TE AHO O TE KAHU CANCER CONTROL AGENCY

Te Kāwanatanga o Aotearoa New Zealand Government

LUNG CANCER QUALITY PERFORMANCE INDICATORS: DESCRIPTIONS

Updated 2025

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VERSION RECORD

2025 update

This document was updated to align with the publication of the *Lung Cancer Quality Improvement Monitoring Report Update* (the monitoring report) which reports on four key quality performance indicators (QPIs) using data from 2019 to 2022. Please read this document in conjunction with the monitoring report.

More detailed QPI data and pictorial overview of the latest national results are in the **Cancer Care Data Explorer dashboard** on the website of Te Aho o Te Kahu – Cancer Control Agency (the Agency).

While all eleven QPIs are important for understanding the quality of lung cancer care in New Zealand, only eight can be calculated using currently available data. Of those eight, we have highlighted only four in the monitoring report. This is because these four indicators show either noticeable change over time or, in the case of the indicator regarding cancer treatment at the end of life, results that warrant prioritised attention or improvement. Updated data for all eight indicators is provided in the online dashboard.

The four QPIs that have been calculated and reported in the latest monitoring report are:

Indicator	What it measures
LCQI 1. Route to diagnosis	Proportion of people with lung cancer who were diagnosed within 14 days after an acute admission to hospital or a visit to an emergency department (emergency presentation)
LCQI 6. Surgical resection for lung cancer	Proportion of people with non-small cell lung cancer receiving surgical resection with curative intent
LCQI 10. Overall survival	Overall (all-cause) survival for people with lung cancer at 1, 2 and 3 years from diagnosis, by type (non-small cell lung cancer/small cell lung cancer)
LCQI 11. Cancer treatment at the end of life	Proportion of people with lung cancer who died (from any cause) and received systemic anti-cancer therapy (SACT) within 30 days of death

Background

About the quality performance indicator programme

The lung cancer QPI reports have been a core part of the Agency's QPI programme. The QPI programme develops, calculates and reports on QPIs using national data collections, registries and other data sources. Wherever the data allows, each QPI is reported by demographic variables (eg, ethnicity, age, sex and deprivation) and by geography (ie, by district health board (DHB), now referred to as districts), enabling comparison between groups and between cancer care providers. The QPI programme reports highlight unwarranted variation in cancer diagnosis, treatment and outcomes, and identify where quality improvement action(s) could or should be prioritised.

To date, we have reported on cancer-specific QPIs for bowel (first in 2019, then an update in 2022), lung (first in 2021, then an update in 2025), prostate, pancreatic and breast cancers, which are available on our website **here**.

In March 2024, we published a QPI report that analysed cases of people diagnosed with cancer within 30 days of an emergency or acute (unplanned) hospital admission for 22 cancer types. The report is available on our website **here**.

The purpose of QPI reports is to highlight variation and to identify where further investigation and/or quality improvement action might be needed. Our website has more information about the QPI programme **here**.

How the lung cancer quality performance indicators were selected

Having consensus on a set of clear indicators for what good cancer care looks like is essential to improving the quality of care.

The lung cancer QPIs were originally identified by the Cancer Services team within the Ministry of Health and the National Lung Cancer Working Group (the working group), who reported on key findings in the first monitoring report.

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 longlist of 40 QPIs.

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

There was wider health sector consultation on the proposed shortlist of 19 QPIs in July 2019 that included primary, secondary and tertiary clinicians, consumers, cancer care

professionals and health professional bodies. This process resulted in a shorter list of 11 QPIs (described in this document).

The working group met in November 2019 to review the initial data analysis and recommend the final eight indicators that appear in the dashboard (four in the monitoring report).

The working group was initially chaired by Paul Dawkins, respiratory physician, Health New Zealand | Te Whatu Ora Counties Manukau, more recently James Entwisle, clinical leader, Radiology Department, Wellington Hospital has taken over the role of chair and Paul remains on the working group. Appendix A lists the membership of the group, which includes clinical and consumer representatives.

Sources of national data for the indicators

All data for the lung cancer QPI report came from administrative data sets held within the following national collections of Health New Zealand | Te Whatu Ora. These include only publicly funded treatments following diagnosis for people diagnosed with lung cancer in New Zealand between 1 January 2019 and 31 December 2022.

- **New Zealand Cancer Registry (NZCR)** – a population-based registry of all primary malignant diseases diagnosed in New Zealand, excluding squamous and basal cell skin cancers.
- **National Minimum Dataset (NMDS)**[1] – a collection of public and private hospital discharge information, including coded clinical data for inpatients and day patients.
- **National Non-Admitted Patients Collection (NNPAC)** – 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, including both public and private providers.

More information on these data sources can be found on the Health New Zealand | Te Whatu Ora website **here.**

[1] Hospital events in the NMDS are coded using the International Statistical Classification of Diseases and Related Health Problems, Tenth Revision, Australian Modification (ICD-10-AM) for diagnoses and the Australian Classification of Health Interventions (ACHI) for procedures. Both ICD-10-AM and ACHI are from the Independent Hospital Pricing Authority, Australia.

Glossary and abbreviations

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.
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 reviews and discusses the medical condition and treatment options of a patient.
Metastasis	The spread of cancer from a primary site (place where it started) to other places in the body via the bloodstream or the lymphatic system.
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.

Term	Description
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.
Radical treatment	A treatment given with the aim of destroying cancer cells to attain cure.
SEER Summary Staging	A system that describes the stage of development reached by the tumour at diagnosis using the Surveillance, Epidemiology and End Results (SEER) Summary Staging. The system classifies a cancer case into a broad category (in-situ, localised, regional extension and distant metastases), representing the extent of involvement of the tumour as determined using all diagnostic and therapeutic evidence available at the end of the first course of therapy or within four months of the date of diagnosis, whichever is earlier.
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 (SACT)	SACT is the use of drugs to treat or control cancer. This includes cytotoxic chemotherapy, immunotherapy, targeted therapy, hormone therapy, or a combination of these. SACT is delivered in regimens often containing combinations of multiple anticancer agents and supportive medications.
Thoracic radiotherapy	A cancer treatment that uses high-energy radiation to target and destroy cancer cells in the chest, lungs, and surrounding structures. It can be used as a primary treatment or combined with other therapies like surgery or chemotherapy. Thoracic radiotherapy plays a crucial role in managing various thoracic cancers, especially lung cancer.
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 combined 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.

Term	Description
Tyrosine kinase inhibitors (TKIs)	A class of drugs that block the activity of tyrosine kinases, a type of enzyme that plays a crucial role in cell signalling and growth. By inhibiting these enzymes, TKIs can help to slow down or stop the growth of cells that are growing uncontrollably, like in some cancers.

LUNG CANCER QUALITY PERFORMANCE INDICATORS

The table below lists all 11 QPIs, each with a hyperlink to a detailed description on the following pages. Please note the QPIs are referred to as lung cancer quality indicators (LCQIs) in the rest of this document.

ID	Indicator title	Full indicator description	Measurable nationally
1	**Route to diagnosis**	Proportion of people with lung cancer who were diagnosed within 14 days after an acute admission to hospital or a visit to an emergency department (emergency presentation)	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 radiation treatment, by intent and type of lung cancer (NSCLC/SCLC) (ii) Proportion of people with primary lung cancer receiving SABR, by intent and type of lung cancer (NSCLC/SCLC)	Yes (without stage, ECOG status) Yes (without stage, ECOG status)

		(iii) Proportion of people with lung cancer receiving concurrent chemoradiation, by intent and type of lung cancer (NSCLC/SCLC)	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, chemoradiation, 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 were diagnosed within 14 days after an acute admission to hospital or a visit to an emergency department (emergency presentation).
Rationale and evidence		People presenting via an emergency department more often have advanced, incurable disease than those who are 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 at al 2009). Hence, cases that presented via an emergency department also had significantly reduced survival compared with cases that entered secondary care via other routes (McPhail et al 2022).
Equity/Māori health gain		Māori are more likely to be diagnosed with lung cancer (incidence), more likely to die from lung cancer (mortality) and have poorer survival once diagnosed (survival) (Gurney et al 2020a). One of the plausible drivers of the disparities in survival is access to early detection. Recent evidence shows that Māori and Pacific peoples in New Zealand are more likely than other ethnic groups to be diagnosed with lung cancer following an emergency presentation. These disparities remained after adjusting for multiple factors including comorbidity and deprivation (Gurney et al 2023).
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.
Notes		This indicator can be reported in 2025 (without stage).
Measurability		(a) Measurable (b) Aspirational.

LCQI 2: Stage at diagnosis

Indicator description		Proportion of people with lung cancer by stage at diagnosis.
Rationale and evidence		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. Stage is also a critical element in determining appropriate treatment (Vrijens et al 2016).
Equity/Māori health gain		Ethnic disparities in lung cancer survival exist in New Zealand, and differences in stage of disease at diagnosis is one plausible driver of disparities in survival. In New Zealand, Māori appear less likely than non-Māori to have their lung cancer diagnosed at an early stage but appear similarly likely to be diagnosed with advanced disease (Lawrenson et al 2018; Gurney et al 2020b).
Specifications	Numerator	Number of people diagnosed with lung cancer by TNM group stage.
	Denominator	All people with lung cancer.
	Exclusions	People diagnosed with lung cancer at death.
Notes		Extent of disease is recorded for lung cancer cases on the NZCR. Patients' TNM staging is not consistently reported to the NZCR; only individual T, N and M values can be recorded at present. National data is not available to calculate this indicator, therefore, the indicator cannot be reported in 2025.
Measurability		Aspirational.

LCQI 3: Pathological diagnosis

Indicator description		Proportion of people who have a pathological diagnosis of lung cancer.
Rationale and evidence		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; Vrijens et al 2016). 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).
Equity/Māori health gain		Recent evidence suggests there are no clear differences in access to a pathological lung diagnosis between Māori and people of European ethnicity with lung cancer in New Zealand. Māori and people of European ethnicity appeared similarly likely to receive a pathological diagnosis (age-standardised proportions: Māori 81%, people of European ethnicity 84%). Other ethnic groups appeared to have similar or marginally higher proportions of pathological diagnoses relative to people of European ethnicity (for example, Pacific peoples 87%) (Gurney et al 2024a).
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.
Notes		This indicator can be calculated in 2025, however it is not reported in the *Lung Cancer Quality Improvement Monitoring Report Update*. More details are available in the **Cancer Care Data Explorer dashboard**.
Measurability		Measurable.

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 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.
Notes		National data is not available to calculate this indicator, therefore, the indicator cannot be reported in 2025.
Measurability		Aspirational.

LCQI 5: Multidisciplinary discussion

Indicator description		Proportion of people with lung cancer registered or discussed at an MDM.
Rationale and evidence		International evidence shows that multidisciplinary care is a key part of providing best-practice treatment and care for people with cancer. 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: • 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. An experienced MDT is of paramount importance in any complex multimodality treatment strategy decision, including the role of surgery (Postmus et al 2017).
Equity/Māori health gain		A previous study from 2008 found that Māori (21%) and Pacific peoples (21%) with lung cancer appeared to be less likely to be discussed at an MDM than people of European ethnicity (30%) (Stevens et al 2008). However, since MDM practice has likely changed since 2008, more up-to-date data on equity of access to MDM in New Zealand is needed.
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.
Notes		National data is not available to calculate this indicator, therefore, the indicator cannot be reported in 2025. 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).
Measurability		Aspirational.

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		Surgical resection is recommended for early-stage NSCLC, as this gives the best results of any form of treatment (NHS Scotland 2017; Vrijens et al 2016; Stirling et al 2014). Surgical resection is recommended for people with a non-centrally located resectable tumour and absence of nodal metastasis on both CT and PET images (Postmus et al 2017).
Equity/Māori health gain		There is recent evidence that Māori with lung cancer are less likely to access surgery than people of European ethnicity, particularly curative surgery (Gurney et al 2024b). A previous study found that Māori were four times less likely to receive curative rather than palliative anti-cancer treatment for non-metastatic disease compared with people of European ethnicity, 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 received surgical resection with curative intent.
	Denominator	All people with NSCLC.
	Exclusions	People diagnosed with lung cancer at death.
Notes		This indicator can be calculated in 2025 (without stage and ECOG performance status), however it is not reported in the *Lung Cancer Quality Improvement Monitoring Report Update*. More details are available in the **Cancer Care Data Explorer dashboard**.
Measurability		Measurable (without stage and ECOG status).

LCQI 7: Systemic anti-cancer therapy for lung cancer

Indicator description			a) Proportion of people with NSCLC receiving SACT, by stage and ECOG performance status. b) Proportion of people with SCLC receiving SACT, by stage and ECOG performance status.
Rationale and evidence			SACT 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). Several 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).
Equity/Māori health gain			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 2020c). Multiple factors potentially lead to this higher case-fatality ratio in Māori, including lower rates of curative treatment for non-metastatic disease (Stevens et al 2008). However, recent evidence suggests there are no differences in access to systemic therapy between Māori with lung cancer and people of European ethnicity with lung cancer once adjusted for confounding by age (Gurney et al 2024b; Lawrenson et al 2020).
Specifications	(i)	Numerator	Number of people with NSCLC who received SACT.
		Denominator	All people with NSCLC.
		Exclusions	People diagnosed with lung cancer at death.
	(ii)	Numerator	Number of people with SCLC who received based SACT.
		Denominator	All people with SCLC.
		Exclusions	People diagnosed with lung cancer at death.

Notes	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. This indicator can be calculated in 2025 (without stage and ECOG performance status), however it is not reported in the *Lung Cancer Quality Improvement Monitoring Report Update*. More details are available in the **Cancer Care Data Explorer dashboard**.
Measurability	Measurable (without stage and ECOG status).

LCQI 8: Radiation therapy

Indicator description		(a) Proportion of people with lung cancer receiving radiation treatment, by intent and type of lung cancer (NSCLC/SCLC). (b) Proportion of people with primary lung cancer receiving SABR, by intent and type of lung cancer (NSCLC/SCLC). (c) Proportion of people with lung cancer receiving concurrent chemoradiation, by intent and type of lung cancer (NSCLC/SCLC).
Rationale and evidence		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 those who are fit and have good performance status, may receive concurrent chemoradiation (a combination of chemo and radiation therapies) (NHS Scotland 2017; NICE 2019; Vrijens et al 2016), a treatment that has a small but significant survival advantage compared with radiotherapy alone (Antonia et al 2018).
Equity/Māori health gain		Recent evidence shows that Māori with lung cancer appear to have higher odds of accessing radiation therapy when examining crude/unadjusted data, but this is explained by the older age distribution of people of European ethnicity with lung cancer– once adjusted for differences in age, Māori and people of European ethnicity appear similarly likely to access radiation therapy (Gurney et al 2024b). A study of lung cancer register data also found no clear evidence of differences in access to radiation therapy once adjusted for confounding (Lawrenson et al 2020).
Specifications	(a) Numerator	Number of people with lung cancer who received radiation treatment.
	Denominator	All people with lung cancer.
	Exclusions	People diagnosed with lung cancer at death.

	(b) Numerator	Number of people with lung cancer who received SABR.
	Denominator	All people with lung cancer.
	Exclusions	People diagnosed with lung cancer at death.
	(c) Numerator	Number of people with lung cancer who received concurrent chemoradiation.
	Denominator	All people with lung cancer.
	Exclusions	People diagnosed with lung cancer at death.
Notes		Treatment intent is available from ROC. This indicator can be calculated in 2025 (without stage and ECOG performance status). People with lung cancer will be identified from the NZCR. However, the indicator is not reported in the *Lung Cancer Quality Improvement Monitoring Report Update*. More details are available in the **Cancer Care Data Explorer dashboard**. SABR rates could not be calculated with confidence from existing national data collections.
Measurability		Measurable (without stage and ECOG status).

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, SABR, concurrent chemoradiation), 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 (Vrijens et al 2016). Outcomes of treatment, including treatment-related morbidity and mortality, should be assessed regularly 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			There is evidence that Māori are more likely to die within 30 days of surgery across most surgical specialities, particularly in elective/waiting list settings (Gurney et al 2021). Further evidence is needed on disparities in cancer-specific treatment-related mortality in New Zealand.
Specifications	(i)	Numerator	Number of people with lung cancer who died within 30 days of treatment with curative intent (surgery, SABR, concurrent chemoradiation,).
		Denominator	All people with lung cancer who received curative intent treatment (surgery, SABR, concurrent chemoradiation).
		Exclusions	People diagnosed with lung cancer at death.
	(ii)	Numerator	Number of people with lung cancer who died within 90 days of treatment with curative intent (surgery, SABR, concurrent chemoradiation,).
		Denominator	All people with lung cancer who received curative intent treatment (surgery, SABR, concurrent chemoradiation).
		Exclusions	People diagnosed with lung cancer at death.
Notes			This indicator will be reported by treatment modality; that is, surgery, SABR, concurrent chemoradiation. This indicator can be calculated in 2025 (without stage), however it is not reported in the *Lung Cancer Quality Improvement Monitoring Report Update*. More details are available in the **Cancer Care Data Explorer dashboard**.
Measurability			Measurable (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		Observed and relative survival are commonly accepted indicators of the effectiveness of a health care system. 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 an indicator of effectiveness of care (Vrijens et al 2016).
Equity/Māori health gain		Māori continue to have poorer survival than non-Māori for 23 of the 24 most common causes of cancer death, and lung cancer is no exception: Māori are 30% more likely to die of their lung cancer compared with non-Māori (Gurney et al 2020c). This disparity appears to have remained unchanged for at least the previous two decades (Gurney et al 2020a).
Specifications	Numerator	Number of people with lung cancer who were alive at 1, 2 and 3 years from diagnosis.
	Denominator	People diagnosed with lung cancer.
	Exclusions	People diagnosed with lung cancer at death.
Notes		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 the NZCR. This indicator can be calculated in 2025 (without stage). In the *Lung Cancer Quality Improvement Monitoring Report Update*, only overall survival for people with NSCLC at one year from diagnosis is reported on. More details are available in the **Cancer Care Data Explorer dashboard**.
Measurability		Measurable (without stage).

LCQI 11: Cancer treatment at the end of life

Indicator description		Proportion of people with lung cancer who died (from any cause) and received 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 (Vrijens et al 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 for 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 received SACT within 30 days prior to death.
	Denominator	People with lung cancer who died (all causes).
	Exclusions	People diagnosed with lung cancer at death.
Notes		This indicator can be reported in 2025.
Measurability		Measurable.

APPENDIX A: NATIONAL LUNG CANCER WORKING GROUP MEMBERS

In 2024–2025, the national lung cancer working group was chaired by James Entwisle, clinical leader, Radiology Department, Wellington Hospital, and comprised:

- Brendan Luey, consultant medical oncologist, Health New Zealand | Te Whatu Ora – Capital, Coast and Hutt Valley and Bowen Icon Cancer Centre
- Chris Harrington, consultant radiation oncologist, Health New Zealand | Te Whatu Ora Canterbury
- Claire Hardie, radiation oncologist, Health New Zealand | Te Whatu Ora MidCentral, and joint chair, central region lung group
- Dianne Keip, cancer care coordinator, Health New Zealand | Te Whatu Ora Hawke's Bay
- Felicity Meikle, cardiothoracic specialist, Health New Zealand | Te Whatu Ora Waikato
- George Laking, medical oncologist, Health New Zealand | Te Whatu Ora – Auckland; chair of the Māori Health Committee of the Royal Australasian College of Physicians; and board member of Hei Āhuru Mōwai Māori Cancer Leadership Aotearoa
- Greg Frazer, respiratory and general physician, Health New Zealand | Te Whatu Ora Canterbury, and clinical senior lecturer, University of Otago
- Jeremy Hyde, pathologist, Awanui Labs, Nelson
- Jonathan Adler, consultant palliative care, Health New Zealand | Te Whatu Ora Capital, Coast and Hutt Valley
- Joseph Stafford, consumer and Māori representative
- Mark Taylor, clinical director of primary and integrated care, Health New Zealand | Te Whatu Ora Waikato, and specialist general practitioner
- Paul Conaglen, cardiothoracic specialist, Health New Zealand | Te Whatu Ora Waikato, and chair, Te Manawa Taki lung group
- Paul Dawkins, respiratory physician, Health New Zealand | Te Whatu Ora Counties Manukau
- Rob McNeill, chair of the Northern Region Lung Cancer Working Group and senior lecturer, Faculty of Medical and Health Sciences, University of Auckland
- Ross Lawrenson, Professor of Population Health and director of medicine, University of Waikato
- Sean Galvin, cardiothoracic surgeon and joint chair, central region lung group.

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- James Entwisle
- Paul Dawkins
- Ross Lawrenson.

APPENDIX B: STRATIFYING VARIABLES

The indicators will be stratified by district health board and regional cancer network, and by the following variables, where possible:

- age
- sex
- ethnicity (Māori, Pacific peoples, Asian, European/other)
- social deprivation
- rurality
- SEER Summary Staging.

APPENDIX C: REFERENCES

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