Lung Cancer 2023
Is it a silent killer?

Open Data Sources Analysis

Executive Summary

Lung cancer is one of the most common cancers in the UK and consistently has the highest mortality of all cancers.

Ensuring faster diagnoses and more effective treatment for patients with lung cancer will help prolong the lives of more lung cancer patients.

This white paper analyses key data sources for cancer and aims to assess the current performance of two cancer-specific ambitions set by NHS England to improve patient outcomes, using lung cancer as an example.

Overview

The NHS Long Term Plan was introduced in 2019 and included several ambitions specific to cancer to improve patient outcomes.

But the Long Term Plan for Cancer was withdrawn in January 2023 to instead integrate cancer into the Major Conditions Strategy.

Two cancer-specific ambitions remain:

1. Extended screening to get 75% diagnosed early
2. Simplification of Cancer Waiting Times Standards

Objectives

This white paper seeks to examine the following key aspects relating to lung cancer:

1. The current situation of incidence and mortality
2. The NHS cancer strategy, highlighting the above two key ambitions
3. Assessment of these two key cancer-specific ambitions that are part of the current strategy

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Lung cancer overview - survival

Lung cancer 1-year and 5-year survival

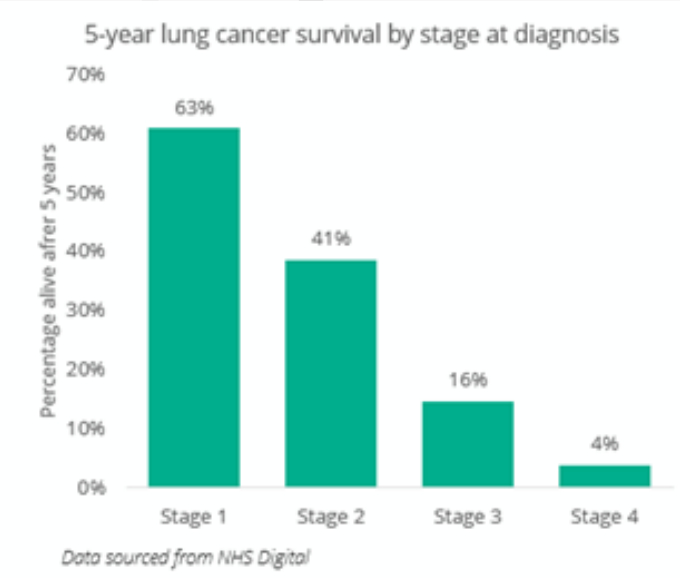
Cancer survival data for England shows that for adults diagnosed with lung cancer between 2016 to 2020 and followed up to 2021:

- **45 out of 100 patients** (45%) survive their cancer for at least **1 year**
- **21 out of 100 patients** (21%) will survive their cancer for at least **5 years** [1]

When stage at diagnosis is taken into account, the data shows that early diagnosis is critical to patient outcomes.

Data for England for adults with lung cancer diagnosed between 2016 - 2020 shows:

- When diagnosed at **Stage 1, 63%** of patients are alive 5 years after diagnosis
- In comparison, when diagnosed at **Stage 4 only 4%** of patients are alive [1]



Therefore, **early diagnosis is critical** to patient outcomes.

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Incidence and mortality

Incidence/mortality vs. incidence/mortality rate:

Statistics for incidence and mortality refer to the absolute number of registrations in a year.

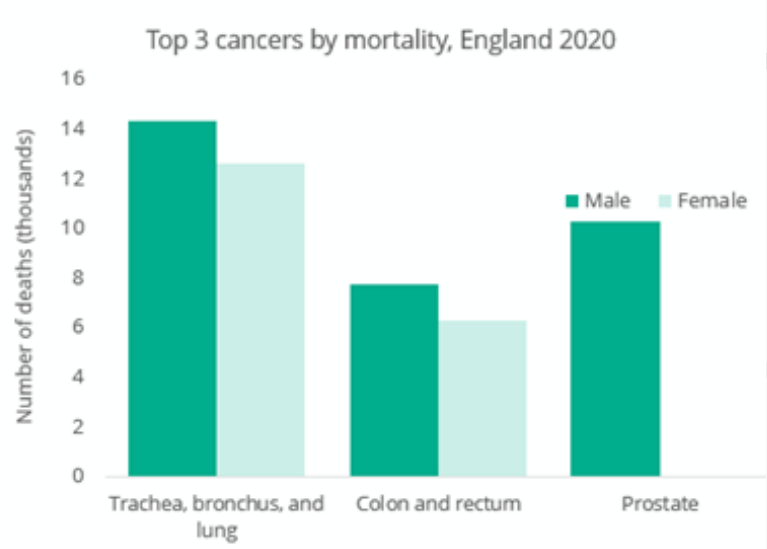
In contrast, statistics provided in terms of rates, refer to the number of registrations per 100,000 people in a year.

Therefore, **although the rates of lung cancer may have improved in recent years, absolute numbers are still increasing,** increasing the pressure on NHS services.

Symptoms of lung cancer are difficult to observe at an early stage and can appear similar to other respiratory conditions, leading to the disease having the highest mortality of all cancers.

Data for England in 2020 shows:

- 26,936 lung cancer deaths were registered, accounting for 19% of all cancer deaths
- The second greatest number of deaths was caused by colon and rectum cancer and accounted for 10% of deaths [2]



Data sourced from NHS Digital – Cancer Registration Statistics, England 2020

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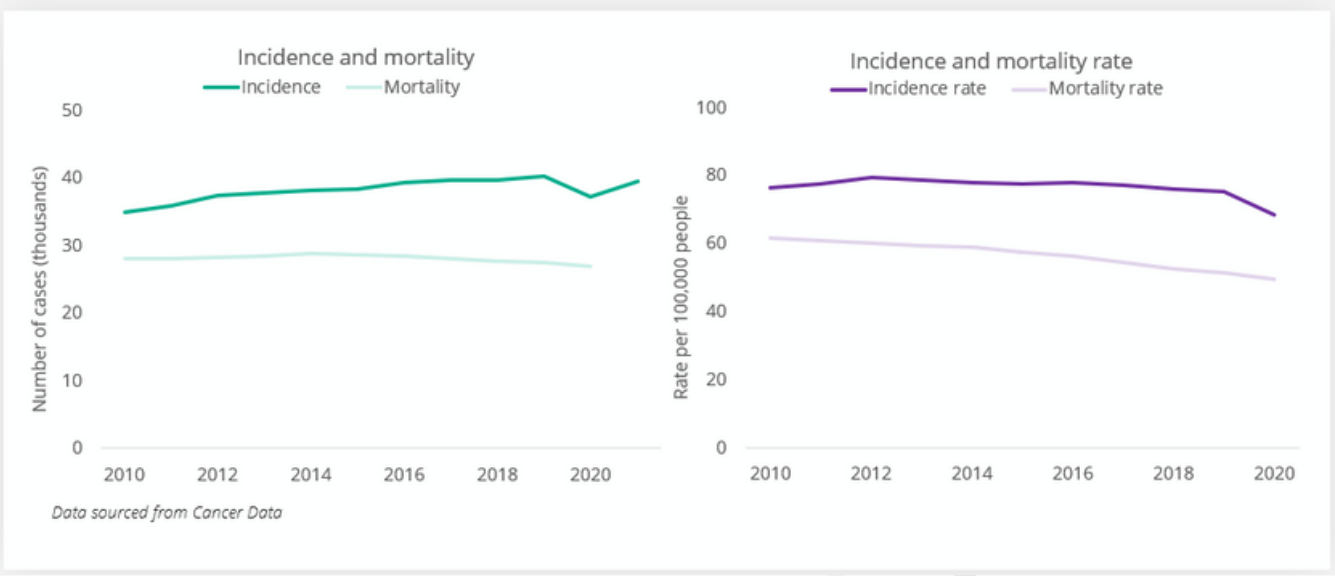
Incidence and mortality

In the last decade, the lung mortality rate has improved by 20% (62 to 50 deaths per 100,000 for 2010 to 2020 respectively). In the same time, the absolute number of deaths only decreased 4% (~28,000 to ~27,000). [3]



When looking at the incidence data for the same period, the incidence rate appears to have decreased by 9%. However, this is caused by the drop in cases diagnosed in 2020 due to the pandemic. [3]

More realistically, the incidence rate for 2010 to 2019 fell by 1%. Provisional data for 2021 shows incidence returned to pre-pandemic levels and so the incidence rate of lung cancer is expected to be similar to in 2019. [2]

While the incidence rate is largely unchanged, the absolute number of lung cancer diagnosed has increased 16% from 2010 to 2019. If this continues over the next few years, more patients will require treatment and the pressure on NHS services increases. [3]

The NHS Current Strategy

With the Long Term Plan for Cancer been replaced by the Major Conditions Strategy, we look at two of the key cancer ambitions that remain:

Targeted Lung Health Check Programme

In areas with the highest mortality rates, those at high-risk are being invited for lung screening.

Eligibility for the programme includes:

- Aged between 55 and 74
- Current or former smokers
- Registered with a GP surgery
- Live in areas where lung health checks are currently offered [3]

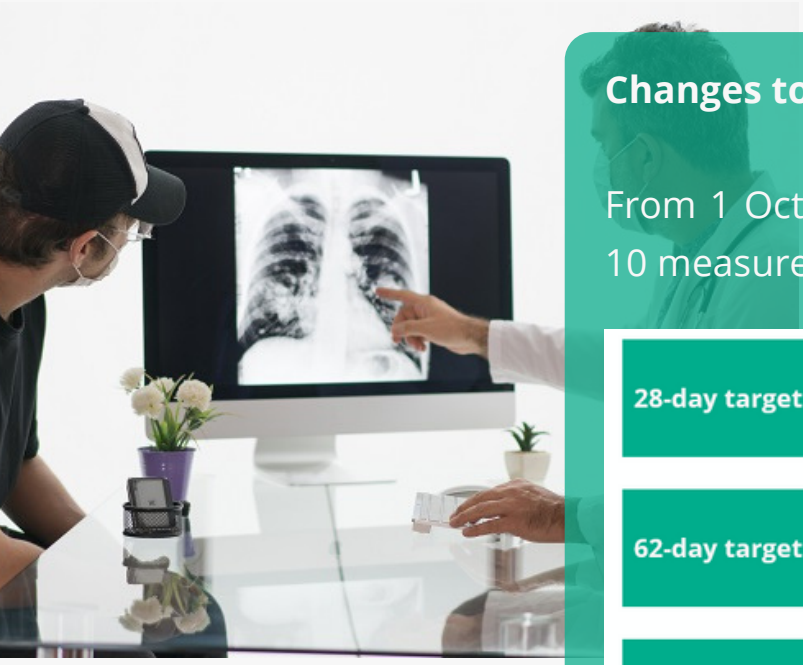
1. **Extended health screening** programmes to aim for **75%** of all cancer **diagnosed at an early stage (1 or 2)**

For lung cancer, the Targeted Lung Health Check Programme was introduced. Piloted in areas with the highest mortality rates, the programme has been a success. For example the Manchester pilot resulted in ~80% of lung cancer diagnosed at an early stage, which will improve survival rates. [4]

In September 2023 it was announced 1 million eligible people would be invited for screening. However, phase one of the rollout focuses on screening 40% of this population by March 2025 and 100% by March 2030. [5]

In the short term, **increased screening may increase incidence** of lung cancer, so more patients will require early-stage treatment.

The NHS Current Strategy



Changes to Cancer Waiting Times Standards

From 1 October 2023, NHS England have simplified 10 measures into 3 core measures: [6]

28-day target	**28-day Faster Diagnosis Standard** *Communication of definitive cancer or not cancer* *Starting from patients referred urgently and NHS cancer screening*
62-day target	**62-day wait to first treatment** *Starting from patients referred urgently and NHS cancer screening*
31-day target	**31-day wait from decision to treat to treatment** *Starting from decision to treat any cancer, regardless of diagnosis pathway*

2. **Simplification of Cancer Waiting Times Standards** to **improve** the **performance of cancer service** across the nation

The main change is the removal of the Two Week Wait in favour of the 28-day Faster Diagnosis Standard. It should be noted that TWW data will still be published, but ICBs performance will be measured by the core standards.

This sits within the The Faster Diagnostic Framework which aims to deliver:

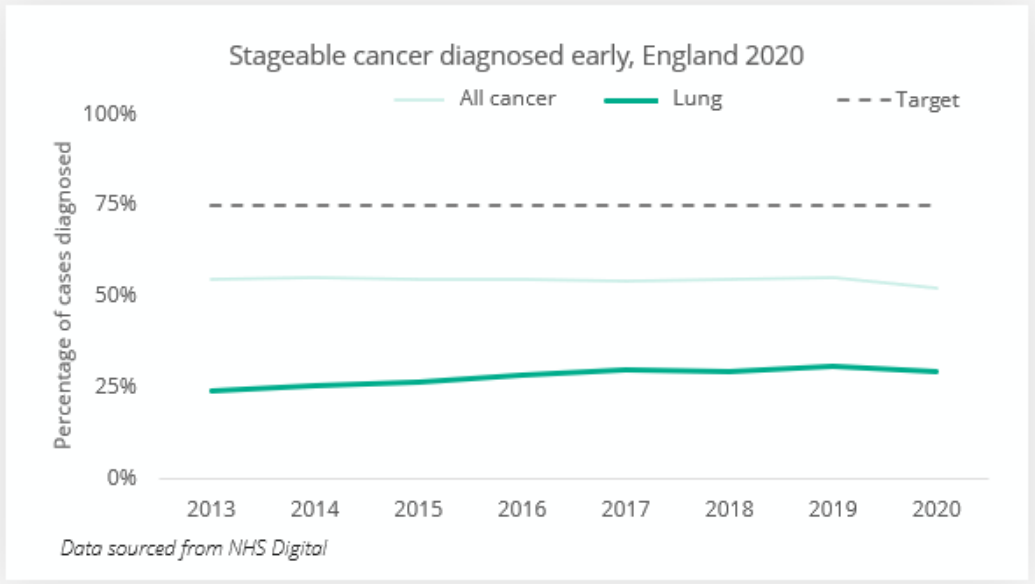
- an earlier and faster diagnosis for patients, whether or not they are diagnosed with cancer
- excellent patient experience, a holistic assessment of patient needs, and streamlined support across community, primary and secondary care
- increased capacity in the system, through more efficient diagnostic pathways
- support to healthcare providers to reach the Faster Diagnosis Standard

Evaluation of two cancer ambitions

Lung screening to hit 75% early diagnosis

NHS England aims to diagnose 75% of stageable cancer at an early stage (1 and 2) for of all cancer types. Case-mix adjusted cancer data identifies the numbers of cancers diagnosed within a given year and can be used within the Open Data license. The data available is grouped by individual stages 1-4 for all cancer or for 18 specific cancer types, including lung.

Looking at the data for 2020, we see that **England is far off target** for all cancer and even further off for lung cancer. [7]



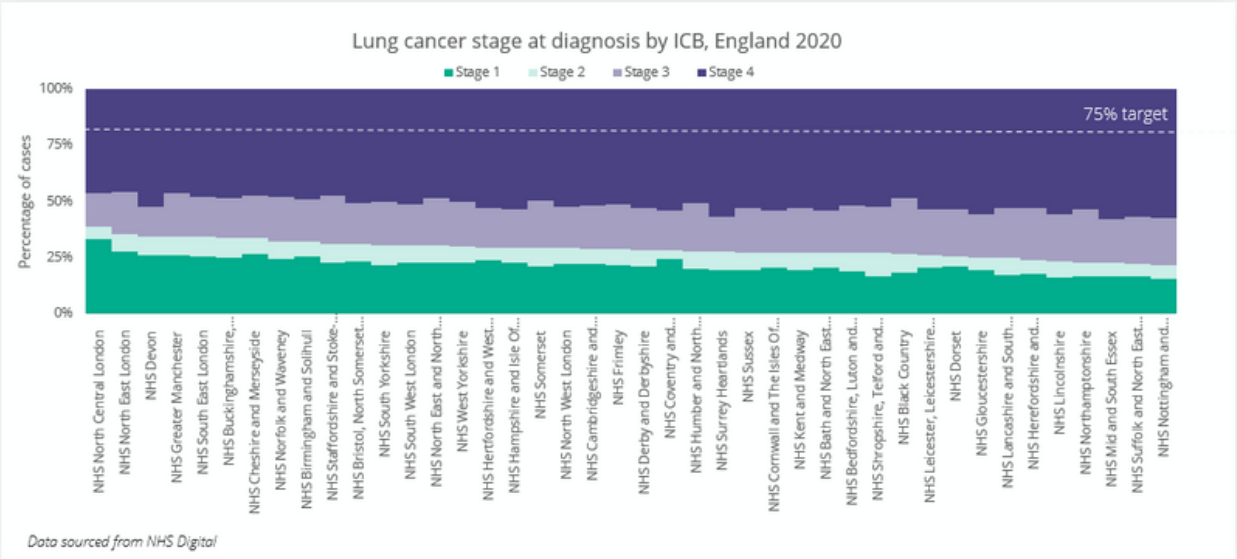
The percentage of all cancer diagnosed at an early stage (1 or 2) remained around 55% for 2013 to 2019, however dropped to 52% in 2020. [7]
In comparison, lung cancer has increased from 24% to 31% in the same time, with a drop to 29% in 2020. Provisional data for 2021 shows lung cancer is back to 31% diagnosed at an early stage. [2]

Stageable cancer excludes cancer that is unstageable or have missing information.

Evaluation of two cancer ambitions

No ICBs are on target for diagnosing 75% of lung cancer at an early stage

The data above is also available at a sub-ICB level and can be used to assess overall performance of each ICB. Above, we have seen that England as a whole is far off target, however we now establish whether this is a national trend, or if some ICBs are at or close to the 75% early diagnosis target.



The data for 2020 shows **no ICBs are close to the 75% target**, with the best performing ICB diagnosing 39% of lung cancer at an early stage. At the other end of the scale, the worst performing ICB diagnosed 22% at an early stage. At the sub-ICB level the variation is greater, ranging from 45% to 16% of lung cancer diagnosed at stages 1 or 2. [7]

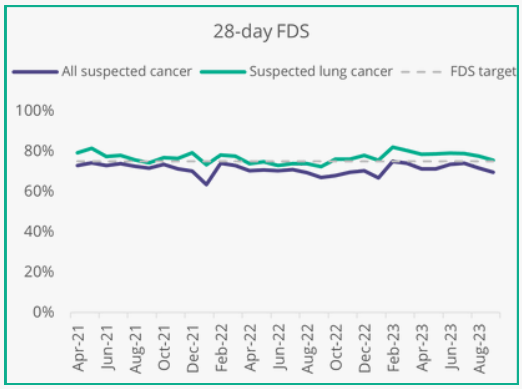
Although ICBs' performance varies nationally, the above chart highlights that the **majority of all lung cancer is diagnosed at stage 4**. In fact in 2020, an alarming 51% (~17,000 cases) of stageable lung cancer was diagnosed at stage 4, when the survival prospects are significantly worse. Therefore, increasing rates of early diagnosis could prolong the lives of thousands of patients. [7]

Evaluation of two cancer ambitions

Simplification of Cancer Waiting Times Standards

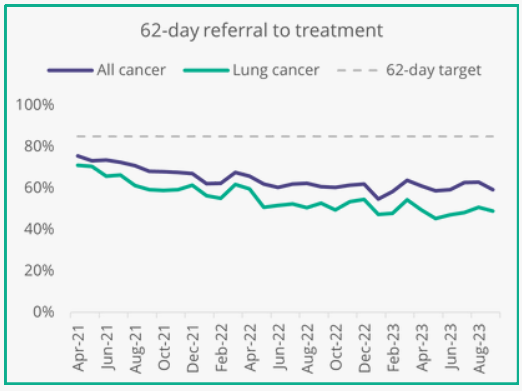
From 1 October 2023, the performance of NHS providers is rated based on the updated three core standards (28-day FDS, 62-day standard, 31-day standard). In anticipation of the release of this data (since these changes were implemented), we look to assess the current performance. *FDS data was first published in April 2021, when the change to standards were first proposed.*

Cancer Waiting Times standards for England, Apr 2021 to Sep 2023



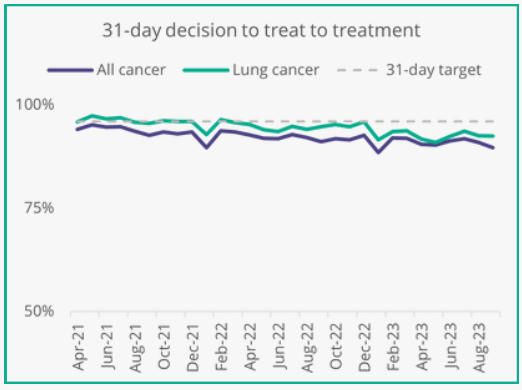
Lung cancer performs better than all cancer and both are sitting around the 75% FDS target.

In 2023, England is averaging 72% for all cancer and 78% for lung cancer.



Lung cancer performs worse than all cancer and neither are around the 85% 62-day target or 70% interim target (by March 2024).

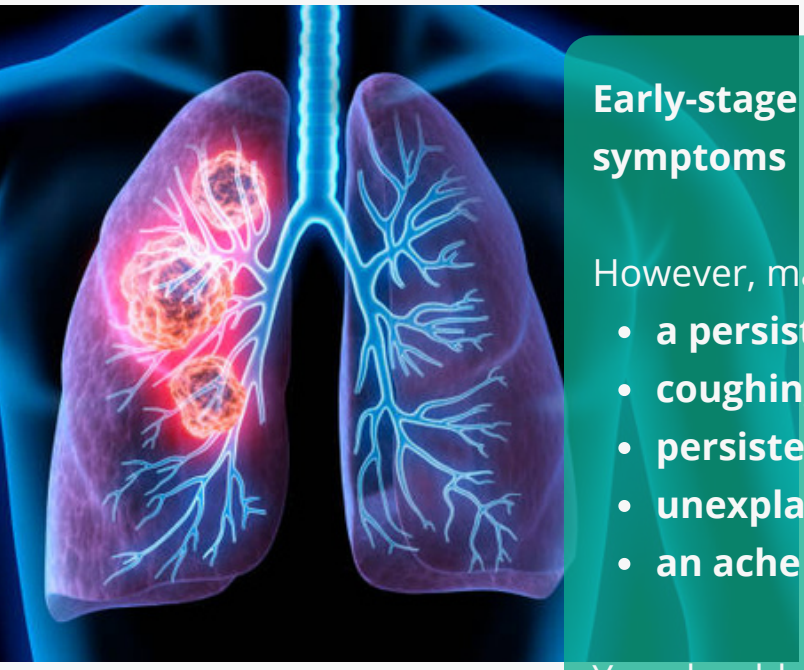
From Apr 2021 to Sep 2023, the lung has fallen from 71% to 49%. In 2023, England is averaging 60% for all cancer and 49% for lung.



Lung cancer performs better than all cancer, but both are moving away from the 96% 31-day target. Lung cancer last hit target in Dec 2022.

In 2023, England is averaging 91% for all cancer and 93% for lung cancer. [8]

SUMMARY



Early-stage lung cancer typically has **no signs or symptoms**

However, many people go on to develop:

- **a persistent cough**
- **coughing up blood**
- **persistent breathlessness**
- **unexplained tiredness and weight loss**
- **an ache or pain when breathing or coughing**

You should **see a GP** if you have these symptoms

In summary, this white paper has highlighted that, despite an improving mortality rate, **lung cancer** still has the **highest mortality** of all cancers and stage at diagnosis is one of the key factors influencing mortality, showing the importance of early diagnosis.

Nationally, only ~30% of lung cancer is currently diagnosed at an early stage, **far below the NHS England target of 75%**. While programmes like the Targeted Health Check Programme have been shown to improve rates of early diagnosis and reduce preventable deaths, the programme will not be fully rolled out until 2030.

Lung cancer performs above average for the FDS target, therefore patients have a relatively short wait for a definitive diagnosis of cancer or not cancer.

Therefore, if you are between the **ages of 55 to 74** and have ever **smoked**, or notice **symptoms** indicative of lung cancer, get your **lungs checked** out before it is too late. [9]

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About CSL

"There is a wealth of data available online, using it effectively can **make all the difference** for pharma companies.

The issue is that it is difficult to collate, clean, and interpret; **this is where we come in**."

Lee Ronan, Commercial Director, CSL

The wealth of NHS data available online provides invaluable insights for healthcare stakeholders, including pharmaceutical companies. However, collating, cleaning, and interpreting this data can be challenging.

CSL monitors, processes, cleans, and standardises unstructured "open data" into usable databases. These databases enable in-depth analysis and the extraction of valuable insights that can inform strategic decisions.

We play a vital role in processing and structuring this data to unlock its potential. By effectively employing NHS open data, stakeholders can make informed decisions, address challenges in lung cancer survival rates, and ultimately improve patient care.

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References

[1] Cancer Survival in England, cancers diagnosed 2016 to 2020, followed up to 2021 - NHS Digital

[2] Cancer registrations statistics, England - NHS Digital

[3] CancerData

[4] Manchester's Lung Health Check Pilot report (mft.nhs.uk)

[5] New lung cancer screening roll out to detect cancer sooner - GOV.UK (www.gov.uk)

[6] Cancer Waiting Times Review - Models of care and measurement: consultation response (england.nhs.uk)

[7] Case-mix adjusted percentage of cancers diagnosed at stages 1 and 2 in England, 2020 - NHS Digital

[8] Statistics » Cancer Waiting Times (england.nhs.uk)

[9] Lung cancer - NHS (www.nhs.uk)