Patterns of care and outcomes for a clinical cohort of patients with lung cancer (2016-2021)

Report on the Embedding Research (and Evidence) in Cancer Healthcare – EnRICH Program

OCTOBER 2023

We would like to acknowledge and thank the patients and clinicians who have supported the EnRICH Program. We would also like to thank the EnRICH project team and clinical site teams for their significant data collection efforts.

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Foreword

Despite advances in diagnosis and treatment, lung cancer continues to be the leading cause of cancer-related death in Australia. Survival outcomes remain disappointing with less than a quarter of patients (22%) alive five years after diagnosis[1].

Strategies to improve lung cancer care have focused on more rapid diagnosis and treatment from initial symptom presentation; a greater use of combined modalities of therapy; novel approaches using molecular-based diagnostics, targeted therapies, and immunotherapies; as well as a greater use of supportive and palliative care.

The Embedding Research (and Evidence) in Cancer Healthcare (EnRICH) Program has explored patterns of care and clinical outcomes in a cohort of 2000 real-world patients presenting to six major specialist cancer centres in NSW with a first diagnosis between September 2016 and October 2021.

This report provides valuable information on the natural history of patients following their initial diagnosis and maps out the use of evidence-based care, as well as identifying important factors defining overall prognosis.

The report identifies that tumour stage at diagnosis remains one of the most important prognostic factors for both non-small cell (NSCLC) and small cell (SCLC) lung cancer. In NSCLC, stage, age, sex, performance status, co-morbid illness, neutrophil to lymphocyte ratio, haemoglobin levels, non-English speaking background, and mutation status are each independent factors predicting survival outcomes. Stage, performance status, and neutrophil to lymphocyte ratio are also predictive of survival in SCLC lung cancer.

Overall, patients at major specialist cancer centres in NSW have done relatively well compared with other Australian cohorts such as those included in the Victorian Lung Cancer Registry and the Queensland Lung Cancer Quality Index, but it is important to note that the EnRICH cohort only includes those seen at least once at a major specialist cancer centre and does not represent all patients with lung cancer in these regions – a topic being further investigated in a subsequent report.

Several quality indicators of cancer care are being captured and fed back to NSW practitioners and health administrators to inform practice and service development. While these indicators are comparable with other regions, there remain areas for improvement - a focus of ongoing work. Reassuringly, quality of care and outcomes for patients in the EnRICH cohort were not adversely affected by health service disruptions during the COVID-19 pandemic[2].

Through this effort we hope to better document current outcomes of patients with lung cancer and the care they receive with the aim of improving current evidence-based care and accelerating the uptake of new emerging evidence.

Dr Teresa Anderson AM

Professor John Simes AO

[1] Lung cancer in Australia statistics | Cancer Australia

[2] Brown, B. et al., The Impact of COVID-19 on Lung Cancer Care in NSW: Real-World Data from the EnRICH Cohort. 2023: Submitted for publication

NHMRC Clinical Trials Centre | NSW Government Sydney Local Health District | The University of Sydney

Contents

Executive summary

This report summarises descriptive data for a cohort of 2000 patients enrolled in the EnRICH cohort, with a new diagnosis of primary lung cancer between 8 September 2016 and 28 October 2021 at six cancer centres across metropolitan and regional NSW, Australia.

Patient and Disease Characteristics

- Patient characteristics: median age at diagnosis 70 years, 54% males, 20% non-English speakers, 18% never-smokers, 88% one or more co-morbidities (Tables 2.1, 2.2, 2.2.1, 2.2.2, 2.2.3).
- Symptoms: 20% of patients were asymptomatic at diagnosis (Table 2.2).
- Performance status: 86% of patients ECOG 0-1 at diagnosis (Table 2.2).
- Disease characteristics: 86% NSCLC (predominant sub-type adenocarcinoma (68%), 41% stage IV at diagnosis (Tables 3.1, 3.1.1, 3.1.2), 15% with actionable mutations (EGFR, ALK) (Table 3.1.3).

Diagnosis

- 96% of patients had a pathologically confirmed diagnosis; 27% cytology only, 59% histology only, 14% both (Table 7.1.2)
- 72% of all patients and 97% of stage IV patients (excl. squamous cell and carcinoid tumours) had molecular testing (Table 7.1.3, Section 8).
- The median time from first investigation of symptoms to clinical diagnosis was 6 days [IQR; 0,28] and to pathological diagnosis was 23 days [IQR; 9, 57] (Figure 7.2.1).

Treatment

- The median time from clinical diagnosis to first curative treatment was 49 days [IQR; 28, 76] and from pathological diagnosis to treatment was 28 days [IQR; 0, 49] (Figure 7.2.1).
- 95% of patients had some form of anti-cancer treatment (84% within 3 months of diagnosis), with clinical advice being the most common reason for not receiving treatment. (Tables 7.2.2, 7.2.3). Treatment combinations are detailed in Section 7.3.
- 563 patients (28%) had surgery as first line treatment, of whom 85% had stage I/II disease and 10% had stage IIIA disease. A minority had open surgery (36%) with the majority having thoracoscopic (46%) or robotic (14%) surgery, with lobectomy as the most common procedure (75%) (Section 7.4). One hundred and fifty patients (27%) had intra-operative or post-operative complications within 30 days of surgery requiring prolonged hospital stay or readmission and three died within 30 days of surgery (2%) (Table 7.4.1, 7.4.2).
- 642 patients (32%) had chemotherapy as primary therapy, predominantly as doublet therapy (99%), with palliative intent (59%). Chemotherapy was delivered as planned for just over a half (52%). The main reasons for not completing therapy as planned were dose reduction (23%), serious adverse events/toxicity (23%), disease progression (22%), or patient deceased (8%) (Section 7.5).
- One hundred and sixty-four patients (8%) received targeted therapy, with the majority receiving Tyrosine Kinase Inhibitors (76%) (Section 7.6).
- Three hundred and fifty-eight patients (18%) received immunotherapy, of these 80% had NSCLC and 18% SCLC, with two thirds receiving Pembrolizumab (67%) (Section 7.7)
- Six hundred and ten patients (30%) had radiotherapy with curative/radical (39%) or palliative (60%) intent. Radiotherapy was delivered to the primary lung tumour including the thorax in 59% of patients and to metastatic sites, including the brain, in 41% of patients (Section 7.8).
- Patients aged 80+ were less likely to receive all treatments. Further exploratory analyses are required to determine if other prognostic factors common to both NSCLC and SCLC (poor performance status and comorbid illness) had an impact on treatment.

Outcomes and Prognostic Indicators

- Median follow-up of the cohort was approximately 29.2 months (Section 4.1).
- Median overall survival of the cohort was approximately 32.2 months (Section 4.2).
- The median time to progression or death was approximately 12.8 months (Section 4.3).
- Histologic type was significantly associated with survival – median overall survival for SCLC patients was 12.1 months vs 32.2 months for NSCLC patients (Section 4.3, Tables 5.1.2, 6.1.2).
- For NSCLC, in multivariable analyses, male sex, older age at diagnosis (80 years+), more advanced stage at diagnosis, poorer performance status, and comorbid illness were significant prognostic indicators of poorer overall survival, along with lower haemoglobin (Hb) levels and an elevated neutrophil to lymphocyte (NLR) ratio. Conversely better survival was associated with the presence of an actionable mutation (EGFR/ALK) and with a non-English speaking background (Table 5.3).

- The same factors, plus increased levels of gamma-glutamyl transferase (Gamma GT), symptomatic of liver metastases, were prognostic for poorer progression free survival in NSCLC (Table 5.6).

- For SCLC, in multivariable analyses, extensive stage disease, poor performance status and an elevated neutrophil to lymphocyte ratio (NLR) were significant prognostic indicators of poorer overall survival (Table 6.3).

- The same factors were prognostic for poorer progression free survival in SCLC (Table 6.5)

- In univariate analyses, NSCLC patients presenting initially to metropolitan hospitals had better survival but after adjusting for other prognostic variables outcomes did not differ between metropolitan and regional patients, based on either postcode of residence or location of hospital (Table 5.3.1, 5.2.2).

EnRICH Quality Indicators

Significant variation was observed between EnRICH clinical sites and by patient and disease characteristics across several quality indicators (Section 8, Appendix V). Of note:

- There was little observed variation in quality of care based on patient postcode of residence. However, for most indicators, there was significant variation based on location of the treating clinical site.

- Performance on all diagnostic quality indicators was better in regional than metropolitan hospitals, including: the proportions diagnosed within 28 days of first presentation (clinical diagnosis 83% v 72%; p<0.001, pathological diagnosis 66% v 54%; p<0.001), and the proportions discussed by an MDT prior to commencing treatment (stage III 88% v 73%; p=0.003, all patients 81% v 51%; p<0.001).

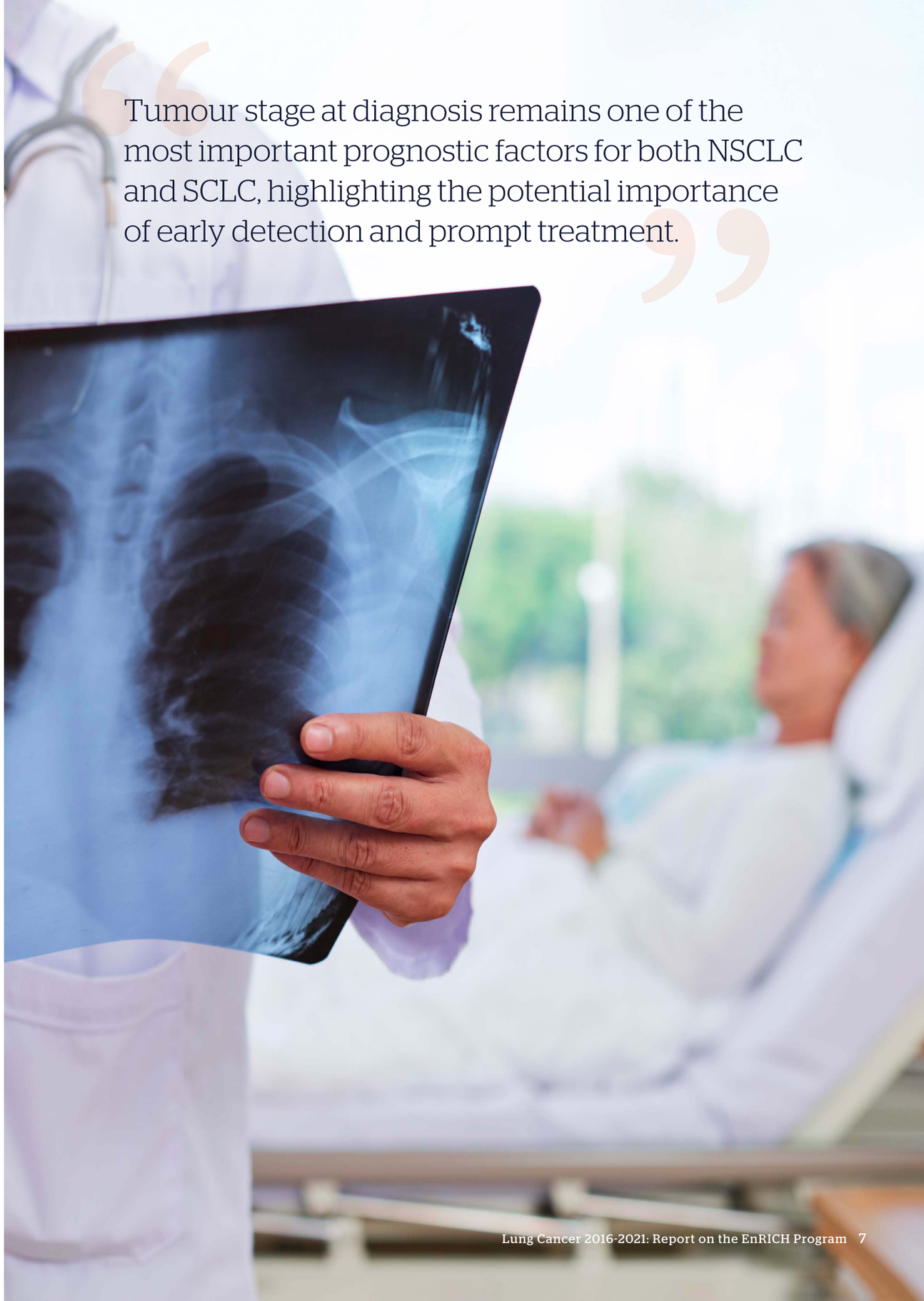
- The proportion of patients commencing treatment within 28 days, however, was lower in regional than metropolitan hospitals (stage I-III 19% v 25%; p=0.2, stage IV 42% v 54%; p=0.001).

- Fewer females than males were diagnosed within 28 days of first presentation (clinical diagnosis 70% v 78%; p<0.001, pathological diagnosis 54% v 59%; p<0.03) but similar proportions commenced treatment within 28 days of diagnosis (Stage I-III curative treatment 24% v 24%; p=0.9, Stage IV systemic treatment 49% v 51%; p=0.7).

- The proportion of early-stage patients commencing curative treatment within 28 days of diagnosis was similar between age groups (26% v 23%; p=0.3), however, patients aged under 65 years were more likely to commence systemic treatment for advanced stage disease within 28 days of diagnosis than patients aged over 65 years (57% v 46%; p=0.007).

- Fewer non-English speakers than English speakers diagnosed with advanced stage disease were referred to palliative care within eight weeks of diagnosis (42% v 54%; p=0.046)

- One year survival was better in females than males (76% v 67%; p<0.001), those aged under 65 years than over 65 years (74% v 70%; p=0.42), in never-smokers than ever-smokers (84% v 68%; p<0.001), and in patients treated in regional hospitals, although as noted previously, this was non-significant after adjusting for other factors.



> Tumour stage at diagnosis remains one of the most important prognostic factors for both NSCLC and SCLC, highlighting the potential importance of early detection and prompt treatment.

Key findings

NSW does not have a discrete Lung Cancer Registry or Lung Cancer Clinical Quality Registry. Therefore, in this section, key findings for the EnRICH cohort are compared with the most recent publicly available whole-of-NSW data reported by the NSW Central Cancer Registry, and whole-of-Australia data reported by Cancer Australia and the Australian Institute of Health and Welfare (AIHW), which are generally limited to high-level incidence, mortality, and survival statistics.

Findings are also compared with more detailed statewide lung cancer quality data from other Australian jurisdictions including the Victorian Lung Cancer Registry (1) and the Queensland Lung Cancer Quality Index (2), and international lung cancer quality data reported by comparable health care systems including the Belgian Healthcare Knowledge Centre, Danish Lung Cancer Registry, Cancer Quality Council of Ontario, National Services Scotland, and the UK National Lung Cancer Audit (3-7).

Linkage of the EnRICH cohort with whole-of-NSW routinely collected population datasets, including the NSW Cancer Registry, NSW Admitted Patient Data Collection, NSW Emergency Department Data Collection and NSW Non-admitted Patient Data Collection has been approved by the NSW Population Health Services Research Ethics Committee and results will be presented in a supplementary report.

Patient and disease characteristics are comparable

- Patient and disease characteristics of the EnRICH cohort were consistent with the Australian lung cancer population; median age 70 years at diagnosis, more males than females, majority NSCLC.

- A higher proportion of NSCLC patients in the EnRICH cohort (29%) were diagnosed with stage I disease than in whole-of-NSW (22%), whole-of-Australia (16%), other Australian states (17-18%) (1, 2) and comparable international healthcare systems (17% - 24%) (3-7). However, the EnRICH cohort exclusively includes patients who presented at least once to a major tertiary care centre at the time of initial diagnosis, whereas other cohorts may include patients who were never seen at such centres.

- The proportion diagnosed with metastatic (stage IV) disease NSCLC (41%), was similar to whole-of-NSW (39%) (8) and whole-of-Australia (42%) (9, 10), but lower than whole-of-population cohorts in other Australian States (46-53%) (1, 2) and comparable international healthcare systems (46-50%) (3, 5-7, 11), where some patients may have been diagnosed retrospectively.

- Fourteen percent had actionable mutations (EGFR, ALK), in line with rates of 10-20% with EGFR mutations in European and North American cohorts but lower than Asian cohorts where this can exceed 50% (12).

High rates of anti-cancer treatment

- The majority of patients in the EnRICH cohort (95% at any time, 84% first-line therapy within three months of diagnosis prior to disease progression) had some form of anti-cancer treatment compared with 81% of patients statewide in Victoria and 76% in Queensland (1, 2).

- Compared with Victoria and Queensland, more patients in the EnRICH cohort underwent surgical resection (28% EnRICH; 21% Victoria; 20% Queensland) and/or were treated with systemic therapies (58% EnRICH; 50% Victoria; 45% Queensland), while fewer received radiotherapy (30% EnRICH; 42% Victoria; 45% Queensland) (1, 2).

- For early-stage (stage I/II) disease specifically 77% of patients treated at EnRICH clinical sites, which include a number of high-volume surgical centres, underwent resection compared with 61% in Victoria and 68% in Queensland statewide (1, 2).

Survival is better than reported elsewhere

- As expected, significantly poorer outcomes were observed in patients with SCLC (median survival 1 year) than those with NCSLC (median survival 2.7 years).

- Median survival for patients in the EnRICH cohort with NSCLC lung cancer was double that reported in Victoria in 2020 (1.3 years) (1) although it should be noted that statewide cohort includes higher proportions of patients diagnosed with stage IV disease (41% EnRICH v 53% Victoria), and patients who did not receive any anti-cancer treatment (5% EnRICH v 19% Victoria).

- The proportion of patients treated at EnRICH clinical sites who were alive one year after diagnosis (71%) compared favourably with whole-of-NSW (46% males, 55% females) (10), other Australian states (48-56%) (1, 2), and comparable international healthcare systems (38-46%) (3, 4, 6, 7).

- As reported elsewhere, stage at diagnosis remains one of the most important prognostic factors for both NSCLC and SCLC, with significantly better survival associated with early-stage disease (EnRICH NSCLC one year survival 98% stage I v 50% stage IV). This highlights the potential importance of early detection and prompt treatment while the disease is still limited and potentially curable.

- Consistent with other lung cancer cohorts, older age at diagnosis (80 years+) was associated with poorer survival. It should be noted this patient group was less likely to receive active anti-cancer treatment and more likely to die of non-cancer related causes.

- In contrast with previous studies (13, 14), which have found an association between remoteness of residence and increased risk of cancer death, after adjusting for other prognostic factors (particularly stage), there was no difference in overall survival for patients residing in regional versus metropolitan areas.

- In NSCLC, one year survival was better in non-English speaking patients than English-speaking patients (79% v 72%, HR 0.68, p<0.001), consistent with findings of a recent NSW population-based data linkage study, which found one- and five-year survival was higher for NSW residents born in countries other than Australia, New Zealand, the United Kingdom, and Germany.(15)

Quality of care could be improved for some indicators

- The Cancer Council Australia Optimal Care Pathway for People with Lung Cancer (16) recommends a maximum of six weeks (42 days) from first specialist referral to start of treatment. For the EnRICH cohort, the median time from clinical diagnosis (date of positive imaging) to treatment was 49 days and from pathological diagnosis (date of positive sample collection) was 28 days. The median total time from first investigation of symptoms to start of treatment was 75 days.

- Fifty-seven percent of patients in the EnRICH cohort had a confirmed pathological diagnosis within 28 days of first investigation of symptoms suspicious of lung cancer. This compares with 73% in Victoria (confirmed pathological diagnosis within 28 days of referral, defined as correspondence from a primary care provider (usually GP) or specialist requesting further investigation of suspected lung cancer) (1).

- In line with the clinical practice guideline recommendations for molecular testing in all cases of metastatic NSCLC (17), rates of molecular testing are universally high at EnRICH clinical sites, with testing conducted in 97% of patients diagnosed with advanced stage disease.

- Just over half of patients treated at EnRICH clinical sites (56%) were reviewed at a multidisciplinary team meeting prior to potentially curative treatment, less than in Queensland (61% of patients who had treatment, 55% of all patients) and Victoria (73% of all patients) (1, 2). Among patients in EnRICH diagnosed with clinical stage III disease (recognised as the most important group for multidisciplinary care) 78% were reviewed at a multidisciplinary team meeting.

- Perhaps counterintuitively, performance on diagnostic quality indicators was better in regional than metropolitan hospitals, with higher proportions receiving definitive diagnoses, both clinical (83% v 72%) and pathological (66% v 54%), within 28 days of first investigation of symptoms.

- Overall, just over a third of EnRICH patients (35%) commenced treatment within 28 days of diagnosis (24% stage I-III, 50% stage IV). In comparison, just under half (46%) of patients in Queensland received their first treatment within 30 days of diagnosis (2). In Victoria just over half (52%) met the target of surgical resection within 14 days of diagnosis compared with 19% in EnRICH hospitals (1).

- A little more than half (53%) of advanced stage patients in the EnRICH cohort (excluding patients with known mutations) were referred to palliative care within eight weeks of diagnosis, compared with 41% (all stage IV patients) in Victoria (1) (statewide data not available for Queensland).

> A higher proportion of patients in the EnRICH cohort – including more than three-quarters with early stage disease – underwent surgical resection than reported elsewhere in Australia.

54%
male

56%
born in Australia

Fast facts

20%
non-English speakers

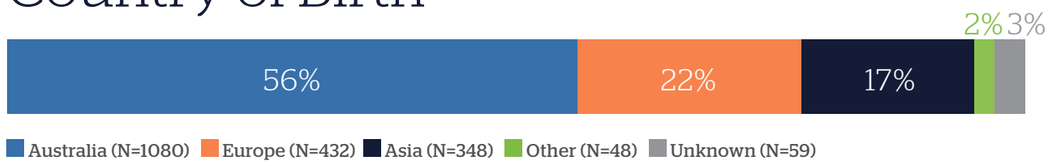
18%
never-smokers

Median age at diagnosis

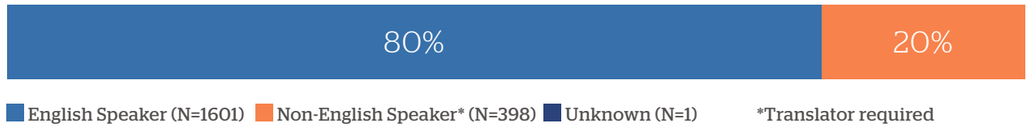
70 years

Sex

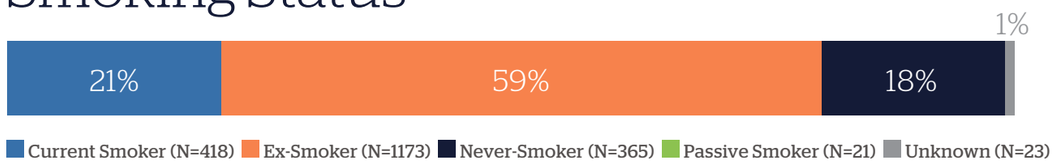
Country of Birth



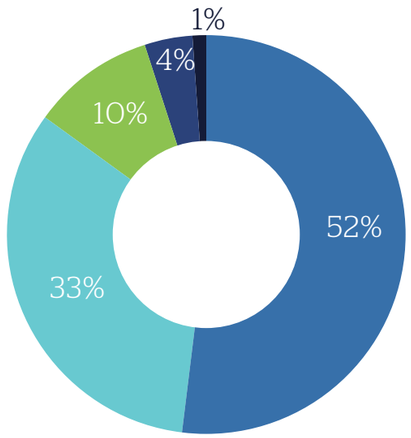
Language Spoken



Smoking Status

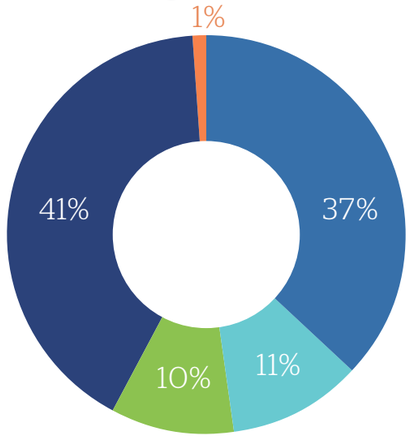


ECOG Performance Status



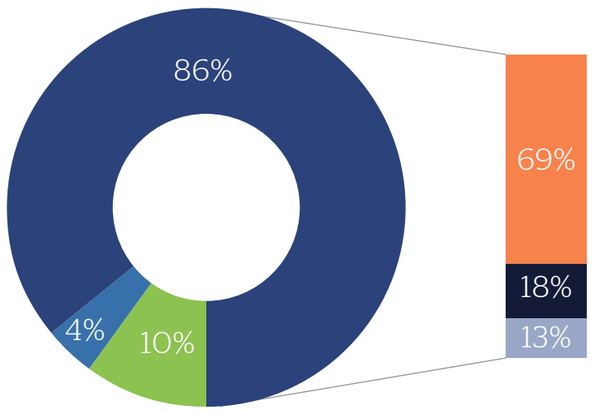
- 0 - Fully active, able to carry on all pre-disease performance without restriction (N=1045)
- 1 - Restricted in physically strenuous activity but ambulatory and able to carry out work of a light or sedentary nature (N=652)
- 2 - Ambulatory and capable of all self-care but unable to carry out any work activities, up and about more than 50% of waking hours (N=190)
- 3 - Capable of only limited self-care, confined to bed or chair more than 50% of waking hours (N=81)
- 4 - Completely disabled, cannot carry on any self-care, totally confined to bed or chair (N=9)
- Unknown (N=23)

Clinical Stage



- Stage I/II (N=730)
- Stage IIIA (N=220)
- Stage IIIB/C (N=199)
- Stage IV (N=827)
- Indeterminate (N=14)

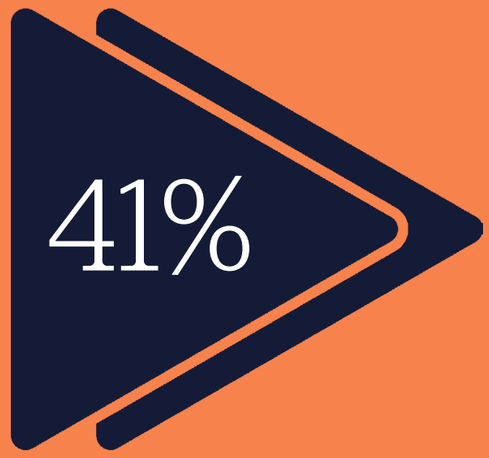
Histological Type and Subtype



- No pathology (N=74)
- Undefined (N=1)
- SCLC (N=206)
- NSCLC (N=1719)
- Adenocarcinoma (N=1178)
- Squamous (N=313)
- Other (N=228)

85%
ECOG 0-1 at diagnosis

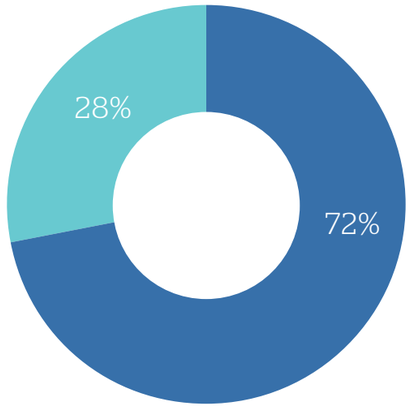
37%
diagnosed with early stage disease



diagnosed with advanced disease

86%
NSCLC, predominantly adenocarcinoma

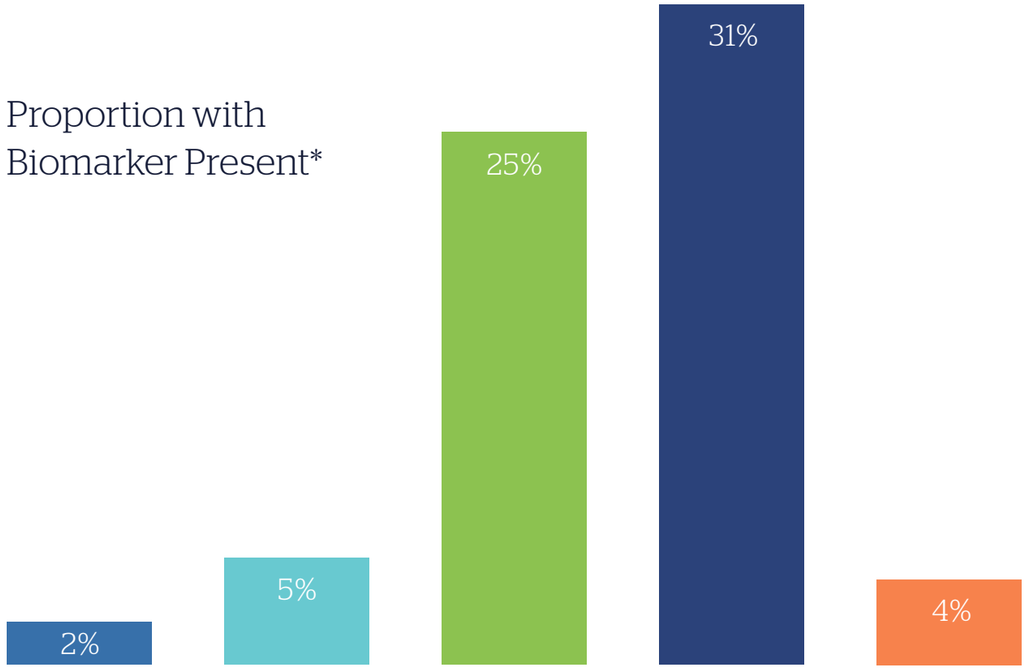
Molecular Testing



Molecular Test(s) (N=1429)

No Molecular Test(s) (N=571)

Proportion with Biomarker Present*



*Of those tested

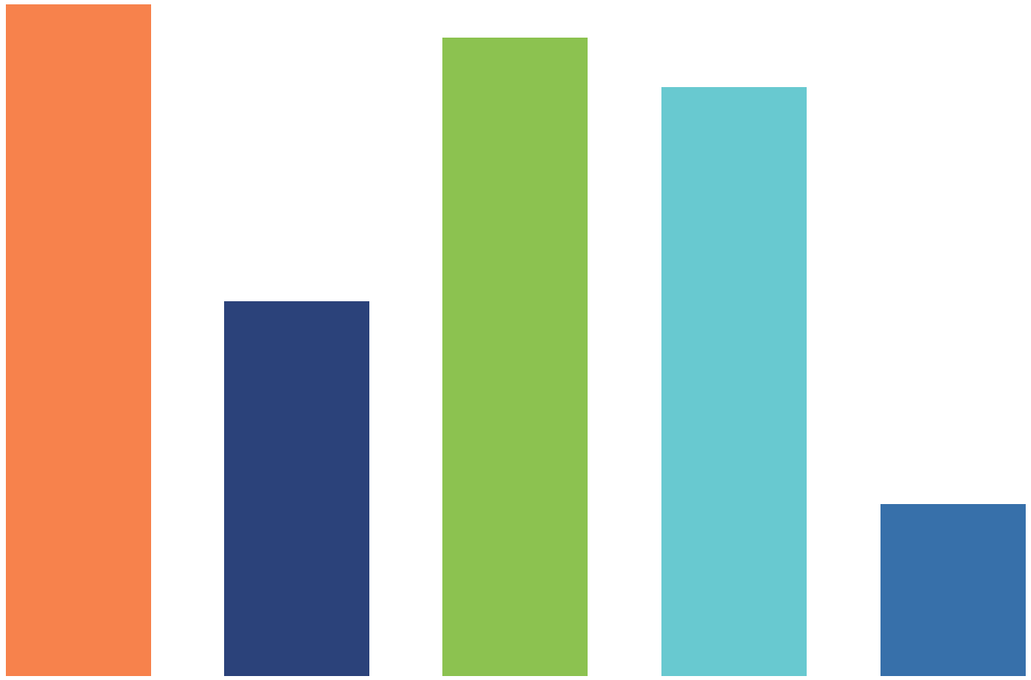
72% had molecular test(s) at diagnosis

53% had EGFR testing at diagnosis

25% of those tested had an EGFR mutation

341 (17%) had one or more mutations

Treatment(s) received



Chemotherapy (N=642)

Immunotherapy (N=358)

Radiotherapy (N=610)

Surgery (N=563)

Targeted therapy (N=164)

*Treatment categories are not mutually exclusive

See Section 7.3 for multimodal treatment combinations

Median overall survival

32.2 months

Median progression free survival

12.8 months

95%
of patients had some form of active anti-cancer treatment

66%
of Stage I/II patients had surgery alone or in combination with other treatment(s)

18%
of Stage IV patients had targeted therapy alone or in combination with other treatment(s)

About the EnRICH Program

Established in 2016 by the former Sydney Catalyst Translational Cancer Research Centre, NHMRC Clinical Trials Centre, University of Sydney, the Embedding Research (and Evidence) in Cancer Healthcare (EnRICH) Program (18) is a prospective clinical cohort of patients diagnosed with lung cancer at six cancer centres across metropolitan and regional NSW, namely: Chris O'Brien Lifehouse, Concord Repatriation General Hospital, Mid-North Coast Cancer Centre, Orange Health Campus (including Dubbo and Bathurst Base Hospitals), Royal Prince Alfred Hospital, and St Vincent's Hospital Sydney.

Program aims

The aims of EnRICH are to: describe the natural history of and patterns of care for lung cancer; identify current gaps in evidence and practice for clinical quality improvement; create a platform for researchers across the T1-T3 translational research spectrum to develop and initiate clinical research and intervention studies to address gaps.

Program methodology

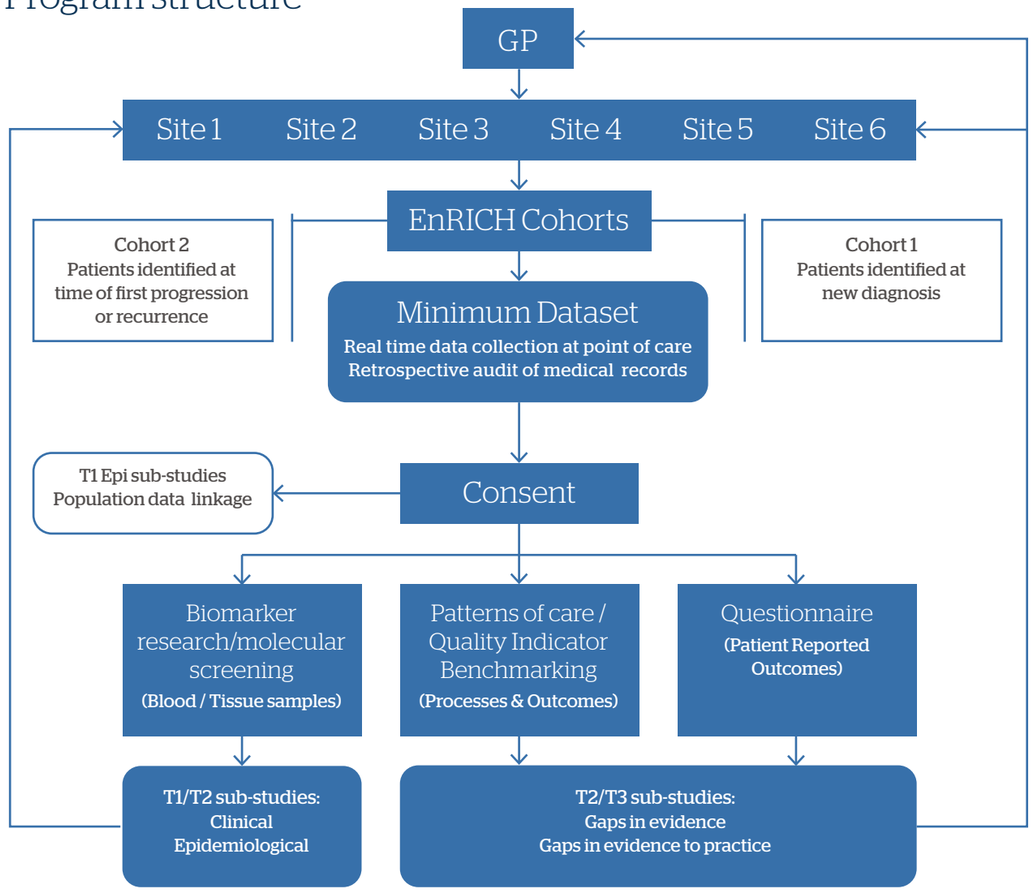
Clinical audit data are collected for all patients presenting to the above-named cancer centres, with matched biospecimens (archival tissue and serial blood samples) and patient reported outcomes collected from a consented sub-set.

Data collection

Patient and clinical data are collected from patient medical records and hospital administrative datasets. Data are collected at diagnosis, three-, six-, and 12-months post-diagnosis and annually thereafter until time of death or five-year follow-up.

Death notifications are obtained through monthly linkage with the NSW Registry of Births, Deaths, and Marriages.

Program structure



Inclusion criteria

All patients with lung cancer presenting to defined clinical sites for diagnosis or treatment, including:

(i) Patients with a new diagnosis of primary lung cancer (any histological type, any pathological/ clinical stage including metastatic) undergoing primary treatment; curative or palliative.

(ii) Patients with first progressive disease, local recurrence, or new metastasis after completing previous treatment for non-metastatic disease at the time of initial diagnosis.

(iii) Aged over 18 years.

Exclusion criteria

(i) Patients with a lung tumour which is a metastasis from a non-lung primary site.

(ii) Patients diagnosed with mesothelioma.

(iii) Patients with cognitive or intellectual impairment or significant mental illness who are unable to give informed consent.

(iv) Patients presenting for a second specialist opinion ONLY.

Ethics approval

Ethical approval for the EnRICH Program was authorised by Sydney Local Health District Lead Human Research Ethics Committee (RPA Zone) under protocol number X16-0447.

Core research questions

- What are the molecular and disease and patient characteristics of patients with lung cancer presenting to identified NSW hospitals participating in the EnRICH program?

- What is the natural history of patients with lung cancer in terms of progression-free survival, overall survival and patient reported outcomes; and what are main prognostic factors for these outcomes related to molecular, disease and patient characteristics?

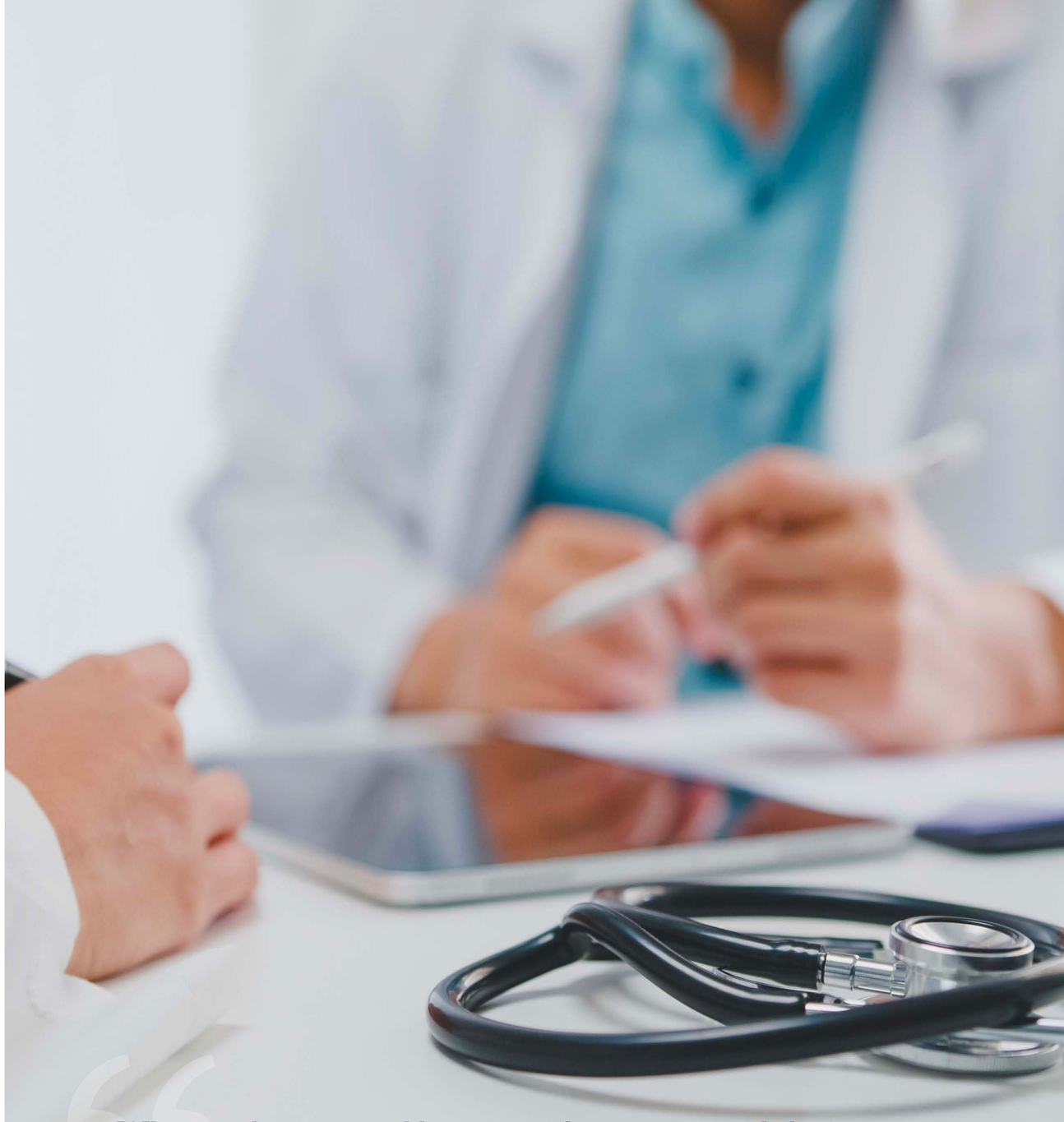
- What are current patterns of care for patients with lung cancer in terms of modalities of treatment, supportive care, and evidence-based protocols e.g., proportion of cases discussed at multidisciplinary team MDT, proportion of cases that appropriately undergo molecular testing. What are the barriers to adhering to guidelines?

- How do patterns of care vary according to specific disease characteristics, institutional factors (e.g., metropolitan vs. regional location), and patient factors (e.g., age, CALD background, socio-economic status)? Are there differences in preferences for lung cancer health care that may explain differences in patterns of care?

- What is the typical health system resource use for management of newly diagnosed lung cancer, and metastatic or recurrent lung cancer? Does this resource use vary by patient or health service provider characteristics? Is greater resource use associated with better patient outcomes in terms of quality-adjusted survival? What is the contribution of public vs. private health care for lung cancer treatment?

- How does the uptake of evidence-based care affect patient-reported outcomes?

- How do patients in the EnRICH Cohort compare with all lung cancer patients within the catchment areas for the identified NSW hospitals participating in the EnRICH program based on NSW Cancer Registry information?



“What is the natural history of patients with lung cancer in terms of progression free survival, overall survival and patient reported outcomes; what are main prognostic factors for these outcomes related to molecular, disease and patient characteristics?”

1. Sample

This EnRICH report cohort consists of 2000 patients newly diagnosed between 8th September 2016 and 28th October 2021. Patients enrolled at the time of first progressive disease, local recurrence, or new metastasis are excluded from this report.

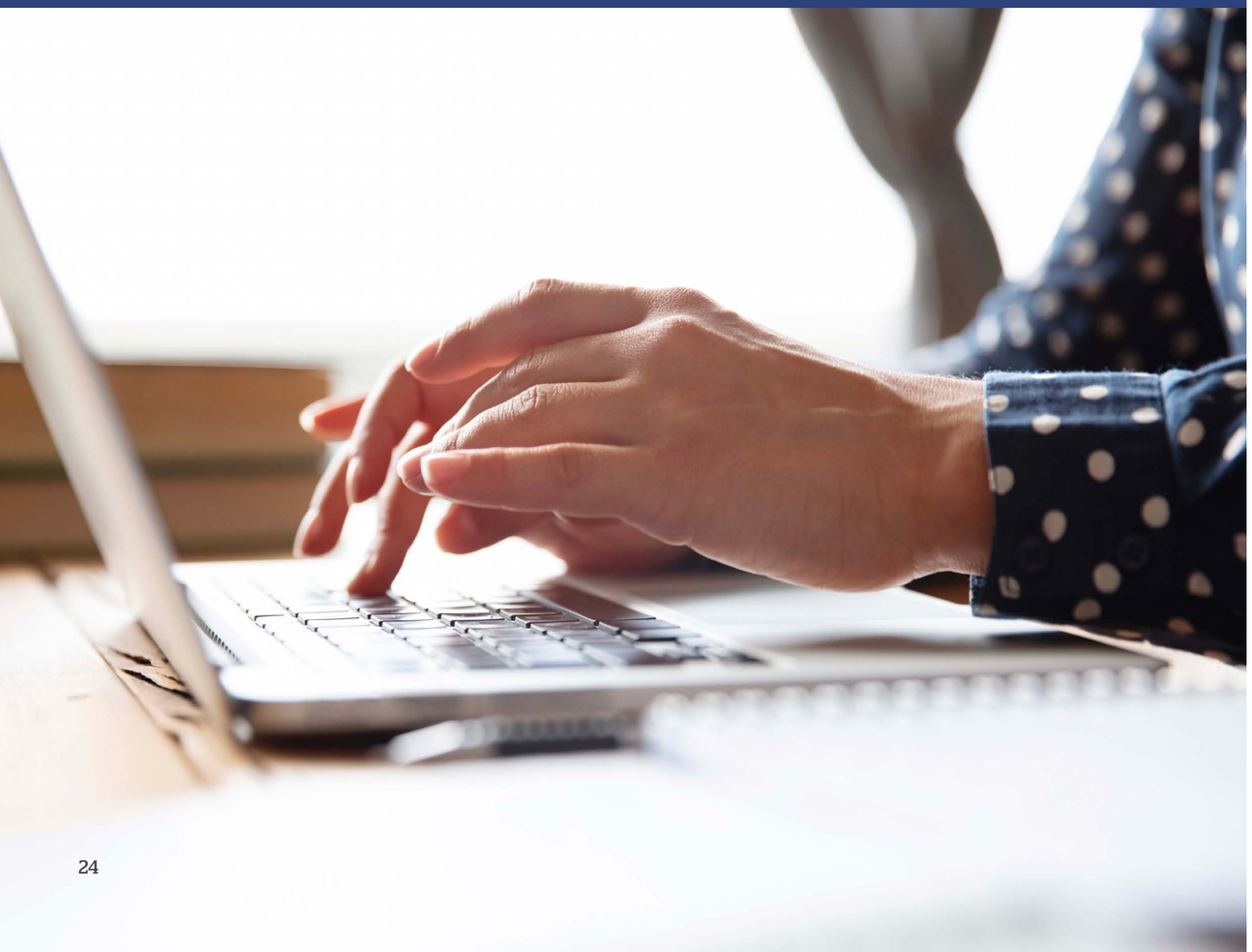


Figure 1.1 shows the number of patients enrolled by date of diagnosis. Figure 1.2 shows the number and proportion of patients accrued by site.

Figure 1.1: EnRICH Recruitment

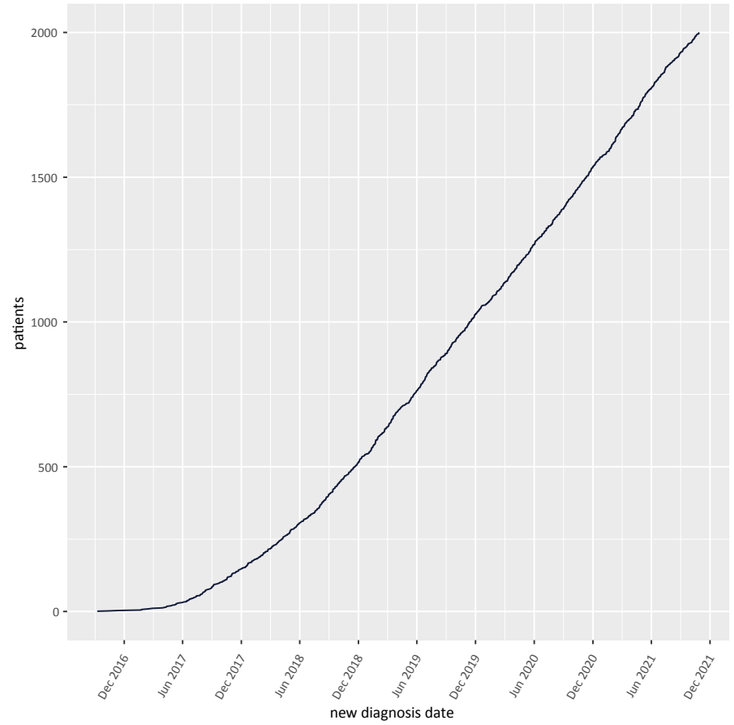
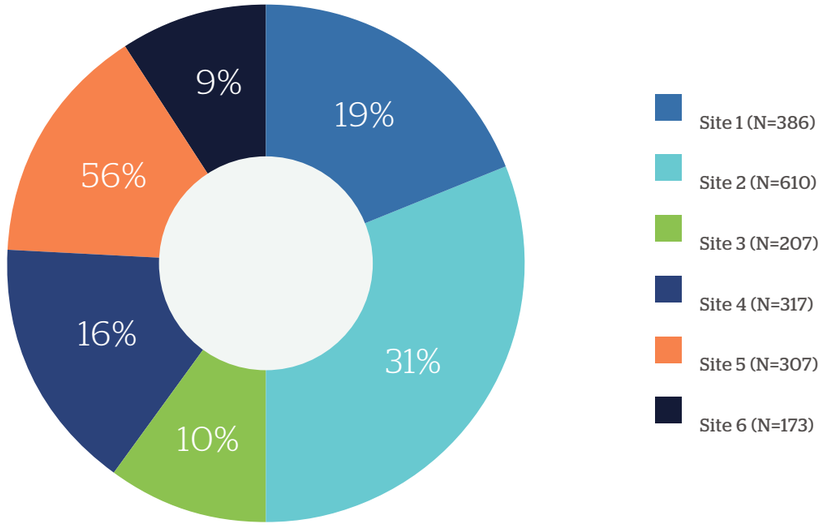


Figure 1.2: Patient accrual per site



2. Patient characteristics

What are the characteristics of patients with lung cancer presenting to NSW hospitals participating in the EnRICH program?

2.1 Demographics

VARIABLES	N = 2,000[1]
Age (diagnosis)	70 (63, 76)
Sex	
Female	920 (46%)
Male	1,080 (54%)
Marital status	
Divorced	234 (12%)
Married/de facto	1,138 (57%)
Never married	290 (14%)
Separated	79 (4%)
Widowed	222 (11%)
Unknown	37 (2%)
Language spoken	
English speaker	1,601 (80%)
Non-English speaker[a]	
(translator)	398 (20%)
Unknown	1 (<1%)
Country of birth	
Africa	7 (<1%)
Americas	24 (1%)
Asia	348 (17%)
Australia	1,113 (56%)
Europe	432 (22%)
Other	17 (1%)
Unknown	59 (3%)

[1]N (%)

[a]Translator required

2.2 Symptoms

VARIABLES	N = 2,000[1]
Presenting symptoms at diagnosis	
Asymptomatic	405 (20%)
Symptomatic	1,192 (60%)
Unknown	403 (20%)
ECOG	
0	1,045 (52%)
1	652 (33%)
2	190 (10%)
3	81 (4%)
4	9 (<1%)
Unknown	23 (1%)
Comorbiditiesa	
No	180 (9%)
Yes	1,759 (88%)
Unknown	61 (3%)
Regular medications	
No	177 (9%)
Yes	1,704 (85%)
Unknown	119 (6%)

[1]N (%)

[a]See Table 2.2.1 for comorbidities summary

2.2.1 Most common comorbidities

COMORBIDITY	N = 1,759[1]
Cardiovascular disease	1279 (73%)
Diabetes Mellitus Type I / Type II[a]	328 (19%)
Mental health issues (anxiety, depression, etc.)	350 (20%)
Recent or major surgery	314 (18%)

[1]N (%)

[a]Requiring medication

2.2.2 Modified Charlson Comorbidity Index

CHARACTERISTIC	N = 2,000[1]
Charlson Comorbidity Index score	
0-1	410 (25%)
2-3	297 (18%)
4-6	416 (26%)
7+	488 (30%)

[1]N (%)

2.2.3 Simplified Comorbidity Score

CHARACTERISTIC	N = 2,000[1]
Simplified Comorbidity Score	
0-7	510 (27%)
8-9	591 (31%)
10-12	355 (19%)
13+	457 (24%)

[1]N (%)

3. Disease characteristics

What are the molecular and disease characteristics of patients with lung cancer presenting to NSW hospitals participating in the EnRICH program?

3.1 Disease type and stage

VARIABLES	N = 2,000[1]
Tumour histological type	
NSCLC[a]	1,719 (86%)
SCLC[b]	206 (10%)
Undefined	1 (<1%)
No pathology	74 (4%)
Clinical stage	
Indeterminate	14 (1%)
Occult tumour	1 (<1%)
Stage 0	5 (<1%)
Stage IA1	91 (5%)
Stage IA2	236 (12%)
Stage IA3	135 (7%)
Stage IB	103 (5%)
Stage IIA	42 (2%)
Stage IIB	123 (6%)
Stage IIIA	220 (11%)
Stage IIIB	148 (7%)
Stage IIIC	51 (3%)
Stage IVA	349 (17%)
Stage IVB	478 (24%)
Unknown	4 (<1%)
Histological Grade	
Grade 1	111 (6%)
Grade 2	368 (18%)
Grade 3	475 (24%)
Grade 4	14 (<1%)
Unknown	1,032 (53%)

[1]N (%)

[a]see Table 3.1.1 for NSCLC subtype

[b]see Table 3.1.2 f or SCLC stage

3.1.1 NSCLC subtype

CHARACTERISTIC	N = 1,719[1]
NSCLC subtype	
Adenocarcinoma	1,178 (69%)
Squamous	313 (18%)
Carcinoid tumour	33 (2%)
Large cell	24 (1%)
Adenosquamous	16 (1%)
Sarcomatoid	19 (1%)
Other	130 (8%)
Unknown	6 (<1%)

[1]N (%)

3.1.2 SCLC stage

CHARACTERISTIC	N = 206[1]
Clinical Stage	
Extensive	134 (65%)
Limited	69 (33%)
Unknown	3 (2%)

[1]N (%)

3.1.3 Mutation status

CHARACTERISTIC			N = 1,999[1]
Any positive findings at diagnosis			341 (17%)[#]
MUTATION	UNTESTED[1]	NEGATIVE[1]	POSTIVE[1]
ALK	1,891 (95%)	86 (4%)	22 (1%)
BRAF	1,302 (65%)	665 (33%)	32 (2%)
EGFR	915 (46%)	813 (41%)	271 (14%)
Other	1,687 (84%)	291 (15%)	21 (1%)

[1]N (%)
[#]Patients may have multiple mutations

> The majority of patients (86%) had non-small cell lung cancer (NSCLC); predominant subtype adenocarcinoma (68%).

4. Disease history – all patients

What is the natural history of patients with lung cancer in terms of progression-free and overall survival, and what are main prognostic factors for these outcomes related to patient, disease, and molecular characteristics?

4.1 Follow-up

Definition / follow-up time

We compute the time of death from the date of initial diagnosis. Death information is obtained from monthly linkage with death notifications in the NSW Registry of Births, Deaths, and Marriages. Patients are assumed alive if not deceased on the first day of the reporting month.

CHARACTERISTIC	MEDIAN FOLLOW UP
All patients	2.4 (2.3, 2.6)

The median follow-up of the cohort is approximately 29.2 months.

4.2 Overall survival (from diagnosis)

The following table summarises deaths recorded as of 29 April 2022.

CHARACTERISTIC	N= 1,020[1]
Cause of death	
Deceased, cause unknown	23 (2%)
Deceased, not of disease	93 (9%)
Deceased, of disease	904 (89%)
Location of death	
Hospital	573 (56%)
Non-hospital hospice/palliative care facility	132 (13%)
Nursing/aged care home	65 (6%)
Own home	232 (23%)
Unknown	18 (1%)

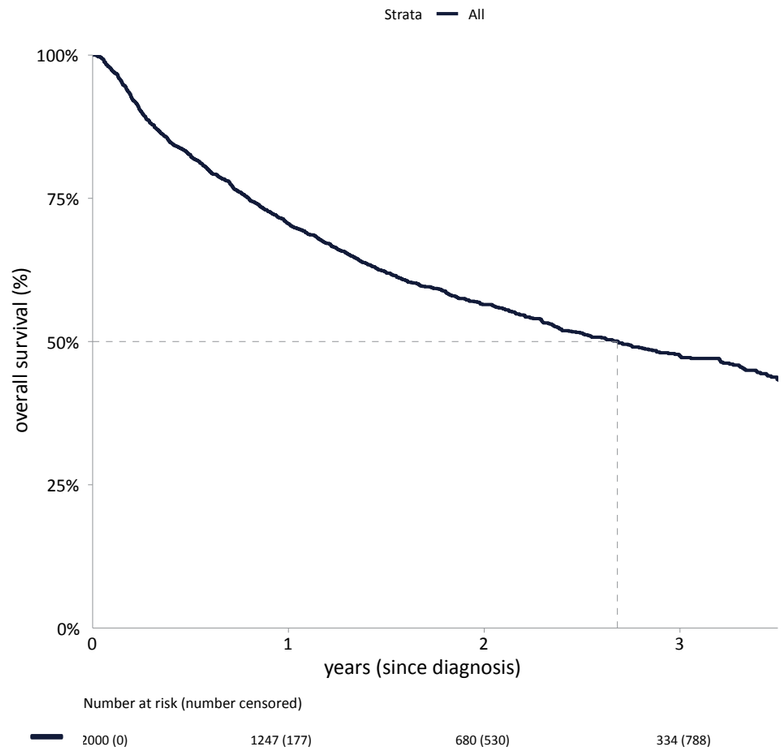
[1]N (%)

4.2.1 Survival distribution

CHARACTERISTIC	MEDIAN OS (95% CI)
All patients	2.7 (2.4, 3.0)

The median overall survival of the cohort is approximately 32.2 months.

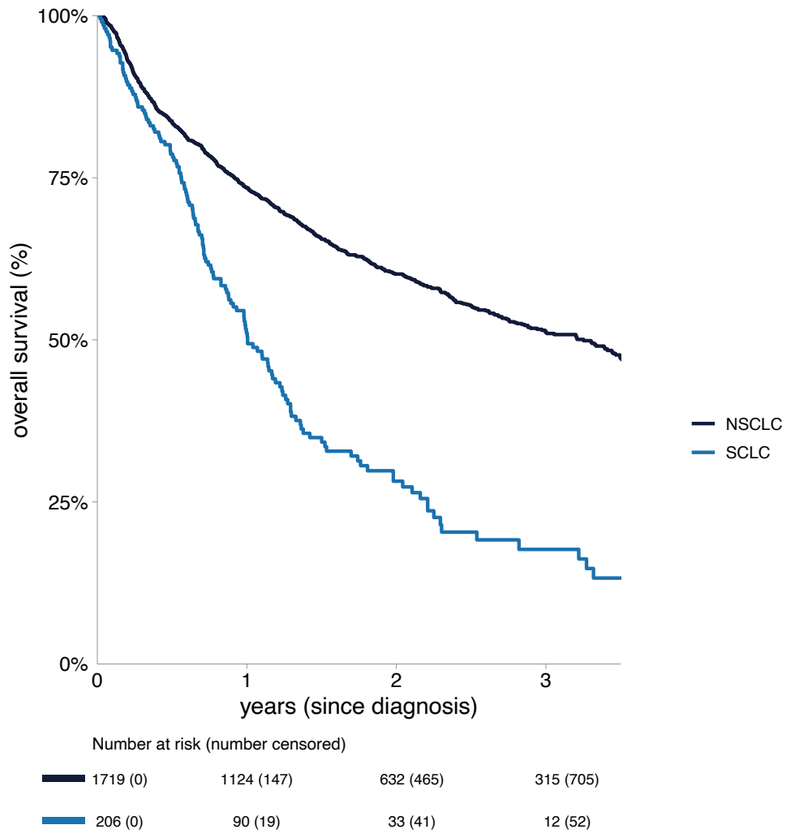
Figure 4.1: Overall survival – all patients



4.2.2 Summary at key time points

YEAR	N	EVENTS	OS %	(95% CI)
0	2,000	0	100	(100,100)
1	1,247	576	71	(69,73)
2	680	214	56	(54,59)
3	334	88	47	(45,50)
4	115	31	41	(38,44)
5	11	4	36	(31,43)

Figure 4.2: Survival by histology



CHARACTERISTIC	N = 2,000[1]	MEDIAN YEARS (95% CI)	1 YEAR (95% CI)	HR[2]	95% CI[2]
Histology					
NSCLC	1,719 (86%)	3.3 (2.8, 3.6)	73% (71%, 76%)	1.0	—
SCLC	206 (10%)	1.0 (0.88, 1.2)	51% (45%, 59%)	2.31	1.93, 2.77
Undefined	1 (<1%)				
No pathology	74 (4%)				

[1]N (%)

[2]HR = Hazard Ratio, CI = Confidence Interval

4.3 Progression free survival (from diagnosis)

4.3.1 Summary of event status

CHARACTERISTIC	N=2,000[1]
Progression	919 (46%)
Deceased	324 (16%)
Alive without failure	757 (38%)

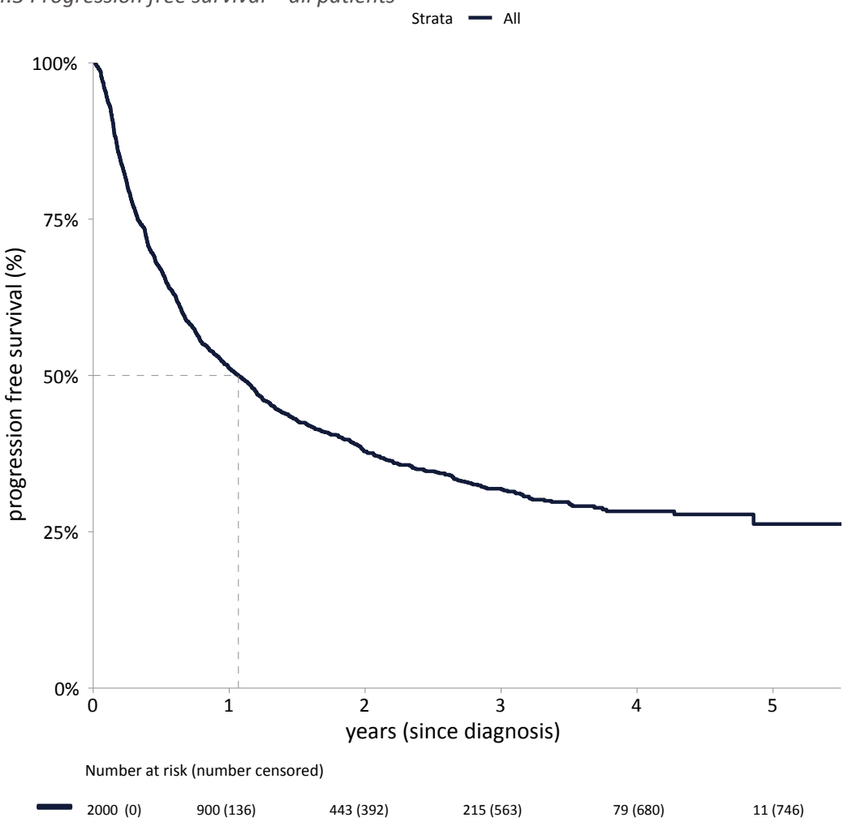
[1]N (%)

4.3.2 Time to first progression or death

CHARACTERISTIC	50% PERCENTILE
All patients	1.1 (0.96, 1.2)

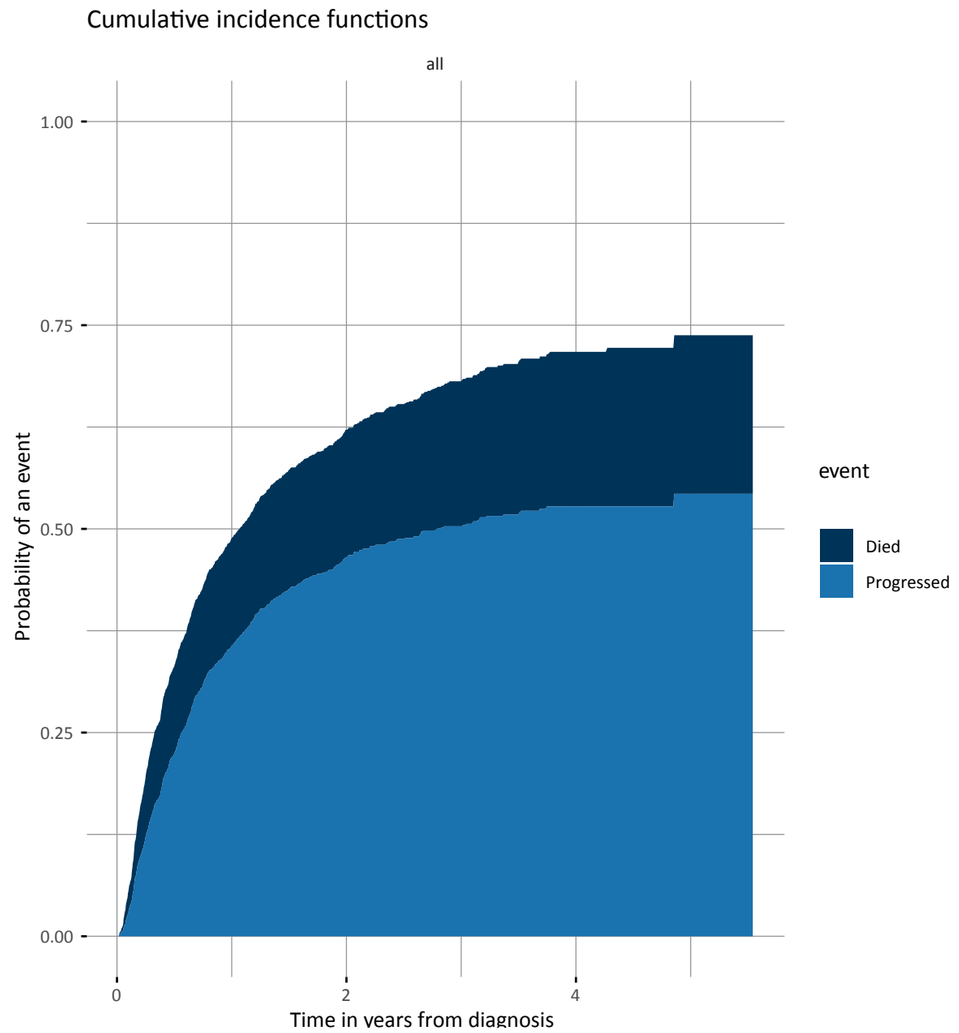
The median time to progression or death is approximately 12.8 months.

Figure 4.3 Progression free survival – all patients



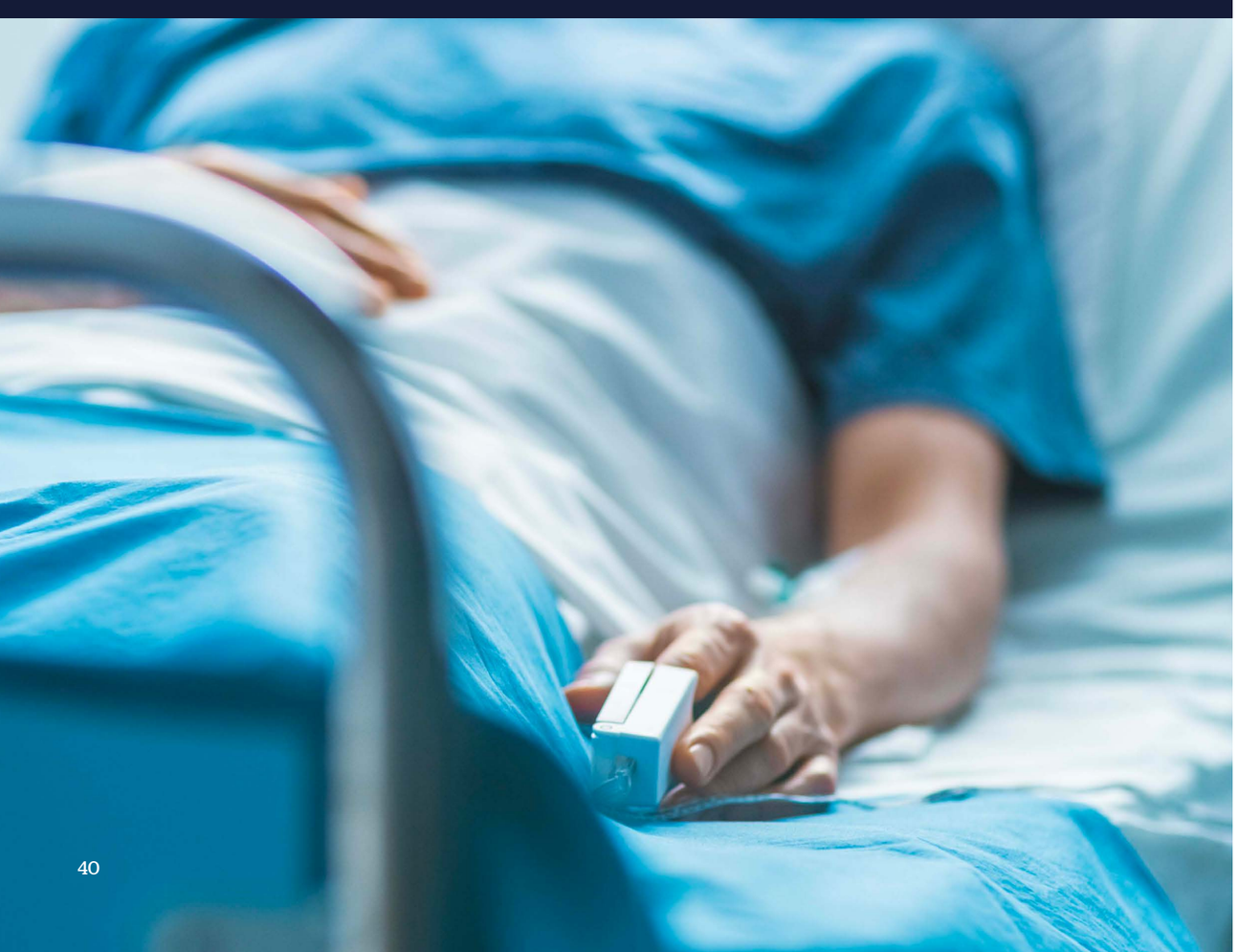
4.3.3 Cumulative incidence of events

Figure 4.4 Time to first event graph. Event types are stacked such that the total represents the time to 'any event'.



5. Disease history – NSCLC

What is the natural history of patients with NSCLC lung cancer in terms of progression-free and overall survival, and what are main prognostic factors for these outcomes related to disease, molecular and patient characteristics?



5.1 Overall survival (OS)

5.1.1 Definition / follow-up time

We compute the time of death from the date of initial diagnosis. Date of death is obtained from monthly linkage with death notifications in the NSW Registry of Births, Deaths, and Marriages. Patients are assumed alive if not deceased on the first day of the reporting month.

CHARACTERISTIC	MEDIAN FOLLOW UP
NSCLC patients	2.5 (2.4, 2.6)

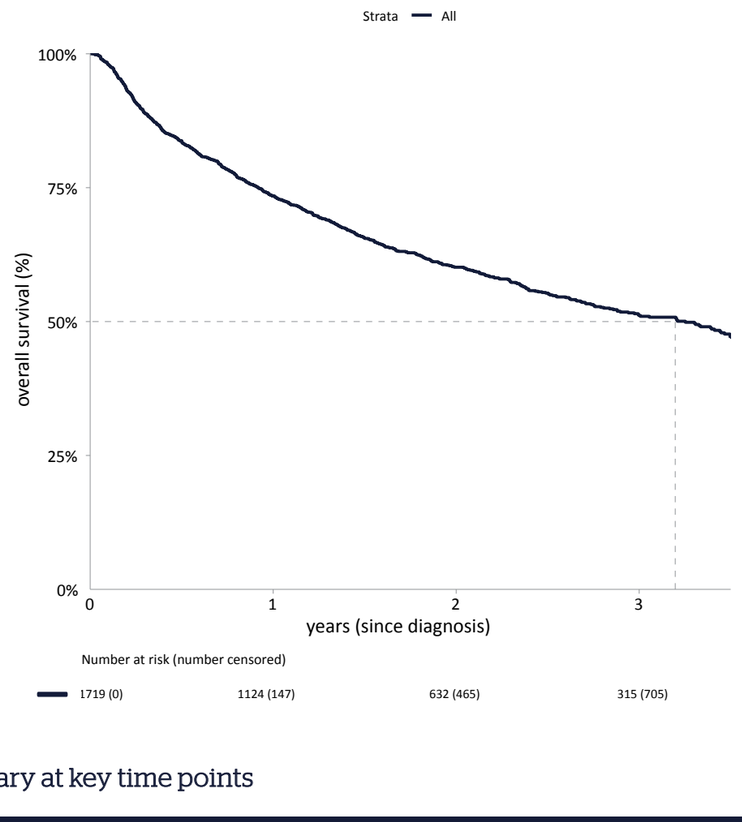
The median follow-up of the cohort is approximately 29.7 months.

5.1.2 Survival distribution

CHARACTERISTIC	MEDIAN OS (95% CI)
NSCLC patients	3.3 (2.8, 3.6)

The median overall survival of the cohort is approximately 32.2 months.

Figure 5.2: Overall survival - NSCLC

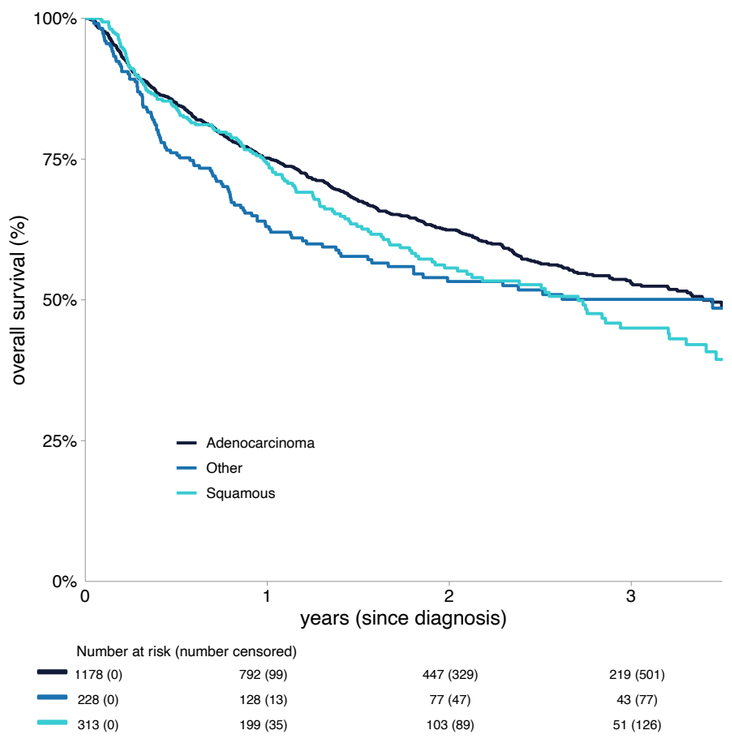


5.1.3 Summary at key time points

YEAR	N	EVENTS	OS %	(95% CI)
0	1,719	0	100	(100,100)
1	1,124	448	73	(71,76)
2	632	174	60	(58,63)
3	315	77	51	(48,54)
4	111	27	45	(41,48)
5	11	4	39	(33, 46)

5.2.1 NSCLC OS prognostic factors – disease-related

5.2.1.1 Histology (NCSLC OS)

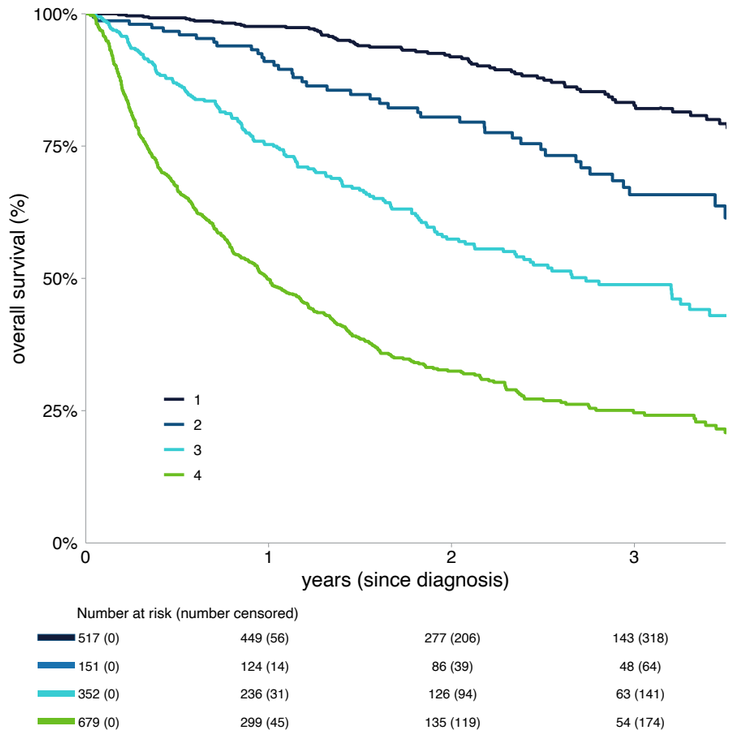


CHARACTERISTIC	N = 1,719[1]	MEDIAN YEARS (95% CI)	1 YEAR (95% CI)	HR[2]	95% CI[2]	P-VALUE
Histology						0.042
Adenocarcinoma	1,178 (69%)	3.4 (3.0, —)	75% (73%, 78%)	1.00	—	
Other	228 (13%)	3.4 (1.7, —)	63% (57%, 70%)	1.26	1.02, 1.55	
Squamous	313 (18%)	2.7 (2.0, 3.4)	74% (69%, 79%)	1.19	0.99, 1.43	

[1]N (%)

[2]HR = Hazard Ratio, CI = Confidence Interval

5.2.1.2 Stage (NSCLC OS)



CHARACTERISTIC	N = 1,719[1]	MEDIAN YEARS (95% CI)	1 YEAR (95% CI)	HR[2]	95% CI[2]	P-VALUE
Stage						<0.001
I	517 (30%)	— (—, —)	98% (96%, 99%)	1.00	—	
II	151 (9.0%)	— (3.6, —)	91% (86%, 96%)	2.33	1.58, 3.43	
III	352 (21%)	2.7 (2.3, 3.7)	75% (71%, 80%)	4.70	3.52, 6.29	
IV	679 (40%)	0.99 (0.87, 1.2)	50% (46%, 54%)	10.1	7.77, 13.2	

[1]N (%)

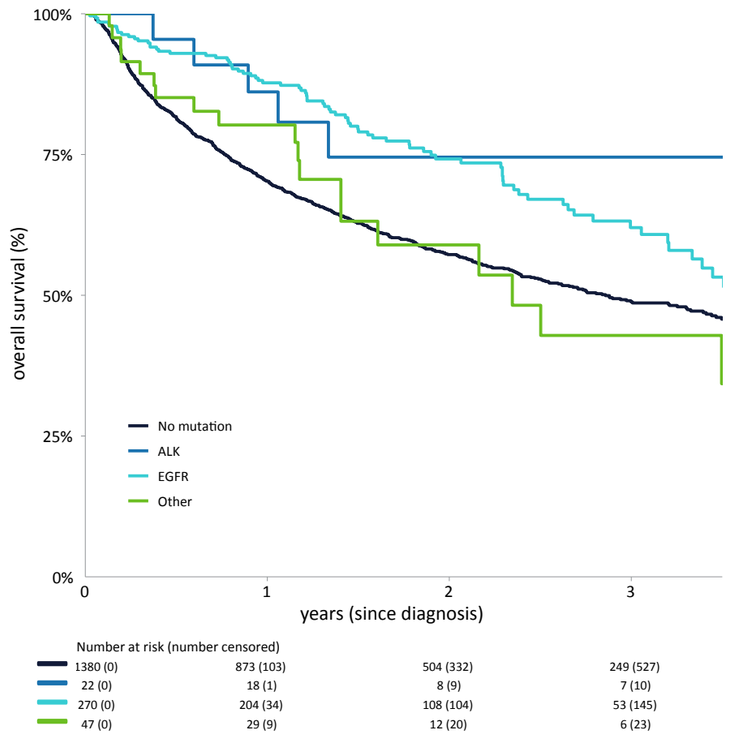
[2]HR = Hazard Ratio, CI = Confidence Interval

Stage test for trend

CHARACTERISTIC	HR[1]	95% CI[1]	P-VALUE
Stage (continuous)	1.90	1.78, 2.02	<0.001

[1]HR = Hazard Ratio, CI = Confidence Interval

5.2.1.3 Mutations (NSCLC OS)

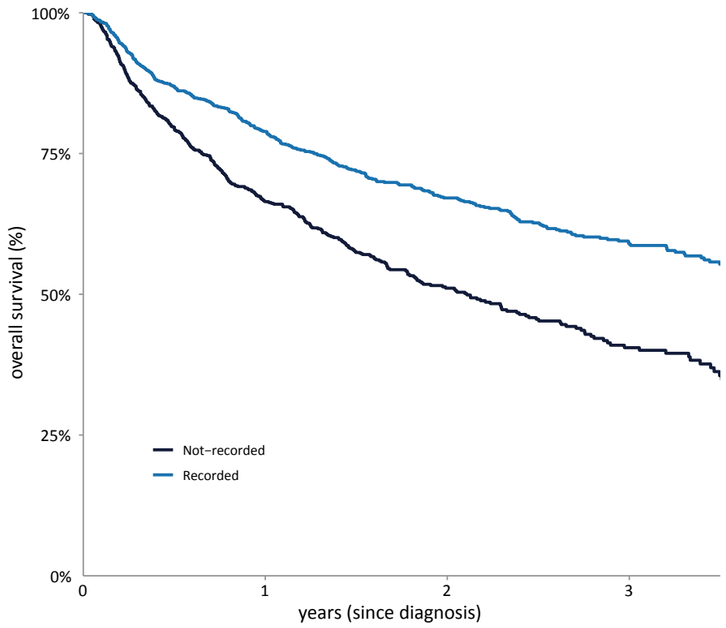


CHARACTERISTIC	N = 1,719[1]	MEDIAN YEARS (95% CI)	1 YEAR (95% CI)	HR[2]	95% CI[2]	P-VALUE
Mutation						<0.001
-	1,380 (80%)	2.9 (2.5, 3.4)	70% (68%, 73%)	1.00	—	
ALK	22 (1%)	— (—, —)	86% (73%, 100%)	0.42	0.17, 1.02	
EGFR	270 (16%)	3.9 (3.3, —)	88% (84%, 92%)	0.60	0.48, 0.76	
Other	47 (3%)	2.3 (1.4, —)	80% (69%, 93%)	0.98	0.62, 1.55	

[1]N (%)

[2]HR = Hazard Ratio, CI = Confidence Interval

5.2.1.4 Histological grade (NSCLC OS)

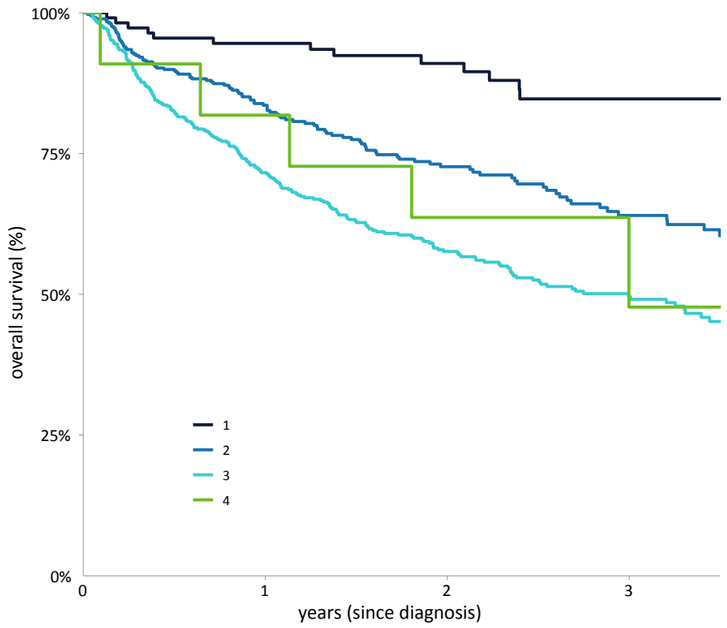


CHARACTERISTIC	N = 1,719[1]	MEDIAN YEARS (95% CI)	1 YEAR (95% CI)	HR[2]	95% CI[2]	P-VALUE
Grade						<0.001
Not recorded	760 (44%)	2.1 (1.8, 2.5)	66% (63%, 70%)	1.00	—	
Recorded	959 (56%)	— (4.0, —)	79% (76%, 82%)	0.58	0.50, 0.67	

[1]N (%)

[2]HR = Hazard Ratio, CI = Confidence Interval

5.2.1.5 Grade (NSCLC OS)



CHARACTERISTIC	N = 959[1]	MEDIAN YEARS (95% CI)	1 YEAR (95% CI)	HR[2]	95% CI[2]	P-VALUE
Grade[#]						<0.001
1	111 (12%)	— (—, —)	95% (90%, 99%)	1.00	—	
2	367 (38%)	— (—, —)	84% (80%, 87%)	2.95	1.66, 5.24	
3	470 (49%)	3.0 (2.3, 4.0)	72% (68%, 76%)	4.97	2.84, 8.70	
4	11 (1%)	3.0 (1.8, —)	82% (62%, 100%)	4.09	1.46, 11.5	

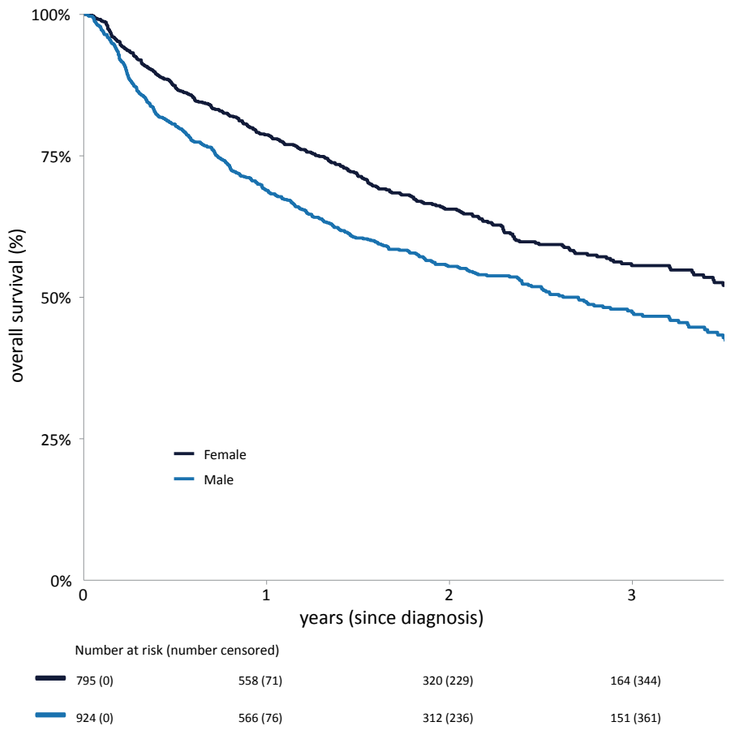
[1]N (%)

[2]HR = Hazard Ratio, CI = Confidence Interval

[#]1 = well-differentiated, 2 = moderately differentiated, 3 = poorly differentiated, 4 = undifferentiated

5.2.2 NSCLC OS prognostic factors – patient-related

5.2.2.1 Sex (NSCLC OS)

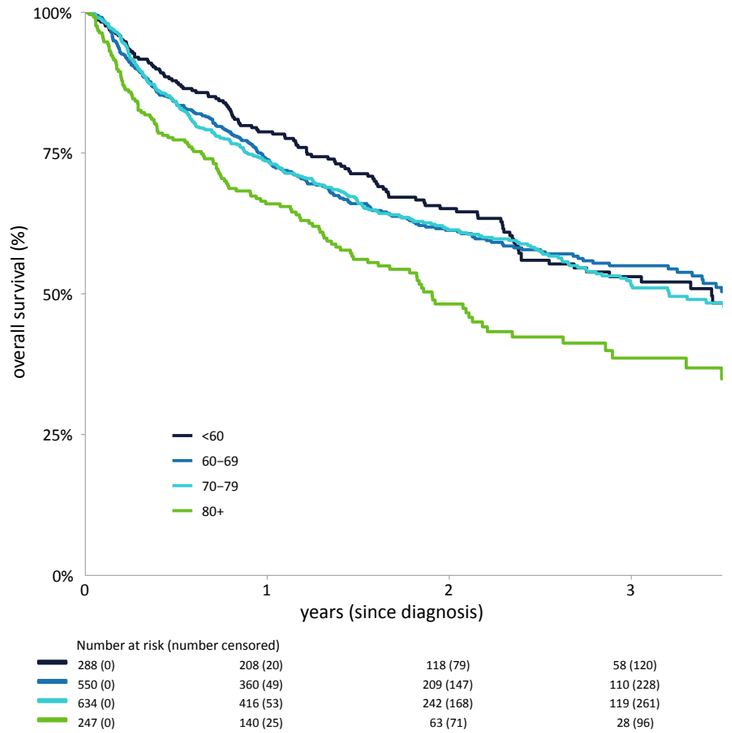


CHARACTERISTIC	N = 1,719[1]	MEDIAN YEARS (95% CI)	1 YEAR (95% CI)	HR[2]	95% CI[2]	P-VALUE
Sex						<0.001
Female	795 (46%)	4.0 (3.3, —)	79% (76%, 82%)	1.00	—	
Male	924 (54%)	2.7 (2.4, 3.3)	69% (66%, 72%)	1.38	1.19, 1.60	

[1]N (%)

[2]HR = Hazard Ratio, CI = Confidence Interval

5.2.2.2 Age (NSCLC OS)



CHARACTERISTIC	N = 1,719[1]	MEDIAN YEARS (95% CI)	1 YEAR (95% CI)	HR[2]	95% CI[2]	P-VALUE
Age						0.002
<60	288 (17%)	3.4 (2.4, —)	79% (74%, 84%)	1.00	—	
60-69	550 (32%)	3.6 (3.2, —)	74% (70%, 78%)	1.05	0.84, 1.32	
70-79	634 (37%)	3.2 (2.7, —)	74% (70%, 77%)	1.09	0.88, 1.35	
80+	247 (14%)	1.9 (1.5, 2.6)	66% (60%, 72%)	1.57	1.22, 2.01	

[1]N (%)

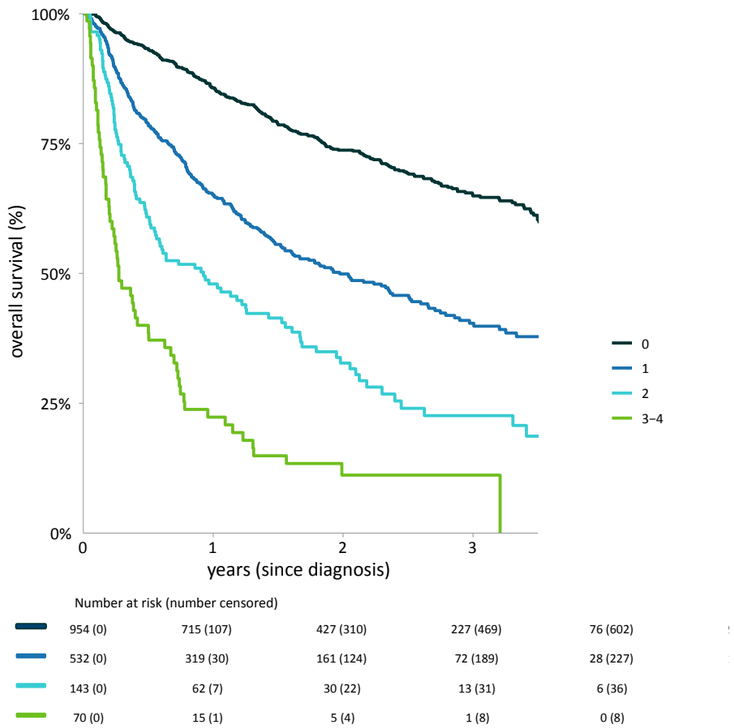
[2]HR = Hazard Ratio, CI = Confidence Interval

5.2.2.2a Age – Test for trend

CHARACTERISTIC	HR[1]	95% CI[1]	P-VALUE
Age (continuous)	1.01	1.01, 1.02	<0.001

[1]HR = Hazard Ratio, CI = Confidence Interval

5.2.2.3 ECOG (NSCLC OS)



CHARACTERISTIC	N = 1,719[1]	MEDIAN YEARS (95% CI)	1 YEAR (95% CI)	HR[2]	95% CI[2]	P-VALUE
ECOG						<0.001
0	954 (56%)	— (4.8, —)	86% (83%, 88%)	1.00	—	
1	532 (31%)	2.0 (1.6, 2.5)	65% (61%, 69%)	2.25	1.91, 2.66	
2	143 (8%)	0.93 (0.56, 1.5)	48% (40%, 57%)	3.86	3.07, 4.86	
3+4	70 (4%)	0.27 (0.21, 0.63)	22% (14%, 35%)	8.30	6.28, 11.0	

[1]N (%)

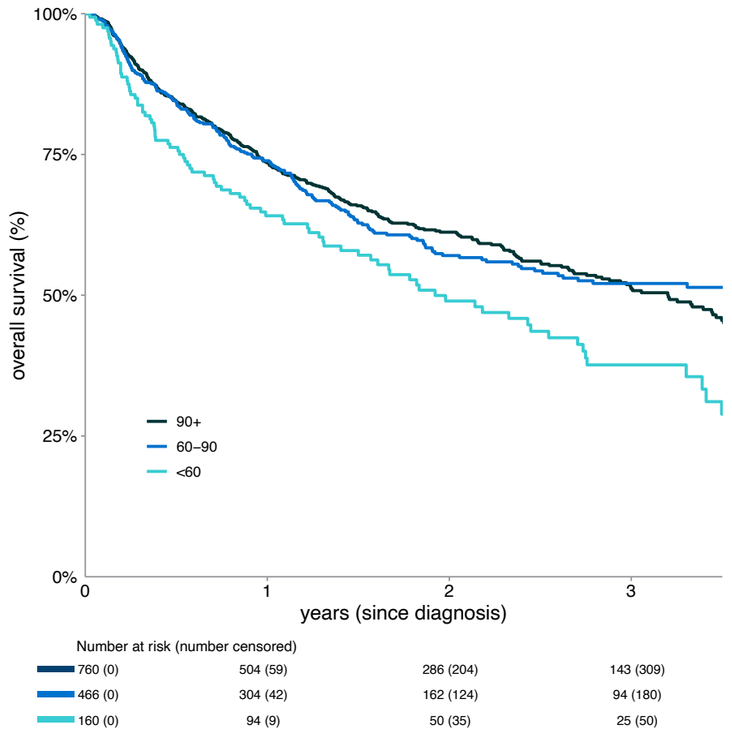
[2]HR = Hazard Ratio, CI = Confidence Interval

5.2.2.3a ECOG - Test for trend

CHARACTERISTIC	HR[1]	95% CI[1]	P-VALUE
ECOG (continuous)	1.99	1.84, 2.14	<0.001

[1]HR = Hazard Ratio, CI = Confidence Interval

5.2.2.4 Creatinine clearance (NSCLC OS)

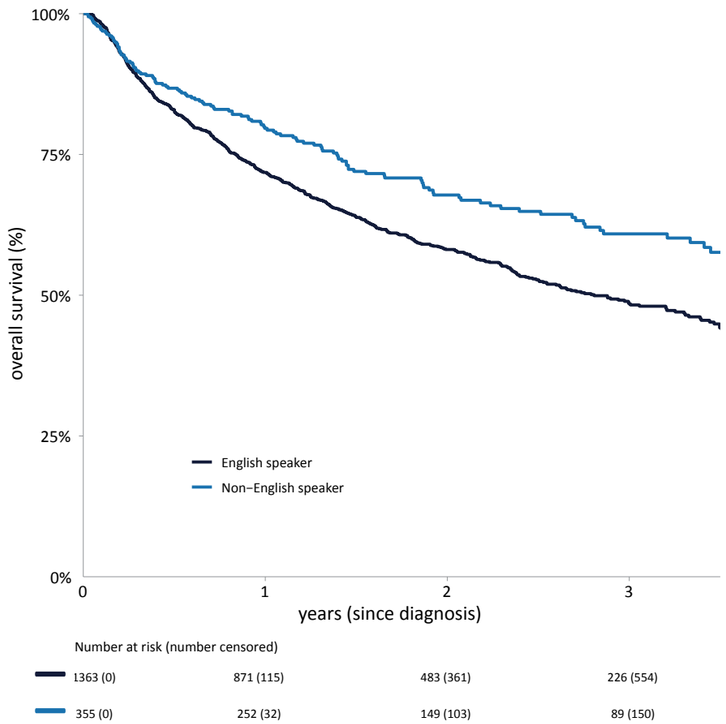


CHARACTERISTIC	N = 1,719[1]	MEDIAN YEARS (95% CI)	1 YEAR (95% CI)	HR[2]	95% CI[2]	P-VALUE
Creatinine clearance						0.006
>90	760 (55%)	3.2 (2.7, 3.6)	74% (70%, 77%)	1.00	—	
60-90	466 (34%)	3.8 (2.4, —)	74% (70%, 78%)	0.99	0.83, 1.18	
<60	160 (12%)	1.9 (1.5, 2.7)	64% (57%, 72%)	1.46	1.16, 1.84	
Unknown	333					

[1]N (%)

[2]HR = Hazard Ratio, CI = Confidence Interval

5.2.2.5 CALD status – language spoken (NSCLC OS)



CHARACTERISTIC	N = 1,719[1]	MEDIAN YEARS (95% CI)	1 YEAR (95% CI)	HR[2]	95% CI[2]	P-VALUE
Language[3]						<0.001
English speaker	1,363 (79%)	2.8 (2.5, 3.3)	72% (69%, 74%)	1.00	—	
Non-English speaker[#]	355 (21%)	— (4.1, —)	80% (76%, 84%)	0.68	0.56, 0.82	

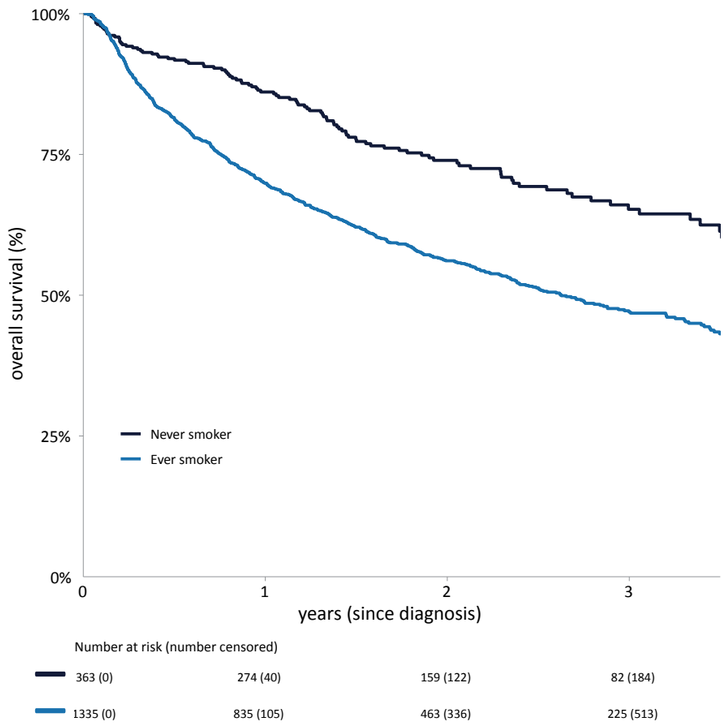
[1]N (%)

[2]HR = Hazard Ratio, CI = Confidence Interval

[3]Unknown = 1

[#]Translator required

5.2.2.6 Smoking history (NSCLC OS)



CHARACTERISTIC	N = 1,719[1]	MEDIAN YEARS (95% CI)	1 YEAR (95% CI)	HR[2]	95% CI[2]	P-VALUE
Smoking history[3]						<0.001
Never smoker	363 (21%)	— (—, —)	86% (82%, 89%)	1.00	—	
Ever smoker	1,335 (78%)	2.6 (2.3, 3.2)	70% (67%, 72%)	1.90	1.54, 2.34	

[1]N (%)

[2]HR = Hazard Ratio, CI = Confidence Interval

[3]Unknown = 1

5.3 Multivariate model – best subset (NSCLC OS)

CHARACTERISTIC	HR[1]	95% CI[1]	P-VALUE
Stage			<0.001
1	1.00	—	
2	2.09	1.30, 3.37	
3	3.99	2.75, 5.79	
4	9.48	6.66, 13.5	
Sex			0.028
Female	1.00	—	
Male	1.23	1.02, 1.49	
Age			0.005
<60	1.00	—	
60-69	1.22	0.93, 1.60	
70-79	1.29	0.97, 1.71	
80+	1.93	1.34, 2.78	
ECOG			<0.001
0	1.00	—	
1	1.38	1.13, 1.69	
2	1.89	1.44, 2.49	
3+4	3.56	2.45, 5.19	
Language spoken[3]			0.002
English speaker	1.00	—	
Non-English speaker	0.69	0.54, 0.88	
Mutation status			<0.001
No mutation	1.00	—	
ALK	0.29	0.12, 0.72	
EGFR	0.46	0.33, 0.63	
Other	0.92	0.56, 1.50	
Simplified Comorbidity Score			0.032
0-7	1.00	—	
8-9	1.11	0.86, 1.43	
10-12	1.18	0.90, 1.55	
13+	1.48	1.13, 1.95	

CHARACTERISTIC	HR[1]	95% CI[1]	P-VALUE
Blood tests			
Creatinine clearance			0.065
90+	1.00	—	
60-90	0.84	0.68, 1.04	
<60	0.71	0.52, 0.97	
HB (g/L)	0.99	0.99, 1.00	0.003
Neutrophil to lymphocyte ratio (NLR)	1.03	1.01, 1.04	<0.001
Platelet count (1000*10^9/L)	1.00	1.00, 1.00	0.4
ALP (U/L)	1.00	1.00, 1.00	0.2
Gamma GT (1000*U/L)	1.00	1.00, 1.00	0.13

[1]HR = Hazard Ratio, CI = Confidence Interval
[2]Model is selected based on test for trend, except for unordered categories. Note the test for trend model is adjusted for other linear factors (as opposed to unordered categories). Age groups coded as 1:2:3:4 for test for trend models
[3]Translator required

5.3.1 Model for location of residence

Model adjusted for variables in best model above

CHARACTERISTIC	N = 1,681[1]	HR[2]	95% CI[2]	P-VALUE
Postcode of residence				
Metropolitan	1,013 (60%)	1.00	—	
Regional	663 (40%)	0.87	0.72, 1.05	0.2
Unknown	5			

[1]N (%)
[2]HR = Hazard Ratio, CI = Confidence Interval

5.3.2 Model for hospital location

Model adjusted for variables in complete model

CHARACTERISTIC	N = 1,681[1]	HR[2]	95% CI[2]	P-VALUE
Location of hospital				
Metropolitan	1,325 (79%)	1.00	—	
Regional	356 (21%)	0.95	0.77, 1.16	0.6

[1]N (%)
[2]HR = Hazard Ratio, CI = Confidence Interval

5.4 NSCLC Progression free survival (PFS)

5.4.1 Definition

The time to first progression is calculated from the date of initial diagnosis to the earliest date of: (i) imaging showing local recurrence, progressive disease, or new metastasis; (ii) treatment cessation due to documented disease progression; (iii) death (from monthly linkage with death notifications in the NSW Registry of Births Deaths and Marriages).

5.4.2 Summary of event status

CHARACTERISTIC	N = 1,719[1]
Patient Status	
Progressed	774 (45%)
Died	251 (15%)
Alive without failure	694 (40%)

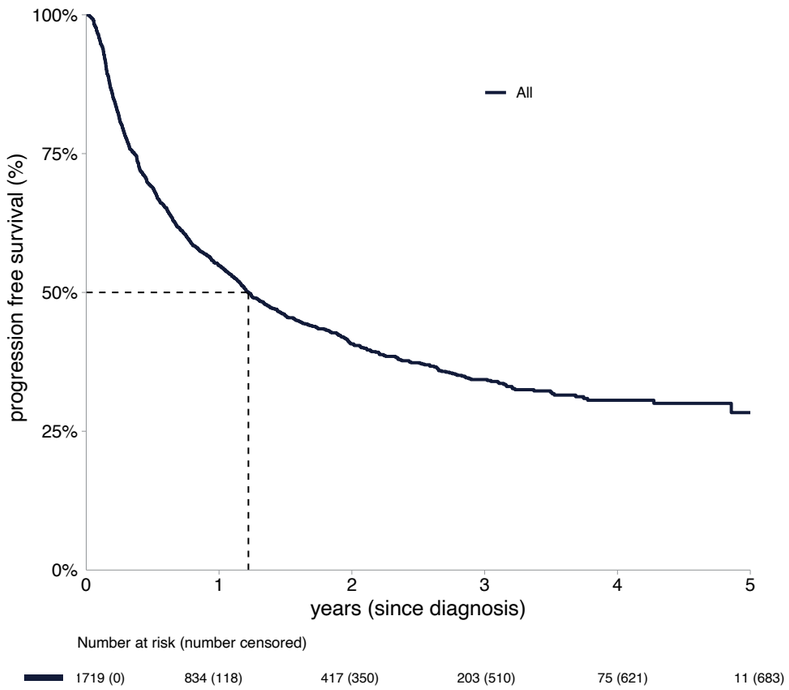
[1]N (%)

5.4.3 Time to first progression

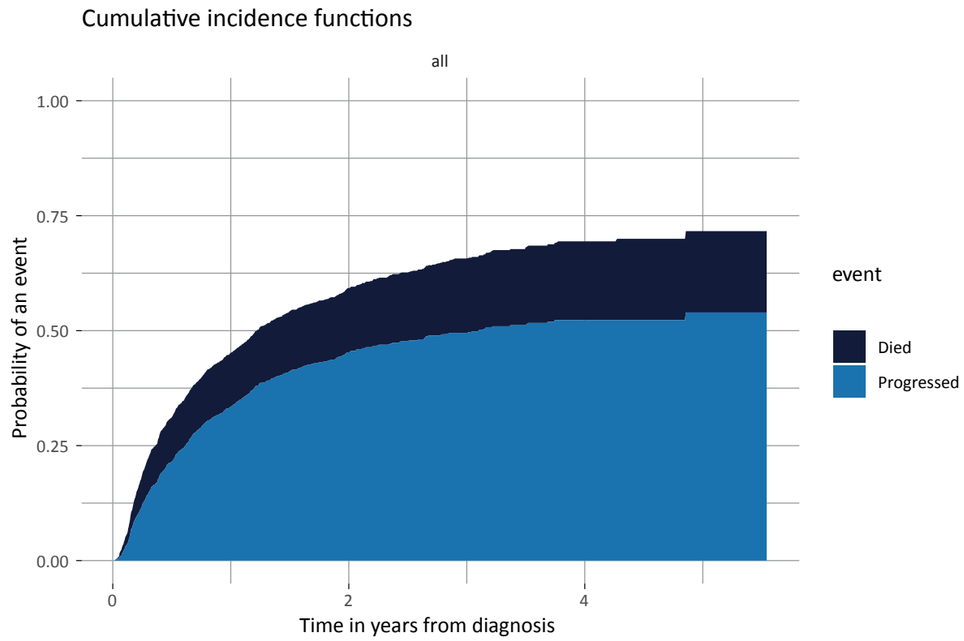
CHARACTERISTIC	MEDIAN PFS (95% CI)
NSCLC patients	1.2 (1.1, 1.4)

The median time to first progression is approximately 14.7 months.

Figure 5.4: Progression free survival - NSCLC

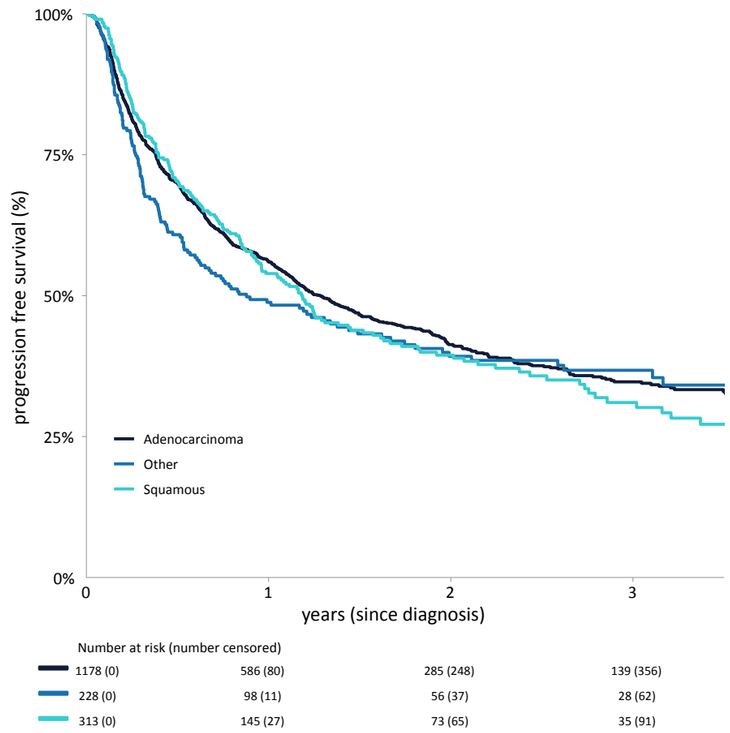


5.4.4 Cumulative incidence of events



5.5.1 NSCLC PFS prognostic factors – disease-related

5.5.1.1 Histology (NSCLC PFS)

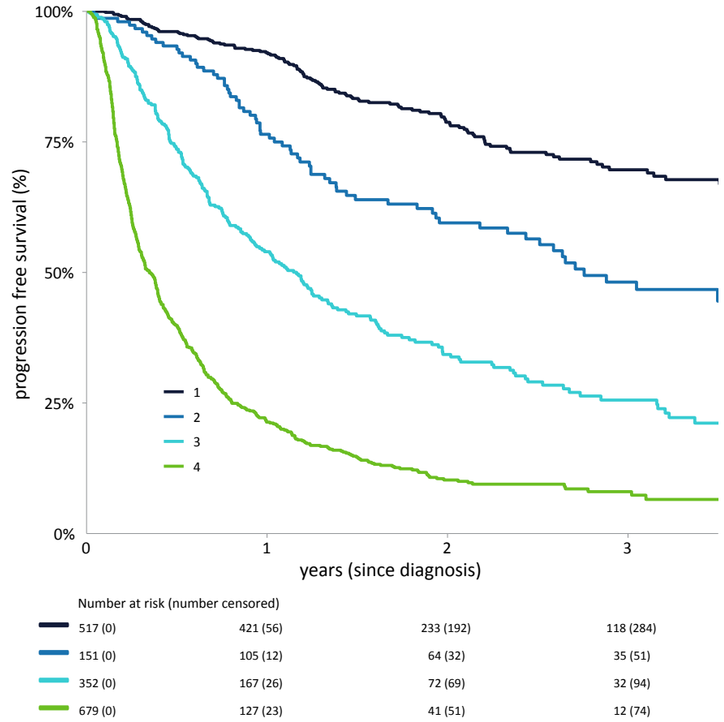


CHARACTERISTIC	N = 1,719[1]	MEDIAN YEARS (95% CI)	1 YEAR (95% CI)	HR[2]	95% CI[2]	P-VALUE
Histology						0.5
Adenocarcinoma	1,178 (69%)	1.3 (1.1, 1.5)	56% (53%, 59%)	1.00	—	
Other	228 (13%)	0.88 (0.62, 1.6)	49% (43%, 56%)	1.11	0.93, 1.34	
Squamous	313 (18%)	1.2 (0.96, 1.5)	54% (49%, 60%)	1.05	0.90, 1.24	

[1]N (%)

[2]HR = Hazard Ratio, CI = Confidence Interval

5.5.1.2 Stage (NSCLC PFS)



CHARACTERISTIC	N = 1,719[1]	MEDIAN YEARS (95% CI)	1 YEAR (95% CI)	HR[2]	95% CI[2]	P-VALUE
Stage						<0.001
I	517 (30%)	— (—, —)	92% (90%, 94%)	1.00	—	
II	151 (9%)	2.8 (2.3, —)	76% (70%, 84%)	2.01	1.49, 2.70	
III	352 (21%)	1.2 (0.94, 1.3)	54% (49%, 60%)	4.20	3.37, 5.23	
IV	679 (40%)	0.35 (0.30, 0.39)	21% (18%, 25%)	10.3	8.41, 12.5	

[1]N (%)

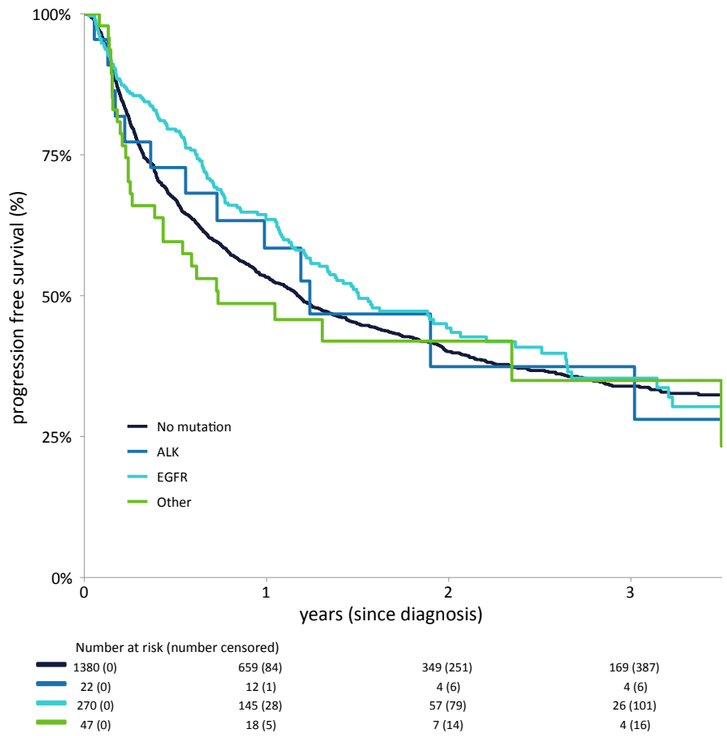
[2]HR = Hazard Ratio, CI = Confidence Interval

5.5.1.2a Stage test for trend

CHARACTERISTIC	HR[1]	95% CI[1]	P-VALUE
Stage (continuous)	1.98	1.88, 2.09	<0.001

[1]HR = Hazard Ratio, CI = Confidence Interval

5.5.1.2 Mutations (NSCLC PFS)

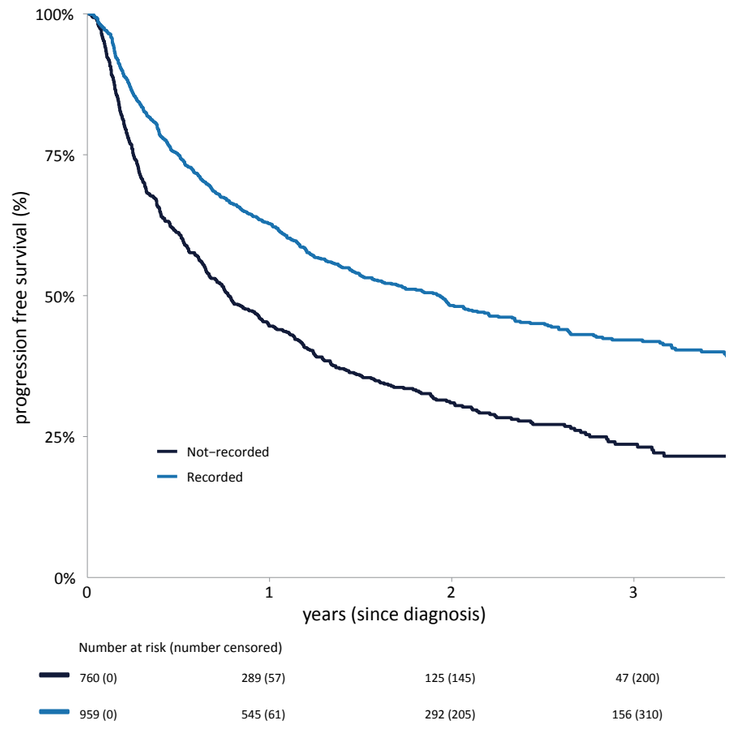


CHARACTERISTIC	N = 1,719[1]	MEDIAN YEARS (95% CI)	1 YEAR (95% CI)	HR[2]	95% CI[2]	P-VALUE
Mutation						0.2
-	1,380 (80%)	1.2 (1.0, 1.3)	53% (51%, 56%)	1.00	—	
ALK	22 (1%)	1.2 (0.73, —)	58% (41%, 83%)	0.97	0.56, 1.67	
EGFR	270 (16%)	1.5 (1.2, 2.2)	64% (58%, 70%)	0.85	0.71, 1.01	
Other	47 (2.8%)	0.73 (0.43, —)	49% (36%, 65%)	1.17	0.80, 1.71	

[1]N (%)

[2]HR = Hazard Ratio, CI = Confidence Interval

5.5.1.4 Histological grade (NSCLC PFS)

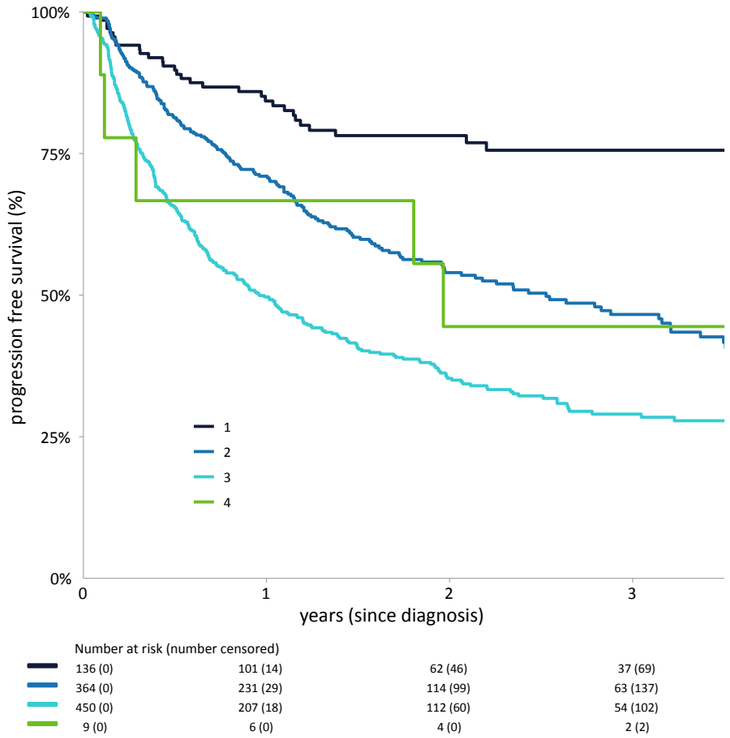


CHARACTERISTIC	N = 1,719[1]	MEDIAN YEARS (95% CI)	1 YEAR (95% CI)	HR[2]	95% CI[2]	P-VALUE
Grade						<0.001
Not recorded	760 (44%)	0.77 (0.67, 0.94)	45% (41%, 48%)	1.00	—	
Recorded	959 (56%)	1.9 (1.5, 2.2)	63% (60%, 66%)	0.59	0.52, 0.67	

[1]N (%)

[2]HR = Hazard Ratio, CI = Confidence Interval

5.5.1.5 Grade (NSCLC PFS)



CHARACTERISTIC	N = 959[1]	MEDIAN YEARS (95% CI)	1 YEAR (95% CI)	HR[2]	95% CI[2]	P-VALUE
Grade[#]						<0.001
1	136 (8%)	— (—, —)	84% (78%, 91%)	1.00	—	
2	364 (21%)	2.5 (2.0, 3.4)	71% (66%, 76%)	2.47	1.68, 3.64	
3	450 (26%)	0.96 (0.76, 1.2)	50% (45%, 55%)	4.25	2.92, 6.19	
4	9 (1%)	2.0 (0.29, —)	67% (42%, 100%)	2.94	1.14, 7.57	

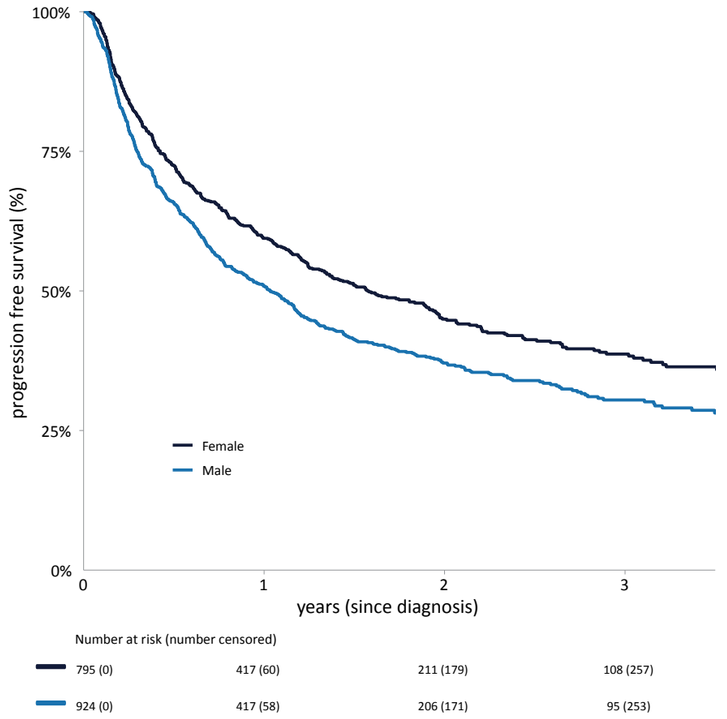
[1]N (%)

[2]HR = Hazard Ratio, CI = Confidence Interval

[#]1 = well-differentiated, 2 = moderately differentiated, 3 = poorly differentiated, 4 = undifferentiated

5.5.2 NSCLC PFS prognostic factors - patient-related

5.5.2.1 Sex (NSCLC PFS)

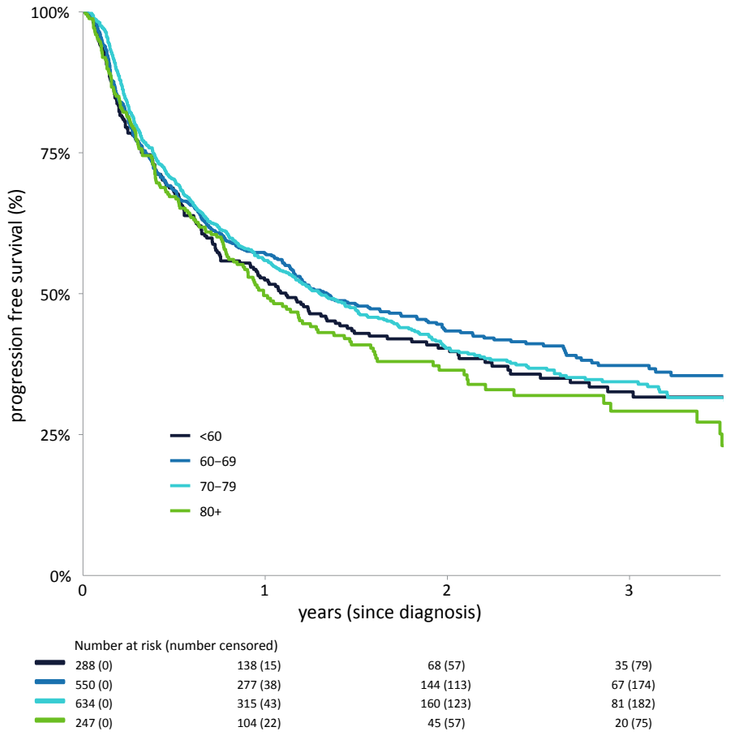


CHARACTERISTIC	N = 1,719[1]	MEDIAN YEARS (95% CI)	1 YEAR (95% CI)	HR[2]	95% CI[2]	P-VALUE
Sex						<0.001
Female	795 (46%)	1.6 (1.3, 2.0)	59% (56%, 63%)	1.00	—	
Male	924 (54%)	1.0 (0.88, 1.2)	51% (48%, 54%)	1.28	1.13, 1.45	

[1]N (%)

[2]HR = Hazard Ratio, CI = Confidence Interval

5.5.2.2 Age (NSCLC PFS)



CHARACTERISTIC	N = 1,719[1]	MEDIAN YEARS (95% CI)	1 YEAR (95% CI)	HR[2]	95% CI[2]	P-VALUE
Age						0.3
<60	288 (17%)	1.1 (0.86, 1.5)	52% (47%, 59%)	1.00	—	
60-69	550 (32%)	1.3 (1.2, 1.9)	57% (53%, 61%)	0.90	0.75, 1.08	
70-79	634 (37%)	1.3 (1.1, 1.6)	56% (52%, 60%)	0.93	0.78, 1.11	
80+	247 (14%)	0.99 (0.83, 1.4)	50% (44%, 56%)	1.08	0.87, 1.34	

[1]N (%)

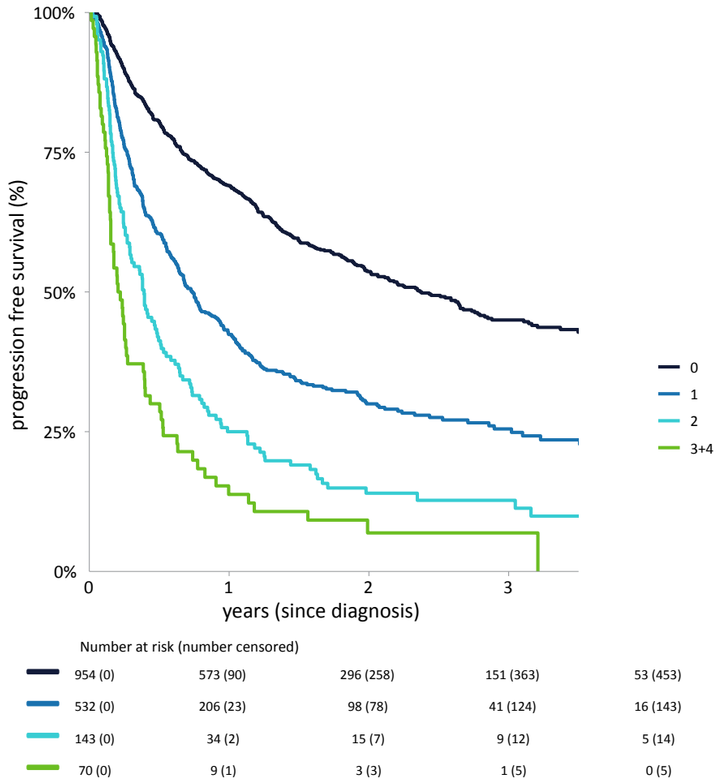
[2]HR = Hazard Ratio, CI = Confidence Interval

5.5.2.2a Age - Test for trend

CHARACTERISTIC	HR[1]	95% CI[1]	P-VALUE
Age (continuous)	1.00	1.00, 1.00	0.7

[1]HR = Hazard Ratio, CI = Confidence Interval

5.5.2.3 ECOG (NSCLC PFS)



CHARACTERISTIC	N = 1,719[1]	MEDIAN YEARS (95% CI)	1 YEAR (95% CI)	HR[2]	95% CI[2]	P-VALUE
ECOG						<0.001
0	954 (56%)	2.4 (2.0, 2.8)	69% (66%, 72%)	1.00	—	
1	532 (31%)	0.74 (0.64, 0.90)	42% (38%, 47%)	2.01	1.75, 2.31	
2	143 (8%)	0.39 (0.29, 0.51)	25% (19%, 33%)	3.26	2.67, 3.98	
3+4	70 (4%)	0.21 (0.15, 0.39)	14% (8%, 25%)	5.10	3.92, 6.63	

[1]N (%)

[2]HR = Hazard Ratio, CI = Confidence Interval

5.5.2.3a ECOG - Test for trend

CHARACTERISTIC	HR[1]	95% CI[1]	P-VALUE
ECOG (continuous)	1.75	1.64, 1.87	<0.001

[1]HR = Hazard Ratio, CI = Confidence Interval

5.5.2.4 Creatinine (NSCLC PFS)

CHARACTERISTIC	N = 1,719[1]	MEDIAN YEARS (95% CI)	1 YEAR (95% CI)	HR[2]	95% CI[2]	P-VALUE
Creatinine clearance						0.001
>90	760 (55%)	1.2 (1.0, 1.3)	54% (50%, 57%)	1.00	—	
60-90	466 (34%)	1.2 (0.93, 1.5)	53% (49%, 58%)	0.90	0.77, 1.04	
<60	160 (12%)	0.67 (0.45, 0.93)	40% (33%, 49%)	1.36	1.11, 1.66	
Unknown	333					

[1]N (%)

[2]HR = Hazard Ratio, CI = Confidence Interval

5.5.2.5 CALD status - language spoken (NSCLC PFS)

CHARACTERISTIC	N = 1,719[1]	MEDIAN YEARS (95% CI)	1 YEAR (95% CI)	HR[2]	95% CI[2]	P-VALUE
Language[3]						<0.001
English speaker	1,363 (79%)	1.1 (1.0, 1.3)	53% (50%, 56%)	1.00	—	
Non-English speaker[#]	355 (21%)	1.9 (1.3, 2.8)	62% (57%, 68%)	0.76	0.65, 0.90	

[1]N (%)

[2]HR = Hazard Ratio, CI = Confidence Interval

[3]Unknown = 1

[#]Translator required

5.5.2.6 Smoking history (NSCLC PFS)

CHARACTERISTIC	N = 1,719[1]	MEDIAN YEARS (95% CI)	1 YEAR (95% CI)	HR[2]	95% CI[2]	P-VALUE
Smoking history[3]						<0.001
Never smoker	363 (21%)	2.5 (2.0, —)	68% (64%, 74%)	1.00	—	
Ever smoker	1,335 (78%)	1.0 (0.93, 1.2)	51% (48%, 54%)	1.64	1.39, 1.94	

[1]N (%)

[2]HR = Hazard Ratio, CI = Confidence Interval

[3]Unknown = 21 (1%)

*See Appendix II for summary of all univariate models

5.6 Multivariate model - best subset (NSCLC PFS)

CHARACTERISTIC	HR[1]	95% CI[1]	P-VALUE
Stage			<0.001
1	1.00	—	
2	1.51	1.05-2.17	
3	3.28	2.51-4.28	
4	8.13	6.31-10.5	
Sex			<0.001
Female	1.00	—	
Male	1.35	1.16-1.57	
ECOG			<0.001
0	1.00	—	
1	1.20	1.02-1.42	
2	1.77	1.40-2.23	
3+4	2.21	1.57-3.13	
Language spoken[3]			0.007
English speaker	1.00	—	
Non-English speaker	0.78	0.64, 0.94	
Simplified Comorbidity Score			0.010
0-7	1.00	—	
8-9	1.10	0.90, 1.35	
10-12	1.16	0.89-1.52	
13+	1.39	1.14-1.70	
Blood tests			
Creatinine clearance			0.03
90+	1.00	—	
60-90	0.80	0.68-0.94	
<60	0.89	0.70-1.13	
Neutrophil to lymphocyte ratio (NLR)	1.02	1.01-1.03	<0.001
HB (g/L)	0.99	0.99, 1.00	<0.001
Platelet count (1000*10^9/L)	1.00	1.00, 1.00	0.059
Gamma GT (1000*U/L)	1.00	1.00, 1.00	0.026

[1]HR = Hazard Ratio, CI = Confidence Interval

[2]Model is selected based on test for trend, except for unordered categories. Note the test for trend model is adjusted for other linear factors (as opposed to unordered categories). Age groups coded as 1:2:3:4 for test for trend models

[3]Translator required

5.6.1 Model for location of residence

Model adjusted for variables in complete model.

CHARACTERISTIC	N = 1,681[1]	HR[2]	95% CI[2]	P-VALUE
Postcode of residence				0.12
Metropolitan	1,013 (60%)	1.00	—	
Regional	663 (40%)	0.88	0.75, 1.03	
Unknown	5			

[1]N (%)
[2]HR = Hazard Ratio, CI = Confidence Interval

5.6.2 Model for hospital location

Model adjusted for variables in complete model.

CHARACTERISTIC	N = 1,681[1]	HR[2]	95% CI[2]	P-VALUE
Location of hospital				0.9
Metropolitan	1,325 (79%)	1.00	—	
Regional	356 (21%)	1.02	0.85, 1.21	

[1]N (%)
[2]HR = Hazard Ratio, CI = Confidence Interval

6. Disease history – SCLC

What is the natural history of patients with SCLC lung cancer in terms of progression-free and overall survival, and what are main prognostic factors for these outcomes related to disease, molecular and patient characteristics?

6.1 Overall survival (OS)

6.1.1 Definition / follow-up time

We compute the time of death from the date of initial diagnosis. Date of death is obtained from monthly linkage with death notifications in the NSW Registry of Births, Deaths, and Marriages. Patients are assumed alive if not deceased on the first day of the reporting month.

CHARACTERISTIC	MEDIAN FOLLOW UP
Overall	2.2 (2.0, 2.6)

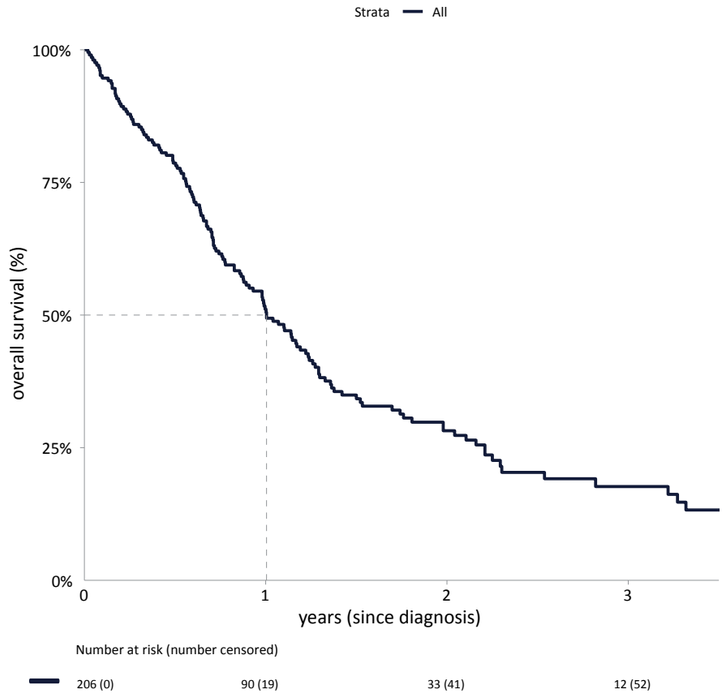
The median follow-up of the cohort is approximately 26.5 months.

6.1.2 Survival distribution

CHARACTERISTIC	MEDIAN OS (95% CI)
SCLC	1.0 (0.88, 1.2)

The median overall survival of the cohort is approximately 12.1 months.

Figure 6.1: Overall survival - SCLC

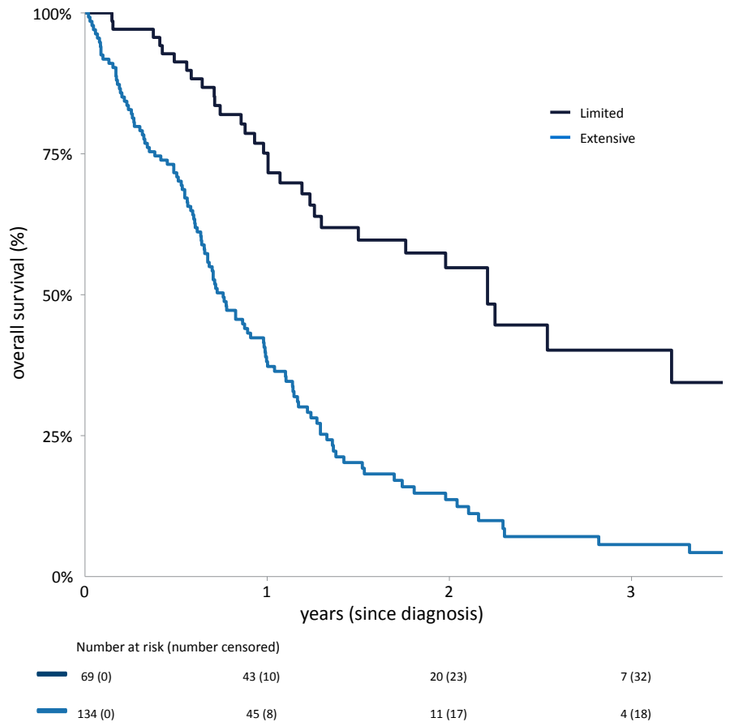


6.1.3 Summary at key time points

YEAR	N	EVENTS	OS %	(95% CI)
0	206	0	100	(100,100)
1	90	97	51	(45,59)
2	33	35	28	(22,36)
3	12	10	18	(12,26)
4	3	3	13	(8,22)

6.2.1 SCLC OS prognostic factors – disease-related

6.2.1.1 Stage (SCLC OS)



CHARACTERISTIC	N = 206[1]	MEDIAN YEARS (95% CI)	1 YEAR (95% CI)	HR[2]	95% CI[2]	P-VALUE
Stage[3]						<0.001
Limited	69 (34%)	2.2 (1.5, —)	75% (65%, 87%)	1.0	—	
Extensive	134 (66%)	0.76 (0.66, 0.99)	38% (31%, 48%)	3.21	2.15, 4.81	

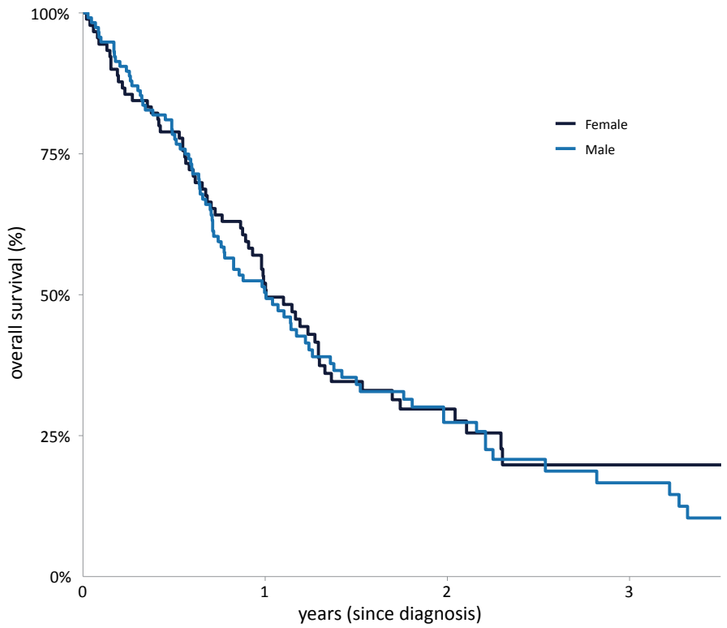
[1]N (%)

[2]HR = Hazard Ratio, CI = Confidence Interval

[3]Unknown N = 3

6.2.2 SCLC OS prognostic factors – patient-related

6.2.2.1 Sex (SCLC OS)

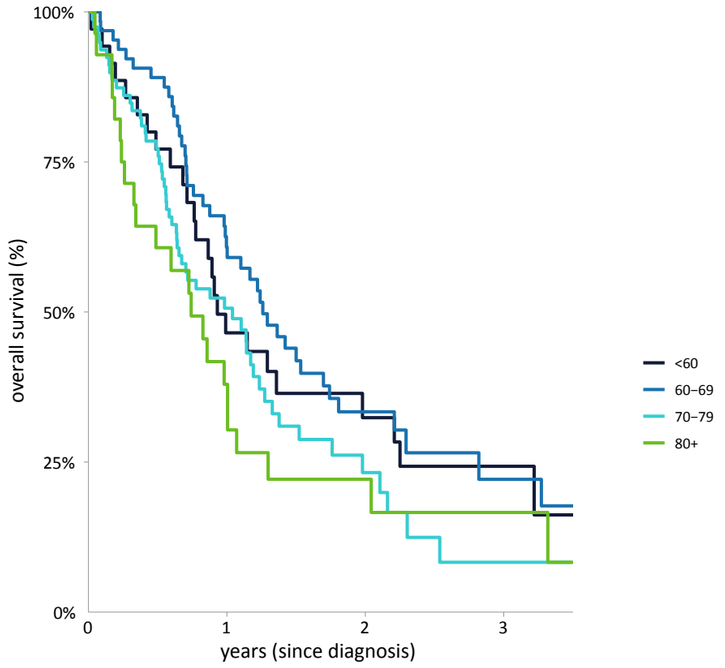


CHARACTERISTIC	N = 206[1]	MEDIAN YEARS (95% CI)	1 YEAR (95% CI)	HR[2]	95% CI[2]	P-VALUE
Sex						0.7
Female	90 (44%)	1.0 (0.91, 1.3)	52% (43%, 64%)	1.0	—	
Male	116 (56%)	1.0 (0.76, 1.3)	50% (42%, 61%)	1.08	0.78, 1.50	

[1]N (%)

[2]HR = Hazard Ratio, CI = Confidence Interval

6.2.2.2 Age (SCLC OS)



CHARACTERISTIC	N = 206[1]	MEDIAN YEARS (95% CI)	1 YEAR (95% CI)	HR[2]	95% CI[2]	P-VALUE
Age						0.089
<60	35 (17%)	0.93 (0.77, 2.3)	47% (32%, 67%)	1.00	—	
60-69	64 (31%)	1.3 (1.0, 1.8)	61% (50%, 74%)	0.85	0.52, 1.40	
70-79	79 (38%)	1.0 (0.65, 1.3)	51% (40%, 63%)	1.28	0.79, 2.05	
80+	28 (14%)	0.74 (0.34, 1.1)	38% (23%, 61%)	1.53	0.87, 2.70	

[1]N (%)

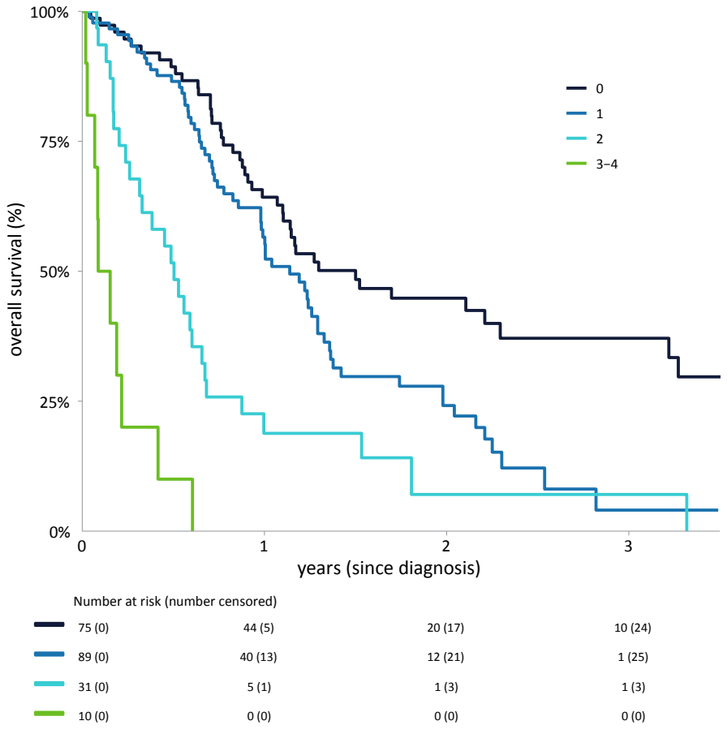
[2]HR = Hazard Ratio, CI = Confidence Interval

6.2.2.2a Age – Test for trend

CHARACTERISTIC	HR[1]	95% CI[1]	P-VALUE
Age (continuous)	1.02	1.00, 1.04	0.022

[1]HR = Hazard Ratio, CI = Confidence Interval

6.2.2.3 ECOG (SCLC OS)



CHARACTERISTIC	N = 206[1]	MEDIAN YEARS (95% CI)	1 YEAR (95% CI)	HR[2]	95% CI[2]	P-VALUE
ECOG						<0.001
0	75 (37%)	1.5 (1.1, 3.2)	64% (54%, 76%)	1.00	—	
1	89 (43%)	1.1 (0.98, 1.3)	57% (47%, 69%)	1.70	1.15, 2.52	
2	31 (15%)	0.50 (0.31, 0.68)	19% (9%, 40%)	3.92	2.42, 6.37	
3+4	10 (5%)	0.12 (0.07, —)	— (—, —)	22.4	10.5, 47.8	

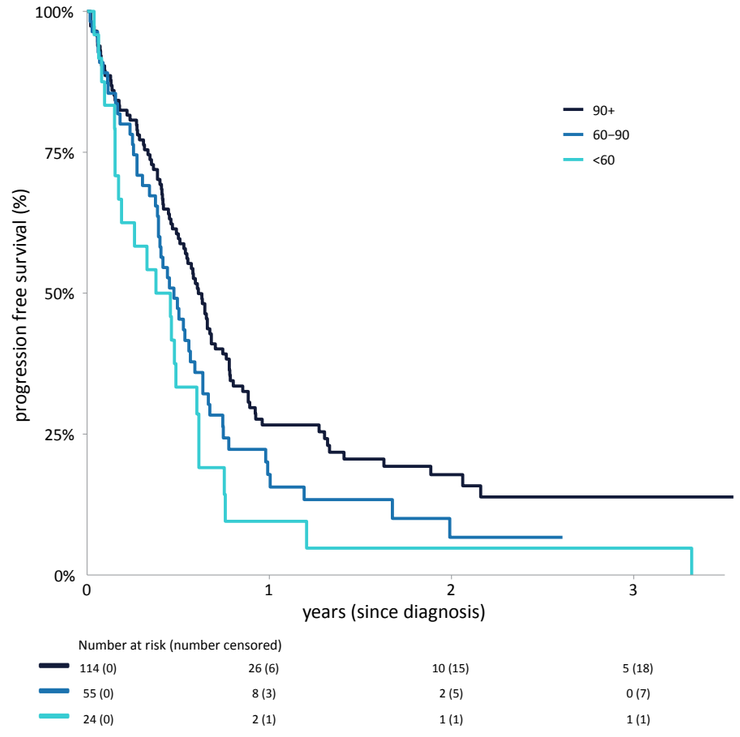
[1]N (%)
[2]HR = Hazard Ratio, CI = Confidence Interval

6.2.2.3a ECOG - Test for trend

CHARACTERISTIC	HR[1]	95% CI[1]	P-VALUE
ECOG (continuous)	2.30	1.85, 2.86	<0.001

[1]HR = Hazard Ratio, CI = Confidence Interval

6.2.2.4 Creatinine clearance (SCLC OS)



CHARACTERISTIC	N = 206[1]	MEDIAN YEARS (95% CI)	1 YEAR (95% CI)	HR[2]	95% CI[2]	P-VALUE
Creatinine clearance						<0.004
90+	114 (59%)	1.3 (1.1, 1.7)	60% (52%, 70%)	1.00	—	
60-90	55 (28%)	0.88 (0.67, 1.3)	44% (32%, 60%)	1.28	0.87, 1.90	
<60	24 (12%)	0.60 (0.33, 1.0)	30% (16%, 57%)	2.39	1.48, 3.86	

[1]N (%)
[2]HR = Hazard Ratio, CI = Confidence Interval
Unknown = 13

*See Appendix III for summary of all univariate models

6.3 Multivariate model – best subset (SCLC OS)

CHARACTERISTIC	HR[1]	95% CI[1]	P-VALUE
Stage			<0.001
Limited	1.00	—	
Extensive	2.15	1.35, 3.42	
ECOG			<0.001
0	1.00	—	
1	1.44	0.91, 2.26	
2	2.47	1.39, 4.40	
3+4	11.6	4.99, 27.1	
Blood tests			
Creatinine clearance			0.3
90+	1.00	—	
60-90	1.33	0.86, 2.06	
<60	1.42	0.85, 2.38	
Neutrophil to lymphocyte ratio (NLR)	1.05	1.00, 1.09	0.051
ALP (U/L)	1.00	1.00, 1.00	0.3

[1]HR = Hazard Ratio, CI = Confidence Interval

[2]Model is selected based on test for trend, except for unordered categories. Note the test for trend model is adjusted for other linear factors (as opposed to unordered categories). Age groups coded as 1:2:3:4 for test for trend models

6.3.1 Model for location of residence

Model adjusted for variables in complete model.

CHARACTERISTIC	N = 202[1]	HR[2]	95% CI[2]	P-VALUE
Postcode of residence				0.3
Metropolitan	97 (48%)	1.00	—	
Regional	105 (52%)	1.26	0.84, 1.91	

[1]N (%)

[2]HR = Hazard Ratio, CI = Confidence Interval

6.3.2 Model for hospital location

Model adjusted for variables in complete model.

CHARACTERISTIC	N = 202[1]	HR[2]	95% CI[2]	P-VALUE
Location of hospital				0.057
Metropolitan	109 (54%)	1.00	—	
Regional	93 (46%)	1.49	0.99, 2.26	

[1]N (%)

[2]HR = Hazard Ratio, CI = Confidence Interval

6.4 SCLC progression free survival (PFS)

6.4.1 Definition

The time to first progression is calculated from the date of initial diagnosis to the earliest date of: (i) imaging showing local recurrence, progressive disease, or new metastasis; (ii) treatment cessation due to documented disease progression; (iii) death (from monthly linkage with death notifications in the NSW Registry of Births Deaths and Marriages).

6.4.2 Summary of event status

CHARACTERISTIC	N = 206[1]
Patient Status	
Progressed	130 (63%)
Died	41 (20%)
Alive without failure	35 (17%)

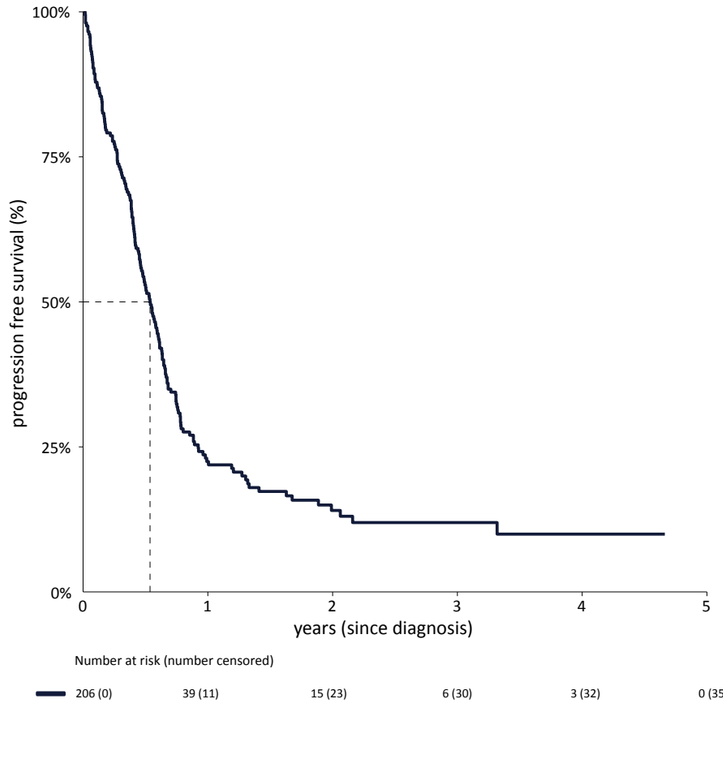
[1]N (%)

6.4.3 Time to first progression

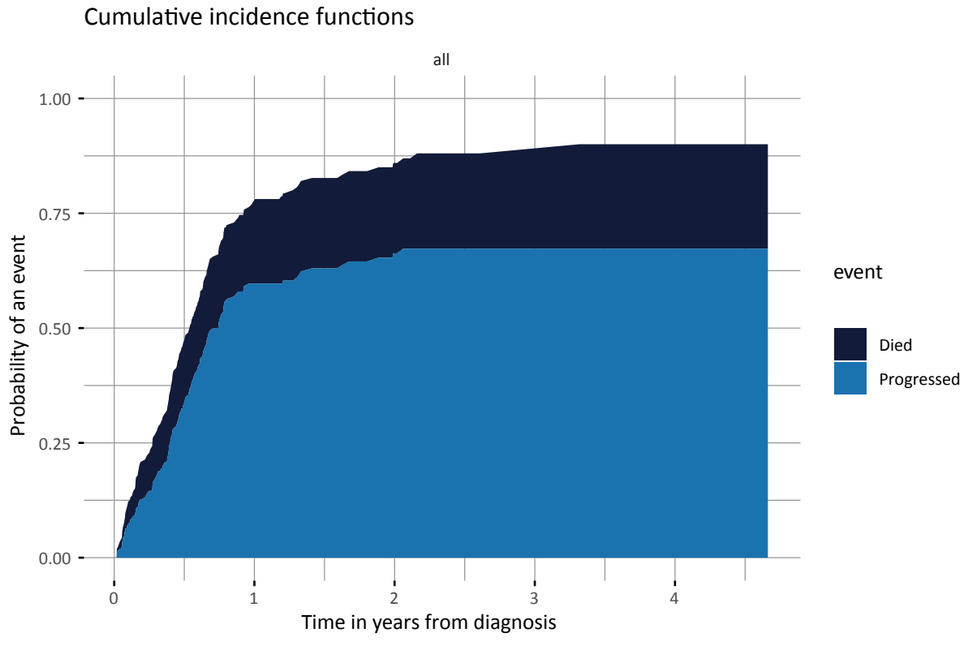
CHARACTERISTIC	MEDIAN PFS (95% CI)
SCLC patients	0.54 (0.46, 0.61)

The median time to first progression is approximately 6.4 months.

Figure 6.4: Progression free survival - SCLC

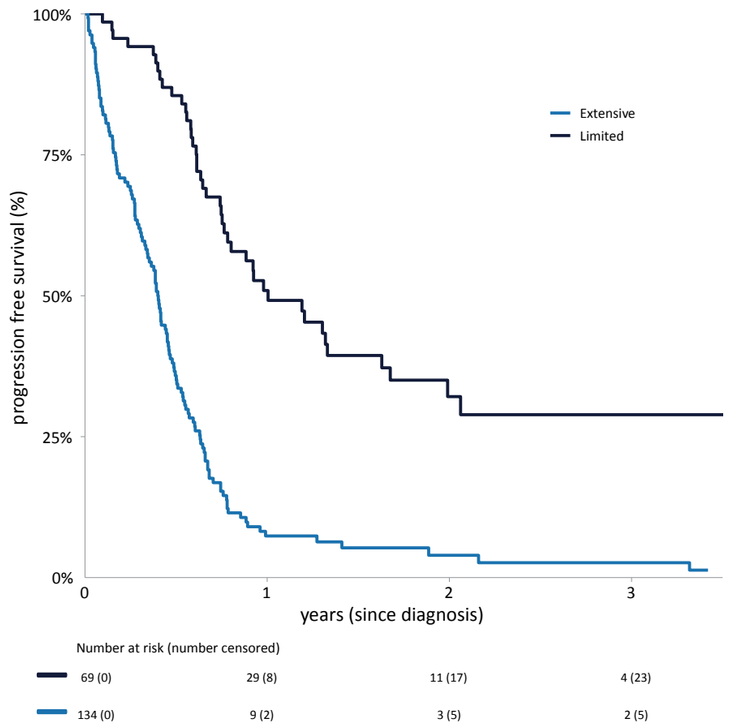


6.4.4 Cumulative incidence of events



6.5.1 SCLC PFS prognostic factors - disease-related

6.5.1.1 Stage (SCLC PFS)



CHARACTERISTIC	N = 206[1]	MEDIAN YEARS (95% CI)	1 YEAR (95% CI)	HR[2]	95% CI[2]	P-VALUE
Sex						<0.001
Limited	69 (34%)	1.0 (0.78, 2.0)	51% (40%, 65%)	1.0	—	
Extensive	134 (66%)	0.40 (0.34, 0.46)	7% (4%, 14%)	3.77	2.63, 5.41	

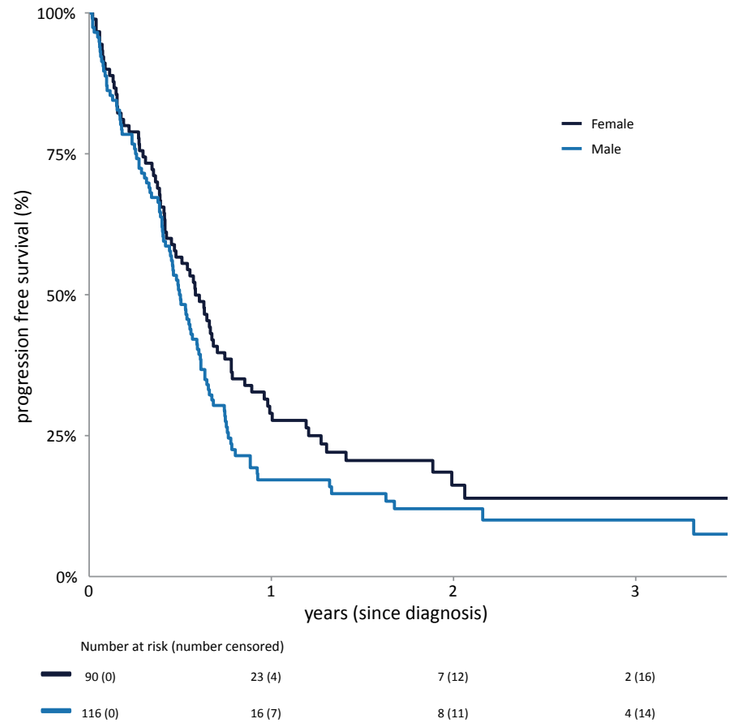
[1]N (%)

[2]HR = Hazard Ratio, CI = Confidence Interval

[3]Unknown =3

6.5.2 SCLC PFS prognostic factors - patient-related

6.5.2.1 Sex (SCLC PFS)

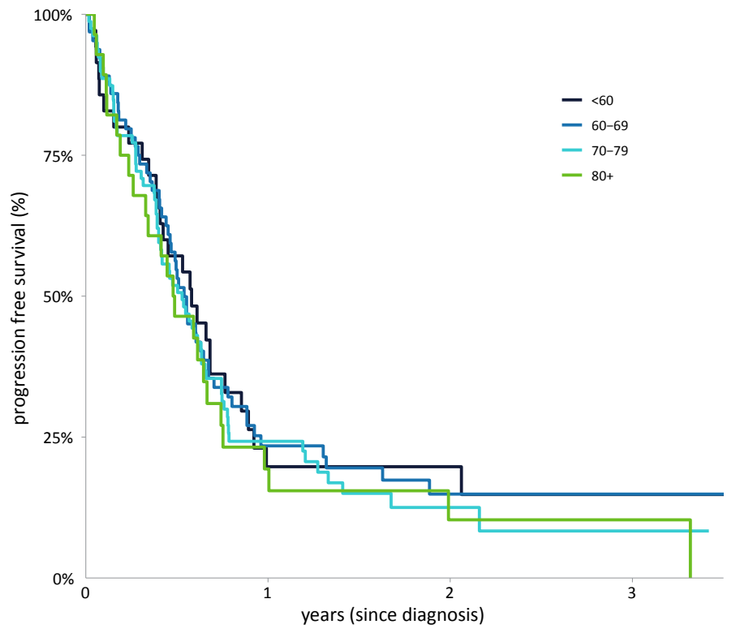


CHARACTERISTIC	N = 206[1]	MEDIAN YEARS (95% CI)	1 YEAR (95% CI)	HR[2]	95% CI[2]	P-VALUE
Sex						0.11
Female	90 (44%)	0.58 (0.45, 0.78)	29% (21%, 40%)	1.00	—	
Male	116 (56%)	0.50 (0.44, 0.60)	17% (11%, 26%)	1.28	0.94, 1.74	

[1]N (%)

[2]HR = Hazard Ratio, CI = Confidence Interval

6.5.2.2 Age (SCLC PFS)



Number at risk (number censored)

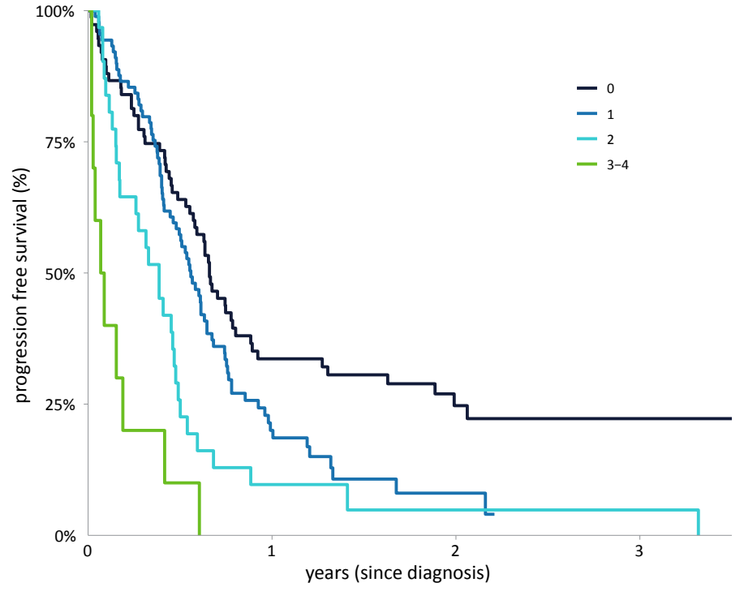
<60	35 (0)	6 (2)	4 (4)	1 (6)
60–69	64 (0)	13 (3)	5 (7)	3 (9)
70–79	79 (0)	15 (5)	4 (10)	1 (12)
80+	28 (0)	5 (1)	2 (2)	1 (3)

CHARACTERISTIC	N = 206[1]	MEDIAN YEARS (95% CI)	1 YEAR (95% CI)	HR[2]	95% CI[2]	P-VALUE
Age						0.8
<60	35 (17%)	0.58 (0.41, 0.89)	20% (9.8%, 40%)	1.00	—	
60-69	64 (31%)	0.54 (0.46, 0.67)	23% (15%, 37%)	1.02	0.64, 1.61	
70-79	79 (38%)	0.53 (0.40, 0.65)	24% (16%, 36%)	1.14	0.73, 1.77	
80+	28 (14%)	0.48 (0.33, 0.75)	19% (8.9%, 42%)	7.82	3.89, 15.7	

[1]N (%)

[2]HR = Hazard Ratio, CI = Confidence Interval

6.5.2.3 ECOG (SCLC PFS)



Number at risk (number censored)

0	75 (0)	23 (3)	11 (10)	5 (15)
1	89 (0)	14 (7)	3 (12)	0 (14)
2	31 (0)	2 (1)	1 (1)	1 (1)
3–4	10 (0)	0 (0)	0 (0)	0 (0)

CHARACTERISTIC	N = 206[1]	MEDIAN YEARS (95% CI)	1 YEAR (95% CI)	HR[2]	95% CI[2]	P-VALUE
ECOG						<0.001
0	75 (37%)	0.66 (0.57, 0.88)	34% (24%, 46%)	1.00	—	
1	89 (43%)	0.56 (0.48, 0.67)	20% (13%, 31%)	1.51	1.06, 2.15	
2	31 (15%)	0.39 (0.17, 0.49)	10% (3%, 28%)	2.65	1.69, 4.17	
3+4	10 (5%)	0.08 (0.03, —)	— (—, —)	7.82	3.89, 15.7	

[1]N (%)

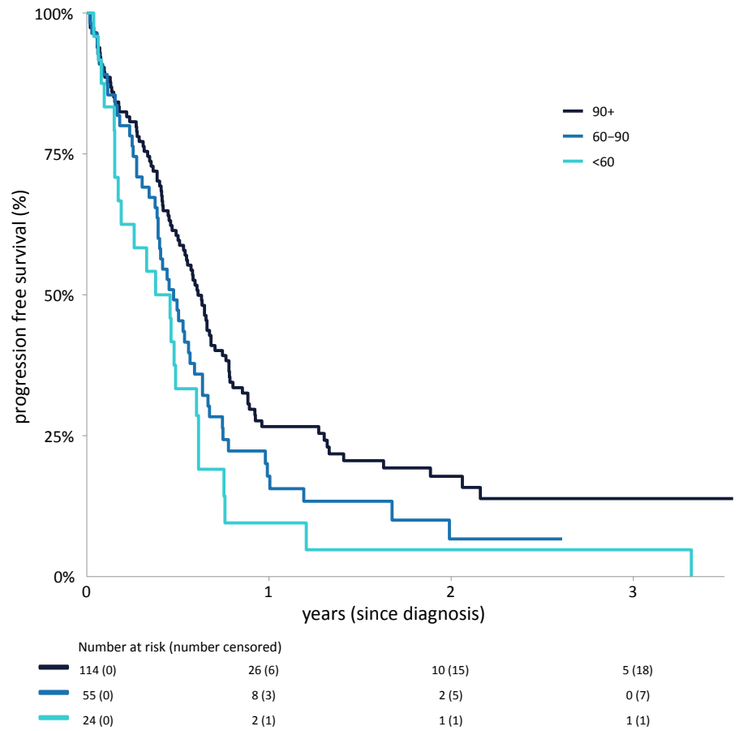
[2]HR = Hazard Ratio, CI = Confidence Interval

6.5.2.3a ECOG - Test for trend

CHARACTERISTIC	HR[1]	95% CI[1]	P-VALUE
ECOG (continuous)	1.78	1.47, 2.16	<0.001

[1]HR = Hazard Ratio, CI = Confidence Interval

6.5.2.4 Creatinine clearance (SCLC PFS)



CHARACTERISTIC	N = 206[1]	MEDIAN YEARS (95% CI)	1 YEAR (95% CI)	HR[2]	95% CI[2]	P-VALUE
Creatinine clearance						0.013
>90	114 (59%)	0.61 (0.53, 0.74)	27% (19%, 36%)	1.00	—	
60-90	55 (28%)	0.48 (0.39, 0.64)	18% (10%, 32%)	1.39	0.98, 1.98	
<60	24 (12%)	0.42 (0.19, 0.61)	10% (3%, 35%)	1.95	1.23, 3.09	

[1]N (%)

[2]HR = Hazard Ratio, CI = Confidence Interval

Unknown = 13

*See Appendix IV for summary of all univariate models

6.6 Multivariate model – best subset (SCLC PFS)

CHARACTERISTIC	HR[1]	95% CI[1]	P-VALUE
Stage			<0.001
Limited	1.00	—	
Extensive	2.92	1.93, 4.41	
Age			0.4
<60	1.00	—	
60-69	0.86	0.52, 1.42	
70-79	0.71	0.43, 1.19	
80+	0.59	0.29, 1.20	
ECOG			0.043
0	1.00	—	
1	1.31	0.88, 1.97	
2	1.62	0.94, 2.80	
3+4	3.15	1.43, 6.95	
Blood tests			
Creatinine clearance			0.14
90+	1.00	—	
60-90	1.40	0.91, 2.16	
<60	1.64	0.92, 2.92	
Neutrophil to lymphocyte ratio (NLR)	1.06	1.02, 1.10	0.011
ALP (U/L)	1.00	1.00, 1.00	0.065

[1]HR = Hazard Ratio, CI = Confidence Interval

[2]Model is selected based on test for trend, except for unordered categories. Note the test for trend model is adjusted for other linear factors (as opposed to unordered categories). Age groups coded as 1:2:3:4 for test for trend models

6.6.1 Model for location of residence

Model adjusted for variables in complete model.

CHARACTERISTIC	N = 205[1]	HR[2]	95% CI[2]	P-VALUE
Postcode of residence				
Metropolitan	98 (48%)	1.00	—	
Regional	107 (52%)	1.24	0.86, 1.791	0.3

[1]N (%)
[2]HR = Hazard Ratio, CI = Confidence Interval

6.6.2 Model for hospital location

Model adjusted for variables in complete model.

CHARACTERISTIC	N = 205[1]	HR[2]	95% CI[2]	P-VALUE
Location of hospital				
Metropolitan	112 (55%)	1.00	—	
Regional	93 (45%)	1.35	0.94, 1.96	0.11

[1]N (%)
[2]HR = Hazard Ratio, CI = Confidence Interval

> After adjusting for other prognostic factors, survival outcomes did not differ between patients in metropolitan versus regional areas, by postcode of residence or hospital location.

7. Patterns of care

What are current patterns of care for patients with lung cancer in terms of modalities of treatment, supportive care, and evidence-based protocols e.g., proportion of cases discussed at a multidisciplinary team (MDT) meeting, proportion of cases that appropriately undergo molecular testing?

7.1 Diagnosis

7.1.1 Diagnostic Radiology

7.1.1.1 Number of diagnostic scans

CHARACTERISTIC	N = 1,998[1]
Scans per patient[2]	3 (2, 5)

[1]Median (IQR)
[2]Pre/within 90 days of diagnosis

7.1.2 Anatomical Pathology

VARIABLES	N = 2,000[1]
Pathology studies	
Yes	1,947 (97%)
Specimen type(s)	
Histology only	1,150 (59%)
Cytology only	522 (27%)
Both	274 (14%)
Histology sample	
Primary tumour	1,103 (77%)
Metastatic tumour	321 (23%)
Histology – primary tumour	
Biopsy	685 (62%)
Resection	418 (38%)
Cytology sample	
Primary tumour	482 (61%)
Metastatic tumour	314 (39%)
Cytology – primary tumour	
Bronchial brushings	81 (26%)
Bronchial washings	48 (15%)
FNA	152 (48%)
Sputum	20 (6%)
Other	13 (4%)
Tumour confirmed	1,758 (90%)
Reason tumour not confirmed	
No malignant cells	119 (63%)
Other	52 (28%)
Insufficient material	18 (10%)

[1]N (%)

7.1.3 Molecular pathology

VARIABLES	N = 1,998[1]
Molecular testing	1,429 (72%)
EGFR test	1,063 (74%)
No mutation	797 (75%)
EGFR mutant	262 (25%)
ALK IHC test	1,025 (72%)
ALK IHC result	
Negative	948 (95%)
Positive	52 (5%)
ALK FISH test	99 (7%)
ALK FISH result	
Negative	79 (80%)
Positive	20 (20%)
ROS1 result	
Negative	935 (96%)
Positive	38 (4%)
KRAS result	
Negative	465 (62%)
Positive	290 (38%)
BRAF result	
Negative	634 (95%)
Positive	32 (5%)
PD-L1 result	
0	414 (34%)
1 - 49	421 (35%)
> or = 50	370 (31%)
Other molecular test(s)	
NRAS	226 (76%)
Other	70 (24%)
Other molecular test result	
Negative	276 (93%)
Positive	20 (7%)

[1]N (%)

7.2 Treatment

7.2.1 Time to diagnosis and treatment

Days from first presentation[#] to clinical diagnosis[1]

6 (0, [0, 28], 5,998)

Days from first presentation[#] to pathological diagnosis[1]

23 (0, [9, 57], 6,017)

Days from pathological diagnosis to curative treatment[1]

28 (0, [0, 49], 678)

[#]Defined as first investigation of symptoms suspicious of lung cancer or incidental finding
[1]Median (0%, [IQR], 100%)

60% of all patients were reviewed by a multidisciplinary team (MDT).

7.2.2 Proportion who received first-line treatment

ANY TREATMENT N = 2,000	CHEMO-THERAPY N = 2,000[1]	IMMUNO-THERAPY N = 2,000[1]	RADIO-THERAPY N = 2,000[1]	SURGERY N = 2,000[1]	TARGETED THERAPY N = 2,000[1]
1,676 (84%)	642 (32%)	358 (18%)	610 (30%)	563 (28%)	164 (8%)

[1]N (%)
First-line treatment is defined as treatment that is started within 90 days of diagnosis and before disease progression or recurrence.

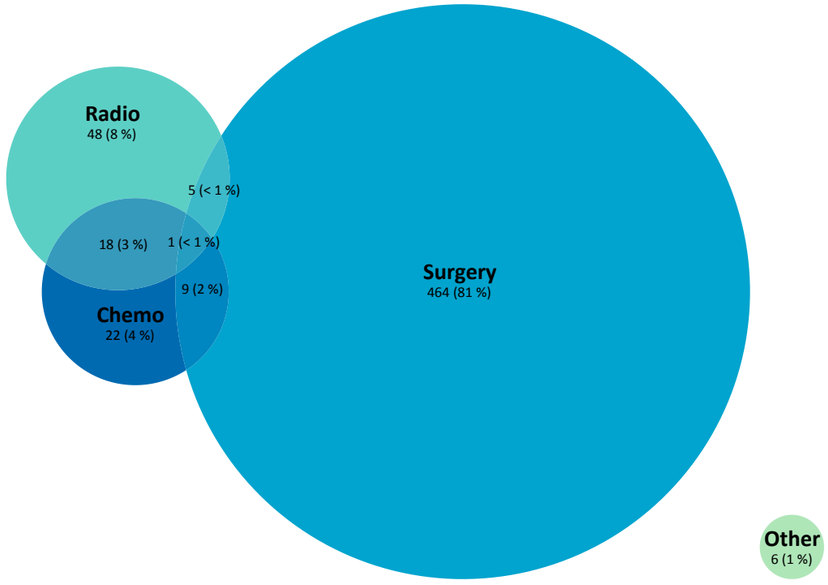
7.2.3 Reason for not receiving treatment

CHARACTERISTIC	N = 324[1]
Clinical advice	90 (28%)
Deceased before starting treatment	32 (10%)
Not reported	72 (22%)
Observation	88 (27%)
Patient declined	38 (12%)

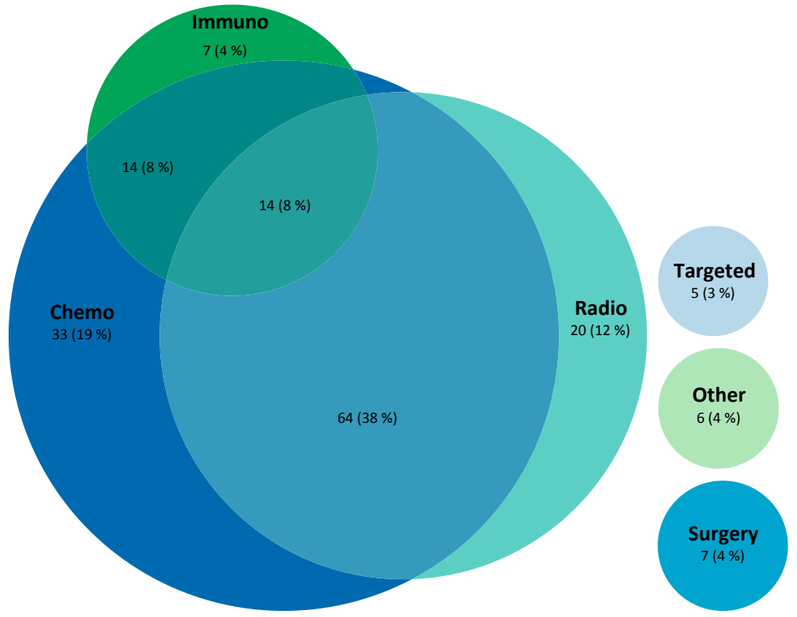
[1]N (%)

7.3 Treatment combinations by stage

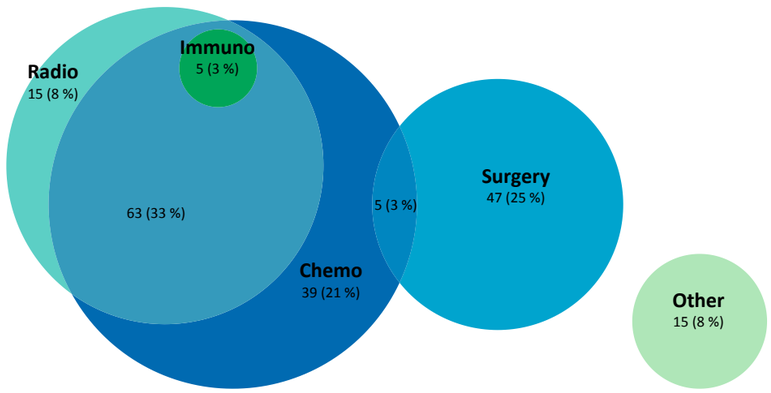
Stage I/II



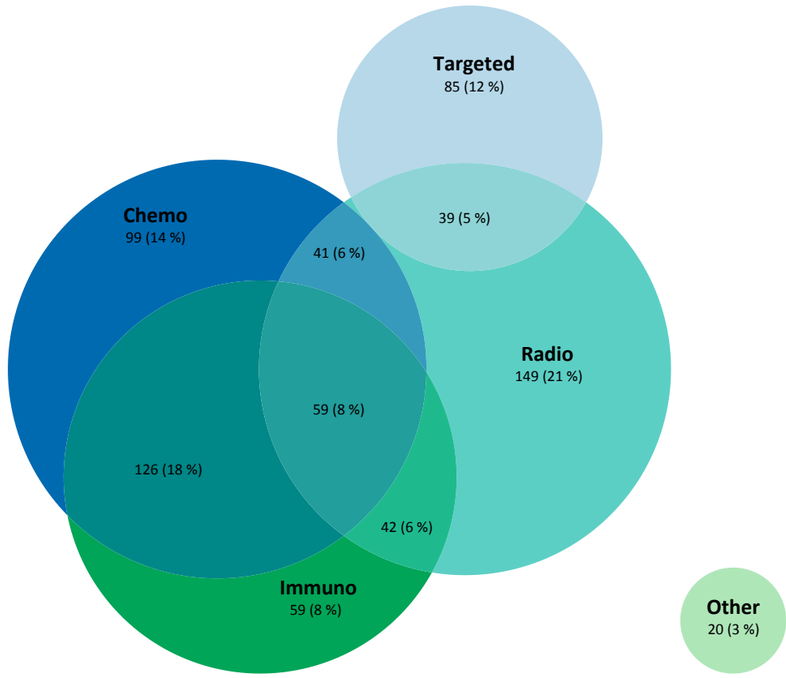
Stage III B/C



Stage IIIA



Stage IV



7.4 Surgery

CHARACTERISTIC	N = 563[1]
Stage	
1/2	481 (85%)
3a	57 (10%)
3b/c	8 (1%)
4	9 (2%)
Indeterminate	6 (1%)
Unknown	2 (<1%)
Age	
<60	90 (16%)
60-69	192 (34%)
70-79	212 (38%)
80+	69 (12%)
Number of resections	
1	534 (95%)
2	29 (5%)
Length of hospital stay[2]	6 (4, 9)
Surgical Technique	
Open surgery	204 (36%)
Robotic surgery	81 (14%)
Thorascopic surgery	257 (46%)
Unknown	21
Type of surgery	
Bilobectomy	4 (1%)
Lobectomy	421 (75%)
Other	29 (5%)
Pneumectomy	11 (2%)
Segmentectomy	22 (4%)
Wedge resection	76 (13%)

[1]N (%)
[2]Median (IQR)

7.4.1 Surgical complications

CHARACTERISTIC	N = 592[1]
Intra-operative complications	31 (6%)
Post-operative complications (<30 days)[a]	119 (21%)
Post-op complication grade (Clavien Dindo)	
Grade III Requiring surgical, endoscopic or radiological intervention	14 (12%)
Grade IIIa Intervention not under general anesthesia	71 (60%)
Grade IIIb Intervention under general anesthesia	8 (7%)
Grade IVa Single organ dysfunction	1 (1%)
Grade V Death of patient	3 (3%)
Unknown	22 (18%)

[1]N (%)
[a]requiring prolonged hospital stay or readmission

7.4.2 Complications by surgical technique

CHARACTERISTIC	OPEN N = 204[1]	ROBOTIC N = 81[1]	THORASCOPIC N = 257[1]	OVERALL N = 542[1]
CVS event (intra-op)	0 (0%)	0 (0%)	1 (<1%)	1 (<1%)
Other intra-op complications	12 (6%)	5 (6%)	14 (5%)	31 (6%)
Infection	13 (6%)	3 (4%)	12 (5%)	28 (5%)
Prolonged air leak (PAL)>7 days	14 (7%)	5 (6%)	11 (4%)	30 (6%)
Acute respiratory failure	2 (1%)	0 (0%)	1 (<1%)	3 (1%)
Other respiratory complications	15 (7%)	7 (9%)	23 (9%)	45 (8%)
Arrhythmias	3 (2%)	3 (4%)	7 (3%)	13 (2%)
Myocardial infarction	1 (1%)	0 (0%)	0 (0%)	1 (<1%)
Deep vein thrombosis or pulmonary embolus	1 (1%)	0 (0%)	0 (0%)	1 (<1%)
Other cardiovascular complications	2 (1%)	0 (0%)	1 (<1%)	3 (1%)
Other post-op complications	13 (6%)	4 (5%)	12 (5%)	29 (5%)

[1]N (%)

7.5 Chemotherapy

CHARACTERISTIC	N = 642[1]
Age	
<60	130 (20%)
60-69	225 (35%)
70-79	236 (37%)
80+	51 (8%)
Stage	
1/2	51 (8%)
3a	116 (18%)
3b/c	129 (20%)
4	343 (53%)
Indeterminate	3 (1%)
Histology	
NSCLC	466 (73%)
SCLC	167 (26%)
Undefined/no pathology	9 (1%)
Intent	
Curative/radical	246 (38%)
Maintenance	2 (<1%)
Not reported	13 (2%)
Palliative	381 (59%)
Chemo Regimen	
Doublet therapy	635 (99%)
Single agent therapy	4 (<1%)
Triplet therapy	3 (<1%)
Chemotherapy delivered as planned	331 (52%)
Reason chemotherapy not delivered as planned	
Completed, dose reduction	71 (23%)
Not completed - AE/toxicity associated with treatment	70 (23%)
Not completed, disease progression / deceased	92 (30%)
Not completed, other reason	66 (21%)
Not completed, patient choice	12 (4%)
Drugs	
Platinum-based, Etoposide (VP-16)	213 (33%)
Platinum-based, Gemcitabine (Gemzar)	111 (17%)
Platinum-based, Paclitaxel (Taxol)	128 (20%)
Platinum-based, Pemetrexed (Alimta)	159 (25%)
Other	30 (5%)

[1]N (%)

7.6 Targeted Therapy

CHARACTERISTIC	N = 164[1]
Age	
<60	52 (32%)
60-69	45 (27%)
70-79	47 (29%)
80+	20 (12%)
Stage	
1/2	3 (2%)
3a	4 (2%)
3b/c	10 (6%)
4	147 (90%)
Histology	
NSCLC	163 (99%)
SCLC	1 (1%)
Drug names	
Alectinib (Alcensa, ALK inhibitor)	18 (11%)
Erlotinib (Tarceva, TKI)	54 (33%)
Osimertinib (Tagrisso, TKI)	49 (30%)
Other	43 (26%)
Intent	
Curative/radical	2 (1%)
Not reported	6 (4%)
Palliative	156 (95%)
Targeted therapy delivered as planned	9 (5%)
Reason targeted therapy not delivered as planned	
Completed, dose reduction	11 (8%)
Not completed - AE/toxicity associated with treatment	21 (15%)
Not completed, disease progression / deceased	66 (46%)
Not completed, other reason	45 (31%)
Not completed, patient choice	1 (1%)

[1]N (%)

7.7 Immunotherapy

CHARACTERISTIC	N = 358[1]
Age	
<60	56 (16%)
60-69	140 (39%)
70-79	130 (36%)
80+	32 (9%)
Stage	
1/2	2 (1%)
3a	13 (4%)
3b/c	40 (11%)
4	302 (84%)
Indeterminate	1 (<1%)
Histology	
NSCLC	285 (80%)
SCLC	63 (18%)
Undefined / no pathology	10 (3%)
Intent	
Curative/radical	7 (2%)
Maintenance	21 (6%)
Not reported	5 (1%)
Palliative	325 (91%)
Drugs	
Atezolizumab (Tecentriq, PD-L1 mAb)	64 (18%)
Pembrolizumab (Keytruda, PD-1 mAb)	239 (67%)
Other	54 (25%)
Immunotherapy delivered as planned	38 (11%)
Reasons immunotherapy not delivered as planned	
Not completed - AE/toxicity associated with treatment	53 (17%)
Not completed, disease progression / deceased	165 (54%)
Not completed, other reason	80 (26%)
Not completed, patient choice	10 (3%)

[1]N (%)

7.8 Radiotherapy

CHARACTERISTIC	N = 610[1]
Age	
<60	127 (21%)
60-69	195 (32%)
70-80	197 (32%)
80+	91 (15%)
Stage	
1/2	73 (12%)
3a	88 (14%)
3b/c	108 (18%)
4	337 (55%)
Indeterminate	4 (1%)
Histology	
NSCLC	504 (83%)
SCLC	74 (12%)
No pathology	32 (5%)
Intent	
Curative/radical	238 (39%)
Not reported	3 (1%)
Palliative	367 (60%)
Prophylactic	2 (<1%)
RT site	
Any metastatic site except brain	148 (24%)
Brain	104 (17%)
Primary lung tumour including thorax	358 (59%)
Radiotherapy delivered as planned	536 (88%)
Reasons radiotherapy not delivered as planned	
Completed, dose reduction/increase	42 (58%)
Not completed - AE/toxicity associated with treatment	4 (6%)
Not completed, disease progression / deceased	10 (14%)
Not completed, other reason	10 (14%)
Not completed, patient choice	7 (10%)

[1]N (%); Median (IQR)

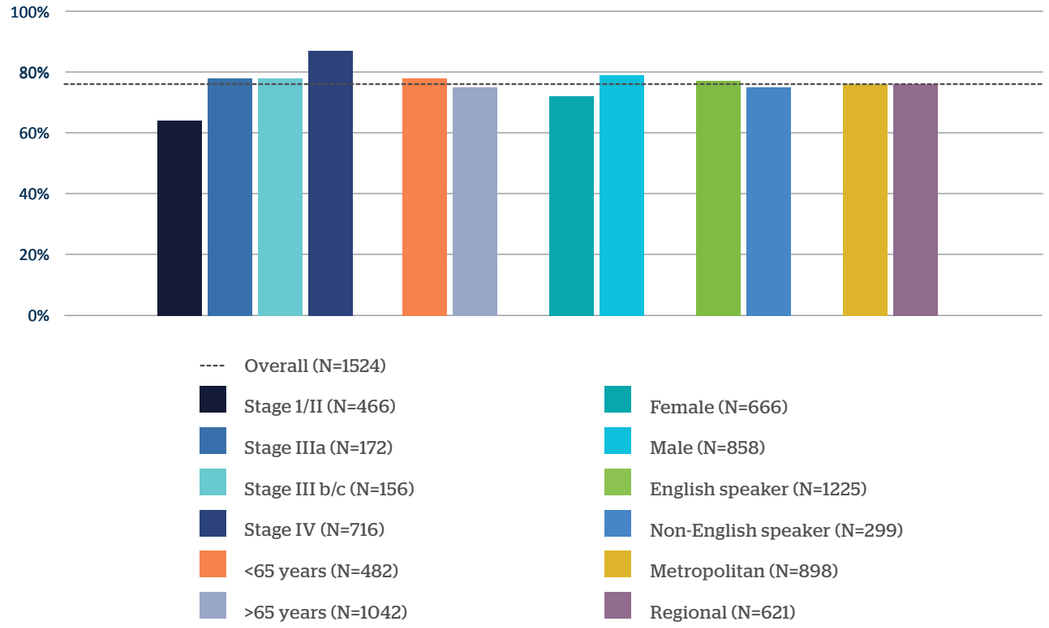
8. Quality Indicators

How do patterns of care vary according to specific disease characteristics, institutional factors (e.g., metropolitan vs. regional location), and patient factors (e.g., age, ethnicity, CALD background, socio-economic status)?

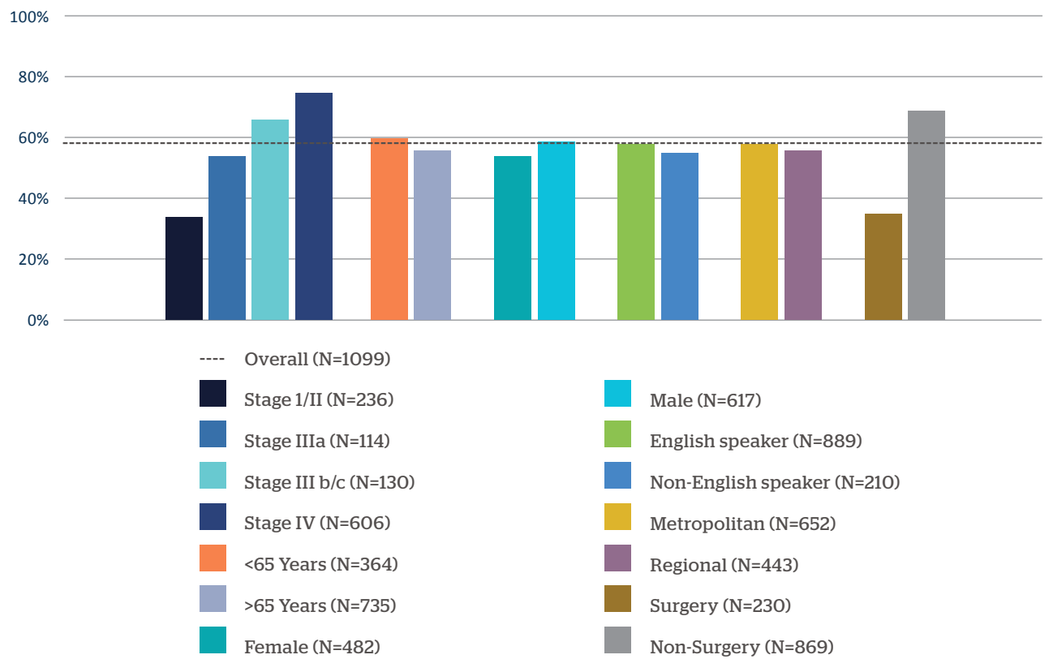
See Appendix V for additional quality indicator data.

Diagnostic Quality Indicators

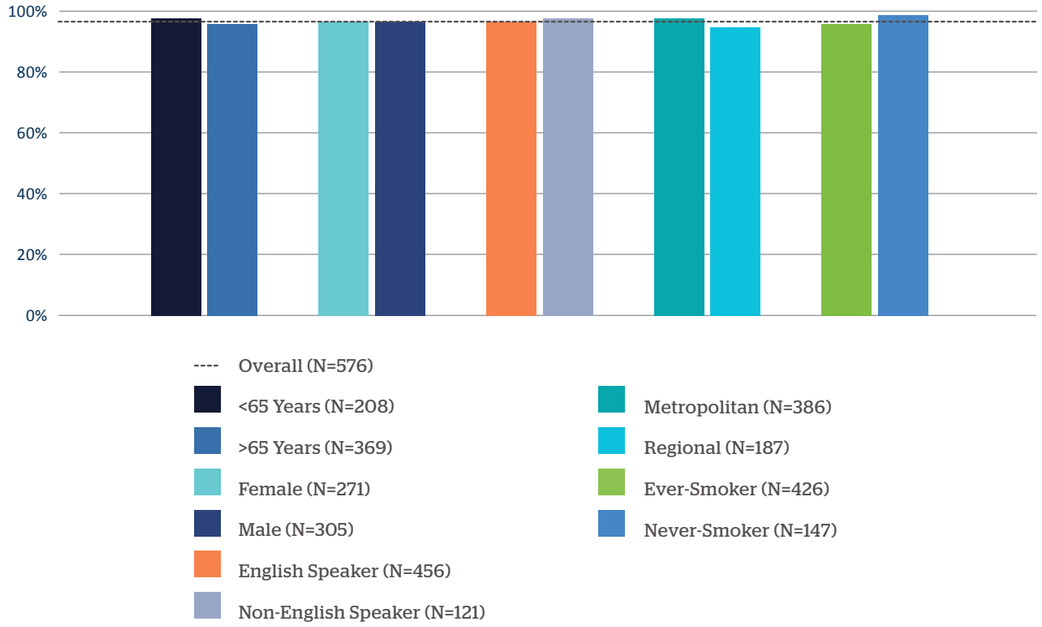
Proportion diagnosed within 28 days of first presentation



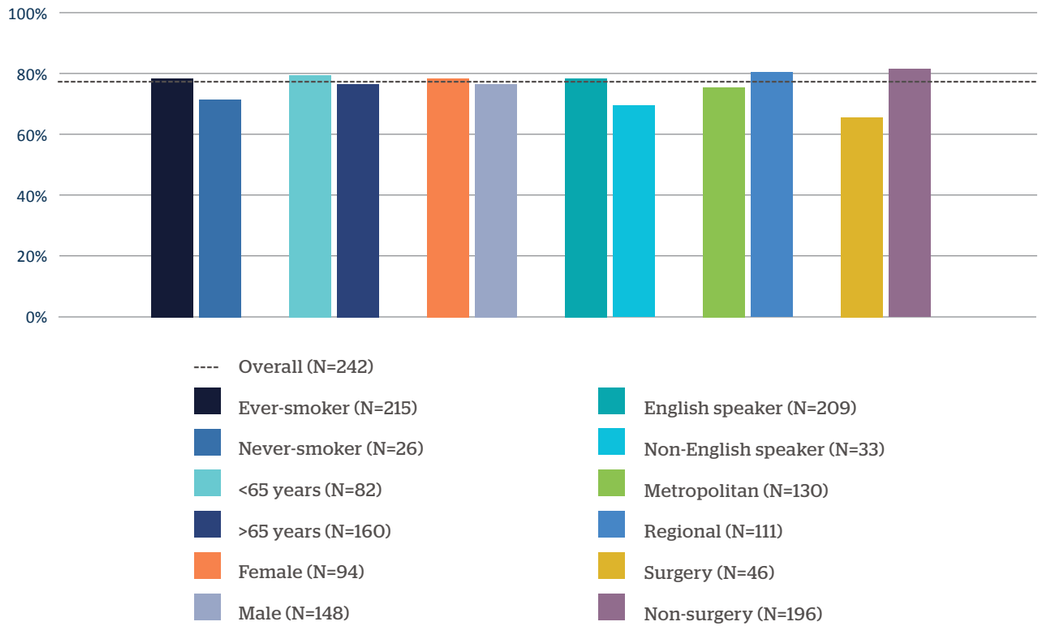
Proportion with pathological diagnosis within 28 days of first presentation



Proportion with molecular testing (Stage IV NCSLC, excl. squamous cell)

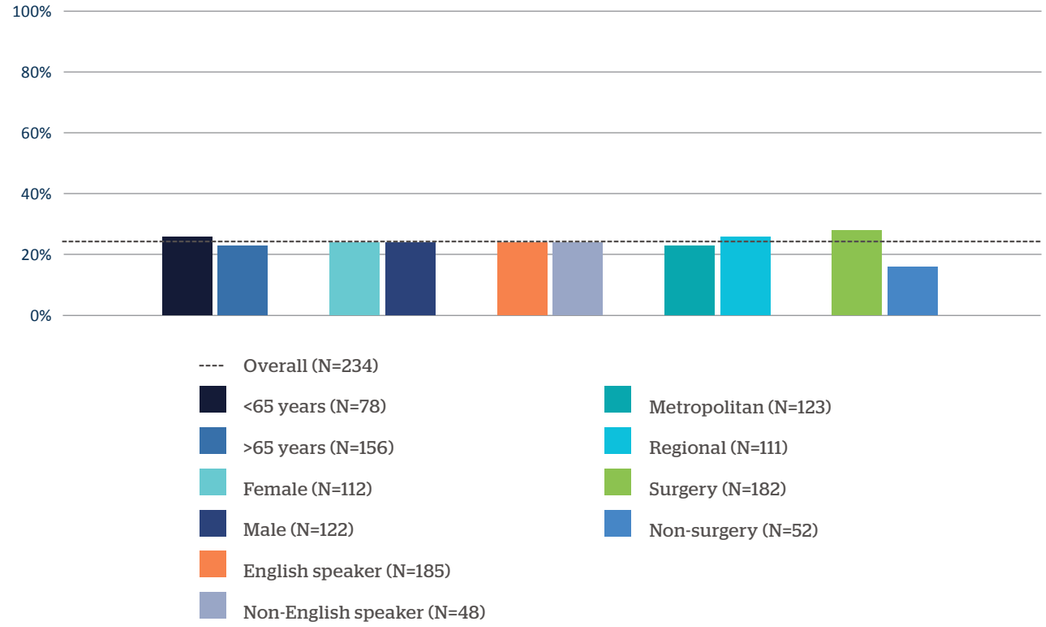


Proportion of Stage III patients reviewed by MDT prior to potentially curative treatment

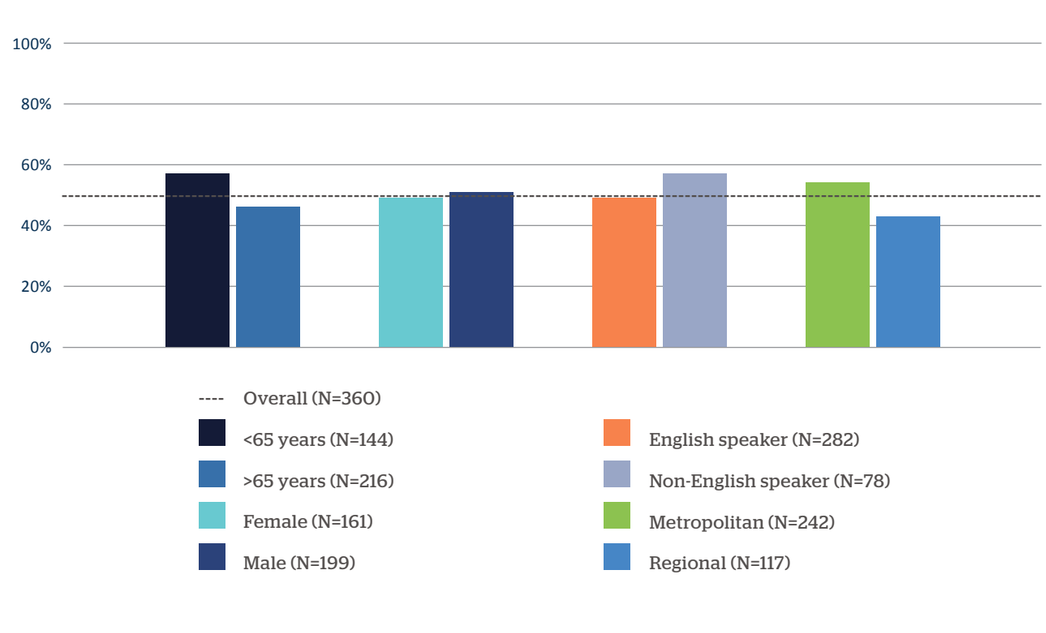


Treatment quality indicators

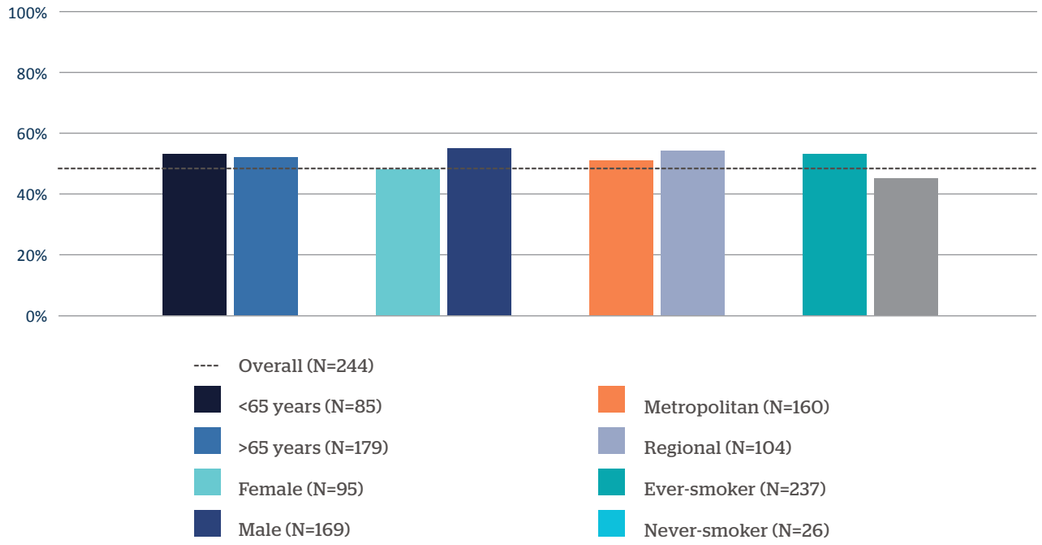
Proportion of Stage I-III patients initiating curative treatment within 28 days of diagnosis



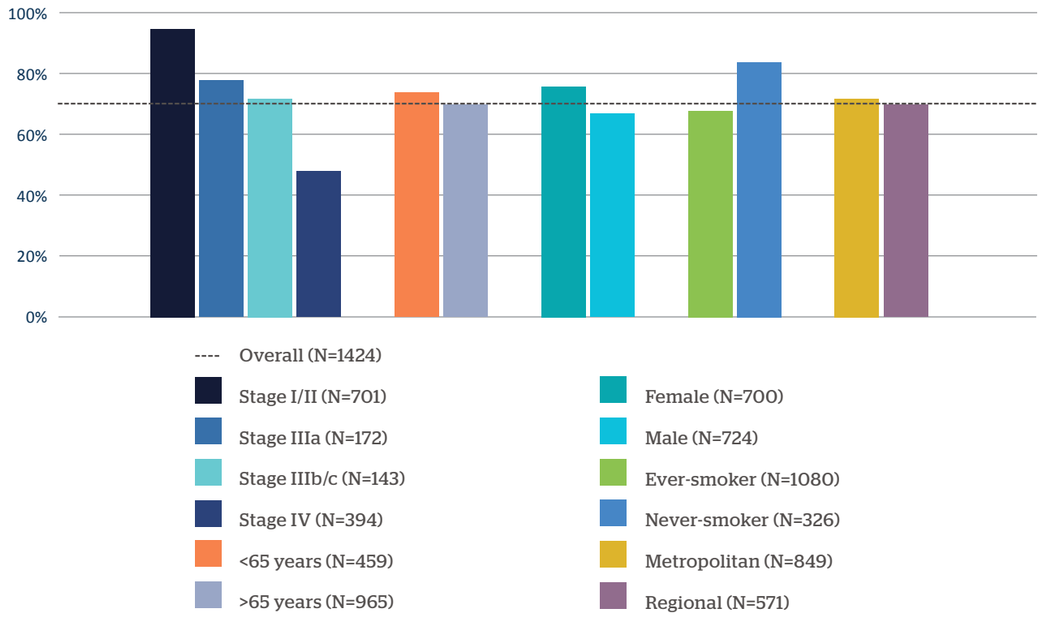
Proportion intiating systemic treatment within 28 days of diagnosis (Stage IV)



Proportion referred to palliative care within 8 weeks of diagnosis (Stage IV excl. mutations)



One year survival



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Appendices

Appendix I

Summary of all univariate models - NSCLC Overall Survival (OS)

CHARACTERISTIC	N = 1,719[1]	MEDIAN YEARS (95% CI)	1 YEAR (95% CI)	HR[2]	95% CI[2]	P-VALUE
Mutation						<0.001
No mutation	1,380 (80%)	2.9 (2.5, 3.4)	70% (68%, 73%)	1.00	—	
ALK	22 (1%)	— (—, —)	86% (73%, 100%)	0.42	0.17, 1.02	
EGFR	270 (16%)	3.9 (3.3, —)	88% (84%, 92%)	0.60	0.48, 0.76	
Other	47 (3%)	2.3 (1.4, —)	80% (69%, 93%)	0.98	0.62, 1.55	
Stage						<0.001
1	517 (30%)	— (—, —)	98% (96%, 99%)	1.00	—	
2	151 (9%)	— (3.6, —)	91% (86%, 96%)	2.33	1.58, 3.43	
3	352 (21%)	2.7 (2.3, 3.7)	75% (71%, 80%)	4.70	3.52, 6.29	
4	679 (40%)	0.99 (0.87, 1.2)	50% (46%, 54%)	10.1	7.77, 13.2	
Histological Grade					<0.001	
Not recorded	760 (44%)	2.1 (1.8, 2.5)	66% (63%, 70%)	1.00	—	
Recorded	959 (56%)	— (4.0, —)	79% (76%, 82%)	0.58	0.50, 0.67	
Grade[#]						<0.001
1	111 (12%)	— (—, —)	95% (90%, 99%)	1.00	—	
2	367 (38%)	— (—, —)	84% (80%, 87%)	2.95	1.66, 5.24	
3	470 (49%)	3.0 (2.3, 4.0)	72% (68%, 76%)	4.97	2.84, 8.70	
4	11 (1%)	3.0 (1.8, —)	82% (62%, 100%)	4.09	1.46, 11.5	
Sex						<0.001
Female	795 (46%)	4.0 (3.3, —)	79% (76%, 82%)	1.00	—	
Male	924 (54%)	2.7 (2.4, 3.3)	69% (66%, 72%)	1.38	1.19, 1.60	
Age						0.002
<60	288 (17%)	3.4 (2.4, —)	79% (74%, 84%)	1.00	—	
60-69	550 (32%)	3.6 (3.2, —)	74% (70%, 78%)	1.05	0.84, 1.32	
70-79	634 (37%)	3.2 (2.7, —)	74% (70%, 77%)	1.09	0.88, 1.35	
80+	247 (14%)	1.9 (1.5, 2.6)	66% (60%, 72%)	1.57	1.22, 2.01	
ECOG						<0.001
0	954 (56%)	— (4.8, —)	86% (83%, 88%)	1.00	—	
1	532 (31%)	2.0 (1.6, 2.5)	65% (61%, 69%)	2.25	1.91, 2.66	
2	143 (8%)	0.93 (0.56, 1.5)	48% (40%, 57%)	3.86	3.07, 4.86	
3+4	70 (4%)	0.27 (0.21, 0.63)	22% (14%, 35%)	8.30	6.28, 11.0	
Language						<0.001
English speaker	1,363 (79%)	2.8 (2.5, 3.3)	72% (69%, 74%)	1.00	—	
Non-English speaker[3]	355 (21%)	— (4.1, —)	80% (76%, 84%)	0.68	0.56, 0.82	
Unknown	1					
Location of residence						0.6
Metropolitan	1,035 (60%)	3.1 (2.7, 3.5)	73% (70%, 76%)	1.00	—	
Regional	678 (40%)	3.5 (2.7, —)	74% (71%, 78%)	0.96	0.83, 1.11	
Unknown	6					

CHARACTERISTIC	N = 1,719[1]	MEDIAN YEARS (95% CI)	1 YEAR (95% CI)	HR[2]	95% CI[2]	P-VALUE
Location of hospital						<0.001
Metropolitan	1,360 (79%)	3.9 (3.4, —)	77% (75%, 79%)	1.00	—	
Regional	359 (21%)	1.5 (1.2, 1.7)	60% (55%, 65%)	2.13	1.81, 2.50	
Smoking history						<0.001
Never smoker	363 (21%)	— (—, —)	86% (83%, 90%)	1.00	—	
Ever smoker	1,335 (78%)	2.6 (2.3, 3.2)	70% (67%, 72%)	1.90	1.54, 2.34	
Unknown	21 (1%)					
Creatinine clearance						0.006
90+	760 (55%)	3.2 (2.7, 3.6)	74% (70%, 77%)	1.00	—	
60-90	466 (34%)	3.8 (2.4, —)	74% (70%, 78%)	0.99	0.83, 1.18	
<60	160 (12%)	1.9 (1.5, 2.7)	64% (57%, 72%)	1.46	1.16, 1.84	
Unknown	333					
Simplified Comorbidity Score						<0.001
0-7	468 (29%)	— (3.9, —)	82% (78%, 85%)	1.00	—	
8-9	489 (30%)	3.4 (2.8, —)	71% (67%, 76%)	1.34	1.09, 1.66	
10-12	300 (18%)	2.3 (1.6, 2.9)	66% (61%, 71%)	1.71	1.37, 2.14	
13+	380 (23%)	2.1 (1.8, 2.7)	67% (63%, 72%)	1.82	1.48, 2.25	
Unknown	82					

[1]N (%)
[2]HR = Hazard Ratio, CI = Confidence Interval
[3]Translator required
[#]1 = well-differentiated, 2 = moderately differentiated, 3 = poorly differentiated, 4 = undifferentiated

Other baseline bloods – NSCLC OS

CHARACTERISTIC	HR[1]	95% CI[1]	P-VALUE
Bilirubin (Normal High <=21) in umol/L			
value	1.00	0.98, 1.01	0.7
ALP (RR:30-110) in U/L			
value	1.00	1.00, 1.00	<0.001
Gamma GT (Normal High <=60) in U/L			
value	1.00	1.00, 1.00	<0.001
Haemoglobin (RR:130-170) in g/L			
value	0.98	0.98, 0.99	<0.001
Platelet count (RR:150-450 x 10^9/L)			
value	1.00	1.00, 1.00	<0.001
Absolute neutrophil count (ANC, RR:2.5-7.5 x 10^9/L)			
value	1.05	1.04, 1.06	<0.001
Neutrophil to lymphocyte ratio (NLR)			
value	1.06	1.05, 1.07	<0.001

[1]HR = Hazard Ratio, CI = Confidence Interval

Appendix II

Summary of all univariate models – NSCLC Progression Free Survival (PFS)

CHARACTERISTIC	N = 1,719[1]	MEDIAN YEARS (95% CI)	1 YEAR (95% CI)	HR[2]	95% CI[2]	P-VALUE
Mutation						0.2
No mutation	1,380 (80%)	1.2 (1.0, 1.3)	53% (51%, 56%)	1.00	—	
ALK	22 (1%)	1.2 (0.73, —)	58% (41%, 83%)	0.97	0.56, 1.67	
EGFR	270 (16%)	1.5 (1.2, 2.2)	64% (58%, 70%)	0.85	0.71, 1.01	
Other	47 (3%)	0.73 (0.43, —)	49% (36%, 65%)	1.17	0.80, 1.71	
Stage						<0.001
1	517 (30%)	— (—, —)	92% (90%, 94%)	1.00	—	
2	151 (9%)	2.8 (2.3, —)	76% (70%, 84%)	2.01	1.49, 2.70	
3	352 (21%)	1.2 (0.94, 1.3)	54% (49%, 60%)	4.20	3.37, 5.23	
4	679 (40%)	0.35 (0.30, 0.39)	21% (18%, 25%)	10.3	8.41, 12.5	
Histological Grade					**<0.001**	
Not recorded	760 (44%)	0.77 (0.67, 0.94)	45% (41%, 48%)	1.00	—	
Recorded	959 (56%)	1.9 (1.5, 2.2)	63% (60%, 66%)	0.59	0.52, 0.67	
Grade[#]						<0.001
1	111 (12%)	— (—, —)	84% (78%, 91%)	1.00	—	
2	367 (38%)	2.5 (2.0, 3.4)	71% (66%, 76%)	2.47	1.68, 3.64	
3	470 (49%)	0.96 (0.76, 1.2)	50% (45%, 55%)	4.25	2.92, 6.19	
4	11 (1%)	2.0 (0.29, —)	67% (42%, 100%)	2.94	1.14, 7.57	
Sex						<0.001
Female	795 (46%)	1.6 (1.3, 2.0)	59% (56%, 63%)	1.00	—	
Male	924 (54%)	1.0 (0.88, 1.2)	51% (48%, 54%)	1.28	1.13, 1.45	
Age						0.3
<60	288 (17%)	1.1 (0.86, 1.5)	52% (47%, 59%)	1.00	—	
60-69	550 (32%)	1.3 (1.2, 1.9)	57% (53%, 61%)	0.90	0.75, 1.08	
70-79	634 (37%)	1.3 (1.1, 1.6)	56% (52%, 60%)	0.93	0.78, 1.11	
80+	247 (14%)	0.99 (0.83, 1.4)	50% (44%, 56%)	1.08	0.87, 1.34	
ECOG						<0.001
0	954 (56%)	2.4 (2.0, 2.8)	69% (66%, 72%)	1.00	—	
1	532 (31%)	0.74 (0.64, 0.90)	42% (38%, 47%)	2.01	1.75, 2.31	
2	143 (8.4%)	0.39 (0.29, 0.51)	25% (19%, 33%)	3.26	2.67, 3.98	
3+4	70 (4.1%)	0.21 (0.15, 0.39)	14% (7.6%, 25%)	5.10	3.92, 6.63	
Language						<0.001
English speaker	1,363 (79%)	1.1 (1.0, 1.3)	53% (50%, 56%)	1.00	—	
Non-English speaker[3]	355 (21%)	1.9 (1.3, 2.8)	62% (57%, 68%)	0.76	0.65, 0.90	
Unknown	1					
Location of residence						0.032
Metropolitan	1,035 (60%)	1.2 (1.0, 1.3)	53% (50%, 56%)	1.00	—	
Regional	678 (40%)	1.4 (1.2, 1.9)	57% (54%, 61%)	0.87	0.77, 0.99	
Unknown	6					

CHARACTERISTIC	N = 1,719[1]	MEDIAN YEARS (95% CI)	1 YEAR (95% CI)	HR[2]	95% CI[2]	P-VALUE
Location of hospital						<0.001
Metropolitan	1,360 (79%)	1.7 (1.4, 2.0)	60% (58%, 63%)	1.00	—	
Regional	359 (21%)	0.54 (0.45, 0.65)	33% (29%, 39%)	2.15	1.87, 2.47	
Smoking history						<0.001
Never smoker	363 (21%)	2.5 (2.0, —)	68% (64%, 74%)	1.00	—	
Ever smoker	1,335 (78%)	1.0 (0.93, 1.2)	51% (48%, 54%)	1.64	1.39, 1.94	
Not reported	21 (1.2%)					
Creatinine clearance						0.001
90+	760 (55%)	1.2 (1.0, 1.3)	54% (50%, 57%)	1.00	—	
60-90	466 (34%)	1.2 (0.93, 1.5)	53% (49%, 58%)	0.90	0.77, 1.04	
<60	160 (12%)	0.67 (0.45, 0.93)	40% (33%, 49%)	1.36	1.11, 1.66	
Unknown	333					
Simplified Comorbidity Score						<0.001
0-7	468 (29%)	1.9 (1.4, 2.4)	62% (58%, 67%)	1.00	—	
8-9	489 (30%)	1.2 (0.96, 1.6)	53% (49%, 58%)	1.19	1.00, 1.41	
10-12	300 (18%)	0.76 (0.60, 1.1)	46% (41%, 52%)	1.57	1.30, 1.88	
13+	380 (23%)	1.0 (0.84, 1.2)	50% (45%, 56%)	1.46	1.23, 1.74	
Unknown	82					

[1]N (%)
[2]HR = Hazard Ratio, CI = Confidence Interval
[3]Translator required
[#]1 = well-differentiated, 2 = moderately differentiated, 3 = poorly differentiated, 4 = undifferentiated

Other baseline bloods – NSCLC PFS

CHARACTERISTIC	HR[1]	95% CI[1]	P-VALUE
Bilirubin (Normal High <=21) in umol/L			
value	0.99	0.98, 1.01	0.3
ALP (RR:30-110) in U/L			
value	1.00	1.00, 1.00	<0.001
Gamma GT (Normal High <=60) in U/L			
value	1.00	1.00, 1.00	<0.001
Haemoglobin (RR:130-170) in g/L			
value	0.98	0.98, 0.99	<0.001
Platelet count (RR:150-450 x 10^9/L)			
value	1.00	1.00, 1.00	<0.001
Absolute neutrophil count (ANC, RR:2.5-7.5 x 10^9/L)			
value	1.05	1.05, 1.06	<0.001
Neutrophil to lymphocyte ratio (NLR)			
value	1.05	1.05, 1.06	<0.001

[1]HR = Hazard Ratio, CI = Confidence Interval

Appendix III

Summary of all univariate models – SCLC Overall Survival (OS)

CHARACTERISTIC	N = 203[1]	MEDIAN YEARS (95% CI)	1 YEAR (95% CI)	HR[2]	95% CI[2]	P-VALUE
Stage						<0.001
Limited	69 (34%)	2.2 (1.5, —)	75% (65%, 87%)	1.00	—	
Extensive	134 (66%)	0.76 (0.66, 0.99)	38% (31%, 48%)	3.21	2.15, 4.81	
Sex						0.7
Female	90 (44%)	1.0 (0.91, 1.3)	52% (43%, 64%)	1.00	—	
Male	116 (56%)	1.0 (0.76, 1.3)	50% (42%, 61%)	1.08	0.78, 1.50	
Age						0.089
<60	35 (17%)	0.93 (0.77, 2.3)	47% (32%, 67%)	1.00	—	
60-69	64 (31%)	1.3 (1.0, 1.8)	61% (50%, 74%)	0.85	0.52, 1.40	
70-79	79 (38%)	1.0 (0.65, 1.3)	51% (40%, 63%)	1.28	0.79, 2.05	
80+	28 (14%)	0.74 (0.34, 1.1)	38% (23%, 61%)	1.53	0.87, 2.70	
ECOG						<0.001
0	75 (37%)	1.5 (1.1, 3.2)	64% (54%, 76%)	1.00	—	
1	89 (43%)	1.1 (0.98, 1.3)	57% (47%, 69%)	1.70	1.15, 2.52	
2	31 (15%)	0.50 (0.31, 0.68)	19% (9%, 40%)	3.92	2.42, 6.37	
3+4	10 (5%)	0.12 (0.07, —)	— (—, —)	22.4	10.5, 47.8	
Language						0.2
English speaker	176 (85%)	1.0 (0.87, 1.2)	50% (43%, 59%)	1.00	—	
Non-English speaker[3]	30 (15%)	1.1 (0.70, —)	55% (40%, 77%)	0.75	0.46, 1.23	
Location of residence						0.7
Metropolitan	98 (48%)	1.1 (0.88, 1.3)	54% (45%, 65%)	1.00	—	
Regional	108 (52%)	0.98 (0.76, 1.5)	48% (39%, 59%)	1.08	0.78, 1.49	
Location of hospital						0.061
Metropolitan	112 (54%)	1.1 (0.98, 1.4)	56% (47%, 66%)	1.00	—	
Regional	94 (46%)	0.93 (0.70, 1.3)	45% (36%, 57%)	1.37	0.99, 1.92	
Smoking						0.6
Never smoker	16 (8%)	0.85 (0.55, —)	43% (24%, 76%)	1.00	—	
Ever smoker	190 (92%)	1.0 (0.88, 1.3)	52% (45%, 60%)	0.85	0.46, 1.57	
Creatinine clearance						0.004
90+	114 (59%)	1.3 (1.1, 1.7)	60% (52%, 70%)	1.00	—	
60-90	55 (28%)	0.88 (0.67, 1.3)	44% (32%, 60%)	1.28	0.87, 1.90	
<60	24 (12%)	0.60 (0.33, 1.0)	30% (16%, 57%)	2.39	1.48, 3.86	
Unknown	13					

CHARACTERISTIC	N = 1,719[1]	MEDIAN YEARS (95% CI)	1 YEAR (95% CI)	HR[2]	95% CI[2]	P-VALUE
Simplified Comorbidity Score						>0.9
0-7	34 (17%)	0.99 (0.76, —)	44% (30%, 66%)	1.00	—	
8-9	74 (36%)	1.1 (0.88, 1.5)	56% (46%, 69%)	1.15	0.70, 1.91	
10-12	41 (20%)	0.99 (0.74, 1.3)	49% (35%, 68%)	1.19	0.67, 2.10	
13+	55 (27%)	0.89 (0.61, 2.0)	48% (36%, 63%)	1.20	0.70, 2.03	
Unknown	2					

[1]N (%)
[2]HR = Hazard Ratio, CI = Confidence Interval
[3]Translator required

Other baseline bloods – SCLC OS

CHARACTERISTIC	HR[1]	95% CI[1]	P-VALUE
Bilirubin (Normal High <=21) in umol/L			
value	1.02	1.01, 1.04	0.004
ALP (RR:30-110) in U/L			
value	1.00	1.00, 1.00	0.002
Gamma GT (Normal High <=60) in U/L			
value	1.00	1.00, 1.00	0.001
Haemoglobin (RR:130-170) in g/L			
value	0.99	0.98, 1.00	0.021
Platelet count (RR:150-450 x 10^9/L)			
value	1.00	1.00, 1.00	0.6
Absolute neutrophil count (ANC, RR:2.5-7.5 x 10^9/L)			
value	1.11	1.06, 1.17	<0.001
Neutrophil to lymphocyte ratio (NLR)			
value	1.08	1.05, 1.12	<0.001

[1]HR = Hazard Ratio, CI = Confidence Interval

Appendix IV

Summary of all univariate models – SCLC Progression Free Survival (PFS)

CHARACTERISTIC	N = 203[1]	MEDIAN YEARS (95% CI)	1 YEAR (95% CI)	HR[2]	95% CI[2]	P-VALUE
Stage						<0.001
Limited	69 (34%)	1.0 (0.78, 2.0)	51% (40%, 65%)	1.00	—	
Extensive	134 (66%)	0.40 (0.34, 0.46)	7% (4%, 14%)	3.77	2.63, 5.41	
Sex						0.11
Female	90 (44%)	0.58 (0.45, 0.78)	29% (21%, 40%)	1.00	—	
Male	116 (56%)	0.50 (0.44, 0.60)	17% (11%, 26%)	1.28	0.94, 1.74	
Age						0.8
<60	35 (17%)	0.58 (0.41, 0.89)	20% (10%, 40%)	1.00	—	
60-69	64 (31%)	0.54 (0.46, 0.67)	23% (15%, 37%)	1.02	0.64, 1.61	
70-79	79 (38%)	0.53 (0.40, 0.65)	24% (16%, 36%)	1.14	0.73, 1.77	
80+	28 (14%)	0.48 (0.33, 0.75)	19% (9%, 42%)	1.25	0.73, 2.14	
ECOG						<0.001
0	75 (37%)	0.66 (0.57, 0.88)	34% (24%, 46%)	1.00	—	
1	89 (43%)	0.56 (0.48, 0.67)	20% (13%, 31%)	1.51	1.06, 2.15	
2	31 (15%)	0.39 (0.17, 0.49)	10% (3%, 28%)	2.65	1.69, 4.17	
3+4	10 (5%)	0.08 (0.03, —)	— (—, —)	7.82	3.89, 15.7	
Language						0.8
English speaker	176 (85%)	0.53 (0.46, 0.61)	23% (17%, 30%)	1.00	—	
Non-English speaker[3]	30 (15%)	0.60 (0.30, 0.75)	21% (10%, 43%)	1.06	0.69, 1.62	
Location of residence						0.8
Metropolitan	98 (48%)	0.57 (0.42, 0.67)	22% (15%, 33%)	1.00	—	
Regional	108 (52%)	0.53 (0.45, 0.61)	23% (16%, 32%)	1.04	0.77, 1.41	
Location of hospital					0.2	
Metropolitan	112 (54%)	0.59 (0.45, 0.67)	25% (18%, 35%)	1.00	—	
Regional	94 (46%)	0.51 (0.44, 0.59)	20% (13%, 30%)	1.23	0.91, 1.67	
Smoking history						0.5
Never smoker	16 (8%)	0.42 (0.17, —)	25% (11%, 58%)	1.00	—	
Ever smoker	190 (92%)	0.54 (0.47, 0.61)	22% (17%, 29%)	0.83	0.48, 1.44	
Creatinine clearance					0.013	
90+	114 (59%)	0.61 (0.53, 0.74)	27% (19%, 36%)	1.00	—	
60-90	55 (28%)	0.48 (0.39, 0.64)	18% (10%, 32%)	1.39	0.98, 1.98	
<60	24 (12%)	0.42 (0.19, 0.61)	9.5% (3%, 35%)	1.95	1.23, 3.09	
Unknown	13					

CHARACTERISTIC	N = 1,719[1]	MEDIAN YEARS (95% CI)	1 YEAR (95% CI)	HR[2]	95% CI[2]	P-VALUE
Simplified Comorbidity Score						>0.9
0-7	34 (17%)	0.55 (0.42, 0.78)	25% (14%, 46%)	1.00	—	
8-9	74 (36%)	0.50 (0.39, 0.67)	21% (13%, 34%)	1.07	0.68, 1.69	
10-12	41 (20%)	0.55 (0.46, 0.75)	24% (13%, 42%)	1.06	0.64, 1.76	
13+	55 (27%)	0.57 (0.46, 0.68)	22% (13%, 37%)	1.12	0.70, 1.79	
Unknown	2					

[1]N (%)
[2]HR = Hazard Ratio, CI = Confidence Interval
[3]Translator required

Other baseline bloods – SCLC PFS

CHARACTERISTIC	HR[1]	95% CI[1]	P-VALUE
Bilirubin (Normal High <=21) in umol/L			
value	1.02	1.00, 1.03	0.017
ALP (RR:30-110) in U/L			
value	1.00	1.00, 1.00	<0.001
Gamma GT (Normal High <=60) in U/L			
value	1.00	1.00, 1.00	<0.001
Haemoglobin (RR:130-170) in g/L			
value	0.99	0.99, 1.00	0.2
Platelet count (RR:150-450 x 10^9/L)			
value	1.00	1.00, 1.00	0.6
Absolute neutrophil count (ANC, RR:2.5-7.5 x 10^9/L)			
value	1.09	1.04, 1.14	<0.001
Neutrophil to lymphocyte ratio (NLR)			
value	1.09	1.06, 1.13	<0.001

[1]HR = Hazard Ratio, CI = Confidence Interval

Appendix V

EnRICH quality indicator data

AV.1 By stage and sex

Characteristic	Denominator	Overall, N = 2,000[1]	1/2, N = 736[1]	3a, N = 220[1]	3b/c, N = 199[1]	4, N = 827[1]	Indeterminate, N = 14[1]	Missing, N = 4[1]	Female, N = 920[1]	p-value[2]	Male, N = 1,080[1]	p-value[3]
Proportion of patients with clinical diagnosis within 28 days of first presentation.	1,861	1,387 (75%)	422 (62%)	163 (79%)	148 (77%)	649 (84%)	5 (56%)	0 (0%)		599 (70%)	788 (78%)	<0.001
Proportion of patients with pathological diagnosis within 28 days of first presentation.	1,927	1,099 (57%)	236 (34%)	114 (54%)	130 (66%)	606 (75%)	11 (79%)	2 (50%)		482 (54%)	617 (59%)	0.031
Proportion of patients initiating curative treatment within 14 days from diagnosis date (surgery only)	328	61 (19%)	55 (20%)	5 (15%)	0 (0%)	0 (0%)	1 (17%)	0 (0%)	0.9	29 (17%)	32 (20%)	0.5
Proportion of patients initiating curative treatment within 42 days from first presentation	1,020	219 (21%)	119 (17%)	45 (26%)	38 (34%)	12 (36%)	5 (45%)	0 (0%)	<0.001	106 (21%)	113 (22%)	0.9
Proportion with documented clinical stage prior to curative treatment	544	425 (78%)	208 (68%)	115 (87%)	102 (96%)	0 (0%)	0 (0%)	0 (0%)	<0.001	172 (77%)	253 (79%)	0.5
Proportion of patients reviewed by MDT prior to potentially curative treatment (all stages)	1,109	621 (56%)	301 (42%)	140 (76%)	102 (82%)	78 (88%)	0 (0%)	0 (0%)	<0.001	279 (53%)	342 (59%)	0.070
Proportion of patients reviewed by MDT prior to potentially curative treatment (stage III)	310	242 (78%)	-	140 (76%)	102 (82%)	-	-	-	0.3	94 (79%)	148 (77%)	0.8
Proportion of patients with PET/CT available prior to potentially curative treatment (surgery only)	677	663 (98%)	554 (98%)	75 (99%)	17 (100%)	10 (91%)	5 (71%)	2 (100%)	0.014	352 (98%)	311 (98%)	0.4
Proportion of patients who underwent brain imaging pre curative treatment	1,054	918 (87%)	650 (90%)	159 (85%)	102 (78%)	-	6 (50%)	1 (25%)	<0.001	449 (88%)	469 (86%)	0.2
Proportion of patients with NSCLC who have undergone a surgical resection and clinical stage agrees with pathological stage (Coarse staging)	649	508 (78%)	442 (81%)	50 (72%)	12 (80%)	4 (44%)	0 (0%)	0 (NA%)	<0.001	280 (80%)	228 (76%)	0.15
Proportion of patients with NSCLC who had a resection (stage I-IIIA)	813	613 (75%)	542 (85%)	71 (41%)	-	-	0 (NA%)	0 (NA%)	<0.001	323 (83%)	290 (68%)	<0.001

Characteristic	Denominator	Overall, N = 2,000[1]	1/2, N = 736[1]	3a, N = 220[1]	3b/c, N = 199[1]	4, N = 827[1]	Indeterminate, N = 14[1]	Missing, N = 4[1]	Female, N = 920[1]	p-value[2]	Male, N = 1,080[1]	p-value[3]
Proportion of patients with NSCLC undergoing surgery who have adequate sampling of lymph nodes (5 or more nodes)	680	331 (49%)	260 (46%)	49 (68%)	12 (75%)	3 (30%)	5 (56%)	2 (100%)	<0.001	167 (46%)	164 (51%)	0.2
Proportion of surgically resected patients with stage II or III disease who commenced adjuvant chemotherapy within 6 weeks	62	24 (39%)	13 (34%)	11 (55%)	-	-	-	-	0.086	9 (31%)	15 (45%)	0.2
30-day post-operative mortality	706	3 (<1%)	2 (<1%)	0 (0%)	1 (6%)	0 (0%)	0 (0%)	0 (0%)	0.2	2 (1%)	1 (<1%)	>0.9
Proportion of patients with infiltrative stage III (N2,3) NSCLC and PS 0–1, receiving curative-intent platinum-based chemotherapy and radiotherapy	139	74 (53%)	-	31 (53%)	43 (52%)	-	-	-	>0.9	24 (59%)	50 (51%)	0.5
Proportion of active smokers with documented smoking cessation counselling	418	210 (50%)	64 (58%)	40 (69%)	39 (59%)	66 (36%)	1 (100%)	0 (0%)	<0.001	85 (54%)	125 (48%)	0.2
Proportion of patients referred to/enrolled in clinical trials	2,000	130 (7%)	17 (2%)	14 (6%)	14 (7%)	85 (10%)	0 (0%)	0 (0%)		53 (6%)	77 (7%)	0.2
Proportion of Stage I-III patients initiating curative treatment within 28 days of diagnosis date	976	234 (24%)	165 (24%)	40 (24%)	24 (23%)	-	-	-	0.6	112 (24%)	122 (24%)	0.9
Proportion of Stage IV patients initiating systemic treatment within 28 days of diagnosis date	718	360 (50%)	-	-	-	360 (50%)	-	-	>0.9	161 (49%)	199 (51%)	0.7
Proportion of patients with molecular testing (Stage IV, non-squamous NSCLC)	592	576 (97%)	-	-	-	576 (97%)	-	-	>0.9	271 (97%)	305 (97%)	0.8
Proportion of patients with documented referral to Supportive Care services	1,997	960 (48%)	331 (45%)	101 (46%)	86 (43%)	431 (52%)	10 (71%)	1 (25%)		457 (50%)	503 (47%)	0.2
Proportion of Stage IV patients referred to palliative care within 8 weeks of diagnosis (excl. patients with mutations)	506	244 (48%)	-	-	-	244 (48%)	-	-	>0.9	89 (45%)	155 (50%)	0.2
Proportion of patients who die within 30 days of active treatment for lung cancer	1,730	229 (13%)	15 (2%)	20 (10%)	19 (11%)	175 (27%)	0 (0%)	0 (0%)		105 (13%)	124 (14%)	0.6
SV1 - 1 Year Survival	2,000	1,424 (71%)	701 (95%)	172 (78%)	143 (72%)	394 (48%)	11 (79%)	3 (75%)		700 (76%)	724 (67%)	<0.001

[1]N (%)
[2]Fisher's exact test

AV.2 By age group and smoking history

Characteristic	Denominator	Overall, N = 2,000[1]	<65, N = 618[1]	65+, N = 1,382[1]	p- value[2]	Ever smoker, N = 1,591[1]	Never smoker, N = 386[1]	p-value[2]
Proportion of patients with clinical diagnosis within 28 days from first presentation.	1,861	1,387 (75%)	434 (76%)	953 (74%)	0.4	1,120 (75%)	253 (71%)	0.086
Proportion of patients with pathological diagnosis within 28 days from first presentation.	1,927	1,099 (57%)	364 (60%)	735 (56%)	0.078	877 (57%)	211 (56%)	0.5
Proportion of patients initiating curative treatment within 14 days from diagnosis date (surgery only)	328	61 (19%)	23 (21%)	38 (17%)	0.3	42 (18%)	15 (19%)	0.8
Proportion of patients initiating curative treatment within 42 days from first presentation	1,020	219 (21%)	87 (27%)	132 (19%)	0.003	172 (22%)	42 (20%)	0.7
Proportion of patients with documented clinical stage prior to curative treatment	544	425 (78%)	126 76%)	299 (79%)	0.5	358 (80%)	62 (69%)	0.021
Proportion of patients reviewed by MDT prior to potentially curative treatment	1,109	621 (56%)	176 (53%)	445 (57%)	0.3	515 (59%)	98 (47%)	0.002
Proportion of patients reviewed by MDT prior to potentially curative treatment (stage III)	310	242 (78%)	82 (80%)	160 (77%)	0.6	215 (79%)	26 (72%)	0.4
Proportion of patients with PET/CT available prior to potentially curative treatment (surgery only)	677	663 (98%)	207 (98%)	456 (98%)	0.8	478 (98%)	171 (98%)	>0.9
Proportion of patients who underwent brain imaging pre curative treatment	1,054	918 (87%)	273 (88%)	645 (87%)	0.8	719 (87%)	184 (90%)	0.2
Proportion of patients who underwent a pulmonary function test prior to curative treatment	935	576 (62%)	145 (52%)	431 (66%)	<0.001	456 (63%)	113 (57%)	0.088
Proportion of patients with NSCLC who have undergone a surgical resection and clinical stage agrees with pathological stage (coarse staging)	649	508 (78%)	154 (74%)	354 (80%)	0.10	365 (78%)	130 (78%)	>0.9
Proportion of patients with NSCLC who had a resection (stage I-IIIA)	813	613 (75%)	186 (83%)	427 (73%)	0.003	447 (71%)	152 (89%)	<0.001
Proportion of surgically resected patients with NSCLC who have adequate sampling of lymph nodes (5 or more nodes)	680	331 (49%)	108 (50%)	223 (48%)	0.6	247 (51%)	80 (45%)	0.2
Proportion of patients with stage II or III disease with surgical resection who commenced adjuvant chemotherapy within 6 weeks	62	24 (39%)	13 (45%)	11 (33%)	0.4	20 (39%)	4 (36%)	>0.9
30-day post-operative mortality	706	3 (<1%)	0 (0%)	3 (1%)	0.6	2 (<1%)	1 (1%)	>0.9

Characteristic	Denominator	Overall, N = 2,000[1]	<65, N = 618[1]	65+, N = 1,382[1]	p- value[2]	Ever smoker, N = 1,591[1]	Never smoker, N = 386[1]	p-value[2]
Proportion of patients with infiltrative stage III (N2,3) NSCLC and PS 0–1, receiving curative-intent platinum-based chemotherapy and radiotherapy	139	74 (53%)	28 (56%)	46 (52%)	0.6	69 (51%)	5 (100%)	0.033
Proportion of patient with stage IIIB/C or IV NSCLC and PS 0-1 NOT undergoing surgery who receive platinum-based chemotherapy AND/OR immunotherapy	660	484 (73%)	182 (75%)	302 (72%)	0.5	413 (79%)	70 (51%)	<0.001
Proportion of active smokers with documented smoking cessation counselling	418	210 (50%)	91 (50%)	119 (51%)	0.9	210 (50%)	-	
Proportion of patients referred to/ enrolled in clinical trials	2,000	130 (7%)	40 (7%)	90 (7%)	>0.9	98 (6%)	32 (8%)	0.13
Proportion of Stage I-III patients initiating curative treatment within 28 days of diagnosis date	976	234 (24%)	78 (26%)	156 (23%)	0.3	181 (24%)	45 (23%)	0.8
Proportion of Stage IV patients initiating systemic treatment within 28 days of diagnosis date	718	360 (50%)	144 (57%)	216 (46%)	0.007	271 (48%)	88 (56%)	0.094
Proportion of Stage IV patients with molecular testing (non-squamous, NSCLC)	592	576 (97%)	208 (99%)	368 (97%)	0.2	426 (97%)	147 (99%)	0.4
Proportion of patients with documented referral to Supportive Care services	1,997	960 (48%)	315 (51%)	645 (47%)	0.067	793 (50%)	158 (41%)	0.002
Proportion of Stage IV patients referred to palliative care within 8 weeks of diagnosis (excl. patients with mutations)	506	264 (52%)	85 (53%)	179 (52%)	0.8	237 (53%)	26 (45%)	0.2
Proportion of patients who die within 30 days of active treatment for lung cancer	1,730	229 (13%)	78 (14%)	151 (13%)	0.7	184 (14%)	45 (13%)	0.6
1 Year Survival	2,000	1,424 (71%)	459 (74%)	965 (70%)	0.042	1,080 (68%)	326 (84%)	<0.001

[1]N (%)
[2]Pearson's Chi-squared test; Fisher's exact test

AV.3 By Location of Hospital

Characteristic	Denominator	Overall, N = 2,000[1]	Metro, N = 1,520[1]	Regional, N = 480[1]	p-value[2]
Proportion of patients with clinical diagnosis within 28 days from first presentation.	1,861	1,387 (75%)	1,010 (72%)	377 (83%)	<0.001
Proportion of patients with pathological diagnosis within 28 days from first presentation.	1,927	1,099 (57%)	797 (54%)	302 (66%)	<0.001
Proportion of patients initiating curative treatment within 14 days from diagnosis date (Firstline treatment is surgery only)	328	61 (19%)	58 (20%)	3 (9.1%)	0.14
Proportion of patients initiating curative treatment within 42 days from first presentation	1,020	219 (21%)	188 (22%)	31 (21%)	0.8
Proportion with performance status (PS) assessment prior to commencing treatment (any)	1,469	1,261 (86%)	902 (85%)	359 (89%)	0.028
Proportion with documented clinical stage prior to curative treatment	544	425 (78%)	322 (76%)	103 (87%)	0.012
Proportion patients reviewed by MDT prior to potentially curative treatment	1,109	621 (56%)	475 (51%)	146 (81%)	<0.001
Proportion patients reviewed by MDT prior to potentially curative treatment (Stage III)	310	242 (78%)	158 (73%)	84 (88%)	0.003
Proportion of patients with PET/CT available prior to potentially curative treatment (Surgery only)	677	663 (98%)	619 (98%)	44 (100%)	>0.9
Proportion patients who underwent brain imaging pre curative treatment	1,054	918 (87%)	791 (88%)	127 (80%)	0.006
Proportion of active smokers with smoking cessation counselling discussion documented	418	210 (50%)	125 (51%)	85 (50%)	0.9
Proportion of patients referred to/enrolled in clinical trials	2,000	130 (7%)	116 (8%)	14 (3%)	<0.001
Proportion of patients with NSCLC who have undergone a surgical resection and clinical stage agrees with pathological stage (Coarse staging)	649	508 (78%)	484 (79%)	24 (63%)	0.020
Proportion of patients with NSCLC who had a resection (stage I-IIIA)	813	613 (75%)	577 (79%)	36 (41%)	
30-day post-operative mortality	706	3 (<1%)	0 (0%)	3 (1%)	0.6
Proportion of patients with NSCLC undergoing surgery who have adequate sampling of lymph nodes (5 or more nodes)	680	331 (49%)	310 (49%)	21 (50%)	0.9
Proportion patients with stage II or III disease with surgical resection who commenced adjuvant chemotherapy within 6 weeks	62	24 (39%)	17 (37%)	7 (44%)	0.6
30-day post-operative mortality	706	3 (0.4%)	3 (0.5%)	0 (0%)	>0.9
Proportion of patients with infiltrative stage III (N2,3) NSCLC and PS 0–1, receiving curative-intent platinum-based chemotherapy and radiotherapy	139	74 (53%)	57 (57%)	17 (44%)	0.2
Proportion of patient with stage IIIB/C or IV NSCLC and PS 0-1 NOT undergoing surgery who receive platinum-based chemotherapy AND/OR immunotherapy	660	484 (73%)	326 (70%)	158 (82%)	<0.001
Proportion of Stage I-III patients initiating curative treatment within 28 days of diagnosis date	976	234 (24%)	208 (25%)	26 (19%)	0.2
Proportion of Stage IV patients initiating systemic treatment within 28 days of diagnosis date	718	360 (50%)	257 (54%)	103 (42%)	0.001
Proportion of patients with molecular testing	592	576 (97%)	409 (98%)	167 (96%)	0.3
Proportion patients with documented referral to Supportive Care services	1,997	960 (48%)	675 (44%)	285 (60%)	<0.001
Proportion of patients referred to palliative care within 8 weeks of diagnosis	506	264 (52%)	169 (51%)	95 (54%)	0.6
Proportion of patients who die within 30 days of active treatment for lung cancer	1,730	229 (13%)	132 (9.9%)	97 (25%)	<0.001
SV1 - 1 Year Survival	2,000	1,424 (71%)	1,150 (76%)	274 (57%)	<0.001

[1]N (%)
[2]Pearson's Chi-squared test; Fisher's exact test

AV.4 By Location of Residence

Characteristic	Denominator	Overall, N = 1,994[1]	Metro, N = 1,179[1]	Regional, N = 815[1]	p-value[2]
Proportion of patients with clinically diagnosis within 28 days from first presentation.	1,856	1,384 (75%)	828 (75%)	556 (74%)	0.5
Proportion of patients with pathological diagnosis within 28 days from first presentation.	1,921	1,095 (57%)	652 (58%)	443 (56%)	0.6
Proportion of patients initiating curative treatment within 14 days from diagnosis date (Firstline treatment is surgery only)	326	61 (19%)	24 (17%)	37 (20%)	0.5
Proportion of patients initiating curative treatment within 42 days from first presentation	1,017	218 (21%)	129 (23%)	89 (20%)	0.3
Proportion with documented clinical stage prior to curative treatment	543	424 (78%)	247 (82%)	177 (74%)	0.030
Proportion patients reviewed by MDT prior to potentially curative treatment	1,107	620 (56%)	377 (59%)	243 (51%)	0.007
Proportion patients reviewed by MDT prior to potentially curative treatment (Stage III)	309	241 (78%)	130 (76%)	111 (81%)	0.3
Proportion of patients with PET/CT available prior to potentially curative treatment (Surgery only)	674	660 (98%)	365 (99%)	295 (96%)	0.012
Proportion patients who underwent brain imaging pre curative treatment	1,051	915 (87%)	524 (88%)	391 (86%)	0.2
Proportion patients that underwent a pulmonary function test prior to curative treatment	932	573 (61%)	341 (65%)	232 (57%)	0.021
Proportion of active smokers who have had smoking cessation counselling discussion documented	417	209 (50%)	109 (52%)	100 (48%)	0.4
Proportion of patients referred to/enrolled in clinical trials	1,994	130 (6.5%)	107 (9.1%)	23 (2.8%)	<0.001
Proportion of patients with NSCLC who have undergone a surgical resection and clinical stage agrees with pathological stage (Coarse staging)	647	508 (79%)	261 (76%)	247 (82%)	0.081
Proportion of patients with NSCLC who had a resection (stage I-IIIA)	811	611 (75%)	335 (72%)	276 (80%)	0.004
Proportion of patients with NSCLC undergoing surgery who have adequate sampling of lymph nodes (5 or more nodes)	677	328 (48%)	180 (49%)	148 (47%)	0.6
Proportion patients with stage II or III disease with surgical resection who commenced adjuvant chemotherapy within 6 weeks	62	24 (39%)	11 (34%)	13 (43%)	0.5
30-day post-operative mortality	703	3 (0.4%)	2 (0.5%)	1 (0.3%)	>0.9
Proportion of patients with infiltrative stage III (N2,3) NSCLC and PS 0–1, receiving curative-intent platinum-based chemotherapy and radiotherapy	139	74 (53%)	51 (55%)	23 (49%)	0.5
Proportion of patient with stage IIIB/C or IV NSCLC and PS 0-1 NOT undergoing surgery who receive platinum-based chemotherapy AND/OR immunotherapy	657	483 (74%)	312 (71%)	171 (79%)	0.022
Proportion of Stage I-III patients initiating curative treatment within 28 days of diagnosis date	973	234 (24%)	123 (23%)	111 (26%)	0.3
Proportion of Stage IV patients initiating systemic treatment within 28 days of diagnosis date	715	359 (50%)	242 (54%)	117 (43%)	0.004
Proportion of patients with molecular testing	589	573 (97%)	386 (98%)	187 (96%)	0.15
Proportion patients with documented referral to Supportive Care services	1,991	956 (48%)	487 (41%)	469 (58%)	<0.001
Proportion of Stage IV patients referred to palliative care within 8 weeks of diagnosis (excl. patients with known mutations	504	264 (52%)	160 (51%)	104 (54%)	0.6
Proportion of patients who die within 30 days of active treatment for lung cancer	1,724	229 (13%)	124 (12%)	105 (15%)	0.13
1 Year Survival	1,994	1,420 (71%)	849 (72%)	571 (70%)	0.3
SV1 - 1 Year Survival	2,000	1,424 (71%)	1,150 (76%)	274 (57%)	<0.001

[1]N (%)
[2]Pearson's Chi-squared test; Fisher's exact test

For further information or to discuss linked collaborative lung cancer research please contact:
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