

LUNG CANCER QUALITY PERFORMANCE INDICATORS: DESCRIPTIONS

2021

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INTRODUCTION

Background

Te Aho o Te Kahu and the National Lung Cancer Working Group (NLCWG) have worked together to identify a set of quality performance indicators (QPIs) for lung cancer.

The QPIs will help us measure performance and drive quality improvement in lung cancer diagnosis and treatment services across district health boards (DHBs) in New Zealand.

The QPIs that appear in this document are part of a project to establish ongoing quality improvement for cancer care in New Zealand. We need to address variation in the quality of cancer services so that we can improve the quality of our cancer care. This is best achieved by consensus, and a set of clear indicators for what good cancer care looks like.

Purpose

The aim of the project was to develop a framework for quality improvement whereby DHBs regularly review recent data and act upon their findings accordingly.

The QPIs that appear in this document will ensure that we focus our activity on the areas that are most important in terms of improving survival and individual care experience, while reducing variation and supporting the most effective and efficient delivery of care.

Development process

The lung cancer QPI project started in August 2018, when the Ministry of Health undertook a national and international literature search to identify an initial long list of 40 QPIs.

The Ministry then tasked the NLCWG with reviewing and selecting the final QPIs as part of their ongoing work programme. The NLCWG and its sub-working groups performed multiple reviews of the long list, with an aim to create a shortlist then prioritise the QPIs.

Wider health sector consultation on the resulting proposed short list of 19 QPIs occurred throughout July 2019, and included primary, secondary and tertiary clinicians; consumers; cancer care professionals; and health professional bodies. This process resulted in a shorter list of 11 QPIs.

The NLCWG met in November 2019 to review the initial data analysis and recommend the final indicators that appear in this report. The group agreed to stratify the published indicators by the variables shown in Appendix 2.

The NLCWG was chaired by Dr Paul Dawkins, respiratory physician, Counties Manukau DHB. Appendix 1 lists other members of the group, who include clinical and consumer representatives.



Criteria for the indicators

In selecting the lung cancer QPIs, we used the following criteria:

- **evidence-based** – is the indicator based on high-quality clinical evidence?
- **important** – does the indicator address an area of clinical importance that would significantly impact on the quality and outcome of care?
- **equity-focused** – does the indicator support the goals of achieving Māori health gain, equity and national consistency?
- **measurable** – is the indicator measurable (that is, are there explicit requirements for data measurement, and are the required data items accessible and available for collection)?

Format of the quality performance indicators

We have designed the QPIs to be clear and measurable, based on sound clinical evidence and taking into account recognised standards and guidelines.

Each QPI has a **title** that can be used in reports, as well as a more detailed **description** that explains exactly what the indicator is measuring.

This is followed by a brief overview of the **rationale and evidence**, which explains why we considered this indicator to be important.

The measurability **specifications** are then set out; these highlight how we will measure the indicator in practice, to allow for comparison across New Zealand.

We have tried to minimise exclusions, to simplify measurement and reporting.

It is very difficult to accurately measure patient choice, co-morbidities and patient fitness; we note that users of the QPIs should consider this when interpreting variability between DHBs. Where there are other factors that might influence variability between DHBs, we have noted this.

Measuring and reporting on the indicators

We have considered data and reporting requirements for each QPI and assessed their availability in the existing national data collections. QPIs that are currently available are noted in the document as being “measurable”. Where we have identified a QPI as important but data is not currently available in national collections, we have noted this in the Notes section for that QPI. Te Aho o Te



Kahu will work with its clinical advisory groups and other groups within the Ministry of Health and service provider organisations (for example, DHBs) to develop technical solutions in this situation.

Lung cancer definitions

For the purposes of the QPIs, we identified people with primary lung cancer from the New Zealand Cancer Registry (NZCR). There are two types of primary lung cancer: small cell lung cancer (SCLC) and non-small cell lung cancer (NSCLC); these behave and respond to treatment differently. Small cell lung cancer is characterised by small, round cells. It is often fast growing and can spread quickly. Non-small cell lung cancer is the most common type of lung cancer, representing between 70 and 80 percent of cases. There are three types of NSCLC: squamous cell carcinoma, adenocarcinoma and large cell carcinoma.

Sources of national data for indicators

This document refers to the following national data sources:

- **Mortality Collection** – classifies the underlying cause of death for all deaths registered in New Zealand
- **New Zealand Cancer Registry (NZCR)** – a population-based register of all primary malignant diseases diagnosed in New Zealand, excluding squamous and basal cell skin cancers
- **National Minimum Dataset (NMDS)** – a collection of public and private hospital discharge information, including coded clinical data for inpatients and day patients
- **National Non-Admitted Patients Collection (NNPAC)** – a collection of information that includes event-based purchase units that relate to medical and surgical outpatient events and emergency department events
- **Pharmaceutical Collection (PHARMS)** – a data warehouse that supports the management of pharmaceutical subsidies and contains claim and payment information from pharmacists for subsidised dispensings
- **Radiation Oncology Collection (ROC)** – a collection of radiation oncology treatment data from both public and private providers.

More information on these data sources can be found on the Ministry of Health’s website: www.health.govt.nz.

Glossary and abbreviations

These terms are used in the body of the report.



Term	Description
Anaplastic lymphoma kinase (ALK)	A protein that helps control cell growth. It is made by the anaplastic lymphoma kinase gene, which may be changed in some types of cancer, including non-small cell lung cancer. These changes in this gene can cause the cancer cells to grow and spread.
Chemoradiation	A treatment that combines chemotherapy with radiotherapy.
Computed tomography (CT)	A procedure that uses a computer linked to an x-ray machine to make a series of detailed pictures of areas inside the body. It may be used to help diagnose cancer, plan treatment, or find out how well treatment is working.
ECOG performance status	Performance status is a measure of how well a patient can perform ordinary tasks and carry out daily activities. The Eastern Cooperative Oncology Group (ECOG) Scale of Performance Status is one such measurement. An ECOG score of 0 indicates a fully active patient, and 5 a dead patient.
Epidermal growth factor receptor (EGFR)	The protein found on the surface of cells and to which epidermal growth factor binds, causing the cells to divide. It is found at abnormally high levels on the surface of cancer cells.
Histology/histopathology	The study of the structure, composition and function of tissues under the microscope, and their abnormalities.
Inoperable	A condition in which cancer became too extensive to be treated by surgery.
Lung carcinogenesis	A complex, stepwise process that involves the acquisition of genetic mutations and epigenetic changes that alter cellular processes, such as proliferation, differentiation, invasion and metastasis
Multidisciplinary meeting (MDM)	A treatment planning approach in which the multidisciplinary team review and discuss the medical condition and treatment options of a patient
Multidisciplinary team (MDT)	A term used to describe a treatment planning approach or team that includes several doctors and other health care professionals who are experts in different specialties (disciplines). In cancer treatment, the primary disciplines are medical oncology (treatment with drugs), surgical oncology (treatment with surgery), and radiation oncology (treatment with radiation).
Non-small cell lung cancer (NSCLC)	A group of lung cancers that are named for the kinds of cells found in the cancer and how the cells look under a microscope. The three main types of non-small cell lung cancer are squamous cell carcinoma, large cell carcinoma, and adenocarcinoma. Non-small cell lung cancer is the most common kind of lung cancer.
Positron emission tomography (PET)	A procedure in which a small amount of radioactive glucose (sugar) is injected into a vein, and a scanner is used to make detailed, computerised pictures of areas inside the body where the glucose is taken up. Because cancer cells often take up more glucose than normal cells, the pictures can be used to find cancer cells in the body.
Positron emission tomography-computed tomography (PET-CT)	A procedure that combines the pictures from a positron emission tomography (PET) scan and a computed tomography (CT) scan. The PET and CT scans are done at the same time with the same machine. The combined scans give more detailed pictures of areas inside the body than either scan gives by itself.
Radical treatment	A treatment given with the aim of destroying cancer cells to attain cure.



Term	Description
Small cell lung cancer (SCLC)	An aggressive (fast-growing) cancer that forms in tissues of the lung and can spread to other parts of the body. The cancer cells look small and oval-shaped when looked at under a microscope.
Stereotactic ablative body radiotherapy (SABR)	A type of external radiation therapy that uses special equipment to position a patient and precisely deliver radiation to tumours in the body (except the brain). The total dose of radiation is divided into smaller doses given over several days. This type of radiation therapy helps spare normal tissue.
Systemic anti-cancer therapy	A collective term to describe the growing number of differing therapies used in malignancy to achieve palliation. Improving symptoms, quality of life (QOL) and where possible quantity of life are the goals of these treatments.
TNM staging system	A system to describe the amount and spread of cancer in a patient's body, using TNM. T describes the size of the tumour and any spread of cancer into nearby tissue; N describes spread of cancer to nearby lymph nodes; and M describes metastasis (spread of cancer to other parts of the body). When available, TNM scores are used in conjunction with other information such as blood test results, histologic (cell) test results, and risk factors, to define the stage groups for most cancers. All people who meet the criteria of a stage group are then expected to have similar prognosis and outcome.



LUNG CANCER QUALITY PERFORMANCE INDICATORS

The table below lists each indicator, with a hyperlink to the detailed descriptions for each indicator on the following pages.

ID	Indicator title	Indicator description	Measurable nationally
1	Route to diagnosis	Proportion of people with lung cancer who are diagnosed following a referral to a clinic or presentation to an ED, by stage	Yes (without stage)
2	Stage at diagnosis	Proportion of people with lung cancer by stage of diagnosis	No
3	Pathological diagnosis	Proportion of people who have a pathological diagnosis of lung cancer	Yes
4	Molecular testing	Proportion of people with lung cancer who receive tests for molecular subtyping for which treatments are available in public system in New Zealand	No
5	Multidisciplinary discussion	Proportion of people with lung cancer registered or discussed at an MDM	No
6	Surgical resection for lung cancer	Proportion of people with NSCLC receiving surgical resection with curative intent, by stage and ECOG performance status	Yes (without stage, ECOG status)
7	Systemic anti-cancer therapy for lung cancer	(i) Proportion of people with NSCLC receiving SACT, by stage and ECOG performance status (ii) Proportion of people with SCLC receiving SACT, by stage and ECOG performance status	Yes (without stage, ECOG status)
8	Radiation therapy	(i) Proportion of people with lung cancer receiving SABR, by stage, ECOG performance status, intent and type of lung cancer (NSCLC/SCLC) (ii) Proportion of people with lung cancer receiving concurrent chemoradiation, by stage, ECOG performance status, intent and type of lung cancer (NSCLC/SCLC)	No Yes (without stage, ECOG status)
9	Treatment mortality	Proportion of people with lung cancer who died within 30 or 90 days of treatment with curative intent (surgery, SACT, radiation therapy), by type (NSCLC/SCLC) and stage	Yes (without stage)
10	Overall survival	Overall survival for people with lung cancer at 1, 2 and 3 years from diagnosis, by type (NSCLC/SCLC) and stage	Yes (without stage)
11	Cancer treatment at the end of life	Proportion of people with lung cancer who receive SACT within 30 days prior to date of death	Yes



LCQI 1. Route to diagnosis

Indicator description		Proportion of people with lung cancer who are diagnosed following a referral to a clinic or presentation to an ED, by stage
Rationale and evidence		People presenting via an ED more often have advanced, incurable disease than those who were referred from a general practitioner to a respiratory specialist (Kolbe et al 2009). They are significantly less likely to receive any anti-cancer treatment, regardless of age, gender, ethnicity, social deprivation, co-morbidity, tumour type and tumour stage (Kolbe et al 2009). Hence, cases that presented via ED also had significantly reduced survival compared with cases that entered secondary care via other routes.
Equity/Māori health gain		Ethnic disparities in lung cancer survival exist in New Zealand; Māori have higher mortality rates than non-Māori. Several factors are potentially responsible for that, including presentation with more advanced disease (Stevens et al 2008).
Specifications	Numerator (a)	Number of people with lung cancer whose diagnosis followed an emergency presentation
	Numerator (b)	Number of people with lung cancer whose diagnosis followed a referral to a clinic
	Denominator	All people with lung cancer
	Exclusions	People diagnosed with lung cancer at death
Data sources		NZCR, NMDS, NNPAC
Notes		This indicator can be reported in 2021.



LCQI 2. Stage at diagnosis

Indicator description		Proportion of people with lung cancer by stage at diagnosis
Rationale and evidence		<p>Stage at diagnosis is the most important determinant of prognosis (Stirling et al 2014). People who are diagnosed when their cancer is at an early stage have significantly improved survival outcomes.</p> <p>Stage is also a critical element in determining appropriate treatment (Belgian Health Care Knowledge Centre 2016).</p>
Equity/Māori health gain		<p>Ethnic disparities in lung cancer survival exist in New Zealand: Māori have higher mortality rates than non-Māori. Several factors are potentially responsible for that, including presentation with more advanced disease (Stevens et al 2008). Intrastage variation is also apparent; 2008 research found that, of those with stage I/II NSCLC, Māori more commonly had stage IIB disease than did Europeans (Stevens et al 2008).</p> <p>Also, Māori are less likely to access staging procedures in a timely manner than non-Māori. As a result, they are less likely to have their stage information recorded (Cormack et al 2005).</p>
Specifications	Numerator	Number of people diagnosed with lung cancer by TMN group stage
	Denominator	All people with lung cancer
	Exclusions	People diagnosed with lung cancer at death
Data sources		NZCR
Notes		<p>Extent of disease is recorded for lung cancer cases on the NZCR. Patients' TNM group stage is not consistently reported to the registry; only individual T, N and M values can be recorded at present.</p> <p>National data is not available to calculate this indicator, and therefore the indicator cannot be reported in 2021.</p>



LCQI 3. Pathological diagnosis

Indicator description		Proportion of people who have a pathological diagnosis of lung cancer
Rationale and evidence		<p>A pathological diagnosis is valuable in helping understand the nature of the disease (NHS Scotland 2017). It can accurately distinguish between histological types of lung cancer, and this can inform the likely prognosis and treatment choice (NHS Quality Improvement Scotland 2008; Belgian Health Care Knowledge Centre 2016).</p> <p>The last decade has seen significant advances in our understanding of lung cancer biology and management. Identification of key driver events in lung carcinogenesis has contributed to the development of targeted lung cancer therapies, resulting in personalised medicine for lung cancer. As a result, histological subtyping and molecular testing has become of paramount importance, placing increasing demands on often small diagnostic specimens (Davidson et al 2013).</p>
Equity/Māori health gain		Data not available
Specifications	Numerator	Number of people with pathological confirmation of the diagnosis of lung cancer
	Denominator	All people with lung cancer
	Exclusions	People diagnosed with lung cancer at death
Data sources		NZCR
Notes		This indicator can be reported in 2021.



LCQI 4. Molecular testing

Indicator description		Proportion of people with lung cancer who receive tests for molecular subtyping for which treatments are available in public system in New Zealand.
Rationale and evidence		For non-squamous NSCLC, which accounts for more than half of all lung cancer cases, routine testing for molecular subtyping (including EGFR mutations and ALK rearrangements) is recommended to identify the most effective and targeted treatment (for example, tyrosine kinase inhibitors) (Rothschild et al 2015).
Equity/Māori health gain		EGFR mutation testing uptake was consistently low in Māori patients over a study period between 2010 and 2015 (Tin Tin et al 2018).
Specifications	Numerator	Number of people with non-squamous cell NSCLC who were tested for: a) EGFR mutations b) ALK status
	Denominator	All people with non-squamous cell NSCLC
	Exclusions	People diagnosed with lung cancer at death
Data sources		NZCR, laboratory data
Notes		National data is not available to calculate this indicator, and therefore the indicator cannot be reported in 2021.



LCQI 5. Multidisciplinary discussion

Indicator description		Proportion of people with lung cancer registered or discussed at an MDM
Rationale and evidence		<p>International evidence shows that multidisciplinary care is a key aspect to providing best-practice treatment and care for people with cancer.</p> <p>Cancer MDMs are part of this philosophy of care. Effective MDMs result in positive outcomes for people receiving the care (NHS Scotland 2017; NICE 2019). Benefits of MDMs include:</p> <ul style="list-style-type: none"> • improved treatment planning • improved equity of patient outcomes and an increase in their overall satisfaction with their care • more people being offered the opportunity to participate in relevant clinical trials • improved continuity and coordination of care services to avoid duplication • improved communication between care providers • more efficient use of time and resources. <p>An experienced MDT is of paramount importance in any complex multimodality treatment strategy decision, including the role of surgery (Postmus et al 2017).</p>
Equity/Māori health gain		Data not available
Specifications	Numerator	Number of people with lung cancer registered or discussed at an MDM
	Denominator	All people with lung cancer
	Exclusions	People diagnosed with lung cancer at death
Data sources		NZCR, MDM databases, National Patient Flow data
Notes		National data is not available to calculate this indicator, and therefore the indicator cannot be reported in 2021. This indicator will initially measure the number of people who were discussed at an MDM. Over time, more criteria will be added (for example, people with lung cancer who were discussed at an MDM prior to treatment).



LCQI 6. Surgical resection for lung cancer

Indicator description		Proportion of people with NSCLC receiving surgical resection with curative intent, by stage and ECOG performance status
Rationale and evidence		<p>Surgical resection is recommended for early stage NSCLC, as this gives the best results of any form of treatment (NHS Scotland 2017; Belgian Health Care Knowledge Centre 2016; Stirling et al 2014).</p> <p>For people with a non-centrally located resectable tumour and absence of nodal metastasis on both CT and PET images, surgical resection is recommended (Postmus et al 2017).</p>
Equity/Māori health gain		Māori were four times less likely to receive curative rather than palliative anti-cancer treatment for non-metastatic disease compared with Europeans, even after controlling for age, gender, social deprivation, comorbidity, tumour type, stage and the patient declining management (Stevens et al 2008).
Specifications	Numerator	Number of people with NSCLC who receive surgical resection with curative intent
	Denominator	All people with NSCLC
	Exclusions	People diagnosed with lung cancer at death
Data sources		NZCR, NMDS
Notes		This indicator can be reported in 2021 (without stage, ECOG performance status).



LCQI 7. Systemic anti-cancer therapy for lung cancer

Indicator description		<p>(i) Proportion of people with NSCLC receiving SACT, by stage and ECOG performance status</p> <p>(ii) Proportion of people with SCLC receiving SACT, by stage and ECOG performance status</p>
Rationale and evidence		<p>Systemic anti-cancer therapy refers to a number of differing therapies used in malignancy to achieve palliation as well as improving symptoms, quality of life and survival (NHS Scotland 2017). Those therapies include chemotherapy and immunotherapy (Reck et al 2019). A number of factors determine the appropriate SACT approach, including the type of lung cancer, the stage of the disease, performance status and the fitness level of the patient (Paz-Ares et al 2018; Lee et al 2017; Shaw et al 2014; Horn et al 2018).</p>
Equity/Māori health gain		<p>Māori patients with lung cancer have poorer outcomes and are more likely to die than non-Māori patients with lung cancer regardless of their levels of comorbidity and stage at diagnosis (Gurney et al 2020). Multiple factors potentially lead to this higher case-fatality ratio in Māori. Such factors include presentation with more advanced disease and lower rates of curative treatment for non-metastatic disease (Stevens et al 2008). When they are fit, Māori patients with lung cancer should have timely and fair access to systemic anti-cancer treatment. This should increase survival for those with amendable lung cancer. It should also improve the quality of life and longevity for Māori patients with advanced lung cancer.</p>
Specifications	(i) Numerator	Number of people with NSCLC who receive SACT
	Denominator	All people with NSCLC
	Exclusions	People diagnosed with lung cancer at death
	(ii) Numerator	Number of people with SCLC who receive platinum-etoposide based SACT
	Denominator	All people with SCLC
	Exclusions	People diagnosed with lung cancer at death
Data sources		NZCR, NMDS, NNPAC, PHARMS
Notes		<p>In the absence of staging and performance status data, this indicator has very limited interpretability and should not be used as the basis for decision making.</p> <p>This indicator can be reported in 2021 (without stage, ECOG performance status).</p>



LCQI 8. Radiation therapy

Indicator description		<p>(i) Proportion of people with primary lung cancer receiving SABR, by stage, ECOG performance status, intent and type of lung cancer (NSCLC/SCLC)</p> <p>(ii) Proportion of people with lung cancer receiving concurrent chemoradiation, by stage, ECOG performance status, intent and type of lung cancer (NSCLC/SCLC)</p>
Rationale and evidence		<p>Depending on the stage, ECOG performance status, intent and type of lung cancer (NSCLC/SCLC), radiation therapy is a recommended and effective treatment option that has a proven survival benefit (Lim et al 2010). Variations in the above factors also determine the type, dose and intensity of radiotherapy (for example, radical radiotherapy, thoracic radiotherapy or SABR) (Stirling et al 2014). In some cases, people with early stage lung cancer who are not suitable for surgery should receive SABR (NHS Scotland 2017; Postmus et al 2017; NICE 2019), a highly focused and intensive radiation treatment that concentrates on a tumour and has limited impact on the surrounding organs. Other patients – particularly for who are fit and have good performance status, may receive concurrent chemoradiation (a combination of chemo and radiation therapies) (NHS Scotland 2017; NICE 2019; Belgian Health Care Knowledge Centre 2016), a treatment that has a small but significant survival advantage compared with radiotherapy alone (Antonia et al 2018).</p>
Equity/Māori health gain		<p>Although multivariate analysis did not indicate a statistically significant association between ethnicity and anti-cancer service referral, there was a significant association between ethnicity and type of anti-cancer service referral received. After adjusting for age, gender, social deprivation and comorbidity, tumour type and stage, Māori were less likely to be referred to medical oncology and more likely to be referred to radiation oncology than any of the other ethnic groups (Stevens et al 2008).</p>
Specifications	(i) Numerator	Number of people with lung cancer who receive SABR
	Denominator	All people with lung cancer
	Exclusions	People diagnosed with lung cancer at death
	(ii) Numerator	Number of people with lung cancer who receive concurrent chemoradiation
	Denominator	People diagnosed with lung cancer
	Exclusions	People diagnosed with lung cancer at death
Data sources		NZCR, NMDS, NNPAC, PHARMS, ROC
Notes		<p>Treatment intent is available from ROC.</p> <p>This indicator can be reported in 2021 (without stage, ECOG performance status). People with lung cancer will be identified from the NZCR.</p> <p>Stereotactic ablative radiation therapy rates could not be calculated with confidence from existing national data collections.</p>



LCQI 9. Treatment mortality

Indicator description			Proportion of people with lung cancer who died within 30 or 90 days of treatment with curative intent (surgery, SACT, chemoradiation, radiotherapy), by type (NSCLC/SCLC) and stage
Rationale and evidence			Treatment-related mortality, especially short-term mortality, is a marker of the quality and safety of the whole service provided by the MDT (Belgian Health Care Knowledge Centre 2016). Outcomes of treatment, including treatment-related morbidity and mortality, should be regularly assessed to ensure treatment is often offered to people for whom the benefits are likely to balance the risks (NHS Scotland 2017).
Equity/Māori health gain			Data not available
Specifications	(i)	Numerator	Number of people with lung cancer who die within 30 days of treatment with curative intent (surgery, SACT, chemoradiation, radiotherapy)
		Denominator	All people with lung cancer who receive curative intent treatment (surgery, SACT, chemoradiation, radiotherapy)
		Exclusions	People diagnosed with lung cancer at death
	(ii)	Numerator	Number of people with lung cancer who die within 90 days of treatment with curative intent (surgery, SACT, chemoradiation, radiotherapy)
		Denominator	All people with lung cancer who receive curative intent treatment (surgery, SACT, chemoradiation, radiotherapy)
		Exclusions	People diagnosed with lung cancer at death
Data sources			NZCR, NMDS, NNPAC, PHARMS, ROC, Mortality Collection
Notes			This indicator will be reported by treatment modality; that is, surgery, SACT, chemoradiation and radiotherapy. This indicator can be reported in 2021 (without stage).



LCQI 10. Overall survival

Indicator description		Overall survival for people with lung cancer at 1, 2 and 3 years from diagnosis, by type (NSCLC/SCLC) and stage
Rationale and evidence		<p>Observed and relative survival are commonly accepted indicators of the effectiveness of a healthcare system.</p> <p>For most cancers, survival five years after diagnosis is generally accepted as an indicator of cure. As lung cancer has one of the worst vital prognoses, one-year survival time is also admitted as an indicator of effectiveness of care (Belgian Health Care Knowledge Centre 2016).</p>
Equity/Māori health gain		<p>The five-year relative survival for lung cancer over the years 1994–2003 for Māori was poor (5.4 percent) compared with that for non-Māori (11 percent). Māori not only had a higher (2.8 times higher) age-standardised incidence ratio than non-Māori, but also their age-standardised mortality ratio was even higher (3.5 times), indicating a higher case-fatality ratio for Māori than non-Māori (Stevens et al 2008).</p> <p>Once diagnosed with lung cancer, Māori were more likely than non-Māori to die from their cancer. The survival disparity was significant among each stage group (Robson et al 2002).</p>
Specifications	Numerator	Number of people with lung cancer who are alive at 1, 2 and 3 years from diagnosis
	Denominator	People diagnosed with lung cancer
	Exclusions	People diagnosed with lung cancer at death
Data sources		NZCR, Mortality Collection
Notes		<p>Overall survival can currently be measured for all people with lung cancer as a whole but not by stage, as TNM group stage is not consistently available from NZCR.</p> <p>This indicator can be reported in 2021 (without stage).</p>



LCQI 11. Cancer treatment at the end of life

Indicator description		Proportion of people with lung cancer who receive SACT within 30 days prior to death
Rationale and evidence		People with advanced and recurrent lung cancer who have poor prognosis should not receive cancer-directed treatment at the end of life (Belgian Health Care Knowledge Centre 2016; Goldwasser et al 2018). Anti-cancer therapy should be offered only when there is a reasonable chance that it will provide a meaningful clinical benefit. This depends on oncologists' ability to diagnose dying and identify people's needs to palliative care in a timely manner, which is often a complex process (Ellershaw et al 2003). Many studies have shown that end-of-life chemotherapy, mainly aggressive end-of-life care, is associated with potentially negative effects, including higher rates of ED visits, hospitalisations and admissions to the intensive care unit, and receipt of fewer hospice services (Zhu et al 2018).
Equity/Māori health gain		Data not available
Specifications	Numerator	Number of people with lung cancer who receive SACT within 30 days prior to death
	Denominator	People with lung cancer who died (all causes)
	Exclusions	People diagnosed with lung cancer at death
Data sources		NZCR, NMDS, NNPAC, PHARMS, Mortality Collection
Notes		This indicator can be reported in 2021.



APPENDIX 1:

NATIONAL LUNG CANCER

WORKING GROUP MEMBERS

The NLCWG members in 2018/2019 were:

Chair

Dr Paul Dawkins, respiratory physician, Counties Manukau DHB

Members

Dr Jonathan Adler, consultant palliative care, Capital & Coast DHB

Dr Denise Aitken, physician and clinical director medicine, Lakes DHB

Dr Scott Babington, radiation oncologist, Christchurch Hospital

Dr Ben Brockway, consultant and senior lecturer in respiratory medicine, Dunedin Hospital and Dunedin School of Medicine, University of Otago, Dunedin

Dr Paul Conaglen, cardiothoracic specialist, Waikato DHB

Dr James Entwisle, clinical leader, radiology department, Wellington Hospital

Dr Greg Frazer, respiratory and general physician, Christchurch Hospital; clinical senior lecturer, University of Otago, Christchurch

Dr David Hamilton, radiation oncologist, Capital & Coast DHB

Dr Jeremy Hyde, consultant anatomical pathologist, Canterbury Health Laboratories, Christchurch

Dianne Keip, clinical care coordinator, Hawke's Bay DHB

Dr George Laking, medical oncologist, Auckland DHB, Hei Āhuru Mōwai

Professor Ross Lawrenson, professor of population health, University of Waikato; clinical director, Waikato Hospital

Dr Brendan Luey, consultant medical oncologist, Capital & Coast DHB

Dr Kim McAnulty, radiologist, Waikato Hospital, Waikato Clinical School, University of Auckland

Dr Felicity Meikle, cardiothoracic specialist, Waikato DHB

Dr Aisha Paulose, general practitioner, South Island

Jo Stafford, consumer and Māori representative, Auckland



APPENDIX 2:

STRATIFYING VARIABLES

In addition to DHB and regional cancer network, the indicators will be stratified by the following variables where possible:

- age
- sex
- ethnicity (Māori, Pacific, Asian, European/Other)
- social deprivation
- rurality
- public/private provider.



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