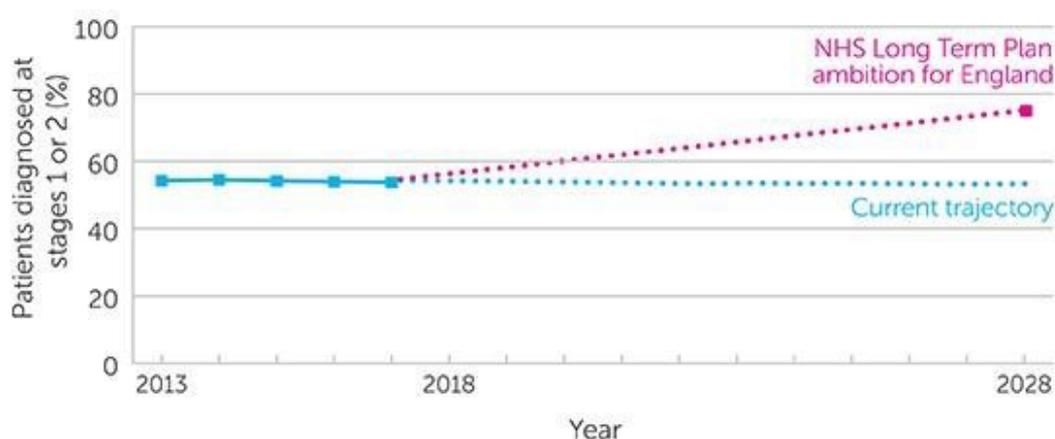


Section 1: NHS Long Term Plan Ambitions

The NHS Long Term Plan (LTP) ambition is to diagnose **75%** of known stage cancers early (stage 1 and 2) by 2028. This is a highly welcome ambition, which Cancer Research UK (CRUK) welcomed as part of the NHS LTP – we know that diagnosing cancer at an earlier stage means more curative treatment options are available and so cancer outcomes are better. However, significant further action will be needed on all fronts to achieve this ambition, given our current trajectory means we are unlikely to see 75% of all known stage cancers diagnosed at an early stage by 2028.

Observed and projected percentage of patients diagnosed at stage 1 or 2 in England



Cancers with known stage only.

Source: NCRAS (part of PHE) Staging data in England 2013-2018; Cancer Research UK projections 2019-2028.



Together we will beat cancer

In order to meet the NHS Long Term Plan ambition, by 2028, around 100,000 extra patients will need to be diagnosed early (stage 1 or 2) each year in England. This takes into account:

- Diagnosing an additional **31,800** cancers at an early stage each year in order to keep pace with rising cancer incidence
- Diagnosing a further **65,700** cancers at an early stage each year to close the gap between the current proportion of cancers diagnosed at an early stage (54%) and the 75% ambitionⁱ

If we continue on our current trajectory and do not close the gap on the NHS Long Term Plan ambition, over the course of the plan (2019 to 2028) around 343,000 cases would be diagnosed late (stage 3 and 4) instead of early (stage 1 and 2).ⁱⁱ In practice, this means that in 2028 we will fall 21 percentage points short of the 75% target, which equates to 65,700 patients being diagnosed late (stage 3 and 4) instead of early (stage 1 and 2) in that year.

Data for 2018 shows that we are at **54%**ⁱⁱⁱ and have been around this level for the previous few years. **Assuming steady improvement between 2019-2028 towards the 75% ambition, an additional 527,000 early diagnoses are required for the target to be met. This takes into account:**

- Diagnosing around 184,000 cancers at an early stage between 2019-2028 in order to keep pace with the growing incidence of cancer.^{iv}
- Diagnosing a further 343,000 cancer at an early stage between 2019-2028 in order to close the gap between the current proportion of cancers diagnosed at an early stage (54%) and the 75% ambition.^v

It is important to note that these figures are based on the current NHS LTP ambition. However, the Secretary of State for Health and Social Care has also signalled that as part of England's new 10 year cancer plan he hopes we can go further on improving cancer early diagnosis. This would mean going even further than what is set out here to ensure cancer patients receive a vital early diagnosis.

Section 2: Variation by Cancer Alliance

We know that there are inequalities across the cancer pathway through prevention, diagnosis and treatment, contributing to stark and unacceptable differences in cancer incidence and outcomes. Tackling these disparities in cancer outcomes will be hugely important if we are to achieve the national ambitions on cancer, which must be achieved for every cancer patient.

Where someone lives should not affect their chances of an early diagnosis. Within the overall improvements in early diagnosis that need to be achieved as laid out above, there is the potential to reduce the patients diagnosed at late stage simply by removing variation in performance between Cancer Alliances – efforts against which would also contribute significantly to overall efforts to improve early diagnosis.

All Cancers Combined

In 2018, around 8,100 extra cancer patients could have been diagnosed at stage 1 or 2 if every Cancer Alliance had the same proportion of patients diagnosed early as the Cancer Alliance with the highest proportion of early diagnoses.^{vi}

This would increase the proportion of cancer patients diagnosed early in England by around 4 percentage points from 54% to 58%.

Lung Cancer

The proportion of lung cancer cases diagnosed at stage 1 and 2 ranged from 25% to 35% across Cancer Alliances in 2016-2018. We estimate:

- Around 2,300 extra lung cancer patients each year could be diagnosed at stage 1 or 2 (rather than 3 or 4) if every Cancer Alliance had the same proportion of lung cancer patients diagnosed at stage 1 and 2 as the Cancer Alliance with the highest proportion.^{vii}
- This would increase the proportion of lung cancer patients diagnosed at stage 1 and 2 in England by around 6 percentage points; from 29% currently to 35%.

Bowel Cancer

The proportion of bowel cancer cases diagnosed at stage 1 and 2 ranged from 40% to 47% across Cancer Alliances in 2016-2018. We estimate:

- Around 720 extra bowel cancer patients each year could be diagnosed at stage 1 or 2 (rather than 3 or 4) if every Cancer Alliance had the same proportion of bowel cancer patients diagnosed at stage 1 and 2 as the Cancer Alliance with the highest proportion.^{viii}

- This would increase the proportion of bowel cancer patients diagnosed at stage 1 and 2 in England by around 2 percentage points; from 44% currently to 46%.

Section 3: The importance of quality data on early diagnosis

Analyses in this document have been undertaken using 2018 data. [Data for 2019](#) were released in December 2021, however in this latest dataset we have seen a concerning drop in the percentage of cancers with available staging information.

Staging data completeness increased from 75% in 2013 to 86% in 2015 after which it has remained around the same level. For 2018 registrations, 85% of stageable cancers have staging data. However, for 2019 this dropped substantially to 77%. This drop is particularly concerning, because indications are that this drop in staging completeness is likely to remain for 2020 and 2021 registrations. The impacts of the pandemic on 2020 data and beyond may also further affect completeness.

If we cannot reliably determine what percentage of cancers are diagnosed at an early stage then we will not be able to assess progress against the NHS LTP. It will also be detrimental to efforts to understand differences between cancers diagnosed early vs late. This will have knock on impacts for patients if the underlying reasons for differences cannot not be understood and thereby addressed.

Therefore, alongside efforts to address the systemic barriers to early diagnosis, we also need efforts to ensure we have the best quality data available to assess our progress. We have yet to understand what is impacting staging data completeness which is a question that needs answering urgently – understanding whether this is a technical issue, the early impacts of the pandemic or another problem. NHS England and NHS Digital need to take urgent action to understand what has affected staging completeness, and then make efforts to mitigate the impacts of the pandemic and return staging data completeness to 2018 levels or better. Alternative approaches should also be considered to capture stage at diagnosis at the point of treatment decisions to allow for more timely assessment of any changes in stage of disease over time.

ⁱ Calculations conducted in house by the Cancer Intelligence team, Cancer Research UK. Projected known stage incidence is based on current completeness applied to projected incidence. The total difference is the current number diagnosed early vs 75% of the projected known stage incidence. The progress gap is the current proportion applied to projected known stage incidence, vs 75% of the projected known stage incidence.

ⁱⁱ The current trajectory assumes 54.4% of known stage cases diagnosed early (in stage 1 and 2) each year. The trajectory required for the 75% ambition would require a 2.06ppt increase year on year. For each year the difference in the percentage points between the ambition trajectory and the current trajectory was calculated, then applied to the projected incidence to calculate the shortfall in terms of patients. The sum of shortfalls between 2019 and 2028 resulted in 343,000 cases.

Source: Current stage distribution sourced from PHE 2021 data release (https://www.cancerdata.nhs.uk/stage_at_diagnosis) and projected incidence from Smittenaar et al. Cancer Incidence and Mortality Projections in the UK Until 2035. Brit J Cancer 2016.

ⁱⁱⁱ Note, in CRUK's original submission to the HSC Select Committee Cancer Inquiry we stated that 55% of cancer patients who with a known stage were diagnosed at stages I and II. However, updated data has since been released in December 2021 so the current figure of 54% represents the most up to date estimate of the proportion of known stage cancers diagnosed early in 2018. This data also

offers 2019 estimates however completeness is notably lower so have not been included into calculations.

^{iv} The statistic of '184,000 cancers needed to be diagnosed early in order to keep pace' is the difference between the 2018 number of people diagnosed early (around 141,400) and the 2018 proportion (54.4%) of the known stage cancers diagnosed early, applied to the projected incidence, for each year between 2019 and 2028 inclusive.

^v The current trajectory assumes 54.4% of known stage cases diagnosed early (in stage 1 and 2) each year. The trajectory required for the 75% ambition would require a 2.06ppt increase year on year. For each year the difference in the percentage points between the ambition trajectory and the current trajectory was calculated, then applied to the projected incidence to calculate the shortfall in terms of patients. The sum of shortfalls between 2019 and 2028 resulted in 343,000 cases.

Source: Current stage distribution sourced from PHE 2021 data release

(https://www.cancerdata.nhs.uk/stage_at_diagnosis) and projected incidence from Smittenaar et al. Cancer Incidence and Mortality Projections in the UK Until 2035. Brit J Cancer 2016.

^{vi} Calculations conducted in house by the Cancer Intelligence team, Cancer Research UK. The Cancer Alliance with the highest proportion of early stage diagnoses was identified for each quarter in 2018, and the proportion applied to all other Cancer Alliances for that quarter, to determine the number of patients who could have been diagnosed early. Of note, the highest proportion of early diagnoses across all cancer sites for any given quarter in 2018 was 59%. This estimate does not take into account socio-demographic differences between Cancer Alliances, so could be an overestimate of the variation in stage at diagnosis that might be feasible for Cancer Alliances to avoid.

^{vii} These estimates are based on the annual average number of patients diagnosed at stage 1 and 2 (2016-2018), using data from: PHE, Staging Data in

England, https://www.cancerdata.nhs.uk/stage_at_diagnosis

A small proportion of variation in diagnosis of lung/bowel cancer at stage 1 and 2 between Cancer Alliances could be due to differences in the socio-demographic mix of patients in each Cancer Alliance. This estimate does not take into account socio-demographic differences between Cancer Alliances, so could be an overestimate of the variation in stage at diagnosis that might be feasible for Cancer Alliances to avoid.

^{viii} These estimates are based on the annual average number of patients diagnosed at stage 1 and 2 (2016-2018), using data from: PHE, Staging Data in

England, https://www.cancerdata.nhs.uk/stage_at_diagnosis

A small proportion of variation in diagnosis of lung/bowel cancer at stage 1 and 2 between Cancer Alliances could be due to differences in the socio-demographic mix of patients in each Cancer Alliance. This estimate does not take into account socio-demographic differences between Cancer Alliances, so could be an overestimate of the variation in stage at diagnosis that might be feasible for Cancer Alliances to avoid.