12% 62%)	1 (2% 2%)			
Central Queensland	3 (2% 12%)	12 (5% 46%)				
Mackay	3 (2% 12%)	8 (3% 31%)			9 (15% 35%)	
West Moreton	1 (1% 4%)	3 (1% 13%)				
Darling Downs	2 (1% 5%)	4 (2% 11%)				
North West		3 (1% 50%)			3 (5% 50%)	
South West		1 (0% 50%)				
Central West		1 (0% 100%)				
Torres Strait and Cape York				1 (4% 25%)	3 (5% 75%)	
Qld Unknown			1 (2% 50%)			1 (7% 50%)
Queensland	156~	252	62	28	62	15
Qld (%)	(24%)	(39%)	(9%)	(4%)	(9%)	(2%)
Annual Average	16	25	6	3	6	2

*the number of hospitals within a HHS performing laryngeal surgery

~Using Metro South as an example:

124 – Total number of patients who lived in Metro South.

156 – Total number of laryngeal surgeries that Metro South performed.

79 – Number of patients who had laryngeal surgery in Metro South and lived in Metro South.

51% – Of the 156 patients who had laryngeal surgery in Metro South 79 also lived in Metro South (79/156 = 51%).

64% – Of the 124 patients who lived in Metro South 79 had laryngeal surgery in Metro South (79/124 = 64%).

10 year laryngeal cancer patient flows for surgery

YEAR OF DIAGNOSIS 2002 – 2011 (COL% ROW %)
PUBLIC & PRIVATE HOSPITAL PATIENTS

DEFINITIVE
SURGERY
MUTUALLY
EXCLUSIVE

HHS of surgery					Qld	
Wide Bay 2	Central Queensland 2	Mackay 1	West Moreton 2	Darling Downs 3	n	%
					124~	(19%)
					113	(17%)
					86	(13%)
					55	(8%)
					50	(8%)
1 (13% 2%)					50	(8%)
7 (88% 15%)	1 (8% 2%)				47	(7%)
	11 (85% 42%)				26	(4%)
	1 (8% 4%)	5 (100% 19%)			26	(4%)
			18 (95% 75%)	2 (6% 8%)	24	(4%)
			1 (5% 3%)	30 (91% 81%)	37	(6%)
					6	(1%)
				1 (3% 50%)	2	(0%)
					1	(0%)
					4	(1%)
					2	
8 (1%)	13 (2%)	5 (1%)	19 (3%)	33 (5%)	653	(100%)
1	1	1	2	3		

2011 laryngeal cancer patient flows for surgery

YEAR OF DIAGNOSIS 2011 (COL% ROW%)

PUBLIC & PRIVATE HOSPITAL PATIENTS

Hospitals performing surgery*	HHS of surgery				
	Metro South	Metro North	Gold Coast	Cairns and Hinterland	Townsville
HHS (patient residence)	2	4	2	1	2
Metro South	4~ (29% 36%)	6 (25% 55%)	1 (17% 9%)		
Metro North	1 (7% 8%)	11 (46% 92%)			
Gold Coast	1 (7% 17%)	1 (4% 17%)	4 (67% 67%)		
Cairns and Hinterland	5 (36% 63%)	1 (4% 13%)		1 (100% 13%)	1 (17% 13%)
Townsville					4 (67% 100%)
Sunshine Coast	1 (7% 33%)	2 (8% 67%)			
Wide Bay	1 (7% 33%)	1 (4% 33%)			
Central Queensland		2 (8% 67%)			
Mackay					
West Moreton	1 (7% 50%)				
Darling Downs					
North West					
South West					
Central West					
Torres Strait and Cape York					1 (17% 100%)
Qld Unknown			1 (17% 100%)		
Queensland	14~	24	6	1	6
Qld (%)	(23%)	(40%)	(10%)	(2%)	(10%)

*the number of hospitals within a HHS performing laryngeal surgery

~Using Metro South as an example:

11 – Total number of patients who lived in Metro South.

14 – Total number of laryngeal surgeries that Metro South performed.

4 – Number of patients who had laryngeal surgery in Metro South and lived in Metro South.

29% – Of the 14 patients who had laryngeal surgery in Metro South 4 also lived in Metro South (4/14 = 29%) .

36% – Of the 11 patients who lived in Metro South 4 had laryngeal surgery in Metro South (4/11 =36%).

2011 laryngeal cancer patient flows for surgery

YEAR OF DIAGNOSIS 2011 (COL% ROW%)
PUBLIC & PRIVATE HOSPITAL PATIENTS

DEFINITIVE
SURGERY
MUTUALLY
EXCLUSIVE

15

Laryngeal

HHS of surgery					Qld n	18 %
Wide Bay 1	Central Queensland 1	Mackay 1	West Moreton 1	Darling Downs 3		
					11~	(18%)
					12	(20%)
					6	(10%)
					8	(13%)
					4	(7%)
					3	(5%)
1 (100% 33%)					3	(5%)
	1 (100% 33%)				3	(5%)
		1 (100% 100%)			1	(2%)
			1 (100% 50%)		2	(3%)
				5 (100% 100%)	5	(8%)
					1	(2%)
					1	(2%)
1 (2%)	1 (2%)	1 (2%)	1 (2%)	5 (8%)	60	(100%)

Surgery rates



10 year surgery rates for laryngeal cancer by patient residence

YEAR OF DIAGNOSIS 2002 – 2011
PUBLIC & PRIVATE HOSPITAL PATIENTS

DEFINITIVE
SURGERY
MUTUALLY
EXCLUSIVE

	Laryngeal cancer cohort		Had Surgery		Year of Diagnosis																			
					2002		2003		2004		2005		2006		2007		2008		2009		2010		2011	
	N	(col %)	n	(row %)	n	(%)	n	(%)	n	(%)	n	(%)	n	(%)	n	(%)	n	(%)	n	(%)	n	(%)		
Queensland	1178	(100%)	653	(55%)	55	(49%)	69	(62%)	80	(65%)	58	(52%)	68	(52%)	59	(48%)	65	(55%)	67	(55%)	72	(62%)	60	(56%)
HHS (patient residence)																								
Metro North	214	(18%)	113	(53%)	7	(47%)	8	(40%)	12	(57%)	5	(36%)	18	(58%)	12	(46%)	19	(59%)	7	(41%)	13	(72%)	12	(60%)
Metro South	206	(17%)	124	(60%)	9	(50%)	12	(60%)	20	(69%)	7	(58%)	16	(67%)	15	(56%)	12	(60%)	15	(58%)	7	(70%)	11	(55%)
Gold Coast	120	(10%)	86	(72%)	7	(64%)	13	(93%)	10	(77%)	11	(85%)	8	(62%)	6	(60%)	7	(78%)	8	(67%)	10	(63%)	6	(67%)
Townsville	105	(9%)	50	(48%)	4	(44%)	4	(40%)	9	(69%)	7	(64%)	2	(25%)	5	(42%)	4	(50%)	8	(50%)	3	(30%)	4	(50%)
Cairns and Hinterland	103	(9%)	55	(53%)	5	(71%)	11	(61%)	3	(43%)	6	(46%)	5	(42%)	4	(44%)	3	(75%)	2	(50%)	8	(44%)	8	(73%)
Sunshine Coast	89	(8%)	50	(56%)	3	(50%)	3	(50%)	3	(43%)	7	(58%)	3	(33%)	6	(67%)	5	(45%)	4	(80%)	13	(76%)	3	(43%)
Wide Bay	82	(7%)	47	(57%)	6	(55%)	8	(80%)	3	(75%)	5	(63%)	5	(63%)	2	(40%)	4	(44%)	7	(50%)	4	(80%)	3	(38%)
Darling Downs	66	(6%)	37	(56%)	5	(56%)	5	(100%)	4	(67%)	4	(44%)	3	(50%)	4	(44%)	3	(33%)	3	(100%)	1	(50%)	5	(63%)
Central Queensland	54	(5%)	26	(48%)			2	(50%)	5	(71%)	1	(17%)	2	(50%)	2	(33%)	3	(60%)	4	(57%)	4	(67%)	3	(60%)
Mackay	53	(4%)	26	(49%)	4	(80%)	2	(50%)	3	(60%)	1	(25%)	2	(29%)	2	(33%)	3	(75%)	3	(33%)	5	(71%)	1	(50%)
West Moreton	46	(4%)	24	(52%)	3	(38%)	1	(100%)	7	(88%)	1	(33%)	3	(50%)	1	(50%)	1	(33%)	2	(67%)	3	(50%)	2	(33%)
North West	15	(1%)	6	(40%)					1	(100%)	1	(33%)					1	(100%)	3	(75%)				
Torres Strait and Cape York	10	(1%)	4	(40%)	1	(33%)							1	(50%)					1	(100%)			1	(100%)
South West	7	(1%)	2	(29%)							2	(100%)												
Central West	2	(0%)	1	(50%)																	1	(100%)		
Qld Unknown	6	(1%)	2	(33%)	1	(100%)																	1	(100%)

Note: %'s for each year are used to show the percentage of patients who had surgery out of the total number of incidences for that year of laryngeal cancer. For example in Queensland in 2002 there were 55 patients who had laryngeal surgery which is 49% of the total incidences of laryngeal cancer in 2002.

10 year surgery rates for laryngeal cancer by HHS performing surgery

YEAR OF DIAGNOSIS 2002 – 2011
PUBLIC & PRIVATE HOSPITAL PATIENTS

DEFINITIVE
SURGERY
MUTUALLY
EXCLUSIVE

	Had Surgery		Year of Diagnosis																			
			2002		2003		2004		2005		2006		2007		2008		2009		2010		2011	
	n	(row %)	n	(%)	n	(%)	n	(%)	n	(%)	n	(%)	n	(%)	n	(%)	n	(%)	n	(%)	n	(%)
Queensland	653	(100%)	55	(100%)	69	(100%)	80	(100%)	58	(100%)	68	(100%)	59	(100%)	65	(100%)	67	(100%)	72	(100%)	60	(100%)
HHS (performing surgery)																						
Metro North	252	(39%)	18	(33%)	27	(39%)	25	(31%)	21	(36%)	27	(40%)	18	(31%)	32	(49%)	29	(43%)	31	(43%)	24	(40%)
Metro South	156	(24%)	7	(13%)	14	(20%)	22	(28%)	15	(26%)	20	(29%)	21	(36%)	11	(17%)	17	(25%)	15	(21%)	14	(23%)
Gold Coast	62	(9%)	7	(13%)	7	(10%)	8	(10%)	7	(12%)	4	(6%)	4	(7%)	7	(11%)	5	(7%)	7	(10%)	6	(10%)
Townsville	62	(9%)	9	(16%)	7	(10%)	9	(11%)	4	(7%)	2	(3%)	4	(7%)	5	(8%)	10	(15%)	6	(8%)	6	(10%)
Darling Downs	33	(5%)	5	(9%)	4	(6%)	3	(4%)	3	(5%)	2	(3%)	4	(7%)	2	(3%)	3	(4%)	2	(3%)	5	(8%)
Cairns and Hinterland	28	(4%)	4	(7%)	5	(7%)	1	(1%)	3	(5%)	4	(6%)	2	(3%)	3	(5%)	1	(1%)	4	(6%)	1	(2%)
West Moreton	19	(3%)	3	(5%)	1	(1%)	6	(8%)	2	(3%)	3	(4%)	1	(2%)			1	(1%)	1	(1%)	1	(2%)
Sunshine Coast	15	(2%)	1	(2%)	2	(3%)			3	(5%)	2	(3%)	3	(5%)	1	(2%)			3	(4%)		
Central Queensland	13	(2%)					5	(6%)			3	(4%)	2	(3%)	2	(3%)					1	(2%)
Wide Bay	8	(1%)			2	(3%)					1	(1%)			2	(3%)	1	(1%)	1	(1%)	1	(2%)
Mackay	5	(1%)	1	(2%)			1	(1%)											2	(3%)	1	(2%)

*The North West, South West, Central West, Torres Strait & Cape York and Qld Unknown HHSs did not perform laryngeal cancer surgery.

Note: %'s for each year are used to show the percentage of patients who had surgery out of the total number of surgeries for that year for laryngeal cancer. For example in Queensland in 2002 Metro North performed 33% of the total laryngeal cancer surgeries.

Technical appendix



How different counting rules can be applied to a patient

Hierarchy was used to determine definitive surgery for a patient. For example if a patient had a laryngopharyngectomy, total laryngectomy and a hemilaryngectomy then the patients definitive surgery will be laryngopharyngectomy.

Order of the laryngeal surgery hierarchy (high to low):

1. Laryngopharyngectomy with lymph node dissection
2. Laryngopharyngectomy without lymph node dissection
3. Total laryngectomy with lymph node dissection
4. Total laryngectomy without lymph node dissection
5. Supraglottic Laryngectomy
6. Hemilaryngectomy
7. Laryngeal Excision with lymph node dissection– this group includes the procedures excision of other lesion of larynx, laryngoscopy with removal of lesion, microlaryngoscopy with removal of lesion and microlaryngoscopy with removal of lesion by laser.
8. Laryngeal Excision without lymph node dissection– this group includes the procedures excision of other lesion of larynx, laryngoscopy with removal of lesion, microlaryngoscopy with removal of lesion and microlaryngoscopy with removal of lesion by laser.

Definitions

Annual average

Annual average refers to the sum of numbers divided by the number of years being reported. In this report annual average numbers have been rounded up to the nearest whole number for those with less than 1.

Chargeable status - public and private

On admission to hospital, an eligible patient must elect to be either a public or private patient.

A public patient is a patient who:

- Elects to be treated as a public patient, and so cannot choose the doctor who treats them, or
- Is receiving treatment in a private hospital under a contract arrangement with a public hospital or health authority.

A private patient is a patient who, by choosing the doctor who will treat them (provided the doctor has 'right of private practice' or is a general practitioner/specialist with admitting rights) has elected to be treated as a private patient.

Cohort

Queensland cancer cohort

Queenslanders who were identified in Queensland Oncology Repository as being diagnosed with cancer between 1 January 2002 and 31 December 2011.

Laryngeal cancer cohort

Queenslanders who were diagnosed with laryngeal cancer between 1 January 2002 and 31 December 2011.

Laryngeal cancer surgery cohort

Anyone in the laryngeal cancer cohort who had any of the identified cancer related procedures, one month before or within twelve months of diagnosis as outlined on page 3.

No surgery cohort

Anyone in the laryngeal cancer cohort who did not undergo surgery as an admitted patient in the surgical cohort time period, as defined by the procedures outlined on page 3.

Col %

Percentage of the column total.

Comorbidity

A clinical condition that has the potential to significantly affect a cancer patient's prognosis after diagnosis with cancer.

Comorbidity is derived from hospital admissions data following the Quan algorithm¹ for classifying ICD-10 coded conditions, modified to exclude metastasis, which is represented by a separate and distinct metastasis dimension.

Comorbidity is limited to conditions coded in any admission episode between 12 months before and 12 months after the date of cancer diagnosis.

For any given cancer diagnosis, comorbidity is restricted to conditions other than the primary cancer. For example: a breast cancer can be a comorbidity to a lung cancer diagnosis and vice versa, if they are diagnosed within 12 months of each other.

Benign tumours are not considered comorbidities.

Co-morbidity list

AIDS	Acute myocardial	Cancer
Cerebrovascular disease	Congestive heart failure	Chronic obstructive pulmonary disease
Dementia	Diabetes	Diabetes + complications
Hemiplegia or Paraplegia	Mild liver disease	Moderate/severe liver disease
Peptic ulcer	Peripheral vascular disease	Renal disease
Rheumatoid disease		

Definitive Surgery

The highest ranked surgery the patient ever had defined by the laryngeal cancer surgery hierarchy outlined on page 17.

Diagnosis Basis

Confirmation of cancer through clinical or histological tests.

Elective Status*Emergency Admission*

A patient admitted to hospital at short notice because of clinical need or if alternative care is not available.

Elective Admission

A patient who is admitted into hospital for treatment from the waiting list.

Had surgery

Includes Queensland residents of all ages diagnosed with invasive laryngeal cancer in the laryngeal cohort time period.

Hospital and Health Service (HHS)

For residence considerations, the 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 areas.

Queensland Unknown residence includes addresses reported as overseas, unknown or not fixed.

Indigenous Status

A measure of whether a person identifies as being of Aboriginal or Torres Strait Islander origin.

Median age

The age that divides a population into two halves: one older than the median, the other younger than the median.

No surgery

Includes Queensland residents of all ages diagnosed with invasive laryngeal cancer who did not undergo surgery as an admitted patient in the surgical cohort time period, as defined by the procedures outlined on page 3.

Number of procedures

Includes Queensland residents of all ages diagnosed with invasive laryngeal cancer who underwent a relevant laryngeal cancer procedure. The procedure could have occurred at any time with no counting rules applied as outlined on page 2.

Patient flows

Col% is used to show the distribution of residence for the total group of patients who were operated on by a single HHS. Row% is used to show the proportion of patients residing in a given HHS who also receive their surgery in the same HHS, and what proportion had their surgery in another HHS.

Qld %

Percentage of the Queensland total.

Remoteness

The relative remoteness of residence at time of diagnosis, based on the Australian Standard Geographical Classification (ASGC). This document classifies remoteness into four groups: Major City, Inner Regional, Outer Regional, and Remote/Very remote.

Row %

Percentage of the row total.

Sex

Refers to the biological and physiological characteristics that define men and women.

Socioeconomic status

Socioeconomic classification is based on the Socio-Economic Indexes for Areas (SEIFA), a census-based measure of social and economic well-being developed by the Australian Bureau of Statistics (ABS) and aggregated at the level of Statistical Local Areas (SLA).

The ABS uses SEIFA scores to rank regions into ten groups or deciles numbered 1 to 10, with 1 being the most disadvantaged group and 10 being the most affluent group. This ranking is useful at the national level, but the number of people in each decile often becomes too small for meaningful comparisons when applied to a subset of the population. For this reason, this document further aggregates SEIFA deciles into 3 socioeconomic groups:

SEIFA Group	Decile	Percentage of population (approximate)
Affluent	1-2	20%
Middle	3-8	60%
Disadvantaged	9-10	20%

The proportion of cases in each group will vary depending on the subset of the population being examined. For example, the proportion in the Disadvantaged group may be higher than 20% when the data is limited to cancers that are more common in poor compared to rich people.

For more information

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