Royal College of Physicians | National Lung Cancer Audit

National Lung Cancer Audit Annual report 2018
(for the audit period 2017)

Published May 2019

The NCLA is delivered in partnership with:

British Thoracic Oncology Group

NATIONAL LUNG CANCER FORUM FOR NURSES · NLCFN ·

Public Health England

Welsh Lung Cancer Special Advisory Group

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Document purpose	To disseminate results on the quality of care for patients diagnosed with lung cancer in the period between 1 January and 31 December 2017.
Title	National Lung Cancer Audit annual report 2018 (for the audit period 2017)
Author	Care Quality Improvement Department, Royal College of Physicians
Publication	May 2019, amended February 2020 (pages 7 and 17: overall result for CNS changed from 70% to 71%, and for England from 70% to 72%, and seen by CNS at diagnosis changed from 58% to 60%)
Target audience	NHS staff in multidisciplinary lung cancer teams; hospital managers and chief executives; commissioners; lung cancer researchers; lung cancer patients, their families and their carers.
Description	This is the 14th annual report on the clinical component (process of care) of the National Lung Cancer Audit. It publishes national and named team results on the quality of lung cancer care for patients diagnosed between 1 January and 31 December 2017. It covers many processes of care across the entire patient pathway.
Related publications	*NICE Quality standard for lung cancer in adults, 2012*: **www.nice.org.uk/guidance/qs17** *National Lung Cancer Audit annual report 2017*: **www.rcplondon.ac.uk/projects/outputs/nlca-annual-report-2017** **www.nlcaudit.co.uk/Home/Data**
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National Lung Cancer Audit annual report 2018 (for the audit period 2017)

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We would like to take this opportunity to acknowledge the hard work of all our multidisciplinary team data clerks in ensuring that the data are as complete as possible, and Abigail Hayward, information specialist, WCN.

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Contents

Commissioned by:

Executive summary

The following pages give an overview of data completeness and the main clinical outcomes at a national level. **More detailed results at regional (cancer alliance) and local (hospital and clinical commissioning group) level can be obtained and downloaded from our website www.nlcaudit.co.uk, enabling patients, carers, clinicians and commissioners to compare services in their area with others**.

We cautiously welcome this year's results, which demonstrate improving data quality, higher rates of surgical treatment, and higher rates of systemic anti-cancer treatment across both small-cell lung cancer (SCLC) and non-small-cell lung cancer (NSCLC), such that four out of our five key auditable measures have been achieved. It is disappointing not to see improvements in survival, but undoubtedly this will be realised in time if improvements in the individual components in care continue, and particularly if the focus on outlier organisations leads to reduced variation.

The National Lung Cancer Audit (NLCA) is pleased to report continuing improvements in data completeness with 85% completeness seen for performance status (PS), 96% for stage and 64% for recording of lung function in patients potentially suitable for curative treatment, as compared with 82%, 96% and 56% respectively in the previous reporting period.

- For the first time, we report the proportion of patients with stage I/II disease and PS 0–1 who have pathological confirmation of cancer – the result of 89% only just misses the audit standard of 90%.
- 30% of patients are missing out on access to all the benefits of specialist nursing support.
- Systemic anti-cancer treatment rates in patients with NSCLC and advanced/good PS increased from 62% to 65%; this is the first time that our audit standard of 65% has been met.
- Chemotherapy rates in SCLC increased from 68% to 71%, exceeding our audit standard of 70%.
- Surgery rates in NSCLC increased from 17.5% to 18.4%.
- The curative treatment rate in early stage/good PS patients is relatively high at 81%, but we believe there is scope for this to be increased.
- One-year survival rates (37%) are unchanged.

The amount of variation in performance across organisations, measured by the range of results and the number of organisations that fail to meet the audit standards, has reduced compared with previous years. However, this year 29 organisations were contacted due to the finding of statistically significantly worse results in one or more key measures, as compared with 16 organisations in the last report (2016 cohort), partly due to the inclusion of an additional measure. Of these, six organisations have results at 'alarm' level that will prompt a review of services and an action plan to recover performance. We have received formal acknowledgement from all these, with some having already carried out detailed work to understand the reasons for their negative outlier status, and providing action plans to try to improve data collection and performance. We will be sharing these findings with the Care Quality Commission and will be supporting trusts in their improvement journey where possible.

On the following page, we make a number of recommendations for the attention of members of multidisciplinary teams, service managers and commissioners. These are based on a mixture of national clinical guidelines (for example National Institute for Health and Clinical Excellence, (NICE)), national commissioning advice, and expert clinical opinion derived from our own advisory clinical expert group.

	Recommendation	Result (audit standard)	Location in report	Key audience
1.	Performance status and stage data should be recorded in at least 90 % of cases; FEV$_1$ should be recorded (stage I–II and PS 0–1) in at least 75 % of cases.	Data completeness: PS 85 % (90 %), stage 96 % (90 %), FEV$_1$ 64 % (75 %)	Page 11	Clinical leads, multidisciplinary teams
2.	All lung cancer MDTs should appoint a 'clinical data lead' with protected time to allow promotion of data quality, governance and QI, and to ensure that data submitted undergoes clinical validation and assessment for data completeness.	Data completeness: PS 85 % (90 %), stage 96 % (90 %), FEV$_1$ 64 % (75 %)	Page 11	Clinical leads, multidisciplinary teams, managers
3.	Low pathological confirmation rates (<90 %) should prompt local review of case-notes and infrastructure. In future, at least 93 % of patients with stage I/II and PS 0–1 should have pathological confirmation.	89 % (90 %) pathological confirmation in patients with stage I–II and PS 0–1	Page 12	Multidisciplinary teams, commissioners
4.	MDTs with lower than expected resection rates for NSCLC should perform local review of case-notes.	18.4 % (17 %) of patients with NSCLC had surgical treatment for their cancer	Page 13	Multidisciplinary teams, commissioners
5.	MDTs with lower than expected systemic anti-cancer treatment rates for NSCLC should perform local review of case-notes.	65 % (65 %) of NSCLC patients with stage IIIB and IV and PS 0–1 received systemic anti-cancer treatment (SACT)	Page 14	Multidisciplinary teams, commissioners
6.	MDTs with lower than expected chemotherapy rates for SCLC should perform local review of case-notes.	71 % (70 %) of patients with SCLC received treatment with chemotherapy	Page 15	Multidisciplinary teams, commissioners
7.	All MDTs should review their patient pathways, to ensure that systems are in place to deliver SCLC chemotherapy within 14 days of pathological confirmation in at least 80 % of cases.	34 % (80 %) of SCLC patients received their chemotherapy within 14 days of pathological diagnosis	Page 15	Multidisciplinary teams, managers, commissioners
8.	MDTs with lower than expected curative-intent treatment rates should perform local review of case-notes.	81 % (80 %) of patients with early stage disease and good performance status received treatment with curative intent	Page 16	Multidisciplinary teams, commissioners
9.	Organisations should ensure that their specialist nursing workforce is staffed appropriately and that roles are clinically focused.	71 % (90 %) of patients were assessed by a lung cancer specialist nurse (CNS). In England 60 % (80 %) of patients had a lung CNS present at diagnosis (not currently recorded in Wales).	Page 17	Multidisciplinary teams, managers, commissioners

National Lung Cancer Audit

Summary of results from patients diagnosed in 2017

We collected data on lung cancer...

151
organisations
across England and Wales submitted data that contributed to this report

39,205
individual patients
were diagnosed with lung cancer during the audit period

52%
of lung cancer occurs in
men

Quality of the data is very high and improving...

Performance status
85%
completeness

Stage
96%
completeness

FEV1 in early stage and good PS
64%
completeness
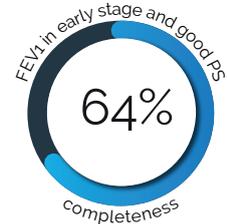
Results continue to improve, but variability persists...

89%
of patients with PS 0–1 and stage 1–2 had pathological confirmation of the diagnosis
new measure

18%
of patients with NSCLC had surgical treatment for their cancer
17% in 2016

65%
of NSCLC patients (stage IIIB/IV, PS 0–1) received systemic anti-cancer treatment
62% in 2016

71%
of patients with SCLC received treatment with chemotherapy
68% in 2016
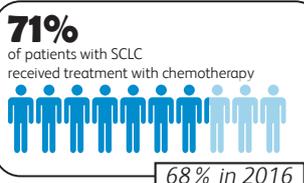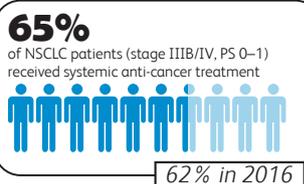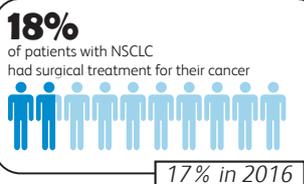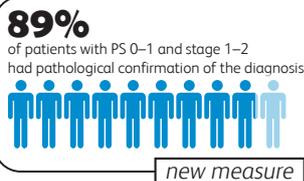
1	North East and Cumbria
2	Lancashire and South Cumbria
3	West Yorkshire
4	Humber, Coast and Vale
5	Greater Manchester
6	Cheshire and Merseyside
7	South Yorkshire and Bassetlaw
8	West Midlands
9	East Midlands
10	East of England
11	North West and South West London
12	North Central and North East London
13	South East London
14	Somerset, Wiltshire, Avon and Gloucestershire
15	Thames Valley
16	Peninsula
17	Wessex
18	Surrey and Sussex
19	Kent and Medway
20	North Wales
21	South Wales
22	Jersey
23	Guernsey

Legend:
- <35 %
- 35–40 %
- >40 %
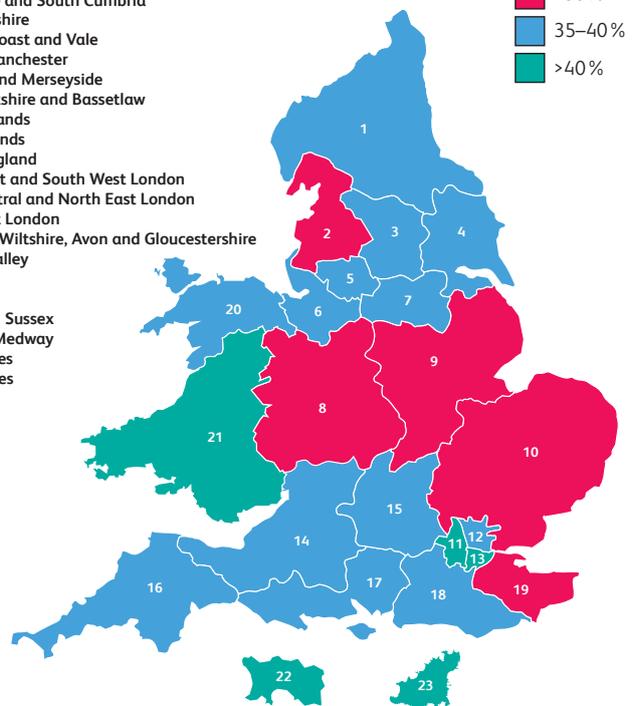
1-year survival by Cancer Alliance

Introduction

The NLCA forms part of the National Clinical Audit and Patient Outcomes Programme (NCAPOP) commissioned by the Healthcare Quality Improvement Partnership (HQIP). It is delivered in partnership with a number of key stakeholders. The University of Nottingham provides the analysis of the patient-level data. Clinical leadership is provided by lung cancer experts recruited through the Care Quality Improvement Department at the Royal College of Physicians (RCP). The NLCA board is constituted by the Society for Cardiothoracic Surgery (SCTS), the Roy Castle Lung Cancer Foundation (representing lung cancer patients), Wales Cancer Network Lung Cancer Group, the National Lung Cancer Forum for Nurses and the British Thoracic Oncology Group.

This NLCA annual report represents the culmination of nearly 2 years of patient care and follow up, data collection, data analysis and interpretation. Its purpose is to understand the current quality of care and outcomes for patients with lung cancer, to celebrate good practice and to highlight variability, to ensure that all patients have access to the very best care. In our last report, we made a number of recommendations to improve the already excellent quality of the data submitted to the audit. We noted a small rise in the proportion of patients receiving surgery, but a small drop in the proportion receiving non-surgical treatments such as chemotherapy, and made further recommendations to increase treatment rates across all these modalities. We highlighted a small number of organisations in which results were statistically significantly worse than their peers, and we have worked with those organisations to develop action plans to recover performance.

This work represents only one aspect of the NLCA activity; our reports on surgical outcomes, mesothelioma care, and organisational audits can be found on our website www.nlcaudit.co.uk

Methods

Full details of our methodology are available at www.nlcaudit.co.uk/support. The report covers patients with a diagnosis of cancer who have been classified with code C34 of the 10th edition of the World Health Organization International Classification of Disease (ICD-10), and where the diagnosis was made between 1 January to 31 December 2017.

NHS hospitals in England submit the details for all lung cancer patients, including those undergoing lung cancer surgery, to the NLCA, via the National Cancer Registration and Analysis Service (NCRAS) as part of the Cancer Outcomes and Services Dataset (COSD). The data are linked to other datasets, including Hospital Episode Statistics (HES), the national radiotherapy dataset (RTDS), the systemic anti-cancer dataset (SACT), pathology reports and death certificate data. Patients in the NLCA analysis are grouped into cohorts according to the trust first seen, since this is the best current indicator of the decision-making multidisciplinary team (MDT). The COSD field 'place first seen' can be used to sort patients into cohorts, but problems arise when this is not completed, or when different providers in a complex pathway record different results. The NLCA and NCRAS team developed an algorithm that assists with this. An outline of the process and the timeline is shown in **Figure 1**.

Due to the complex nature of data collection in England, organisations were offered the opportunity to check their data held by NCRAS. A spreadsheet containing patient-level data from quarters 1–3 of 2017 was sent to these organisations, and any additions or changes were sent back to NCRAS by submitting a refreshed COSD file. Not all organisations chose to validate their data. Due to timescales, data from Q4 of 2017 was not validated in the same way.

In Wales, data are collected through the Cancer Network Information System Cymru (CANISC) and a pseudo-anonymised extract of patient-level data is submitted to the NLCA for analysis. The report also includes data from Guernsey and Jersey, which have a separate funding agreement to participate in the audit directly with the RCP. The data are collected and submitted to the NLCA analysis team. In common with the 2017 report, we have used a similar analysis methodology, aligned to our outlier policy.

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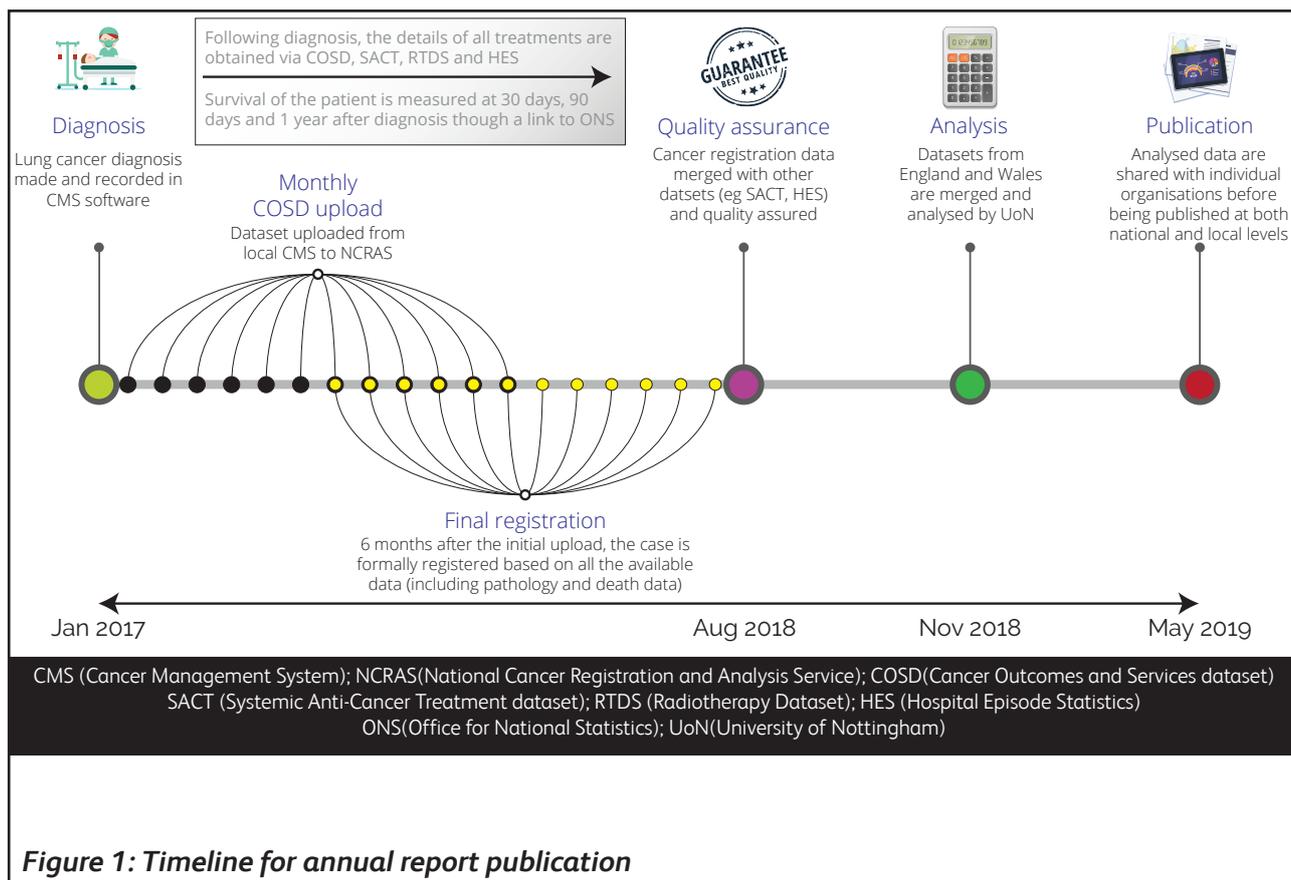
Figure 1: Timeline for annual report publication

For our key measures, we report an adjusted percentage, which places each organisation into one of four groups:

- **Good practice** (statistically significantly better than the overall result at the 95 % level)
- **Not significant** (not statistically significantly different from the overall result)
- **Alert** (statistically significantly worse than the overall result at the 95 % level)
- **Alarm** (statistically significantly worse than the overall result at the 99.8 % level)

In this report, we present the numbers of alert- and alarm-level outliers only. Full details of outliers can be found in our online spreadsheet, and our outlier policy can be found at www.nlcaudit.co.uk/home/support.

Some organisations reported as negative outliers in the 2017 report are found to be in that position again. **This should not be taken to mean that no action or improvement has taken place.** Due to the timelines noted above, the 2017 patient cohort analysed for this report had already been diagnosed and treated by the time the last report was published. We anticipate that action plans put into place after the last report will drive improvements that will be seen in the next report, to be published in early 2020.

The NLCA understands that there is an impact on an organisation of being highlighted as an outlier. We know that lung cancer teams care passionately about the services that they provide. We aim for the outlier process to be as useful and supportive as possible.

Data completeness

It is important to maintain or improve the quality of data submitted to the NLCA, including detailed clinical data, to allow the most accurate risk adjustment to be carried out (results in **Figure 2**). Performance status (PS) describes a patient's level of functioning in terms of their ability to care for themselves, daily activity and physical ability. Stage refers to the extent of the cancer, such as how large the tumour is and whether it has spread. FEV_1 (forced expiratory volume in one second) is a measurement of lung capacity to determine the health of a patient's lungs.

Performance status completeness	Stage completeness	FEV_1 in early stage and good PS completeness
85%	96%	64%

	England		Wales	
Performance status >90%	85%	✗	98%	✓
Disease stage >90%	96%	✓	99%	✓
FEV_1 (% predicted) >75%	62%	✗	90%	✓

Figure 2: Data completeness
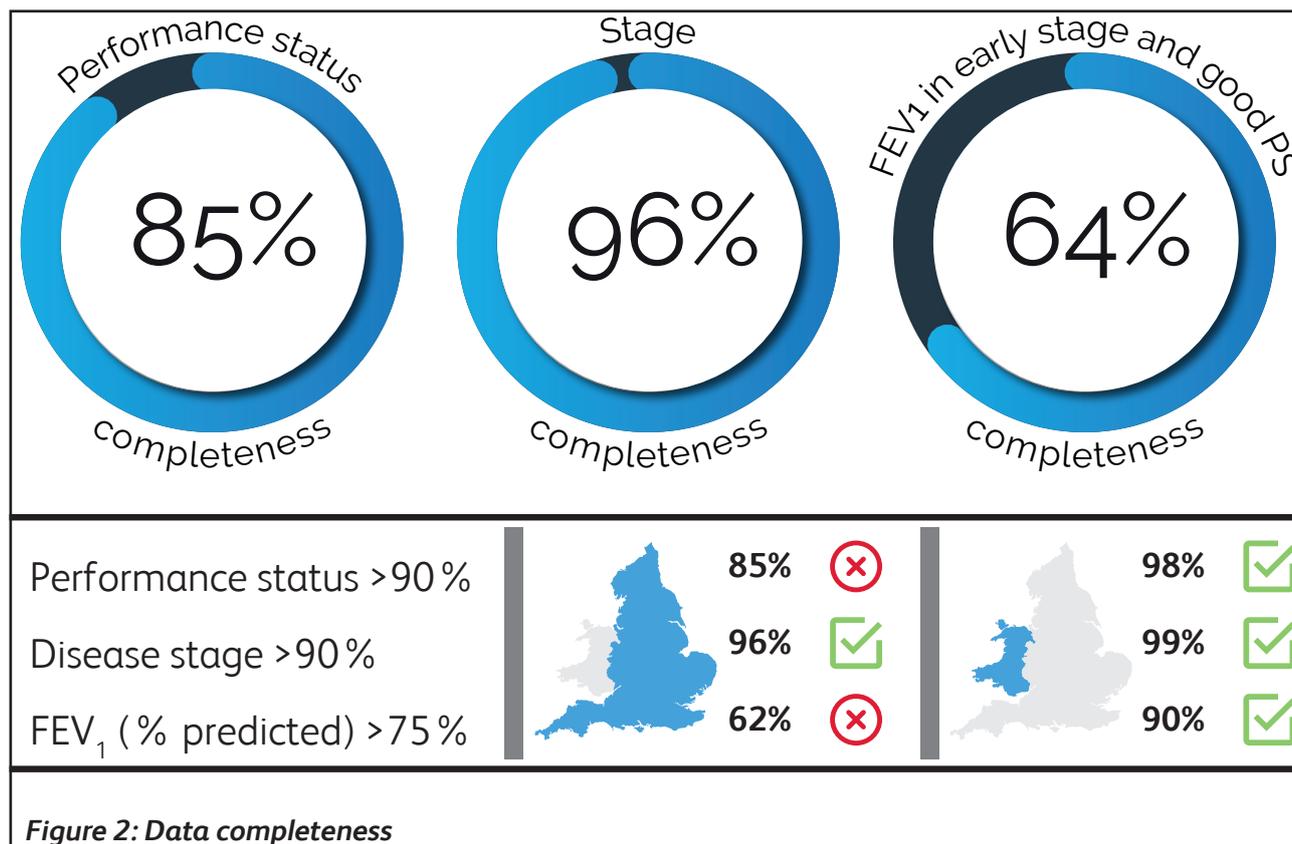
Commentary

We set very high standards for data collection, and overall the lung cancer care community should be proud of its achievements. Data completeness in Wales is of a very high standard, exceeding all the recommended benchmarks. In England, data completeness has again improved as it did last year. It is slightly disappointing that the 90% target for PS has not been met, but a year-on-year improvement from 75% 2 years ago shows that progress is being made. Staging data completeness is excellent and is the highest ever achieved in the NLCA. This reflects good practice from MDTs, but also work done by NCRAS to obtain missing staging data from primary sources. For future years, we have raised the recommended standard for PS and stage to 95%.

Recommendations

1. Both performance status (PS) and stage should be recorded in at least 95% of cases; for patients with stage I–II and PS 0–1, data completeness for FEV_1 and FEV_1% should exceed 75%.
2. All lung cancer MDTs should appoint a 'clinical data lead' with protected time to allow promotion of data quality, governance and quality improvement. Data submitted should undergo clinical validation and assessment for data completeness. Data completeness can also be assessed by logging onto the NLCA CancerStats portal (www.ncin.org.uk/cancer_information_tools). Particular attention should be focused on completing the 'trust first seen' and PS fields.

Pathological confirmation in stage I–II and PS 0–1 patients

Although a diagnosis of lung cancer can be made on clinical grounds (usually the results of a CT scan), a pathological diagnosis made by microscopic evaluation of a sample of fluid or tissue is preferred for a number of reasons. Firstly, it is the only way to be certain of the diagnosis of cancer, to ensure that the cancer has originated in the lung and not another organ, and to define the particular subtype and molecular profile of the cancer, which has important implications for choosing the most appropriate treatment.

While the NLCA has reported the overall proportion of patients having a pathological diagnosis for many years, some clinicians have criticised the measure, noting that for some patients (those with advanced disease and poor PS), it may not be in their best interests to undergo an invasive biopsy procedure. With this in mind, as well as published evidence that the main benefit of biopsy is in early stage patients with good PS, we have refined this measure to include only stage I–II patients who have a PS 0–1, where we recommend an overall pathological confirmation rate of at least 90 %. Results are shown in **Figure 3**.
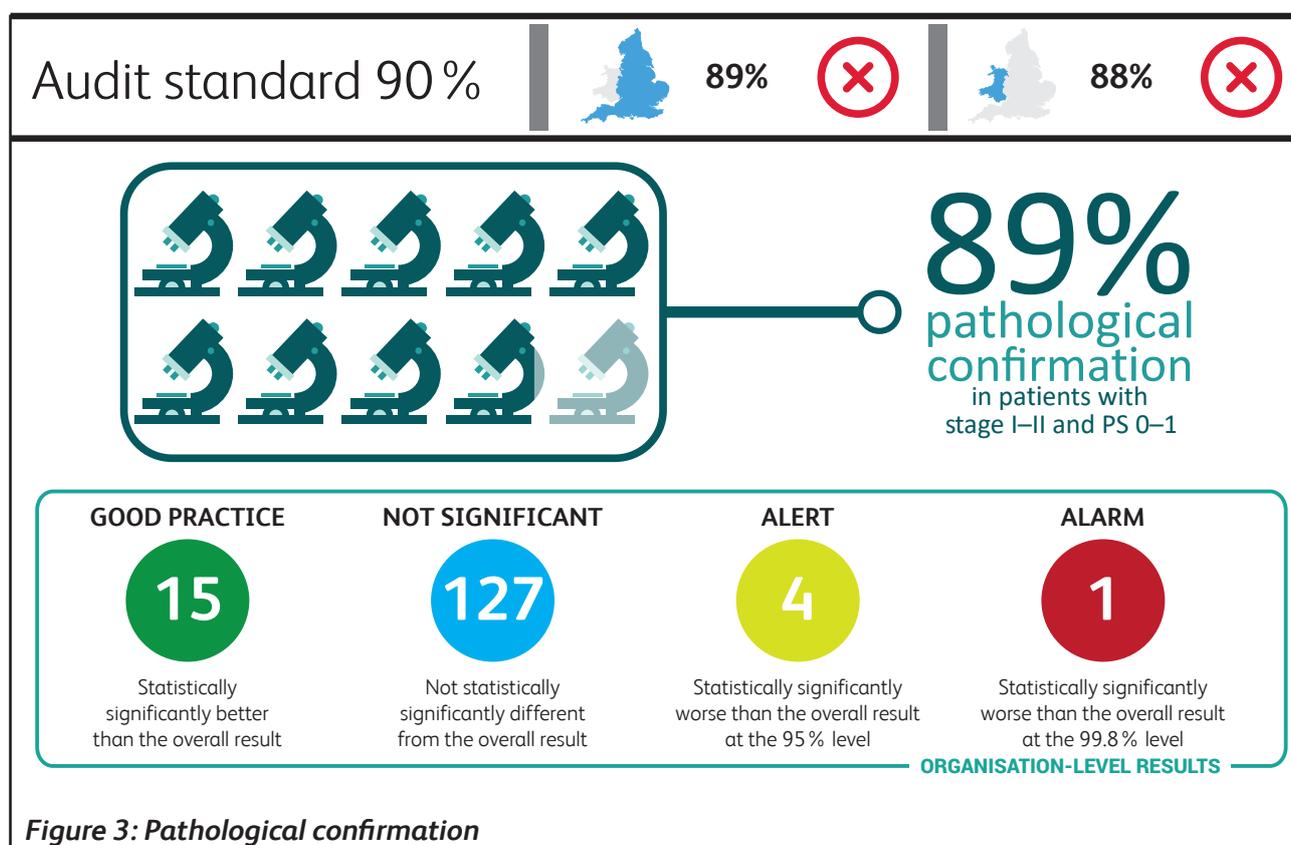
Figure 3: Pathological confirmation

Commentary

Overall, 89 % of patients with stage I–II and PS 0–1 received a pathological diagnosis (England 89 %, Wales 88 %), which means that the audit standard has only just been missed. Across individual organisations (excluding tertiary trusts) the results, adjusted for casemix, varied from 56 % to 100 %, with five organisations identified as negative outliers.

Recommendations

3. MDTs with lower than expected pathological confirmation rates in this patient group (<90 %) should perform a detailed audit of the clinically diagnosed cases, and should ensure that they have access to all the appropriate diagnostic procedures and pathological processing techniques. Based on the results from the first year of this metric, we believe that in future trusts should be expecting at least 93 % of patients in this group to have pathological confirmation.

Surgery rates in all non–small–cell lung cancer (NSCLC)

Surgery remains the preferred treatment for early-stage lung cancer, and patients in the UK have historically been less likely to undergo surgery than patients in other countries, although the numbers have increased slowly over the past 10 years from around 9% in 2006. Disease stage, PS and lung function measurements are crucial in determining whether to offer a patient a surgical operation. Survival after surgery is high (98% at 30 days), suggesting that there is scope to further increase the rate of surgery. Last year, we set an audit standard of surgery for 17% of patients with histologically confirmed or presumed NSCLC (results shown in **Figure 4**.)

Audit standard 17%   18.4% ☑   18.3% ☑

18.4%
of patients with
NSCLC
underwent
surgery

GOOD PRACTICE	NOT SIGNIFICANT	ALERT	ALARM
15	**124**	**7**	**1**
Statistically significantly better than the overall result	Not statistically significantly different from the overall result	Statistically significantly worse than the overall result at the 95% level	Statistically significantly worse than the overall result at the 99.8% level

ORGANISATION-LEVEL RESULTS

Figure 4: Surgery in NSCLC

Commentary

This is an excellent result, with a further incremental increase in the proportion of patients receiving potentially curative surgical treatment. The audit standard has been met in both England and Wales. 15 organisations were identified as having a significantly better rate of surgery than the national average, suggesting good practice. Variation is noted but is considerably less than in the previous year, with adjusted surgical resection rates varying from 10% to 37%. 52 organisations failed to meet the audit standard of 17% (compared with 60 last year). Eight organisations have been notified of their negative outlier status. These results should be interpreted alongside the proportion of patients who receive overall radical treatment rate (consisting of surgery and/or curative-intent radiotherapy) in patients with stage I and II disease with PS 0–2, which is covered later in this report.

With the introduction of the 8th version of the Tumour Node Metastasis (TNM) staging system, MDTs should be aware that the staging manual states that if there is uncertainty over stage, then the lower stage should be adopted for clinical decision-making.

Recommendations

4. MDTs with lower than expected resection rates for NSCLC should perform detailed case-note review to determine why resectable patients with good performance status did not receive an operation. Low surgical rates in some organisations may be due to their surgical cases being allocated to a tertiary surgical trust. A priority for these trusts will be to ensure that their data reflect their workload.

Systemic anti-cancer treatment rates in NSCLC (stage IIIB–IV and PS 0–1)

Clinical trials have demonstrated that patients with advanced and incurable NSCLC can benefit from systemic anti-cancer treatment (SACT), delivered to improve quality of life and to extend survival. Since this measure was first introduced, there have been significant developments in the treatment options available to patients, such that the term 'chemotherapy' should now be replaced by the term 'systemic anti-cancer treatment' (SACT). Last year, we set an audit standard of SACT for 65 % of patients with advanced NSCLC and good PS. Results for 2017 are shown in **Figure 5**.
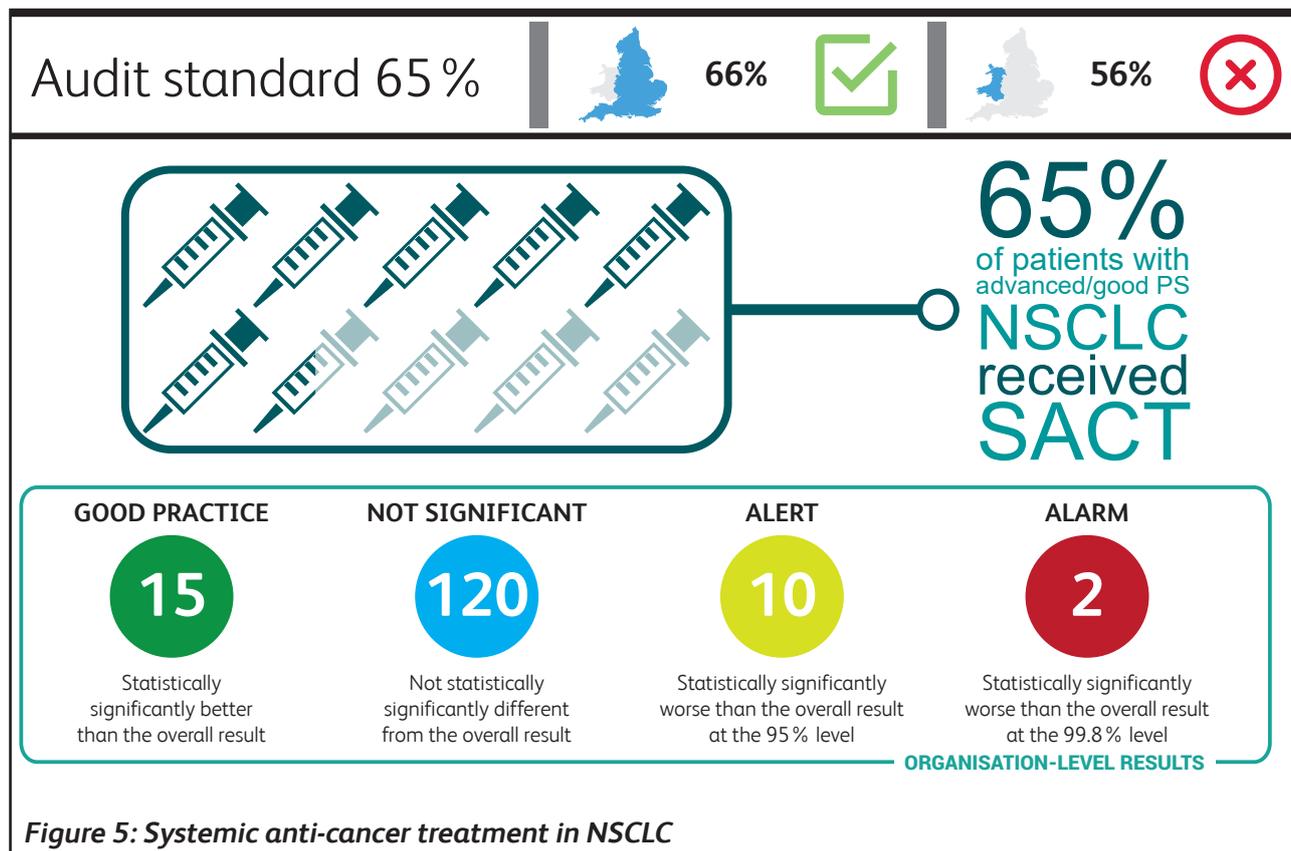

Figure 5: Systemic anti-cancer treatment in NSCLC

Commentary

Overall, 65 % of patients with good PS and advanced NSCLC received SACT (England 66 %, Wales 56 %). This represents a substantial increase from last year where the overall result was only 62 %, and this is the first time the audit standard has been met in the overall population. This positive news may reflect the increasing range of options for this patient group, although the lower result for Wales suggests that more detailed evaluation may be required in the local hospitals. Across individual organisations (excluding tertiary trusts), the casemix-adjusted results varied from 36 % to 96 %, with 65 organisations failing to achieve the standard (reduced from 85 last year), and encouragingly this variation is considerably less than in the previous year. 12 organisations have been identified as negative outliers.

Recommendations

5. MDTs with lower than expected systemic anti-cancer treatment rates for good PS (0–1) stage IIIB–IV NSCLC (<65 % after casemix adjustment) should perform detailed case-note review to determine why each advanced NSCLC patient with good PS did not receive systemic therapy. MDTs should review their approach to offering SACT to groups such as older patients and patients with comorbidities, and how they explain the risks and benefits of treatment to patients and their relatives.

Chemotherapy rates in small-cell lung cancer (SCLC)

SCLC is a particularly aggressive cancer, which is nearly always advanced at the time of diagnosis, so the role of surgery is often not appropriate. These tumours are, however, very sensitive to chemotherapy (and radiotherapy), and this can improve survival and quality of life. Patients may deteriorate quickly in the time between presentation and treatment, and so it is particularly important that the pathway is expeditious. Last year, we set an audit standard that at least 70% of SCLC patients should receive chemotherapy. Results for 2017 are shown in **Figure 6**.

Audit standard 70%   70% ☑   77% ☑

71% of patients with SCLC received chemotherapy

GOOD PRACTICE	NOT SIGNIFICANT	ALERT	ALARM
9	**134**	**3**	**1**
Statistically significantly better than the overall result	Not statistically significantly different from the overall result	Statistically significantly worse than the overall result at the 95% level	Statistically significantly worse than the overall result at the 99.8% level

ORGANISATION-LEVEL RESULTS

Figure 6: Chemotherapy in SCLC

Commentary

Overall, 71% of SCLC patients received chemotherapy (England 70%, Wales 77%), which represents a welcome 3% increase on the result from last year, and means that the audit standard has been achieved for the first time. Across individual organisations (excluding tertiary trusts) the results, adjusted for casemix, varied from 29% to 100%, with four organisations identified as negative outliers.

SCLC can be rapidly progressive and it is particularly important that patients are diagnosed quickly and receive their chemotherapy as soon as possible after the diagnosis is made. Last year we set a standard that at least 80% of patients should receive their chemotherapy within 14 days of their pathological diagnosis. For patients diagnosed in 2017, that standard was achieved for only 34% of patients, with the performance varying from 0% to 84% across individual organisations, and only three of these organisations achieved the audit standard. There is clearly an urgent need to improve pathways for these patients.

Recommendations

6. MDTs with lower than expected chemotherapy rates for SCLC (<70% or low odds ratio after casemix adjustment) should perform detailed case-note review to determine why each SCLC patient did not receive chemotherapy.
7. All MDTs should review their patient pathways, to ensure that systems are in place to deliver SCLC chemotherapy within 14 days of pathological confirmation in at least 80% of cases.

Curative treatment rates

For many years, the NLCA has encouraged organisations to increase their surgical resection rates, since historically this has been considered the main modality for achieving a cure in NSCLC. Resection rates continue to improve, and we remain of the opinion that there is scope for further increases, especially in those organisations with lower than average rates.

In recent years, advances in techniques for delivering radiotherapy have meant that many more patients with very early stage disease now have a realistic second option. These techniques, such as stereotactic ablative body radiotherapy (SABR), also known as stereotactic body radiotherapy (SBRT), deliver higher doses to the tumour and less to the surrounding tissues. Being a less well-established treatment, the long-term results in terms of survival cannot be known for sure, but current estimates suggest they may be similar to those obtained with surgery. Currently, radical radiotherapy (including SABR) is only recommended where surgery cannot be carried out for technical reasons, or because of patient fitness or choice.

Taking these developments into account, in 2016 the NLCA set a curative-intent treatment rate of 70%, based on the mean for 2015. This rate can only be calculated for England, as it relies on data included in the National Radiotherapy Dataset (RTDS) and combines receipt of surgery and radical radiotherapy in stage I–II NSCLC patients with PS 0–2.

Commentary

Overall, 81% of patients in England received curative-intent treatment in 2017, which was very similar to the result from last year (80%), and means that the audit standard has again been achieved (**Figure 7**). Across individual organisations (excluding tertiary trusts), the rate of this curative treatment varied from 50% to 100%, and 65 organisations failed to achieve the standard. Although it is welcome that the audit standard is achieved, it does mean that one in five patients with potentially curable disease do not receive optimal treatment. Our previous spotlight audit looking at these patients suggests that patient choice is an important factor. In our next annual report, we will include this measure in our outlier policy and process, and will work with the Wales Cancer Network to try to ensure they collect the radiotherapy data that will allow this to also apply to Wales.

Recommendations

8. MDTs with lower than expected curative-intent treatment rates for stage I–II PS 0–2 NSCLC (80% or lower) should perform detailed case-note reviews to determine why each patient did not receive either surgery or radical radiotherapy, including whether a second opinion was offered to borderline-fit patients. MDTs should review their approach to shared decision-making in offering radical treatment to groups such as older patients and patients with comorbidities, and how they explain the risks and benefits of treatment to patients and their relatives.
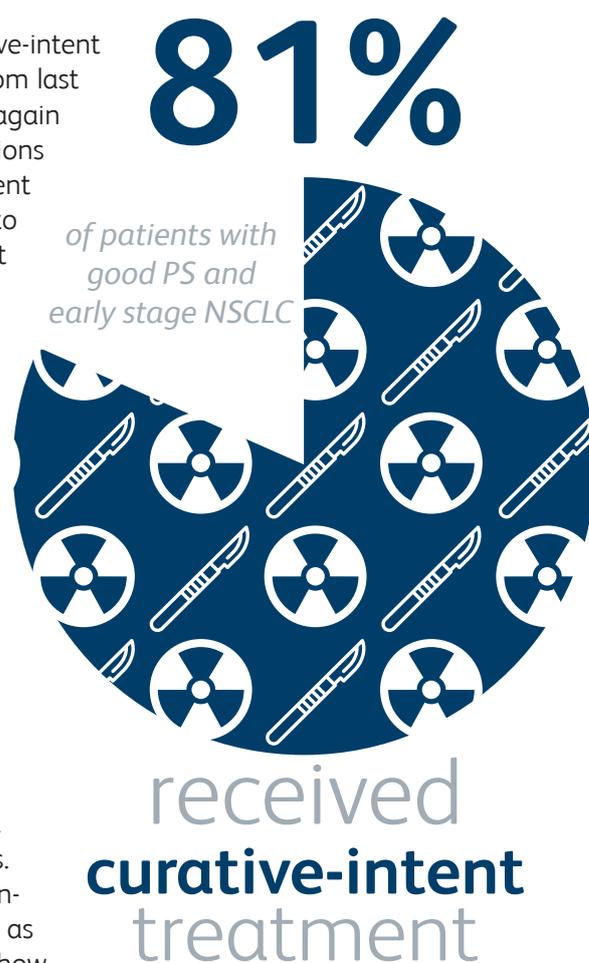

81%

of patients with good PS and early stage NSCLC

received
curative-intent
treatment

Figure 7: Curative-intent treatment

Multi-modality treatments

From the data for England we have also analysed curative-intent multi-modality treatments used for stage III NSCLC. For stage IIIA patients with good performance status (PS 0–2), 34 % receive multi-modality treatment with chemotherapy and either surgery or radical radiotherapy, with a further 20 % receiving surgery or radical radiotherapy alone. Although these results have improved compared with last year (31 %), it still means that 46 % of patients in this group are only given palliative treatments or supportive care.

Similarly, we have analysed curative intent multi-modality treatments used for stage I–III SCLC. For stage I–III patients with PS 0–2, 42 % received multi-modality treatment with chemotherapy and radical radiotherapy or occasionally surgery, with a further 3 % receiving radical radiotherapy or surgery alone. Although these results have improved compared with last year (39 %), it still means that 55 % of patients are only offered palliative treatments or best supportive care.

Further information on these treatments is available online (www.nlcaudit.co.uk).
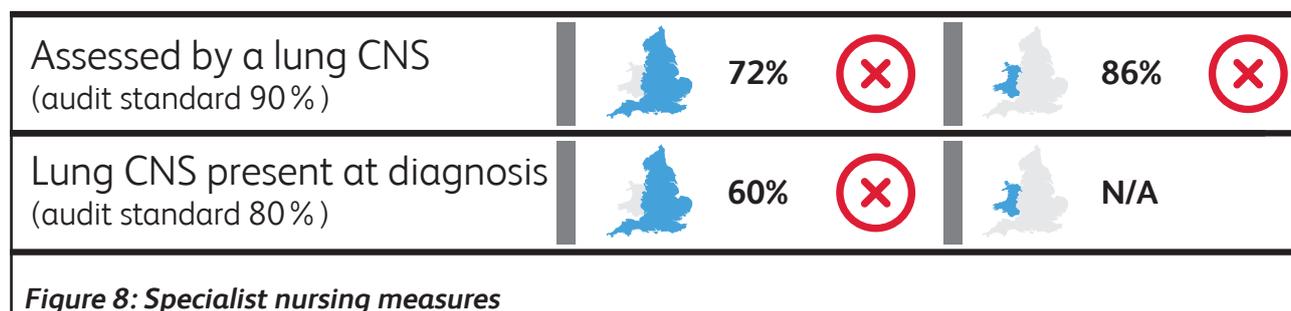
Specialist nursing

The lung cancer nurse specialist (CNS) is a key member of the multidisciplinary team looking after patients with lung cancer. They have expert knowledge and experience in lung cancer, and can offer:

- advice and support following a diagnosis of cancer
- full holistic assessment of needs, and assistance to control symptoms
- up-to-date information about the lung cancer and its treatment
- contact with local and national cancer services and support groups
- emotional support for the patient and family
- liaison with other healthcare professionals to provide continuity of care
- information regarding benefit entitlements for cancer patients.

Commentary

Results for 2017 are shown in Figure 8. Overall, the proportion of patients who are assessed by a lung CNS is slightly higher than last year, at 71 %. This falls well below the audit standard of 90 %, although Wales is closer to achieving this than England. In fact, only 15 organisations across both countries managed to achieve this standard. In England, we also measure the proportion of patients who have a lung CNS present when they receive their diagnosis. This occurred in 60 %, again slightly above last year, and is below the audit standard of 80 %. 14 trusts in England managed to achieve this standard.

Assessed by a lung CNS (audit standard 90 %)	72% ✗	86% ✗
Lung CNS present at diagnosis (audit standard 80 %)	60% ✗	N/A

Figure 8: Specialist nursing measures

Recommendations

9. Organisations should ensure that their specialist nursing workforce is staffed to the level recommended in national commissioning guidance (one whole-time equivalent nurse for an annual caseload of 80 new patients). They should also ensure that the range of roles undertaken by specialist nurses is appropriately clinically focused, and they have adequate administrative support. Specialist nurses should undertake more detailed audit, examining reasons why patients do not see a lung CNS, in order to develop action plans to address the gaps.

One-year survival rates

The aim of treatment is to provide a cure for as many patients with lung cancer as possible, as well as to maintain quality of life in survivors and those who will still die of the disease. We do not set a target for survival; rather, we expect that attention to individual components will deliver improvements. Due to the timelines of analysis of patients diagnosed in 2017, our analysis of 1-year survival only includes patients diagnosed in January–September 2017 (**Figure 9**).

Audit standard N/A   36%   40%

1-year survival **37%** compared with 31% in 2010

GOOD PRACTICE	NOT SIGNIFICANT	ALERT	ALARM
11	**132**	**2**	**2**
Statistically significantly better than the overall result	Not statistically significantly different from the overall result	Statistically significantly worse than the overall result at the 95% level	Statistically significantly worse than the overall result at the 99.8% level

ORGANISATION-LEVEL RESULTS

Figure 9: One-year survival

Commentary

The overall 1-year survival for patients with lung cancer across all stages in England and Wales has remained stable at 37%. Survival was slightly better overall for patients in Wales. There was very substantial variation across organisations from 27% to 49% (excluding tertiary trusts). There are four organisations that have been identified as negative outliers.

Improving survival requires a proactive and timely approach to investigation and treatment within secondary care organisations. The expanding range of treatment options, coupled with the increases in treatment rates seen in this report offers hope. However, with 57% of patients presenting with advanced and incurable disease, there is an urgent need to diagnose lung cancer at an earlier stage if survival is to improve significantly. This requires a focus on what happens in primary care before the referral to the hospital, and for the first time we have analysed several key measures (route to diagnosis, stage at diagnosis and 1-year survival) at the level of individual clinical commissioning groups (CCGs). These data are available from our website and we hope this will provide some impetus to look at local primary care services (www.nlcaudit.co.uk).

There is much excitement in the lung cancer community regarding the benefits of CT scan screening for lung cancer in high-risk populations. At the time of publication, a number of pilot screening projects are to be funded in England. The NLCA welcomes this development and lends its voice to calls to extend this to case-finding in all individuals who have stepped forward for a clinical assessment and are found to be at high risk of lung cancer.

Commentary on England results

Since its first annual report in 2005, the NCLA has quantified the variation in clinical practice and outcomes in England. Data completeness has improved, making comparisons more reliable, and outcomes have improved over this period. In this report we see improvement in elements of the diagnostic process and in treatment rates. Data completeness for performance status (PS) and stage – two of the most important independent predictors of survival, and therefore essential in casemix adjustment – is high at 85 % for PS and 96 % for stage. However, the range of completeness for PS by Cancer Alliance is 60 % to 100 %, so this might have a significant effect on comparisons. Those trusts with lower values should prioritise accurate data collection. At presentation to secondary care there was significant variation in the proportion of patients that had a PS of 0 or 1 within individual trusts. This range deserves focused investigation, as it is so influential and if linked to reversible causes, such as length of pathway, could drive further service improvement. The rates of curative treatment intent in people with stage I–II and PS 0–1 were very encouraging overall at over 80 %, but here again the variation is from 50 to 100 %. Casemix-adjusted surgical resection rates are still markedly different according to Cancer Alliance, with three Alliances achieving over 19.5 % and five under 15.5 %.

As a whole, the audit shows the now familiar picture of marked variation that is much greater than the individual or collective improvement. This again shows that if all Alliances could achieve the outcomes of the best, our outcomes would match those seen in the better performing countries in Europe. So, how can this be achieved? Arguably we now have the tools, and the challenge is to use them in the context of the financial restraints and limited human resources. These tools are the National Optimal Lung Cancer Pathway (NOLCP) and the National Service Guidance for Commissioners (NSGC), now augmented by the likelihood of a national lung cancer screening programme. The use of these tools, while underway, is not reflected by this NLCA report, but may be in the future. The NOLCP, although a major priority and supported by NHS England, GIRFT, the National Forum for Lung Cancer Nurses, CRUK and Cancer Alliances, is yet to be fully realised as it is a significant challenge to deliver. The NSGC has received only limited attention yet may be the key to addressing variation and delivering the NOLCP. Providers should be familiar with this, as should the Cancer Alliances. The latter have the job of improving services across their geographies and are grappling with the marked differences in the facilities and expertise in their hospitals. One of the key recommendations in the NSGC is that all MDTs have committed experts in the same numbers as in the better resourced trusts. If this cannot be provided locally, it should be sourced elsewhere, but still provided in the local area where possible. The NLCA organisational audit is providing useful information about this aspect, which is a major driver of variation in clinical outcomes.

Low radiation dose CT (LDCT) screening for lung cancer is gaining momentum since the publication of the NELSON results. However, even before publication, NHS England had committed the largest amount of money ever in a lung cancer project (£70 million) to funding 10 or more pilot programmes, run as 'Lung Health Checks'. Effective implementation of the NOLCP, NSGC and LDCT screening is completely dependent on the engagement and commitment of clinical teams. We are lucky to have so many dedicated lung cancer teams striving to provide the best for their patients. We now have an unprecedented opportunity, given the support from NHS England in the form of considerable funding via transformation funds to the Cancer Alliances and the funding for the targeted CT screening pilots. We need to continue to argue for better equipment and more human resource to cope with the demand created by the increasing numbers of patients and complex diagnostic, staging and treatment pathways. This NLCA report helps support those arguments.

David R Baldwin (chair, Clinical Expert Group for Lung Cancer and Mesothelioma, NHS England)

National Optimal Lung Cancer Pathway (NOLCP): http://bit.ly/NOLCP
National Service Guidance for Commissioners (NSGC): http://bit.ly/lccomguidance

Commentary on Wales results

The 2017 patient cohort demonstrates mixed results for Wales with respect to the five key measures. Data completeness remains very good, although additional case finding via other datasets, pathology reports and death certificate data is not yet happening. The surgical resection rate increased from 17.1 % in 2016 to 18.3 % in 2017, and chemotherapy rates in SCLC increased from 64.7 % in 2016 to 77 % in 2017. Most importantly the 1-year survival rate for Wales increased from 37 % in 2016 to 40 % in 2017. However, SACT treatment rates in NSCLC (stage IIIB–IV and PS 0–1) show no improvement on last year at 56 %, missing the audit standard by 10 %. Four of the five negative outlier alerts issued to Welsh organisations were due to low SACT treatment rates. This is an area that will need investigation and support to identify and address the underlying causes.

There is significant variation in performance across Wales. Surgical resection rates vary from 10 % to 25 % and SACT treatment rates in NSCLC (stage IIIB–IV and PS 0–1) from 38 % to 81 %. Variation exists not just in the number of treatments given, but also in the way organisations deliver care. The proportion of patients with small-cell lung cancer treated within 14 days of diagnosis varies from 12 % to 71 %.

Next year will see the introduction of two key initiatives that may help reduce variation. Firstly, the National Optimal Lung Cancer Pathway (NOLCP) will be adopted in Wales. The second is the introduction of the Single Cancer Pathway (SCP), which aims to record the time from point of suspicion of cancer to treatment as a single Cancer Waiting Time (CWT) target. It will replace the current two CWT targets for urgent suspected cancer (USC) and not urgent suspected cancer (nUSC). The combination of these two initiatives will ensure a patient is afforded the same priority in the healthcare system regardless of how they present: whether through their local A&E department with haemoptysis, or through referral via the USC route. Since 60 % of patients with lung cancer present via the nUSC route, the SCP should more accurately reflect patient experience and pressure points in the diagnostic system for all patients regardless of the route of presentation.

The clinical lung cancer community in Wales recognises the potential benefits of CT screening of high-risk populations and will be working with Welsh government and NHS Wales to develop such services in Wales.

Gareth Collier (lung cancer site group lead), Dana Knoyle (Single Cancer Pathway clinical lead), Wales Cancer Network

Improvement examples

In early December 2017 the NLCA informed me (as the lung cancer lead) and the trust that we had been flagged as an alarm level outlier for SACT in advanced stage, good PS patients for the 2016 cohort. This was a shock and something of a surprise, as in 2015 we were above the national average. In retrospect, this wasn't so surprising, as our previous lung oncologist had resigned and not been replaced. He had been working without cover and in his subsequent absence we had a series of locums.

Initially we looked at our data and found a significant drop in PS data completeness. A rapid review of all the stage III and IV patients showed that this, coupled with inaccurate PS recording, explained some of the change, but perhaps not all. A summary and action plan was written, sent to the clinical director and reported upwards. Inadequate oncology cover had been raised as a risk for the previous 5 years during peer review, without action being taken to remedy the situation. Data quality controls were put in place and some commitments to better oncology cover were made. The action plan has been reviewed and extra impetus was provided by a CQC inspection that raised specific questions regarding this issue, and implementation of the plan. Changes have occurred and there is more focus within the MDT on ensuring patients get to chemotherapy where appropriate. We still have no substantive oncologist but there is a locum who has a lung focus and named cover. Our PS data completeness is back to expected levels.

Overall the outlier process was stressful and unsettling for the lung cancer team and made us question whether we were letting our patients down, but ultimately this is appropriate. Our systems have improved but more work is needed and the outlier process was a useful external pressure to facilitate action on a key issue that had not been prioritised before. I would rather not do it again though!

Dr Malcolm Lawson, lung cancer clinical lead at Mid-Essex Hospital Services NHS Trust

Portsmouth Hospital serves a diverse population of approximately 600,000, with a broad spectrum of socio-economic groups. Approximately 450 cases of lung cancer are diagnosed each year, with a further 50 cases of mesothelioma. In 2017 Portsmouth Hospital was identified as an outlier in three areas: surgical resection rates, systemic anti-cancer therapy in advanced NSCLC, and chemotherapy in SCLC.

Data accuracy was vital to understanding the underlying issues. We undertook a data evaluation, including a review of patient notes, and identified discrepancies between source data and data being uploaded to the NLCA. Consequently we now hold a monthly review with Information Services, identifying and correcting inaccuracies to ensure high-quality data with which to improve our service. Audits also identified inaccurate documentation of performance status (PS), which can deteriorate while investigations are awaited. PS is now reviewed at the time of breaking bad news to ensure decisions surrounding treatment options are captured correctly. Every case of SCLC or advanced NSCLC, where the patient is documented to have a good PS, is reviewed to ensure the data is correct. We identified further areas of missing data, such as activity undertaken by our lung cancer nurses, and introduced tools to capture this in clinic. Again, this is reviewed on a monthly basis.

Surgical resection rates have improved by ensuring 'borderline' surgical candidates and complex cases are discussed in the weekly multidisciplinary team meeting with a thoracic surgeon present, and patients offered clinic review with a surgeon where appropriate. By implementing our action plan, our performance in every area of the NLCA has improved in the past 12 months. In particular, treatment rates for SCLC have improved to 76%, which is above the audit standard. The momentum generated by our action plan has encouraged the team to develop the lung cancer service further. Our current challenges include delivery of the National Optimal Lung Cancer Pathway, and a desire to detect lung cancer at an earlier stage and improve survival.

We are currently reviewing the entire diagnostic pathway to find efficiencies and reduce delays, aided by a respiratory registrar undertaking a quality improvement fellowship who provides data and analysis to guide our improvements. We are investing in pathway coordinators to organise clinics and diagnostic tests, highlight results outside of the MDT setting, and guarantee complete and accurate data for the NLCA. We have also received investment through a transformation bid to increase our CT capacity with the future intention of scanning high-risk patients to detect lung cancer at an earlier stage, and to bolster our other diagnostic capacity.

Dr David Lodge, respiratory registrar & Wessex quality improvement fellow, Portsmouth Hospitals NHS Trust

NLCA in 2019 and beyond

There are currently a number of other NLCA workstreams in progress:

- the audit of surgical outcomes for patients diagnosed in 2016 was published in early 2019
- trusts in England and Wales are busy entering data on our second spotlight audit, focusing on molecular diagnostics in patients with advanced NSCLC
- in early 2019 we launched an online organisational audit of services for mesothelioma patients, focusing on arrangements for 'specialist' MDTs, which will include organisations in England, Wales, Scotland and Northern Ireland. This work will be funded by the charity Mesothelioma UK and continues our close working with them.

Throughout 2019, we will continue to focus on supporting lung cancer teams, particularly those highlighted as negative outliers, to develop action plans to improve their services, and will look at delivering a range of resources to complement this.

Looking beyond 2019, we have done work to ensure that the datasets that underpin our audit remain appropriate and contemporary. In consultation with NCRAS, we have proposed changes to the lung-specific sections of COSD to allow richer data on the use of bronchoscopy and endobronchial ultrasound (EBUS) and to collect data on treatment of nicotine addiction. Furthermore, we have proposed additional fields to allow more detailed molecular data to be collected, since the anticipated direct data streams from molecular labs is likely to take some time before it reaches the required level of coverage that would be needed for the audit purposes.

We hope to have the opportunity in 2019 to bid for further funding to enable the delivery of a national lung cancer audit beyond our current end date of April 2020. We will seek the views of patients and clinicians to guide our vision for this extension.

You can read our glossary at:
www.nlcaudit.co.uk/AnnualReport

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