NBOCA
National Bowel Cancer Audit

NATCAN
National Cancer Audit Collaborating Centre

National Bowel Cancer Audit State of the Nation Report

An audit of care received by people with bowel cancer in England and Wales focusing on people diagnosed between 1 April 2022 and 31 March 2023.

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NBOCA

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ADVANCING SURGICAL CARE

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HQIP
Healthcare Quality Improvement Partnership

The National Cancer Audit Collaborating Centre (NATCAN) is commissioned by the **Healthcare Quality Improvement Partnership (HQIP)** as part of the National Clinical Audit and Patient Outcomes Programme (NCAPOP). NATCAN delivers national cancer audits in non-Hodgkin lymphoma, bowel, breast (primary and metastatic), oesophago-gastric, ovarian, kidney, lung, pancreatic and prostate cancers. HQIP is led by a consortium of the Academy of Medical Royal Colleges and the Royal College of Nursing. Its aim is to promote quality improvement in patient outcomes, and in particular, to increase the impact that clinical audit, outcome review programmes and registries have on healthcare quality in England and Wales. HQIP holds the contract to commission, manage and develop the National Clinical Audit and Patient Outcomes Programme (NCAPOP), comprising around 40 projects covering care provided to people with a wide range of medical, surgical, and mental health conditions. The programme is funded by NHS England, the Welsh Government and, with some individual projects, other devolved administrations and crown dependencies.
https://www.hqip.org.uk/national-programmes

The Association of Coloproctology of Great Britain & Ireland

Association of Coloproctology of Great Britain and Ireland (ACPGBI) is a group of 1500+ surgeons, nurses, and allied health professionals who advance the knowledge and treatment of bowel diseases in Britain and Ireland. Registered Charity no: 5962281.

acp Association of Cancer Physicians

The Association of Cancer Physicians (ACP) is the specialist society for medical oncologists in the UK. It works with and for its members to support and promote the specialty and to help improve medical care for cancer patients.

NDRS
NATIONAL DISEASE REGISTRATION SERVICE

This work uses data that has been provided by people and collected by the NHS as part of their care and support. For people diagnosed in England, the data is collated, maintained and quality assured by the National Disease Registration Service (NDRS), which is part of NHS England. Access to the data was facilitated by the NHS England Data Access Request Service.

GIG CYMRU NHS WALES
Rhwydwaith Canser Cymru
Wales Cancer Network

NHS Wales is implementing a new cancer informatics system. As a result, the quality and completeness of data from Wales is likely to have been impacted due to implementation of this new system across multiple NHS organisations (Health Boards), which has resulted in data being supplied by both old and new systems. Additionally, and reflecting the uncertainty of data quality, the data submitted to the audit may not have undergone routine clinical validation prior to submission to the Wales Cancer Network (WCN), Public Health Wales.

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1. Introduction

The National Bowel Cancer Audit (NBOCA) measures the quality and outcomes of care for people diagnosed with bowel cancer in England and Wales. This report focuses on people diagnosed with bowel cancer between 1 April 2022 and 31 March 2023.

NBOCA is part of the National Cancer Audit Collaborating Centre (NATCAN), a new national centre of excellence to strengthen NHS cancer services by looking at treatments provided for people living with cancer and their outcomes across England and Wales. NATCAN delivers ten national cancer audits, including kidney, ovarian, pancreatic, breast (two separate audits in primary and metastatic disease), non-Hodgkin lymphoma, prostate, lung, bowel, and oesophago-gastric cancers. More information about the national cancer audits for England and Wales can be found at www.natcan.org.uk.

NBOCA sets out five quality improvement (QI) goals covering the entire patient care pathway. Mapped to these goals, NBOCA has ten performance indicators with local QI targets, and three contextualising measures. Further performance indicators are in development. This is to increase the consistency of access to treatments and stimulate improvements in cancer care and outcomes for people with bowel cancer.

The ten performance indicators, as set out in the NBOCA QI Plan, are[1]:

1. Seen by Clinical Nurse Specialist
2. Trust/multidisciplinary team (MDT) volume for rectal cancer surgery
3. Adjusted 90-day mortality after major resection*
4. Adjusted 30-day unplanned return to theatre after major resection*
5. Adjusted 30-day unplanned readmission after major resection*
6. Adjusted 18-month unclosed ileostomy after anterior resection*
7. Stage 3 colon cancer receiving adjuvant chemotherapy
8. Adjusted severe acute toxicity after adjuvant chemotherapy for colon cancer*
9. People with rectal cancer receiving neo-adjuvant treatment
10. Adjusted 2-year survival rate after major resection*

The three contextualising measures are:

1. Data completeness of seven items for risk adjustment in patients undergoing major surgery
2. Bowel cancer resections via a minimally invasive approach
3. Mismatch repair (MMR) status tested

All six indicators (marked with *) are risk-adjusted and outlier-reported by trust/MDT. Details of the trusts/MDTs which could not have all outcomes reported due to poor case submission or incomplete data are provided here. In this report, data completeness of items for risk-adjustment is not outlier reported, in recognition that data submission was undertaken prior to NBOCA's move to using routinely collected data. NBOCA anticipates that data completeness will be outlier-reported in future reports. Please refer to the NBOCA outlier policy and process for further information.

This State of the Nation report provides a national perspective across England and Wales on the patterns of bowel cancer care and outcomes:

- Chapter 1 describes how well trusts in England and multidisciplinary teams (MDTs) in Wales meet the ten local QI targets.
- Chapter 2 describes the number and characteristics of people diagnosed with bowel cancer in the reporting period.
- Chapters 3-5 describe the change over time and variation between trusts/MDTs according to the 10 performance indicators across the patient pathway.
- The report findings lead to five recommendations to drive improvement in the quality of cancer care for people living with bowel cancer.

1 Supplementary Table 1 outlines further details of the performance indicators. For people in Wales, the data source used in this report is WCN. For people in England, the RCRD is used for all performance indicators, except for "18-month diverting unclosed ileostomy after anterior resection", "2-year survival rate after bowel cancer resection" and "mismatch repair (MMR) immunohistochemistry assessment" which used 'gold data'.

Data Collection

This is the first NBOCA State of the Nation report that, for people in England, utilises existing national routinely collected data only. This includes 'gold standard' National Cancer Registration Data (NCRD) and 'Rapid' Cancer Registration Data (RCRD). This move to using existing national routinely collected data only has the benefit of reducing the burden on hospital staff as they are no longer required to undertake bespoke clinical data collection specific to NBOCA. To support this move, extensive development work in data analysis and risk-adjustment has been undertaken to address challenges such as missing data and the change in data structure.

For people in Wales, there has been no change to the data collection; this comprises Wales Cancer Network (WCN) data, included through the national system, Cancer Information System Cymru (CaNISC).

The datasets capture details on the diagnosis and treatment of every person newly diagnosed with bowel cancer in England and Wales.

In England, 'gold standard' data is currently available for people diagnosed up to the end of 2021. 'Gold standard' data draws on a range of data sources and relies on enhanced processing by cancer registration officers and follow-up with NHS trusts. 'Gold standard' data has higher case ascertainment and data completeness of key items when compared to RCRD, however RCRD has a shorter time-lag of 4-6 months. Datasets are linked at patient level to Hospital Episode Statistics (HES), Patient Episode Database Wales (PEDW)[2] and Office of National Statistics (ONS) mortality data. In England, the datasets are also linked to Systemic Anti-Cancer Therapy (SACT) and the Radiotherapy Dataset (RTDS).

With NBOCA's move to using new data sources, a higher proportion of cases of people diagnosed with bowel cancer in England and Wales are now included. Using the new data sources, it is estimated that 40,104 people were diagnosed in 2021/22, compared to an estimate of 35,779 for the same period based on the previous data source.

People included in the new data sources tend to be slightly older (Table 2, page 7), have a higher proportion of emergency diagnoses (Figure 1, page 7), have more missing data (Supplementary Table 2) and slightly poorer survival (Figure 17, page 13).

Within this report, comparisons over time are made using the new data sources. Comparisons with last year's report should be interpreted carefully to avoid misinterpretation.

To further support quality improvement activities, NBOCA publishes quarterly reports of performance indicators and data quality metrics for NHS trusts in England using the more recent RCRD. Quarterly reports support trusts in England to track progress alongside local quality improvement initiatives.

A summary of this report for people diagnosed with bowel cancer and the public is available at www.nboca.org.uk. Further details on NBOCA data sources and method are included in the methodology supplement. Results by individual hospital Trust in England or MDT in Wales can be found here. Individual outlier responses can be found here.

2 Due to staffing and resource issues within the NHS Wales Clinical Coding Service, the number of Admitted Patient Care dataset episodes assigned classifications codes is significantly less in the 2023/24 Financial Year than in previous years. The impact of this uncoded data will depend upon many factors but is likely to influence any all-Wales analysis of coded data. For further information please contact clinical.coding@wales.nhs.uk.

2. Infographic

NBOCA
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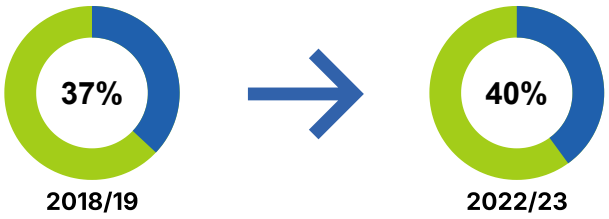
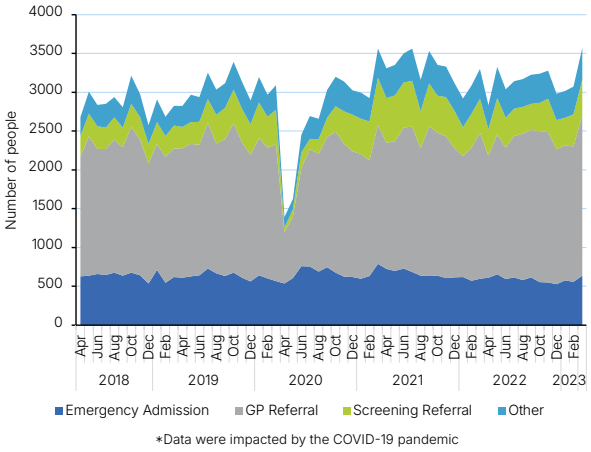
Care pathways

38,604 people
were diagnosed with bowel cancer in England and Wales between 1 April 2022 and 31 March 2023.

Proportion of people who presented with stage 1 or stage 2 cancer



Number of patients who presented with colorectal cancer by route of diagnosis*



*Data were impacted by the COVID-19 pandemic

Proportion of people recorded as being seen by a clinical nurse specialist (CNS)

65%
% of people with CNS data available

94%
% of people with CNS data available who were seen by a CNS

Proportion of people in England with mismatch repair (MMR) immunohistochemistry test

54% 2020 → **57%** 2021

Data on MMR tests is only available for people diagnosed in England until 31 December 2021

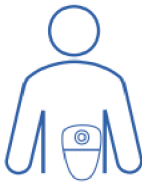
Peri-operative care

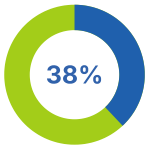
3.4% 2018/19 **to** 2.7% 2022/23

% of people who died within 90 days of surgery

8.0% in 2018/19 **to** 6.7% in 2022/23

% of people with an unplanned 30-day return to theatre after surgery





2017/22

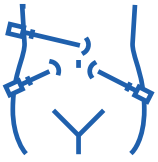
% of people with an unclosed diverting ileostomy 18-months after anterior resection (major rectal cancer operation, year of surgery)

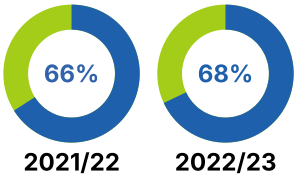
11% 2018/19 **to** 11% 2022/23

% of people with an unplanned 30-day readmission after surgery

81%
2022/23

% of trusts/MDTs that performed ≥ 20 major rectal cancer operations per year (year of surgery)





2021/22 2022/23

% of people who underwent major colorectal cancer surgery with a minimally invasive approach

Oncological management

66%
2020/22

% of people who received adjuvant chemotherapy for stage 3 colon cancer (year of surgery)

21%
2020/22

% of people who experienced severe acute toxicity after adjuvant chemotherapy (year of surgery)

34%
2022

% of people with rectal cancer who received neo-adjuvant radiotherapy treatment (year of diagnosis)

82%
2020/21

% of people alive 2-years after major colorectal cancer surgery (year of surgery)

3. Recommendations

Recommendations developed in collaboration with NBOCA Clinical Advisory Group based on key findings in this report. (Continued overleaf)

Recommendation	Audience	Report Findings	Quality Improvement Goal	National Guidance/Standards/ Resources
1. Improve data completeness of key items in national cancer registration datasets to allow risk-adjustment of performance indicators. Data items of focus: tumour, node and metastases (TNM) stage, American Society of Anaesthesiologists' (ASA) grade and performance status. • *National Disease Registration Service (NDRS) regional Data Liaison Managers to support trusts/ multidisciplinary teams (MDTs) with coding, data entry, and quality assurance for the Cancer Outcomes and Services Dataset (COSD).* • *Local provision of data lead responsible for ensuring the quality of national data submissions.*	**England** NHS England Cancer Alliances working with trusts **Wales** Health Boards	Contextualising measure and local target: More than 70% data completeness of seven items for risk adjustment in people undergoing major surgery. For people diagnosed with bowel cancer in 2022/2023, only 42% of trusts/MDTs in England and Wales achieved the data completeness local target. See page 8.	All	Association of Coloproctology of Great Britain & Ireland (ACPGBI): Guidelines for the Management of Cancer of the Colon, Rectum and Anus (2017) – Surgical Management Walker K, et al. Model for risk adjustment of postoperative mortality in people with bowel cancer. Br J Surg. 2015. NBOCA Key COSD data items
2. Increase the proportion of people who are offered mismatch repair (MMR) assessment to identify those with Lynch syndrome and inform surgical decision making, and systemic treatments. • *Ensure timely access to assessment of MMR status as part of the NHS England Lynch syndrome testing and surveillance pathways.*	**England** NHS England Cancer Alliances working with trusts **Wales** Not applicable as data not currently available	Performance indicator and local target: More than 90% of people with mismatch repair (MMR) status tested. In England, 57% of people with histologically confirmed bowel cancer in 2021 underwent MMR immunohistochemistry testing. In England, only 9% of trusts achieved the local target. This is likely to underestimate MMR testing. See page 8.	1: Improving the diagnostic pathway	NICE Clinical Guidelines [DG27] (2017) "Offer testing to all people with bowel cancer, when first diagnosed... to identify tumours with deficient DNA mismatch repair, and to guide further sequential testing for Lynch syndrome" NHS England Lynch syndrome testing and surveillance pathways
3. Increase the proportion of people who have their ileostomy closed within 18-months of anterior resection for rectal cancer. • *Support trusts/MDTs to identify system-level (e.g. access to theatre/radiological investigations) and patient-level drivers of variation.* • *Support trusts/MDTs to participate and engage with the local and national quality improvement initiatives to enable more timely reversal of ileostomy.*	**England** NHS England Cancer Alliances working with trusts **Wales** Health Boards	Performance indicator and local target: Less than 35% of people with unclosed diverting ileostomy 18-months after anterior resection. In England and Wales, only 41% of trusts/MDTs achieved the local target. See page 11.	2: Improving perioperative care	ACPGBI: Guidelines for the Management of Cancer of the Colon, Rectum and Anus (2017) – Surgical Management. National Bowel Cancer Audit Quality Improvement Plan "Figure 3: Example driver diagram for indicator "Ileostomy closure after rectal cancer resection"

Recommendation	Audience	Report Findings	Quality Improvement Goal	National Guidance/Standards/ Resources
4. Reduce variation between trusts/MDTs in the use of chemotherapy for people with Stage 3 colon cancer to optimise cancer survival while maintaining low levels of acute severe toxicity. • *Continue to monitor and investigate regional and institutional variation in rates of neo-adjuvant and adjuvant chemotherapy for people with Stage 3 colon cancer and ensure evidence-based chemotherapy policies are in place.* • *Identify and address barriers to timely access to adjuvant chemotherapy.* • *Encourage the utilisation of appropriate risk stratification tools for severe acute toxicity including frailty scoring, and integration of geriatric expertise and rehabilitation into shared chemotherapy decision making.* • *Support the delivery of acute oncology services to optimise the care delivered to people who experience acute toxicity.*	**England** NHS England Cancer Alliances working with trusts **Wales** Health boards	Performance indicator and local target: More than 50% of people with Stage 3 colon cancer receiving adjuvant chemotherapy. In England and Wales, 93% of trusts/MDTs achieved the local target. There is considerable between-unit variation in the use of adjuvant chemotherapy with 14 (10%) trusts/MDTs below the 95% funnel limit. See page 12. Performance indicator and local target: Less than 33% of people experiencing severe acute toxicity related to adjuvant chemotherapy for Stage 3 colon cancer In England and Wales, 95% of trusts/MDTs achieved the local target. Overall, 21% of people experienced severe acute toxicity following adjuvant chemotherapy with no change compared to last year. The proportion of people with severe acute toxicity varied widely between trusts/MDTs from 0% to 47%. See page 12.	3: Improving oncological care	National Institute for Health and Care Excellence (NICE) Guidelines: Bowel Cancer (Updated 2021). Boyle JM, et al. Measuring variation in the quality of systemic anti-cancer therapy delivery across hospitals: A national population-based evaluation. Eur J Cancer. 2023. National Bowel Cancer Audit Quality Improvement Plan "Figure 2: Example driver diagram for indicator "Severe acute toxicity during or after adjuvant chemotherapy for Stage 3 colon cancer"
5. Understand variation in the utilisation of neo-adjuvant radiotherapy for people with rectal cancer to optimise their outcomes. • *Cancer Alliances to develop standardised evidence-based neo-adjuvant treatment protocols based on high-quality radiological staging. This will aid decision making and take into account locoregional approaches to neo-adjuvant therapy, incorporating organ preservation techniques and participation in clinical trials.*	**England** NHS England Cancer Alliances working with trusts **Wales** Health boards	Performance indicator and local target: 10-60% of people with rectal cancer undergoing major resection receiving neo-adjuvant treatment. In England and Wales, 89% of trusts/MDTs achieved the local target. Overall, 34% of people received neo-adjuvant radiotherapy for rectal cancer with wide variation between trusts/MDTs from 0% to 82%. See page 14.	3: Improving oncological care	National Institute for Health and Care Excellence (NICE) Clinical guideline [NG151] (2020)

Chapter 1. Quality Improvement

In September 2024, NBOCA published its updated Quality Improvement (QI) Plan. The plan defined ten performance indicators, and how they map to the NBOCA QI goals, national guidelines, and standards. The QI Plan describes the approach taken to develop NBOCA's performance indicators and monitor progress against local QI targets.

The ten performance indicators, the corresponding local target and the proportion of trusts/MDTs meeting each target are reported in Table 1.

NBOCA provides trusts/MDTs with their results to facilitate local quality improvement strategies in areas where they have poor or lower than average performance. Furthermore, NBOCA delivers annual events to showcase successful QI initiatives. The Audit also supports Cancer Alliances and the improvement work of the NHS England Cancer Programme.

To better understand the care and outcomes of people with bowel cancer, NBOCA will continue to develop new performance indicators with input from the NBOCA Patient and Public Involvement Forum and Clinical Advisory Group. For example, methodological work has enabled the capture of severe acute toxicity after adjuvant chemotherapy, which was introduced as a metric in last year's report.

The local target met by the lowest percentage of trusts/MDTs is '<35% adjusted 18-month unclosed ileostomy', with only 41% of trusts/MDTs meeting the target. The '>70% adjusted 2-year survival rate after major resection' local target was met by the highest percentage of trusts/MDTs at 97%. It is not possible to make direct comparisons with the percentage of trusts/MDTs meetings targets in last year's report because of new data sources.

Table 1. NBOCA performance indicators with national and local results, England and Wales

Performance indicator	National results	Local Target	Percentage of trusts/ MDTs meeting local target
1. Seen by Clinical Nurse Specialist	94%*	>95%	61%*
2. Trust/MDT volume for rectal cancer surgery	N/A**	≥20 per year	81%
3. Adjusted 90-day mortality after major resection	2.7%	<6%	96%
4. Adjusted 30-day unplanned return to theatre after major resection	6.4%	<10%	92%
5. Adjusted 30-day unplanned readmission after major resection[1]	11%	<15%	81%
6. Adjusted 18-month unclosed ileostomy after anterior resection	38%	<35%	41%
7. Stage 3 colon cancer receiving adjuvant chemotherapy	66%	>50%	93%
8. Adjusted severe acute toxicity after adjuvant chemotherapy for colon cancer	21%	<33%	95%
9. People with rectal cancer receiving neo-adjuvant treatment***	34%	10%-60%	89%
10. Adjusted 2-year survival rate after major resection	82%	>70%	97%

Please note, for risk-adjusted performance indicators, hospitals/MDTs were excluded from the analyses if overall data completeness was less than 20%, or performance status and/or TNM stage was missing in more than 80% of patients included in the analyses. Please see the methodology supplement for further information. Where comparisons over time for a performance indicator have been made in this report (e.g. infographic), all patients have been included. This explains the slight difference in the average.

*Excludes people with incomplete CNS data item

**Number of rectal cancer resections cannot be reported as % of all people

***Neo-adjuvant therapy is currently defined as a record of neo-adjuvant radiotherapy. Neoadjuvant therapy includes several treatment protocols

Based on people diagnosed with bowel cancer between 1 April 2022 and 31 March 2023, for performance indicator 1, 3, 4, and 5

Based on people who underwent rectal cancer surgery between 1 April 2022 and 31 March 2023, for performance indicator 2

Based on people who underwent an anterior resection with diverting ileostomy between 1 April 2017 and 31 March 2022, for performance indicator 6

Based on people who underwent surgery for Stage 3 colon cancer between 1 April 2020 and 30 November 2022, for performance indicator 7 and 8

Based on people diagnosed with bowel cancer between 1 January 2022 and 31 December 2022, for performance indicator 9

Based on people who underwent surgery for colorectal cancer between 1 April 2020 and 31 March 2021, for performance indicator 10.

For performance indicator 6, 7, 8 and 10, data were impacted by the COVID-19 pandemic and so will be atypical to some degree during 2020-2021.

Please note, trusts/MDTs with <20% data completeness overall, or >80% patients missing ASA grade and/or TNM staging are not included in the denominator for performance indictor 3, 4, 5, 6, and 10.

Chapter 2. Characteristics of People with Bowel Cancer

Characteristics of the 38,604 people diagnosed with bowel cancer during 2022/23 are outlined in Table 2 and Supplementary Table 2.

At the start of the COVID-19 pandemic, there was a considerable reduction in the number of diagnoses via all referral pathways, except emergency presentations which remained relatively constant. Since this time, the number of people diagnosed with bowel cancer has returned to pre-pandemic levels (Figure 1). Variation in diagnostic pathways by English Cancer Alliances and Wales are shown in Supplementary Figure 1. Since 2018, the number of people diagnosed via screening has gradually increased, with a temporary reduction during the first wave of the COVID-19 pandemic (Figure 1). The proportion of people aged 50-59 years diagnosed through screening has increased from 4.6% in 2019/20 to 10.8% in 2022/23. This reflects the ongoing expansion in NHS bowel cancer screening to people aged 50 to 74 years in England and 51 to 74 years in Wales. The proportion of people aged 60-74 years diagnosed through screening remained stable at 26.5% in 2019/20 and 25.8% in 2022/23.

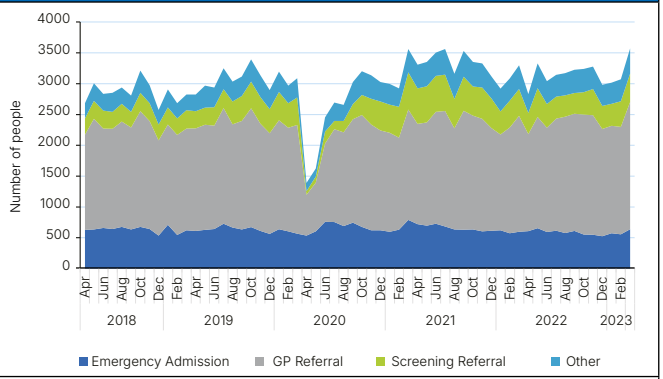
A key ambition of the NHS Long Term Plan cancer strategy for England is that by 2028, 75% of people with cancer will be diagnosed with Stage 1 or 2 disease. The detection of earlier, more treatable cancer is also a focus of the Quality Statement for Cancer in Wales. The proportion of people diagnosed with Stage 1 or 2 bowel cancer in England and Wales has remained relatively static at 40% in 2022/23. This compares to 37% in 2018/19 (Figure 2). Variation by English Cancer Alliances and Wales is shown in Supplementary Figure 2. It is important to monitor trends in staging at diagnosis. To reflect this, the accurate recording of key data items, including staging, is a contextualising measure within the NBOCA Quality Improvement Plan. In 2022/23, the proportion of people with incomplete staging data is 18.9% in England[3] and 5.1% in Wales[4].

The annual number of major bowel resections performed has returned to pre-pandemic levels (Supplementary Table 3).

Table 2. Characteristics of the 38,604 people diagnosed with bowel cancer between 1 April 2022 and 31 March 2023 in England and Wales.

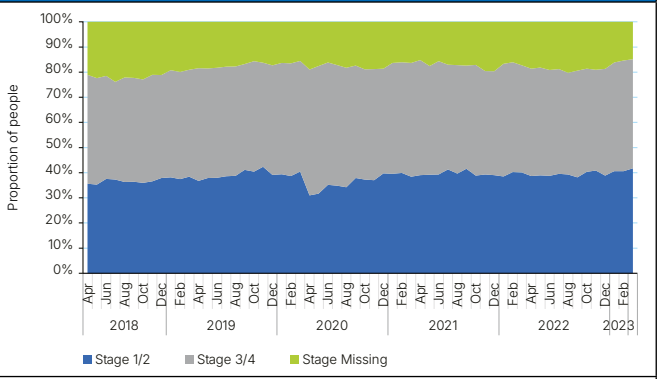
		Number	%
Total number of people		38,604	
Sex	**Men**	21,380	55.4
	Women	17,224	44.6
Age-group	**<50 yrs**	2,626	6.8
	50-59 yrs	5,190	13.4
	60-74 yrs	14,557	37.7
	75-79 yrs	6,134	15.9
	80-84 yrs	5,133	13.3
	85+ yrs	4,939	12.8
	Missing (% of total)		25 (0.1)
Ethnicity	**White**	31,654	92.8
	Mixed/Multi Ethnic	165	0.5
	Asian	936	2.7
	Black	796	2.3
	Other	561	1.6
	Missing/ Not Known (% of total)		4,492 (11.6)
Index of Multiple Deprivation (Quintile)	**1 (Most deprived)**	6,126	15.9
	2	7,148	18.6
	3	7,978	20.8
	4	8,505	22.1
	5 (Least deprived)	8,697	22.6
	Missing (% of total)		150 (0.4)

Figure 1. Number of people diagnosed with bowel cancer in England and Wales between 1 April 2018 and 31 March 2023, by referral source.



Data were impacted by the COVID-19 pandemic and so will be atypical to some degree during 2020-2021.

Figure 2. Proportion of people diagnosed with bowel cancer in England and Wales between 1 April 2018 and 31 March 2023, by pre-treatment staging.



Data were impacted by the COVID-19 pandemic and so will be atypical to some degree during 2020-2021.

3 Rapid Cancer Registry Dataset

4 Wales Cancer Network data

Chapter 3. Improving the Diagnostic Pathway

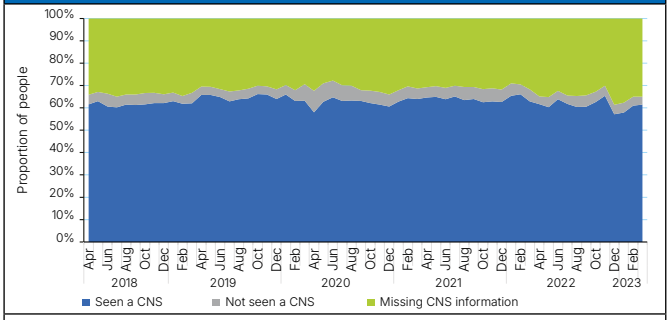
Contextual Measure and Local Target
More than 70% data completeness of seven items for risk-adjustment in people undergoing major surgery: 42% of trusts/MDTs

Data completeness is essential to allow risk-adjustment of patient outcomes. The proportion of trusts/MDTs in England and Wales achieving the data completeness local target was 42% in 2022/23. This compares to 82% in last year's State of the Nation report. The reduction reflects the move to routinely collected datasets which contain more missing data than the previously utilised bespoke NBOCA dataset.

Performance Indicator and Local Target 1
More than 95% of people seen by Clinical Nurse Specialist (CNS): 61% of trusts/MDTs

The clinical nurse specialist data item was poorly completed with only 65% of people having CNS status available in England and Wales in 2022/33 (63% of people in England had CNS status recorded compared to 96% in Wales). For all people in England and Wales, 61% were recorded as being seen by a CNS (Figure 3). In cases where CNS information was available, 94% of people with bowel cancer were seen by a CNS compared to 92% in 2021/22. When focusing only on people with CNS information available, 61% of trusts/MDTs met the local target.

Figure 3. Proportion of people reported to have seen a CNS for those diagnosed between 1 April 2018 and 31 March 2023 in England and Wales.



Data were impacted by the COVID-19 pandemic and so will be atypical to some degree during 2020-2021.

Contextual Measure and Local Target
More than 90% of people with mismatch repair (MMR) immunohistochemistry tested: 9% of trusts/MDTs

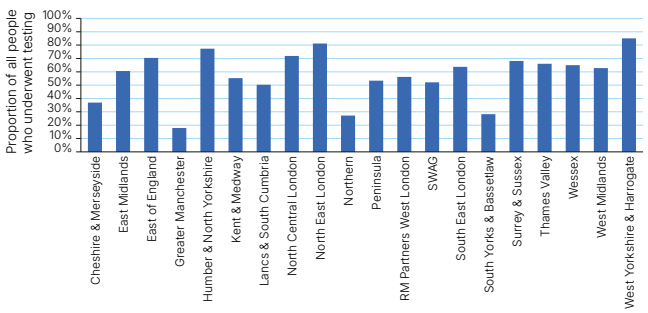
Current NICE guidelines recommend that all people diagnosed with bowel cancer should undergo genetic testing (including mismatch repair (MMR) status) to identify those who may have cancer due to Lynch syndrome and to guide surgical and oncological management.

In this report, data for MMR immunohistochemistry is only available for people in England until 2021. Completion of MMR immunohistochemistry testing for people diagnosed with bowel cancer based on histological confirmation in the 2021 calendar year was 57% compared to 54% in 2020. This figure is likely to underestimate MMR testing as data on microsatellite instability (MSI) testing are not available at present.

Younger people were more likely to have a record of MMR immunohistochemistry with 71% of people aged under 50 years compared to 49% of people aged 85 years or older in 2021 (Supplementary Table 4). This may partly be explained by differences in treatment intent between young and elderly people meaning that younger people were more likely to have an assessment of their genomics to inform treatment. Of people who underwent MMR immunohistochemistry, 66% were tested within one month of diagnosis. There also remains marked variation of testing by Cancer Alliances which ranges from 18% to 85% (Figure 4).

MMR testing provides an important prognostic factor and aids clinical and oncological decision-making. NHS England Lynch syndrome testing, and surveillance pathways and NHS Genomic Medicine Service National Lynch Syndrome project set out best-practice and guidance to support local systems to implement MMR testing. More recent figures from the Bowel Cancer UK Report highlighted improvements in testing for Lynch syndrome. The report utilised Freedom of Information requests with 62% of English Cancer Alliances responding, which revealed "90% of all newly diagnosed bowel cancer patients were tested for Lynch syndrome (UK)" in 2023. Future NBOCA development work will include timeliness of MMR testing and capturing MSI testing. Future work will also include testing of RAS and BRAF mutations, which play an important role for guiding palliative Systemic Anti-Cancer Therapy for people with metastatic bowel cancer.

Figure 4. Proportion of all people who underwent MMR immunohistochemistry for people diagnosed between 1 January 2021 and 31 December 2021, by English Cancer Alliance.



Data were impacted by the COVID-19 pandemic and so will be atypical to some degree during 2021. Welsh data not included as not currently available. SWAG: Somerset, Wiltshire, Avon & Gloucestershire.

Chapter 4. Improving Peri-operative Care

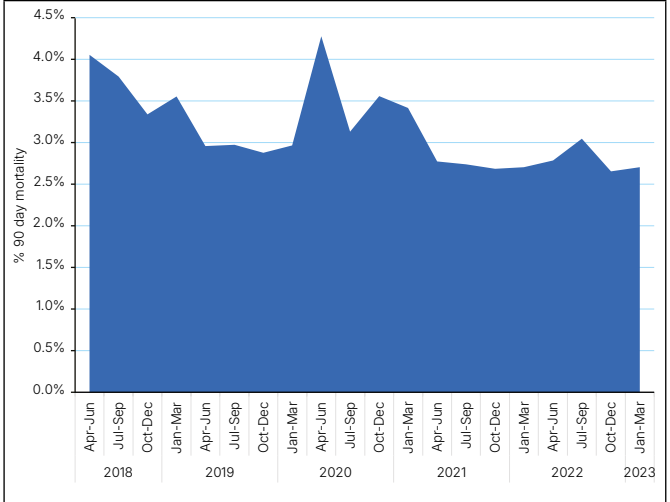
Performance Indicator and Local Target 2
Annual rectal cancer resection volume greater than or equal to 20 cases per centre: 81% of trusts/MDTs

NICE guidelines recommend that providers should be performing a minimum of 10 rectal cancer resections per year. For major resections undertaken between 1 April 2022 and 31 March 2023, three (2%) trusts/MDTs performed fewer than 10 rectal cancer resections and 25 (19%) trusts/MDTs performed fewer than 20 rectal cancer resections.

Performance Indicator and Local Target 3
<6% adjusted 90-day mortality after all bowel cancer resections: 96% of trusts/MDTs

Of the 38,604 people diagnosed with bowel cancer in 2022/23, 21,843 underwent a bowel cancer resection. There has been a reduction in overall 90-day mortality after all bowel cancer resections in England and Wales, from 3.4% in 2018/19 to 2.7% in 2022/23 (Figure 5).

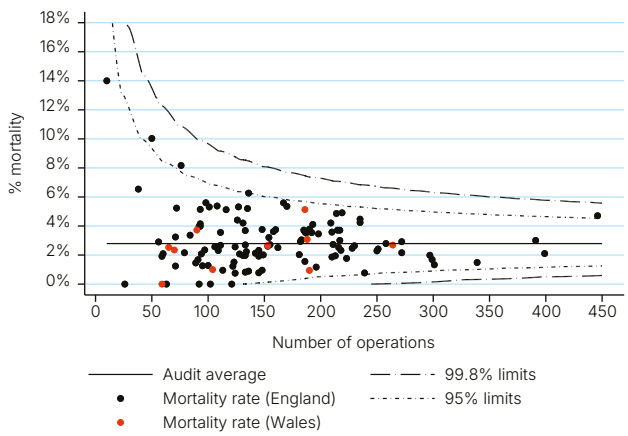
Figure 5. 90-day post-operative mortality for all people diagnosed between 1 April 2018 and 31 March 2023 in England and Wales, and undergoing major resection.



Data were impacted by the COVID-19 pandemic and so will be atypical to some degree during 2020-2021.

Figure 6 shows risk-adjusted 90-day post-operative mortality (2.7%) by English trusts and Welsh MDTs. There were three English hospitals/trusts above the 95% limit, none of which was above the 99.8% limit. In last year's report, there were seven English trusts/hospitals above the 95% limit, none of which were above the 99.8% limit. One English hospital trust was above the 95% limit in two consecutive audit periods.

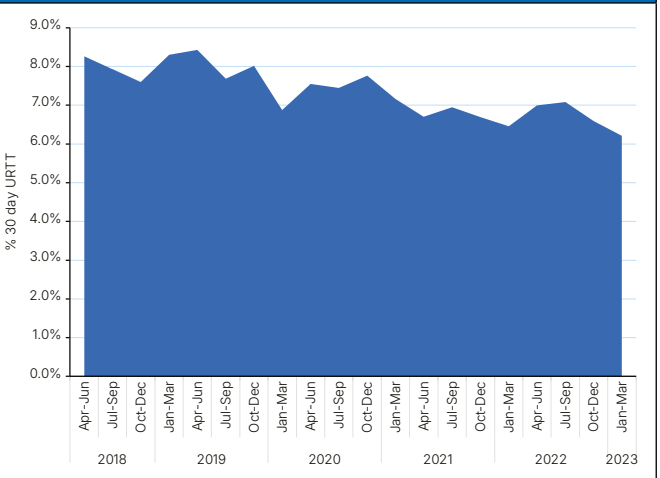
Figure 6. Adjusted 90-day mortality after all bowel cancer resections for people diagnosed between 1 April 2022 and 31 March 2023, by trusts/MDTs with more than ten operations.



Performance Indicator and Local Target 4
<10% adjusted 30-day unplanned return to theatre after all bowel cancer resections: 92% of trusts/MDTs

The proportion of people with an unplanned return to theatre (URTT) following a major resection has gradually reduced since 2018 in England and Wales (Figure 7). The unadjusted proportion of people with an URTT in 2022/23 was 6.7% compared to 8.0% in 2018/19. It is important to note that return to theatre is a recognised complication of major resection and focus should be placed on prompt recognition of post-operative complications.

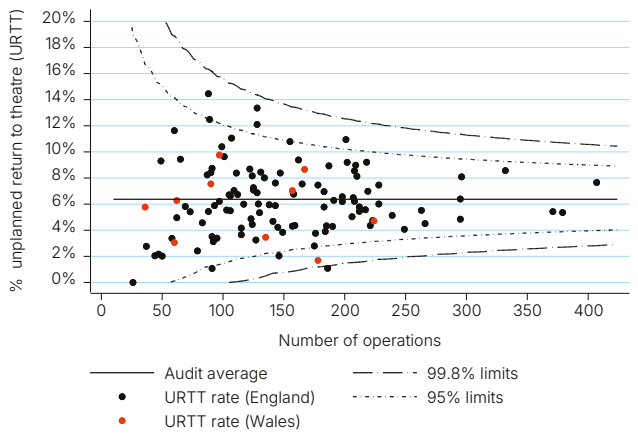
Figure 7. Percentage of people with an unplanned return to theatre (URTT) within 30-days of major resection for people diagnosed between 1 April 2018 and 31 March 2023 in England and Wales.



Data were impacted by the COVID-19 pandemic and so will be atypical to some degree during 2020-2021.

After risk-adjustment URTT was 6.4% in 2022/23. Figure 8 shows risk-adjusted URTT at trust/MDT level. There were five English trusts above the 95% funnel limit, with none of these above the 99.8% limit. Three English hospitals/trusts were above the 95% limit in two of the last three consecutive audit periods. In the last State of the Nation report (NBOCA data, audit period 2021/22), there were eight English trusts above the 95% funnel limit, with one of these above the 99.8% funnel limit.

Figure 8. Adjusted 30-day unplanned return to theatre (elective and emergency admissions) by trusts/MDTs with more than ten operations for people diagnosed between 1 April 2022 and 31 March 2023 in England and Wales.



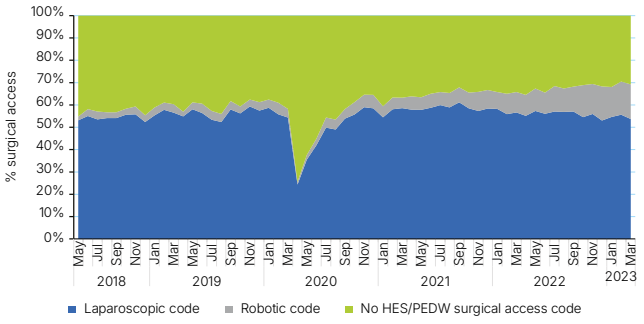
Data were impacted by the COVID-19 pandemic and so will be atypical to some degree during 2020-2021.

Of people diagnosed in 2022/23 who underwent major resection and linked to HES-APC/PEDW, 68% underwent minimally invasive surgery (56% laparoscopic, 12% robotic) and 32% did not have a surgical access code recorded in the data[5]. This compares to 66% of people diagnosed in 2021/22 who underwent minimally invasive surgery. The proportion of trusts/MDTs meeting the minimally invasive surgery local target was 89% in 2022/23. The proportion of people undergoing robotic procedures has increased from 4% in 2019/20 to 12% in 2022/23. It is likely that the proportion of people undergoing minimally invasive surgery has been underestimated due to incomplete recording of surgical access in HES/PEDW.

Surgical access via minimally invasive approaches has returned to pre-pandemic levels, with a steady rise in adoption of robotic surgery (Figure 9).

Contextual Measure and Local Target
More than 50% of all bowel cancer resections via a minimally invasive approach (laparoscopic or robotic): 89% of trusts

Figure 9. Surgical access for major resections for people diagnosed between 1 May 2018 and 31 March 2023 in England and Wales.



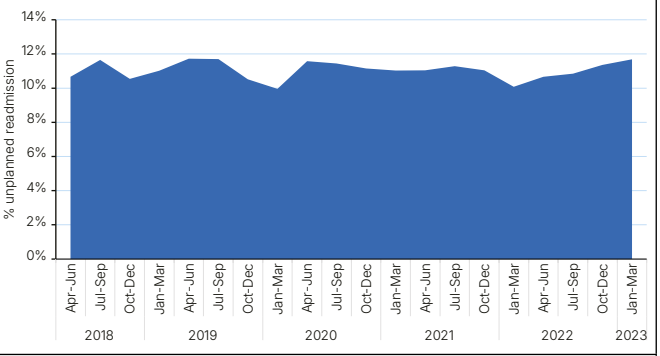
Data were impacted by the COVID-19 pandemic and so will be atypical to some degree during 2020-2021.

Following major resection, the median length of inpatient stay (LOS) for this audit period was 6 days (IQR 4-10 days). Surgical urgency is not available in routinely collected data; instead, mode of admission is used in this report and is classified as emergency or elective according to HES-APC/PEDW. Elective surgery median LOS was 6 days (IQR 4-9 days) compared to emergency surgery LOS of 11 days (IQR 7-17 days).

Performance Indicator and Local Target 5
<15% adjusted 30-day unplanned readmission after all bowel cancer resections: 81% of trusts/MDTs

The percentage of people in England and Wales with a 30-day unplanned readmission after major resection remained stable from 2018/19 to 2022/23, at 11% (Figure 10). The percentage of trusts/MDTS in England and Wales meeting the 30-day unplanned readmission target was 81% in 2022/23.

Figure 10. Proportion of people with an unplanned readmission within 30-days of major resection for people diagnosed between 1 April 2018 and 31 March 2022 in England and Wales.

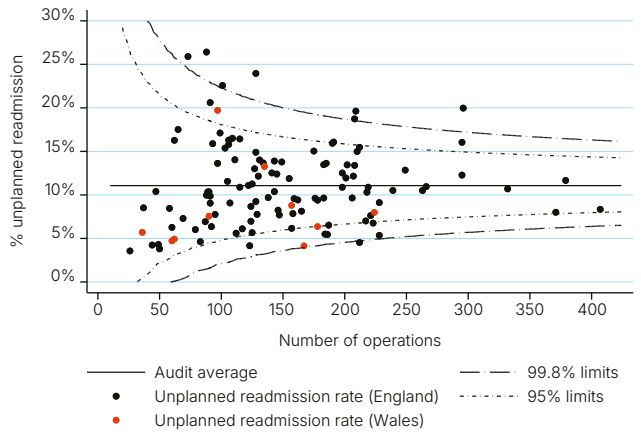


Data were impacted by the COVID-19 pandemic and so will be atypical to some degree during 2020-2021.

5 The methods used to calculate surgical approach have changed in this report from those used with the bespoke NBOCA dataset. For people undergoing surgery in England the data source was HES-APC and for people undergoing surgery in Wales the data source was PEDW updated by submitted data.

Following risk-adjustment, 30-day unplanned readmission was 11%. Ten English trusts were above the 95% funnel limit on unplanned readmission, and seven of these were above the 99.8% limit along with one Welsh MDT (Figure 11). In the last State of the Nation report, there were eight English trusts above the 95% limit and one above the 99.8% limit.

Figure 11. Adjusted 30-day unplanned readmission by trusts/MDTs with more than ten operations for people diagnosed between 1 April 2022 and 31 March 2023 in England and Wales who underwent major resection.



The percentage of people diagnosed with rectal cancer in England and Wales who undergo major resection has decreased from 54% in 2018/19 to 51% in 2021/22. This percentage has further decreased to an estimated 46% in 2022/23, however this is likely an underestimate due to a shorter follow-up period (Supplementary Table 5). This trend may reflect changes in rectal cancer management advocating for organ preservation where there is complete clinical response from neo-adjuvant therapies.

Performance Indicator and Local Target 6
<35% adjusted proportion of people with unclosed diverting ileostomy 18 months after anterior resection: 41% of trusts/MDTs

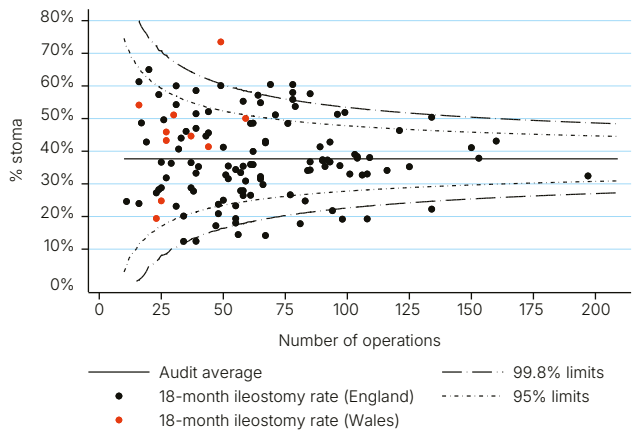
For people diagnosed with rectal cancer undergoing major resection, the proportion undergoing anterior resection has gradually decreased from 66.8% (2017/18) to 61.2% (2021/22) and the proportion undergoing abdominoperineal resection of rectum (APER) has increased from 21.2% (2017/18) to 27.6% (2021/22) (Supplementary Table 6). This has been accompanied by a slight decrease in the proportion of people with a diverting ileostomy at the time of their anterior resection from 61.7% (2017/18) to 57.6% (2021/22) (Supplementary Table 7).

For people undergoing anterior resection with diverting ileostomy between April 2017 and March 2022 in England and Wales, 38% of people did not have their diverting ileostomy reversed by 18 months. This compares to 35% in last year's State of the Nation report.

Across England and Wales, 41% of trusts/MDTs met the local target for reversal of ileostomy. This compares to 56% in last year's State of the Nation report (however it is important to note that this comparison is based on different data sources). This performance indicator has not returned to pre-pandemic levels. With evidence of the negative impact of unclosed ileostomy on quality of life for people undergoing anterior resection, and even potentially on long-term survival, this should be a key focus for future local and national quality improvement initiatives.

After risk-adjustment, there were 18 trusts/MDTs above the 95% funnel limit and of these six were above the 99.8% funnel limit. In the last State of the Nation report, there were 23 English trusts above the 95% funnel limit, with four of these above the 99.8% funnel limit. Unwarranted between-unit variation remains for this performance indicator (Figure 12). Possible explanations include differential rates of post-operative complications, toxicity from adjuvant chemotherapy, or disease progression. Additionally, there are often no set pathways or protocols for stoma closure. It is likely that considerable differences exist in administrative factors such as waiting list volumes for other urgent procedures which may affect the prioritisation of stoma reversal. There were also nine trusts/MDTs below the 99.8% funnel limit which may provide opportunities to identify best-practice.

Figure 12. Adjusted 18-month unclosed ileostomy after anterior resection performed between 1 April 2017 and 31 March 2022 at English trust/Welsh MDT level.



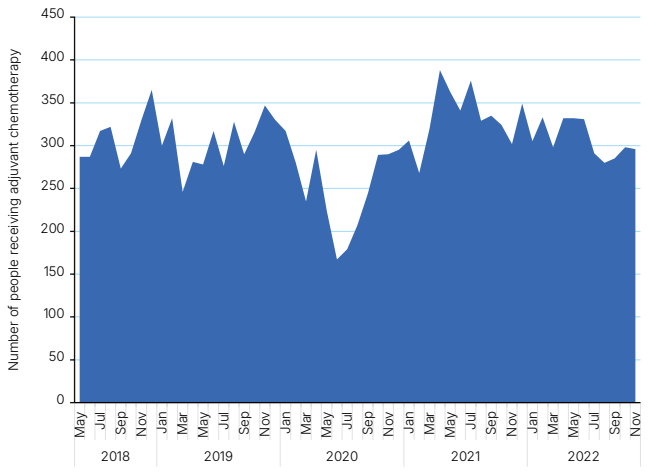
Data were impacted by the COVID-19 pandemic and so will be atypical to some degree during 2020-2021.

Chapter 5. Improving Oncological Management and Stage 4 Disease

Performance Indicator and Local Target 7
>50% people with Stage 3 colon cancer receiving adjuvant chemotherapy: 93% of trusts/MDTs

Uptake of adjuvant chemotherapy following major resection for Stage 3 colon cancer has returned to pre-pandemic levels (Figure 13). 66% of people who underwent major resection for Stage 3 colon cancer between April 2020 and November 2022 received adjuvant chemotherapy.

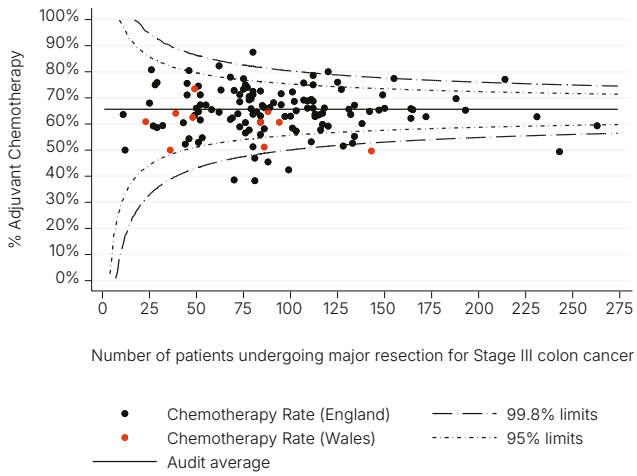
Figure 13. Number of people with pathological Stage 3 colon cancer in England and Wales receiving adjuvant chemotherapy following major resection between 1 May 2018 and 30 November 2022, by date of surgery.



Data were impacted by the COVID-19 pandemic and so will be atypical to some degree during 2020-2021.

Considerable between-unit variation remains in the use of adjuvant chemotherapy for Stage 3 colon cancer with 14 trusts/MDTs below the 95% funnel of which six trusts/MDTs were below the 98.8% funnel (Figure 14). This compares to 20 trusts/MDTs below the lower 95% funnel limit and 7 below the 98.8% limit in the last State of the Nation report. It is important to note these results are based on different data sources.

Figure 14. Adjuvant chemotherapy uptake in people with Stage 3 colon cancer by English NHS trusts/Welsh MDTs with more than ten operations, for people undergoing major resection between 1 April 2020 and 30 November 2022 in England and Wales.



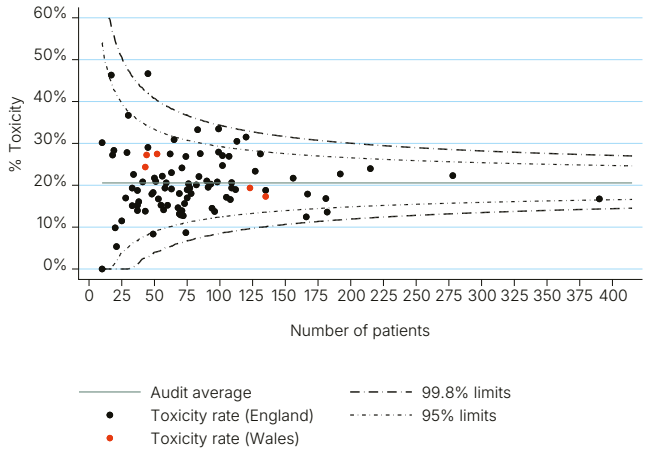
Data were impacted by the COVID-19 pandemic and so will be atypical to some degree during 2020-2021.

Performance Indicator and Local Target 8
<33% adjusted proportion of people experiencing severe acute toxicity related to adjuvant chemotherapy for Stage 3 colon cancer: 95% of trusts/MDTs

With emerging evidence of the potential benefits of neo-adjuvant chemotherapy for people with operable Stage 2/3 colon cancer, NBOCA aims to explore capturing utilisation of this treatment in future reports.

Previously developed NBOCA methodology allows capture of people who develop severe toxicity related to adjuvant chemotherapy. Overall, after risk-adjustment 21% of people receiving adjuvant chemotherapy for pathological Stage 3 bowel cancer experienced severe acute toxicity. This varied widely between trusts/MDTs from 0% to 47% with an interquartile range of 16% to 25%. There were six English NHS trusts/hospitals above the 95% funnel limit, of which one was above the 99.8% limit (Figure 15). This compares to three English trusts above the 95% funnel limit and zero above the 99.8% limit in the last State of the Nation report. There were four English NHS trusts/hospitals below the 95% funnel limit, suggesting good performance.

Figure 15. Adjusted severe acute toxicity for people receiving adjuvant chemotherapy for pathological Stage 3 bowel cancer, by English NHS trusts/Welsh MDTs treating more than ten people after major resection between 1 April 2020 and 30 November 2022.

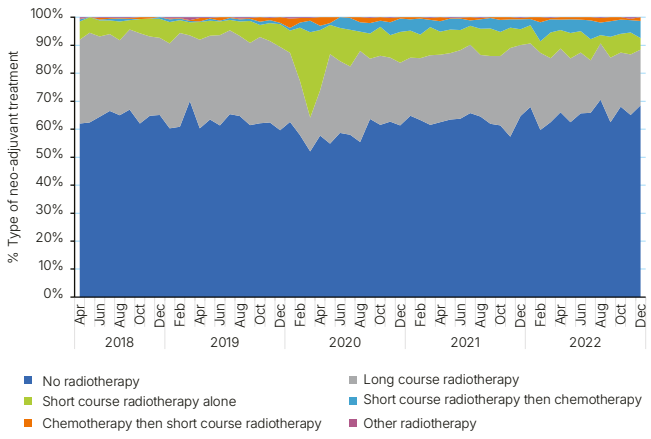


Data were impacted by the COVID-19 pandemic and so will be atypical to some degree during 2020-2021.

Figure 16 and Supplementary Table 8 show the change in rectal cancer management over time for three clinical groups in England: people with Stage 1 rectal cancer; people with Stage 2/3 disease; and people with Stage 4 disease. For Stage 1 rectal cancers, the proportion of people undergoing major resection continues to decrease (61% in 2018 compared to 54% in 2022). This has been associated with increased use of local excision from 24% in 2018 to 29% in 2022 which reflects advancements in trans-anal minimally invasive and endoscopic surgery as well as organ preservation strategies. For Stage 2/3 rectal cancers, there has also been a reduction in the proportion of people having a major resection, from 71% in 2018 to 64% in 2022. This has been associated with an increase in both local excision and radiotherapy usage. These trends likely reflect the uptake of enhanced surveillance and organ preservation following complete clinical response from neo-adjuvant therapies (OnCoRe). For people with Stage 4 rectal cancer, there has been a modest increase in the proportion receiving short course radiotherapy (SCRT) alone from 12% of people in 2018 to 15% in 2022. This may represent increased utilisation of SCRT in people with significant rectal symptoms for symptomatic relief.

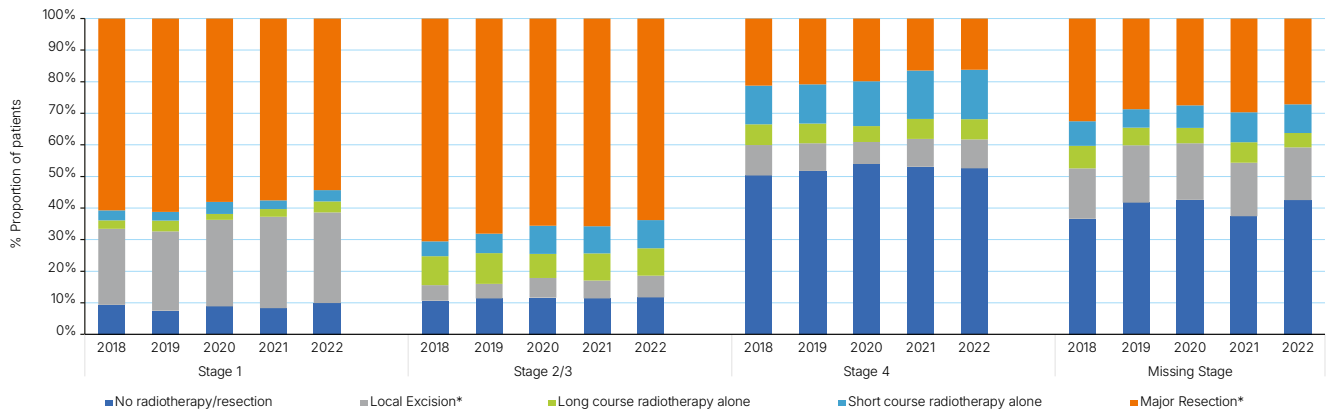
During the first wave of the COVID-19 pandemic in 2020, there was a reduction across all people in the use of neo-adjuvant long-course radiotherapy (LCRT), and an increase in the use of SCRT. This trend had not fully reversed by 2022, indicating ongoing increased utilisation of SCRT either on its own or incorporated into total neo-adjuvant therapy (TNT) regimens (Figure 17).

Figure 17. Type of neo-adjuvant treatment received by people diagnosed in England prior to major resection over time according to SACT (Systemic Anti-Cancer Therapy) and RTDS (Radiotherapy Data Set).



Data were impacted by the COVID-19 pandemic and so will be atypical to some degree during 2020-2021.

Figure 16. Changes in rectal cancer management over calendar year of diagnosis by cancer stage for people in England.



Stage 1: T1/2, N0, M0. Stage 2/3: any T, N1/N2, M0 or T3/4, N0, M0. Stage 4: any T, any N, M1.

*Represents the last treatment recorded.

Year represents calendar year of diagnosis. Data were impacted by the COVID-19 pandemic and so will be atypical to some degree during 2020-2021

Welsh data not included due to differences in data collection

Performance Indicator and Local Target 9
10% to 60% of people with rectal cancer undergoing major resection receiving neo-adjuvant treatment: 89% of trusts/MDTs

For people diagnosed with rectal cancer across England and Wales in 2022, 34% received neo-adjuvant therapy. Overall, 89% of trusts/MDTs met the local target. There was considerable variation between trusts/MDTs in the use of neo-adjuvant radiotherapy from 0% to 82%.

For people that received neo-adjuvant treatment, the proportion receiving LCRT varied from 8.5% to 55% (IQR 16%-29%) across trusts/MDTS, and the proportion receiving SCRT varied from 0.3% to 42% (IQR 4.4%-18%) (Supplementary Figure 3). This represents wide variation in practice.

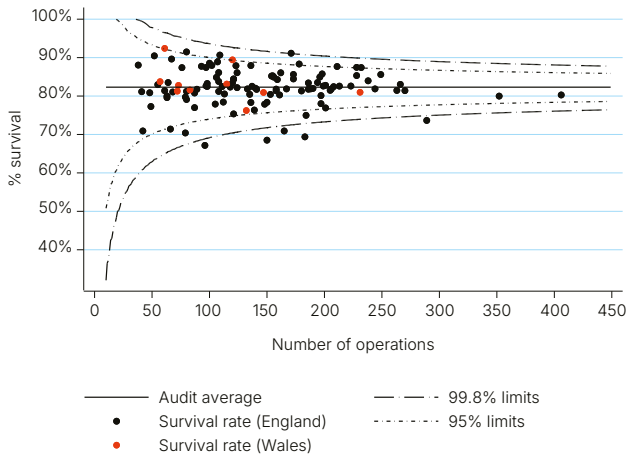
The increasing use of total neo-adjuvant therapy (TNT) schedules will impact on the management of rectal cancer. NBOCA will evaluate TNT utilisation by rectal cancer stage and geography.

Performance Indicator and Local Target 10
>70% adjusted 2-year overall survival rate after bowel cancer resection: 97% of trusts/MDTs

For people undergoing major resection between 1 April 2020 and 31 March 2021 in England and Wales, 2-year all-cause adjusted survival rate was 82.3% compared to 84.4% in last year's State of Nation report. It is important to note that with the move to using the new data source, more people with bowel cancer are captured, including more people who were not discussed at an MDT meeting. This, together with the impact of the COVID-19 pandemic, is likely to explain the difference in 2-year survival between the reports.

Two-year overall survival rate is an important quality metric as it reflects the performance of multidisciplinary management of people with bowel cancer. Following risk-adjustment for 2-year survival rate after major resection between 1 April 2020 and 31 March 2021, there were eight trusts/MDTs lying below the 95% funnel limit of which five were outliers below the 99.8% funnel limit (Figure 18) suggesting poor performance. There were nine hospitals/trusts lying above the 95% funnel limit of which one was above the 99.8% funnel limit suggesting exceptional performance.

Figure 18. Adjusted 2-year survival rate for people who underwent a major resection between 1 April 2020 and 31 March 2021, by English NHS trusts/ Welsh MDTs with more than ten operations. Audit average = 82.3%.



Data were impacted by the COVID-19 pandemic and so will be atypical to some degree during 2020-2021.

Supplementary Figure 4 demonstrates variation in adjusted 2-year all-cause survival for people undergoing major resection. Overall, there was less between-unit variation for cancer-specific survival rate compared to all-cause survival rate.

The findings of the report are intended to highlight areas for improvements in service availability and patient outcomes and can serve as a resource for patient charities and support groups. The report shows ongoing variations in performance indicators such as reversal of ileostomy. It also demonstrates examples of NHS providers performing exceptionally, which presents opportunities to learn how this is achieved.