

Queensland Cancer Quality Index

Technical Appendix

Table of contents

The Cancer Index Indicators	1
Data sources and methods	2
How the cohorts were identified	3
Time periods	4
Exclusions	4
Identifying cancer patients	5
Identification and categorisation of cancer surgeries	5
Linking cancer surgery to a person	5
Cancer Surgery Groups	6
Data sources explained	10
Oncology Analysis System (OASys)	10
Statistical Analysis	10
More on the Cancer Alliance Queensland website	10

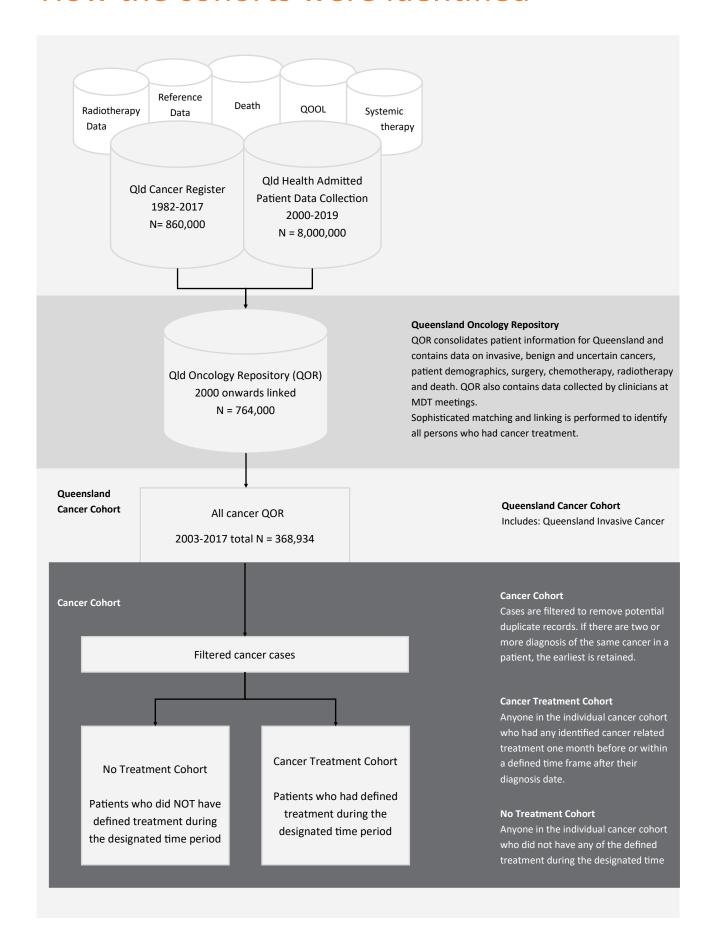
The Cancer Index Indicators

Quality Dimension	Indicator	Description	Calculation
1 Effective	1.1 Survival	What percentage of people with cancer are living 5 years after their diagnosis?	Percentage of people who would have survived if cancer was the only cause of death
	1.2 Queenslanders receiv- ing Multidisciplinary Team review (for cancer care)	How many Queenslanders with cancer receive multidisciplinary team (MDT) review?	Percentage of cancer patients receiving MDT review
	1.3 Queenslanders receiving cancer surgery	How many Queenslanders with cancer receive surgery?	Percentage of cancer patients receiving surgery
	1.4 Queenslanders receiving radiotherapy	How many Queenslanders with cancer receive radiotherapy	Percentage of cancer patients receiving radiotherapy
	1.5 Queenslanders receiving intravenous systemic therapy	How many Queenslanders with cancer receive intravenous systemic therapy	Percentage of cancer patients receiving intravenous systemic therapy
2 Efficient	2.1 Hospital Stay	How long do people receiving cancer surgery stay in hospital?	Median time in days between the admission and discharge date of cancer surgery
3 Safe	3.1 In-Hospital mortality	What percentage of patients die in-hospital after cancer surgery?	Percentage of patients who die in-hospital following cancer surgery
	3.2 30 day mortality	What percentage of patients die within 30 days of their cancer surgery?	Percentage of patients who die ≤ 30 days following cancer surgery
	3.3 90 day mortality	What percentage of patients die within 90 days of their cancer surgery?	Percentage of patients who die ≤ 90 days following cancer surgery
	3.4 1 year survival	What percentage of patients are alive one year after cancer surgery?	Percentage of patients still alive 1 year after cancer surgery
	3.5 2 year survival	What percentage of patients are alive two years after cancer surgery?	Percentage of patients still alive 2 years after cancer surgery
4 Accessible	4.1 Timeliness	What percentage of public compared to private patients received their first cancer treatment within 30 days of diagnosis?	Percentage of patients whose time from diagnosis to first cancer treatment is ≤ 30 days
	4.2 Remoteness	What percentage of patients living outside a major city received their first cancer treatment?	Percentage of rural and remote patients receiving their cancer treatment
	4.3 Time to first treatment ≤ 30 days	What percentage of patients living outside major city receiving their first cancer treatment within 30 days of diagnosis?	Percentage of rural and remote patients whose time from diagnosis to cancer treatment is ≤ 30 days
5 Equitable	5.1 Over 75 years	What percentage of patients aged ≥75 years received first cancer treatment within 30 days of diagnosis?	Percentage of older patients whose time from diagnosis to first cancer treatment is ≤ 30 days
	5.2 Indigenous	What percentage of Indigenous patients received first cancer treatment within 30 days of diagnosis?	Percentage of Indigenous patients whose time from diagnosis to first cancer treatment is ≤ 30 days
	5.3 Socio-economically disadvantaged	What percentage of socioeconomically disadvantaged patients received first cancer treatment within 30 days of diagnosis?	Percentage of socio-economically disadvantaged patients whose time from diagnosis to first cancer treatment is ≤ 30

Data sources and methods

Key to Cancer Alliance's program of work is the ability to match and link population based cancer information on an individual patient basis. This matched and linked data is housed in the Queensland Oncology Repository (QOR), a resource managed by Cancer Alliance Queensland. QOR consolidates cancer information for the state and contains data on cancer diagnoses from the Queensland Cancer Register (QCR) and deaths, Queensland Hospital Admissions Data Collection (QHAPDC), surgery, radiation therapy and intravenous systemic therapy. QOR also includes data collected in QOOLTM by clinicians at multidisciplinary team (MDT) meetings across the state. QOR contains approximately 50 million records between 1982 - 2017. Our matching and linking processes provide the 730,000+ matched and linked records of cancer patients between 2003 – 2017 which provide the data for The Cancer Index.

How the cohorts were identified



Time periods

DIAGNOSIS YEAR

Cancer Site	ICD-O-3; Morphology	Time Period
The site and morphology of all cancers has been codec Edition (ICD-O-3)	l according to the Internation	al Classification of Diseases for Oncology, 3rd
Breast	C50	01 January 2003 to 31 December 2017
Colorectal: colon/rectal	C18-C20, C218	01 January 2003 to 31 December 2017
CNS and brain: brain	C70-C71	01 January 2003 to 31 December 2017
Gynaecological: cervical/ovarian/uterine/vulva	C51, C53, C54, C56	01 January 2003 to 31 December 2017
Head and neck: hypopharynx/larynx/major salivary glands/nasal cavity and paranasal sinuses/ nasopharynx/oral cavity/oropharynx/other pharynx	C00-C14, C30-C32	01 January 2003 to 31 December 2017
Hepatobiliary: pancreatic/biliary tract & small intestine (including duodenum)/liver	C17, C22, C24, C25	01 January 2003 to 31 December 2017
Lung	C34, C34	01 January 2003 to 31 December 2017
Prostate	C61	01 January 2003 to 31 December 2017
Oesophago-gastric	C15, C16	01 January 2003 to 31 December 2017
Urological: bladder/testicular	C62, C67	01 January 2003 to 31 December 2017

CANCER TREATMENT YEAR

Cancer Site	Time Period
Breast	01 January 2000 to 31 July 2019
Colorectal: colon/rectal	01 January 2000 to 31 July 2019
CNS and brain: brain	01 January 2000 to 31 July 2019
Gynaecological: cervical/ovarian/uterine/vulva	01 January 2000 to 31 July 2019
Head and neck: hypopharynx/larynx/major salivary glands/nasal cavity and paranasal sinuses/nasopharynx/oral cavity/oropharynx/other pharynx	01 January 2000 to 31 July 2019
Hepatobiliary: pancreatic/biliary tract & small intestine (including duodenum)/ liver	01 January 2000 to 31 July 2019
Lung: non-small cell lung	01 January 2000 to 31 July 2019
Prostate	01 January 2000 to 31 July 2019
Oesophago-gastric	01 January 2000 to 31 July 2019
Urological: bladder/testicular	01 January 2000 to 31 July 2019

Exclusions

The following exclusions apply:

- Non Queensland residents
- Other conditions that patients may have had similar surgery for, e.g. gastrectomy for gastric ulcer

Identifying cancer patients

The number of new cases of cancers is generally higher than the number of persons with cancer. This is because one person can have two or more cancers and may be counted under two or more different cancer groups. Only primary invasive cancers are included in The Index. A primary cancer is one that occurs for the first time in a site or tissue (called the primary site) and is therefore not an extension, a recurrence or a metastasis of a pre-existing tumour.

The following examples illustrate the rules for identifying and counting cancer patients for this report:

- If a person has cancers in two different sites, then that person counts as 2 cases. For example if a woman was diagnosed with cancers in both the breast and rectum then she counts as 2 cases of cancer and will be included in both the breast and rectal cancer groups.
- If a person was diagnosed on two or more occasions with cancers in the same site, then that person counts as only one cancer case and the date of diagnosis will be based on the earliest diagnosis.

Identification and categorisation of cancer surgeries

Potential cancer related procedures were identified from the Australian Classification of Health Interventions (ACHI) International Classification of Diseases (ICD-10-AM) 11th Edition, 2019. The identified procedures were reviewed by expert clinicians for completeness and accuracy and then categorised into cancer surgery groups. See page 6 for more

Linking cancer treatment to a person

Each cancer diagnosed in a calendar year was matched and linked to one or many surgery records. This produces a list of all the surgeries performed for each cancer diagnosis. The surgeries are then categorised according to clinically developed rules which are specific to each indicator. Therefore a single cancer incidence and subsequent surgeries may be counted in a number of ways. For example a person diagnosed with colon cancer in 2006, had a colectomy in 2006 and an anterior resection in 2007. The colectomy would be used in the Accessible dimension and the anterior resection would be used in the Safe dimension.

Intravenous systemic therapy treatment is generated when a diagnosis primary site ICD code is matched to a cancer treatment primary site ICD code. The time period for an eligible match is occurrence from 30 days prior to the diagnosis to any time after. Where a primary site code is not recorded against treatment a match is generated where treatment occurs from 30 days prior to diagnosis to 365 days after diagnosis.

Radiation therapy treatment is generated when a diagnosis primary site ICD code is matched to a cancer treatment primary site ICD code. The time period for an eligible match is occurrence from 30 days prior to the diagnosis to any time after. Where a primary site code is not recorded against treatment a match is generated where treatment occurs from 30 days prior to diagnosis to 365 days after diagnosis.

Cancer surgery groups

BREAST CANCER SURGERY

Breast Cancer Surgery			
Excision of	Excision of lesion		
3153600	Complete excision of lesion without guidewire		
3150000	Complete excision of lesion with guidewire		
Mastectomy			
3151800	Total mastectomy (unilateral)		
3151801	Total mastectomy (bilateral)		
3152400	Subcutaneous mastectomy (unilateral)		
3152401	Subcutaneous mastectomy (bilateral)		

BRAIN CANCER SURGERY

Brain Cancer	Surgery
3970300	Biopsy of brain via burr holes
4090301	Biopsy of brain via neuroendoscopy
3970600	Biopsy of brain via osteoplastic craniotomy
3970302	Biopsy of cerebral meninges via burr holes
3970602	Biopsy of cerebral meninges via osteoplastic craniotomy
4080300	Intracranial stereotactic localisation
3971203	Removal of intraventricular lesion
3970901	Removal of lesion of brain stem
3970902	Removal of lesion of cerebellum
3971200	Removal of lesion of cerebral meninges
3970900	Removal of lesion of cerebrum
3971204	Removal of other intracranial lesion
3964000	Removal of lesion involving anterior cranial fossa
3964200	Removal of lesion involving anterior cranial fossa with clearance of paranasal sinus extension
3964600	Removal of lesion involving anterior cranial fossa with radical clearance of paranasal sinus and orbital fossa extensions
3965000	Removal of lesion involving middle cranial and infratemporal fossae
4070302	Partial lobectomy of brain

COLORECTAL CANCER SURGERY (CANCERS OF COLON OR RECTUM)

Major Resections			
Colectomy			
3056600	Resection of small intestine with anastomosis		
3200300	Limited excision of large intestine with anastomosis		
3200301	Right hemicolectomy with anastomosis		
3200501	Extended right hemicolectomy with anastomosis		
3200600	Left hemicolectomy with anastomosis		
3200500	Subtotal colectomy with anastomosis		
3201200	Total colectomy with anastomosis		
3056500	Resection of small intestine with formation of stoma		
3200000	Limited excision of large intestine with formation of stoma		
3200001	Right hemicolectomy with formation of stoma		
3200401	Extended right hemicolectomy with formation of stoma		
3200601	Left hemicolectomy with formation of stoma		
3200400	Subtotal colectomy with formation of stoma		
3200900	Total colectomy with ileostomy		
Abdominope	erineal Resection		
3203900	Abdominoperineal proctectomy		
Total Proctocolectomy			
3205100	Total proctocolectomy with ileo-anal anastomosis		
3201500	Total proctocolectomy with ileostomy		
3205101	Total proctocolectomy with ileo-anal anastomosis and formation of stoma		
Anterior Resection			
3202400	High anterior resection of rectum		
3202500	Low anterior resection of rectum		
3202600	Ultra low anterior resection of rectum		
3202800	Ultra low anterior resection of rectum with hand sutured coloanal anastomosis		
9220800	Anterior resection of rectum, level specified		
Hartmanns			
3203000	Rectosigmoidectomy with formation of stoma		

GYNAECOLOGICAL CANCER SURGERY

(CANCERS OF CERVICAL, OVARIAN, UTERINE OR VULVA) Major Resections Abdominal hysterectomy 3565300 Subtotal abdominal hysterotomy 3565300 Subtotal abdominal hysterectomy 3565301 Total abdominal hysterectomy 3565304 Total abdominal hysterectomy with removal of adnexa 3565305 Laparoscopic subtotal abdominal hysterectomy 3565307 Laparoscopic total abdominal hysterectomy Abdominal hysterectomy with extensive retroperitoneal 3566100 Radical abdominal hysterectomy with radical excision of 3566400 pelvic lymph nodes 3566700 Radical abdominal hysterectomy 3566702 Laparoscopic radical abdominal hysterectomy Abdominal hysterectomy with radical excision of pelvic 3567000 lymph nodes 9044800 Subtotal laparoscopic abdominal hysterectomy 9044801 Total laparoscopic abdominal hysterectomy Total laparoscopic abdominal hysterectomy with remov-9044802 al of adnexa Vaginal hysterectomy 3565700 Vaginal hysterectomy Radical vaginal hysterectomy with radical excision of 3566401 pelvic lymph nodes 3566701 Radical vaginal hysterectomy 3566703 Laparoscopically assisted radical vaginal hysterectomy 3567302 Vaginal hysterctomy with removal of adnexa 3567302 Vaginal hysterectomy with removal of adnexa 3575000 Laparoscopically assisted vaginal hysterectomy

Laparoscopically assisted vaginal hysterectomy with

Laparoscopically assisted vaginal hysterectomy proceed-

Laparoscopically assisted vaginal hysterectomy proceed-

ing to abdominal hysterectomy with removal of adnexa

removal of adnexa

ing to abdominal hysterectomy

3575302

3575600

3575603

Oophorectomy			
3563803	Laparoscopic oophorectomy, bilateral		
3563802	Laparoscopic oophorectomy, unilateral		
3563801	Laparoscopic partial oophorectomy		
3563800	Laparoscopic wedge resection of ovary		
3571701	Oophorectomy, bilateral		
3571307	Oophorectomy, unilateral		
3571306	Partial oophorectomy		
3571305	Wedge resection of ovary		
Salpingo-oop	Salpingo-oophorectomy		
3563812	Laparoscopic salpingo-oophorectomy, bilateral		
3563811	Laparoscopic salpingo-oophorectomy, unilateral		
3571704	Salpingo-oophorectomy, bilateral		
3571311	Salpingo-oophorectomy, unilateral		
Vulvectomy			
3553600	Hemivulvectomy		
3554800	Radical vulvectomy		
3553602	Vulvectomy, bilateral		
3553601	Vulvectomy, unilateral		

HEAD AND NECK CANCER SURGERY

(CANCERS OF HYPOPHARYNX, LARYNX, MAJOR SALIVARY GLANDS, NASAL CAVITY AND PARANASAL SINUSES,NASOPHARYNX, ORAL CAVITY, OROPHARYNX, OTHER PHARYNX)

Major Rese	ections
3024700	Total excision of parotid gland
3025000	Total excision of parotid gland with preservation of facial nerve
3025300	Partial excision of parotid gland
3025500	Removal of submandibular ducts
3025600	Excision of submandibular gland
3025900	Excision of sublingual gland
3027200	Partial excision of tongue
3027500	Radical excision of intraoral lesion
3028300	Excision of cyst of mouth
3029401	Laryngopharyngectomy and plastic reconstruction
3135000	Excision of lesion of soft tissue, not elsewhere classified
3140000	Excision of lesion of upper aerodigestive tract
3964000	Removal of lesion involving anterior cranial fossa
3964200	Removal of lesion involving anterior cranial fossa with clearance of paranasal sinus extension
3964600	Removal of lesion involving anterior cranial fossa with radical clearance of paranasal sinus and orbital fossa extensions
3965000	Removal of lesion involving middle cranial and infratem- poral fossae
3966002	Excision of lesion of cavernous sinus
4158100	Removal of lesion involving infratemporal fossa
4166800	Removal of nasal polyp
4171000	Radical maxillary antrostomy, unilateral
4171300	Radical maxillary antrostomy with transantral ethmoidectomy
4171301	Radical maxillary antrostomy with transantral vidian neurectomy
4171606	Excision of lesion of maxillary antrum
4172800	Lateral rhinotomy with removal of intranasal lesion
4173100	Ethmoidectomy, frontonasal approach
4173101	Ethmoidectomy with sphenoidectomy, frontonasal approach
4173702	Ethmoidectomy, unilateral
4173703	Ethmoidectomy, bilateral
4173709	Frontal sinusectomy
4175201	Sphenoidectomy
4176700	Removal of lesion of nasopharynx
4177901	Total excision of tongue
4178200	Partial pharyngectomy
4178500	Partial pharyngectomy with partial glossectomy

Major Rese	ctions
4178700	Uvulectomy with partial palatectomy
4178701	Uvulectomy with partial palatectomy and tonsillectomy
4178900	Tonsillectomy without adenoidectomy
4180100	Adenoidectomy without tonsillectomy
4181001	Uvulectomy
4183400	Total laryngectomy
4183700	Hemilaryngectomy
4184000	Supraglottic laryngectomy
4184300	Laryngopharyngectomy
4185200	Laryngoscopy with removal of lesion
4186100	Microlaryngoscopy with removal of lesion by laser
4186400	Microlaryngoscopy with removal of lesion
4186700	Microlaryngoscopy with arytenoidectomy
4559600	Total resection of 1 maxilla
4559700	Total resection of both maxillae
4559900	Total resection of both sides of mandible
4560200	Subtotal resection of mandible
4560201	Subtotal resection of maxilla
4560500	Partial resection of mandible
4560501	Partial resection of maxilla
4572000	Osteotomy of mandible, unilateral
4572001	Osteotomy of maxilla, unilateral
4572002	Ostectomy of mandible, unilateral
4572003	Ostectomy of maxilla, unilateral
5212000	Partial resection of mandible with condylectomy
9003200	Removal of lesion involving posterior cranial fossa
9013100	Local excision of other intranasal lesion
9013500	Excision of lesion of tongue
9013800	Excision of lesion of salivary gland
9014100	Local excision or destruction of lesion of bony palate
9014101	Excision of other lesion of mouth
9014301	Other procedures on palate
9014400	Excision of lesion of tonsils or adenoids
9014900	Excision of other lesion of pharynx
9016100	Excision of other lesion of larynx
9056900	Osteotomy, not elsewhere classified

PANCREATIC, BILIARY TRACT AND SMALL INTESTINE CANCER SURGERY

Major resections		
Whipples		
3058400	Pancreaticoduodenectomy with formation of stoma	

NON-SMALL CELL LUNG CANCER SURGERY

Major Resections			
Partial rese	Partial resection		
9016900	Endoscopic wedge resection of lung		
3844001	Radical wedge resection of lung		
3843800	Segmental wedge resection of lung		
3844000	Wedge resection of lung		
Lobectomy	Lobectomy of lung		
3843801	Lobectomy of lung		
3844100	Radical lobectomy		
Pneumonectomy			
3843802	Pneumonectomy		
3844101	Radical pneumonectomy		

PROSTATE CANCER SURGERY

Major Resections		
3721100	Radical prostatectomy with bladder neck reconstruction and pelvic lymphadenopathy	
3721000	Radical prostatectomy with bladder neck reconstruction	
3720900	Radical prostatectomy	
3721001	Laparoscopic radical prostatectomy with bladder neck reconstruction	
3720901	Laparoscopic radical prostatectomy	
3721101	Laparoscopic radical prostatectomy with bladder neck reconstruction and pelvic lymphadenectomy	

UROLOGICAL CANCER SURGERY (CANCERS OF BLADDER OR TESTICULAR)

Cystectomy		
3700000	Laparoscopic partial excision of bladder	
3700001	Partial excision of bladder	
3701400	Total excision of bladder	
Orchidectomy		
3064103	Orchidectomy with insertion of testicular prosthesis, bilateral	
3064102	Orchidectomy with insertion of testicular prosthesis, unilateral	
3064101	Orchidectomy, bilateral	
3064100	Orchidectomy, unilateral	

OESOPHAGOGASTRIC CANCER SURGERY

Major resections

Gastrectomy

3051800	Partial distal gastrectomy with gastroduodenal anastomosis
3051801	Partial distal gastrectomy with gastrojejunal anastomosis
3051802	Partial proximal gastrectomy with oesophago-gastric anastomosis
3052100	Total gastrectomy
3052300	Subtotal gastrectomy
3052400	Radical gastrectomy

Oesophagectomy		
3053500	Oesophagectomy by abdominal and transthoracic mobilisation, with thoracic oesophagogastric anastomosis	
3053600	Oesophagectomy by abdominal and transthoracic mobilisation, with cervical oesophagogastric anastomosis	
3053601	Oesophagectomy by abdominal and transthoracic mobilisation, with cervical oesophagostomy	
3054100	Trans-hiatal oesophagectomy by abdominal and cervical mobilisation, with oesophagogastric anastomosis	
3054101	Trans-hiatal oesophagectomy by abdominal and cervical mobilisation, with oesophagojejunal anastomosis	
3054500	Oesophagectomy by abdominal and thoracic mobilisation with thoracic anastomosis, large intestine interposition and anastomosis	
3054501	Oesophagectomy by abdominal and thoracic mobilisation with thoracic anastomosis, using Roux-en-Y reconstruction	
3055000	Oesophagectomy by abdominal and thoracic mobilisation with cervical anastomosis, large intestine interposition and anastomosis	
3055001	Oesophagectomy by abdominal and thoracic mobilisation with cervical anastomosis, using Roux-en-Y reconstruction	

Data sources explained

QUEENSLAND ONCOLOGY REPOSITORY

The Queensland Oncology Repository (QOR) is a cancer patient database developed and maintained by the Cancer Alliance Queensland 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://cancerallianceqld.health.qld.gov.au.

Oncology Analysis System (OASys)

Oncology Analysis System (OASys) is a web based state-wide cancer analysis system with diagnostic, treatment and outcome data on registry-notifiable invasive cancers diagnosed among Queensland residents of all ages (including children) from 1982 to 2016.

The data collection, linking and reporting of OASys data is performed under the auspices of Queensland Cancer Control Safety and Quality Partnership, The Partnership was gazetted as a quality assurance committee under Part 6, Division 1 of the Hospital and Health Boards Act 2011 in 2007.

Statistical Analysis

To examine differences in proportions across subgroups such as public and private, Indigenous status and age group, Pearson's chi square was used. For analysis by remoteness and socioeconomic status a non-parametric test such as the Cochrane-Armitage test for trend was used which provides a test of the trend of the proportions of positive responses in the groups (such as patients who received treatment within 30 days of diagnosis). All statistical analyses were conducted using Stata V5.1 (Stata Corp, College Station, TX, USA).

More on the Cancer Alliance Queensland website

For more details on our program of work, go to https://cancerallianceqld.health.qld.gov.au.

FOR MORE INFORMATION

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