
National Audit of Primary Breast Cancer State of the Nation Report 2026

An audit of care received by people diagnosed with primary breast cancer between 1 January 2021 and 31 December 2023 in England and Wales.

Published September 2026





NAoPri

National Audit of
Primary Breast Cancer

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HQIP

Healthcare Quality
Improvement Partnership

The National Cancer Audit Collaborating Centre (NATCAN) is commissioned by the [Healthcare Quality Improvement Partnership \(HQIP\)](#) and funded by NHS England and the Welsh Government as part of the [National Clinical Audit and Patient Outcomes Programme \(NCAPOP\)](#). NATCAN delivers national audits in bowel, breast (primary and metastatic), kidney, lung, non-Hodgkin lymphoma, oesophago-gastric, ovarian, pancreatic and prostate cancers.



ASSOCIATION OF
BREAST SURGERY

The Association of Breast Surgery is a registered charity dedicated to advancing the practice of breast surgery and the management of breast conditions for the benefit of the public. It is a multi-professional membership association, which promotes training, education, clinical trials and guideline composition and adoption. For further information, please refer to the website www.associationofbreastsurgery.org.uk. Registered charity no: 1135699.



UKBCG

The UK Breast Cancer Group (UKBCG) is a forum for Clinical and Medical Oncologists. The UKBCG acts as a stakeholder to NICE, NHS England and other organisations; and undertakes key pieces of work, at times in collaboration with other bodies, with the overriding endpoint of improving patient care. The Group's objectives include advancing the education of clinical and medical oncologists in the subject of breast cancer; and promoting research for the public benefit in all aspects of breast cancer. Further information on the work of the UKBCG is communicated via this website on a regular basis <https://ukbcg.org/>. Registered charity no: 1177296.



NDRS

NATIONAL DISEASE REGISTRATION SERVICE

This work uses data that have been provided by patients and collected by the NHS as part of their care and support. For patients diagnosed in England, the data are 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.



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Performance and
Improvement

NHS Wales recently implemented Cancer Dataset Forms with the latest implementation date being January 2025. These have been designed to improve the data capture and reporting capabilities of NHS Wales. This implementation has impacted the data quality within NHS Wales. NHS Wales has committed to continue to submit audit data annually until data submissions are sourced exclusively from the new cancer informatics solution. This will be from 2027 onwards that NHS Wales will be able to supply quarterly data using this new integrated, and more accessible digital platform.

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1. Introduction

The aim of the National Audit of Primary Breast Cancer (NAoPri) is to evaluate the patterns of care and outcomes for people with primary breast cancer in England and Wales, and to support services to improve the quality of care. It is one of ten national cancer audits conducted by the [National Cancer Audit Collaborating Centre \(NATCAN\)](#) and commissioned within the [National Clinical Audit and Patient Outcomes Programme](#), which is funded by NHS England and the Welsh Government.

This State of the Nation report publishes information on the care received by people diagnosed with primary breast cancer during 2021-2023 in England and Wales. It is the audit's third annual assessment of NHS breast services and shares examples of good practice, as well as highlighting where care needs to improve. For people diagnosed with metastatic breast cancer, there is a separate [National Audit of Metastatic Breast Cancer \(NAoMe\)](#), for which a State of the Nation report is also available.

The management of people with breast cancer is informed by various national guidelines.^{1,2,3,4,5} From these guidelines, and in consultation with its professional and patient advisory groups, the NAoPri has developed its indicators. The NAoPri uses data that are routinely collected by the NHS as part of the care and support given to people diagnosed with breast cancer. For people diagnosed or treated in England, the data are collated, maintained and quality assured by NHS England's National Disease Registration Service ([NDRS](#)). For people diagnosed or treated in Wales, data are provided by [NHS Wales Performance and Improvement](#), using the Cancer Network Information System Cymru ([CaNISC](#)) or Cancer Dataset Form (CDF). For full details of the data and methods used within this report, please see the [NAoPri Methodology Supplement](#).

The indicators included in this report and accompanying [Data Dashboard](#) are outlined in Table 1.

Table 1. NAoPri Performance Indicators (PIs) and corresponding reporting periods*

Description	England [^]	Wales [#]
PI 1: Percentage of people who underwent triple diagnostic assessment (TDA) in a single hospital visit	Yes (01/21 – 12/23)	Yes (01/21 – 12/23)
PI 2: Percentage of people who had contact with a Clinical Nurse Specialist (CNS) recorded after diagnosis.	Yes (01/21 – 12/23)	Yes (01/21 – 12/23)
PI 3: Percentage of people who had breast-conserving surgery within 12 months of diagnosis	Yes (01/21 – 12/23)	Yes (01/21 – 12/23)
PI 4: Percentage of people who received neoadjuvant chemotherapy.	Yes (01/21 – 12/23)	Yes (01/21 – 12/23)
PI 5: Percentage of people who received adjuvant radiotherapy following i) breast-conserving surgery, and ii) mastectomy	Yes (01/21 – 12/23)	Yes (01/21 – 12/23)
PI 6: Percentage of people who received any chemotherapy.	Yes (01/21 – 12/23)	Yes (01/21 – 12/23)
PI 7: Percentage of people who had an immediate reconstruction following a mastectomy.	Yes (01/21 – 12/23)	Yes (01/21 – 12/23)
PI 8: Percentage of people who had reoperation within 12 months of their initial breast-conserving surgery.	Yes (01/21 – 12/23)	Yes (01/21 – 12/23)
PI 9: Percentage of people who had an overnight hospital admission for treatment-related toxicity within 30 days of a systemic anticancer therapy (SACT) cycle.	In-development	In-development
PI 10: Percentage of people who survived their breast cancer for at least 3 years from their initial breast cancer diagnosis	01/21 – 12/23	01/21 – 12/23
* See methodology supplement for the definitions of each performance indicator [^] England cohort: National Cancer Registration Dataset (NCRD) [#] Welsh cohort: Cancer Network Information System Cymru (CaNISC)		

- 1 National Institute for Health and Care Excellence. Early and locally advanced breast cancer: diagnosis and management. NICE guideline [NG101]. Available from: <https://www.nice.org.uk/guidance/ng101>.
- 2 National Institute for Health and Care Excellence. Breast Cancer. Quality standard [QS12]. Available from: <https://www.nice.org.uk/guidance/qs12..>
- 3 Association of Breast Surgery (ABS). Guidelines available from: <https://associationofbreastsurgery.org.uk/professionals/clinical-professional-standards>
- 4 UKBCG. Neoadjuvant chemotherapy: multidisciplinary guidance. Available from: <https://ukbcg.org/media/31670/neoadjuvant-chemotherapy-manual-v1.pdf>
- 5 Biganzoli, L., et al., Updated recommendations regarding the management of older patients with breast cancer: a joint paper from the European Society of Breast Cancer Specialists (EUSOMA) and the International Society of Geriatric Oncology (SIOG). *Lancet Oncol*, 2021. 22(7): p. e327-e340. Available from: [https://www.thelancet.com/journals/lanonc/article/PIIS1470-2045\(20\)30741-5/abstract](https://www.thelancet.com/journals/lanonc/article/PIIS1470-2045(20)30741-5/abstract)

Throughout this report:

- the term NHS organisations is used to refer to English NHS trusts and Welsh NHS health boards, collectively.
- we refer to women and men as these correspond to the “gender” categories available in the data supplied. We acknowledge that some people may not identify using these binary woman–man categories.

Additional materials that accompany this report include:

- A [methodology supplement](#) with details about the Audit’s data sources and methods
- An online [glossary](#) that explains technical terms used in this report
- Information about the [outlier policy](#)
- Resources to support local monitoring of practice and quality improvement, such as provider-level results on the [Data Dashboard](#) and a [local action plan template](#).
- A summary of this [report for people diagnosed with primary breast cancer and for the public](#) will soon be made available on the Audit’s website.

2. Infographic

Summary of results for people (women and men) diagnosed with primary breast cancer (Stage 0 to 3) in England and Wales between 1st January 2021 and 31st December 2023.

Key: E England W Wales

Total: 145,735 women and 1,060 men (2021-2023)

E **England: 138,524**

W **Wales: 8,271**

Triple diagnostic assessment (TDA)

On average, 68% of people on non-screening pathway in England* were diagnosed through a triple diagnostic assessment (TDA) clinic, with rates ranging from 5%-89% according to organisation of diagnosis. In Wales**, the estimated TDA rate was 73%.



Neo-adjuvant chemotherapy (NACT)

Among people with stage 2 to 3A HER2+ or triple negative breast cancer who underwent surgery within 12 months of diagnosis, 57% in England and 26% in Wales received NACT (chemotherapy before surgery).



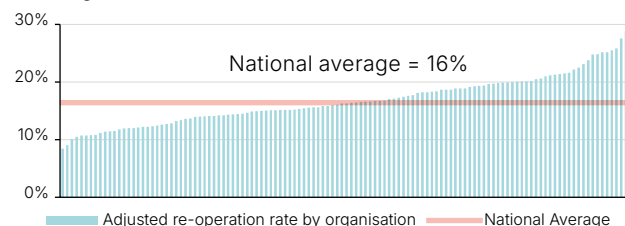
Breast-conserving surgery (BCS)

Among those who had surgery within 12 months of diagnosis, 74% of women in England and 71% in Wales had BCS as their first surgery. The remainder had a mastectomy as their first surgery.



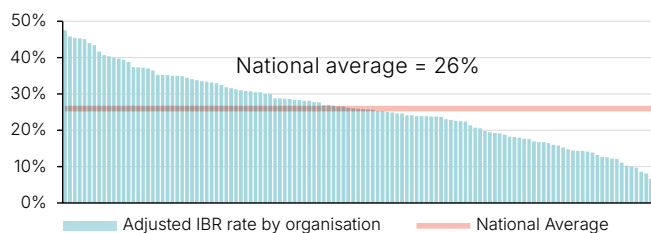
Re-operation following BCS

Within 12 months of initial BCS, 16% of individuals in England and 19% in Wales required at least one re-operation. Marked variation was observed between different English and Welsh NHS organisations.



Immediate breast reconstruction (IBR)

Among women who had a mastectomy, 27% in England and 15% in Wales underwent immediate breast reconstruction at the time of their mastectomy, with marked variation observed between different NHS organisations.



Adjuvant radiotherapy after BCS

Among women who had BCS for early invasive breast cancer, 86% in England and 47% in Wales underwent adjuvant radiotherapy (radiotherapy after surgery).



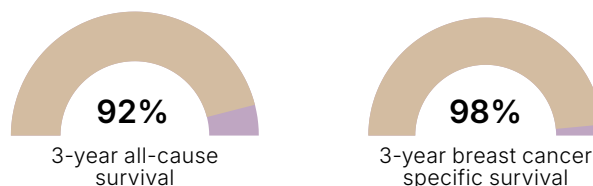
Post-mastectomy radiotherapy (PMRT)

Among women who had mastectomy for early invasive breast cancer, 48% in England and 18% in Wales underwent PMRT (radiotherapy to the chest wall after mastectomy).



Survival

Among individuals diagnosed with primary breast cancer (Stage 1 to 3A) in England and Wales***, 3-year all-cause survival was 92% and 3-year breast cancer-specific survival was 98%.



* Data field for triple diagnostic assessment for England was not available for use in this report. An algorithm was applied to estimate this for England. Details can be found in the methodology supplement.

** The Wales figure is based on the specific TDA data item, available from the second half of 2023.

*** Follow-up time was slightly shorter for Wales; therefore, the 3-year estimate was extrapolated using a flexible parametric approach and should be interpreted with caution. For separate figures for England and Wales please see the supplementary data tables that accompany this report.

3. Recommendations

Recommendations were developed in collaboration with the [NAoPri Audit Advisory Committee](#) and based on key findings in this report. The recommendations are intended for healthcare providers and commissioners in England and Wales, including trusts, Cancer Alliances, and health boards. The [NAoPri Quality Improvement Plan](#) suggested actions to address the recommendations described below.

Recommendation	Audience	Audit Findings	Quality Improvement Goal	National Guidance/Standards/Resources
1. Where rates of triple diagnostic assessment (TDA) in a single visit are lower than expected, organisations should assess local diagnostic pathways to ensure people from non-screening pathways can receive clinical assessment, imaging and biopsy within a single visit. NHS organisations should complete the specific TDA data item (BR4400 in COSD) to support monitoring of this service.	England: Cancer Alliances working with breast care teams and clinical management in NHS trusts. Wales: Breast care teams and clinical management in health boards	68.1% of people on a non-screening pathway in England were identified as being diagnosed through a TDA clinic, with rates ranging from 5.3% to 89.3% by organisation of diagnosis. In Wales, the estimated TDA rate was 72.9% based on the specific TDA item available in the second half of 2023.	Goal #1: Improve the movement of patients through the diagnostic care pathway.	NICE Quality Standard 12 – Quality Statement 1 : Timely diagnosis. People with suspected breast cancer referred to specialist services are offered the triple diagnostic assessment in a single hospital visit. Breast Surgery: GIRFT Programme Follow-up Report
2. Where rates of breast-conserving surgery (BCS) for people with early invasive breast cancer and DCIS differ substantively from the national average, organisations should review local surgical resources and shared decision-making processes to ensure eligible people are offered BCS where clinically appropriate.	England: Cancer Alliances working with breast care teams and clinical management in NHS trusts. Wales: Breast care teams and clinical management in health boards.	On average across England and Wales, 74.0% of people with early breast cancer (stage 0 to 3A), underwent BCS as their first operation within 12 months of diagnosis (England = 74%; Wales = 71%). Adjusted BCS rates varied between NHS organisations, ranging from 59.2%–90.2%.	Goal #2: Reduce unwarranted variation for patients undergoing surgery.	Breast Surgery: GIRFT Programme Follow-up Report ABS-Mastectomy-Avoidance-Toolkit.pdf
3. Review protocols for re-operation following breast-conserving surgery (BCS) to ensure consistency with recommended practice and identify options for meeting the aspirational targets of 10% for invasive cancer and 15% for Ductal carcinoma in situ (DCIS).	England: Cancer Alliances working with breast care teams and clinical management in NHS trusts. Wales: Breast care teams and clinical management in health boards	Among women undergoing breast-conserving surgery, on average 27% of those with DCIS and 15% of those with invasive disease required re-operation within 12 months. After adjustment for case mix, re-operation rates varied by operating organisation, ranging from below 10% to over 30%.	Goal #5: Improve and reduce unwarranted variation in primary breast cancer outcomes.	NICE NG101 recommendation 1.4.3 Offer further surgery (re-excision or mastectomy, as appropriate) after breast-conserving surgery where invasive cancer or DCIS is present at the radial margins. ABS: The Management of radial surgical margins in relation to breast conserving surgery for invasive breast cancer ABS: Recommendations for the management of radial surgical margins in patients undergoing breast conserving surgery for DCIS

Recommendation	Audience	Audit Findings	Quality Improvement Goal	National Guidance/Standards/Resources
4. Where uptake of immediate breast reconstruction (IBR) is below 25%, organisations should assess local pathways to ensure all eligible women are offered reconstruction as part of shared decision-making, unless contraindicated by comorbidity or planned adjuvant treatment.	England: Cancer Alliances working with breast care teams and clinical management in NHS trusts. Wales: Breast care teams and clinical management in health boards	On average across England and Wales, just over a quarter (26%) of women undergoing mastectomy had immediate breast reconstruction (England = 27%; Wales = 15%). Marked regional variation remained after risk adjustment, with Cancer Alliance-level rates ranging from 15.2%–38.7%.	Goal #4: Improve access to breast reconstruction after mastectomy.	NICE NG101 recommendation 1.5: Offer immediate breast reconstruction to women who have been advised to have a mastectomy, including those who need radiotherapy, unless they have comorbidities that rule out reconstructive surgery. Breast Surgery: GIRFT Programme Follow-up Report Further Fast Breast Reconstruction Handbook
5. Review local neoadjuvant chemotherapy pathways for people with early invasive triple-negative or HER2-positive breast cancer, particularly where rates differ substantively from national average, to reduce unwarranted variation and ensure eligible people are considered for treatment in line with guideline recommendations.	England: Cancer Alliances working with breast care teams and clinical management in NHS trusts. Wales: Breast care teams and clinical management in health boards.	Utilisation of neoadjuvant chemotherapy has increased rapidly over the past decade. On average across England and Wales, 56% of people with stage 2 to 3A triple-negative or HER2-positive breast cancer diagnosed between 2021–2023 received NACT. However, variation observed in use between NHS organisations.	Goal #3: Reduce unwarranted variation for patients having non-surgical oncological treatments.	NICE NG101 recommendations 1.9 & 1.10 : For people with HER2-positive invasive breast cancer offer neoadjuvant chemotherapy where indicated and in line with the commissioning criteria for any related technology appraisal guidance. ABS Neoadjuvant Chemotherapy: Multidisciplinary Guidance
Note that due to differences in data and methodology between State of the Nation reports, direct comparisons with earlier reports should not be used to infer about trends over time.				

4. Results for England and Wales

4.1 Characteristics of people with primary breast cancer

The NAOpri included individuals aged 18 years or older who were diagnosed with primary breast cancer in England and Wales between 2021 and 2023, defined by ICD-10 diagnosis codes C50 or D05, and who had no evidence of distant metastasis at diagnosis or within six months of diagnosis.

The main analysis cohort was restricted to people with a unilateral breast cancer, including those with multifocal or multicentric disease. In addition, we identified 4,378 people with a concurrent bilateral breast cancer diagnosis during the audit period, 4,164 in England and

214 in Wales, representing fewer than 3% of all newly diagnosed breast cancer cases. After careful consideration, due to the complexity of assigning differing pathological features between tumours, and the implications this may have for treatment and management pathways, these people were excluded from the main audit analysis. Detailed further inclusion and exclusion criteria can be found in the [methodology supplement](#).

The main analysis cohort consisted of 146,795 individuals; 145,735 women (England: 137,510; Wales: 8,225) and 1,060 men (England: 1,014; Wales: 46). Table 2 summarises the key characteristics of people included in the Audit.

Table 2. Characteristics of people with breast cancer (diagnosed 2021-2023) in England and Wales				
Category	England		Wales	
	Number	Percent	Number	Percent
Total Primary Breast Cancer	138,524	-	8,271	-
By Stage at Diagnosis				
Non-invasive (Stage 0)	14,867	11%	777	9%
Early invasive (EIBC; Stages 1-3A)	108,250	78%	6,217	75%
Locally advanced (LABC; Stages 3B-3C)	4,663	3%	258	3%
Stage unknown	10,744	8%	1,019	12%
By Histology Type				
Ductal carcinoma in-situ (DCIS)	14,867	11%	777	9%
Invasive				
Invasive Ductal (No Special Type)	94,388	68%	5,724	69%
Invasive Lobular	15,618	11%	849	10%
Invasive Mixed / Other	13,651	10%	921	11%
Note: EIBC = Early invasive breast cancer. LABC = Locally advanced breast cancer.				

Inflammatory breast cancer, although relatively uncommon, is of significant concern as a breast cancer presentation. These cancers are challenging to identify due to the lack of uniform clinical diagnostic criteria and consequent limited recording precision in routinely collected data. Efforts were made to identify people with inflammatory breast cancer within the Audit using an updated T stage-

based methodology, based on T4d disease. During this Audit period, we identified 396 people with likely inflammatory breast cancer using our updated approach (detailed in the [methodology supplement](#)), representing less than 0.3% of the overall cohort. The data from these people have been included in the current analysis where appropriate.

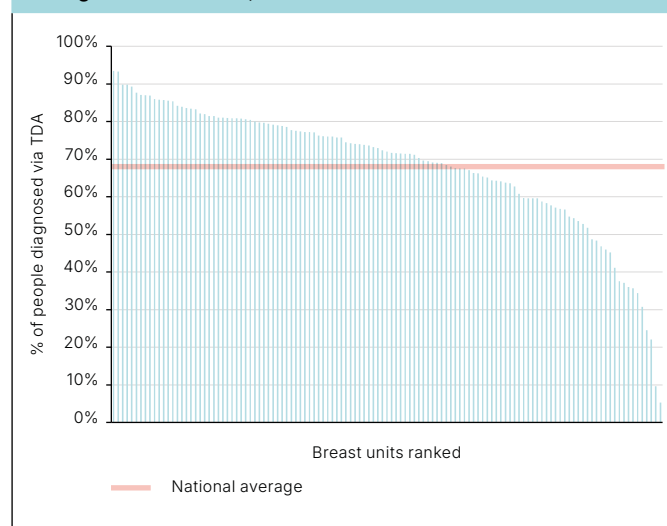
4.2 Diagnostic pathway

Key message

On average, 68.1% of people on non-screening pathway in England were diagnosed through a Triple Diagnostic Assessment (TDA) clinic, with rates ranging from 5.3%– 89.3% according to organisation of diagnosis. In Wales, the estimated TDA rate was 72.9%. This was measured for the second half of 2023 when the new specific TDA item was available. English NHS organisations should complete the bespoke TDA data item (BR4400 in COSD) to enable accurate monitoring of access to triple diagnostic assessment and support timely breast cancer diagnosis.

Triple Diagnostic Assessment (TDA) is a key component of breast cancer service provision and aligns [with Quality Statement 1 in the NICE Breast Cancer Quality Standard \(QS12\)](#). It refers to clinical examination, imaging and biopsy all occurring at the initial clinic visit. A TDA should allow a prompt, definitive cancer diagnosis to be made or refuted and supports organisations to reach their 28-day Faster Diagnosis Standard. By helping to reduce stress associated with multiple visits, TDA is associated with higher levels of patient satisfaction.

Figure 1. Percentage of people undergoing TDA by unit, where each breast unit is represented by a bar on the graph. People with non-screen detected breast cancer diagnosed in England and Wales, 2021–2023.



Notes: TDA = Triple Diagnostic Assessment. TDA as estimated by algorithm in England and through a bespoke data item in Wales.

As the new specific COSD data item for TDA clinic diagnosis (BR4400) was not sufficiently mature for use in this audit cycle in England, this indicator was derived through an algorithm using the date a patient was first seen in the breast unit and the date of their biopsy. 68.1% of people on non-screening pathway in England were diagnosed through a TDA clinic. Rates across England and Wales ranged from 5.3%– 89.3%, according to organisation of diagnosis (Figure 1).

For Wales, the specific TDA data item was only available for people diagnosed in the second half of 2023. For people diagnosed before this, TDA was identified using an algorithm similar to that used in England, giving an estimated TDA rate of 45.8%. In contrast, among people diagnosed in the second half of 2023, when the specific TDA data item was available, the recorded TDA rate was 72.9%. This highlights the value of specific data item in improving the accuracy and interpretation of TDA measurement.

Organisations with low reported TDA rates are encouraged to review their diagnostic pathways. This should include assessing clinic capacities, and whether alternative pathways for routine or lower-risk referrals may be contributing to variation in measured TDA provision. Organisations should also complete the bespoke TDA data item to support more accurate monitoring of this service.

4.3 Neoadjuvant chemotherapy

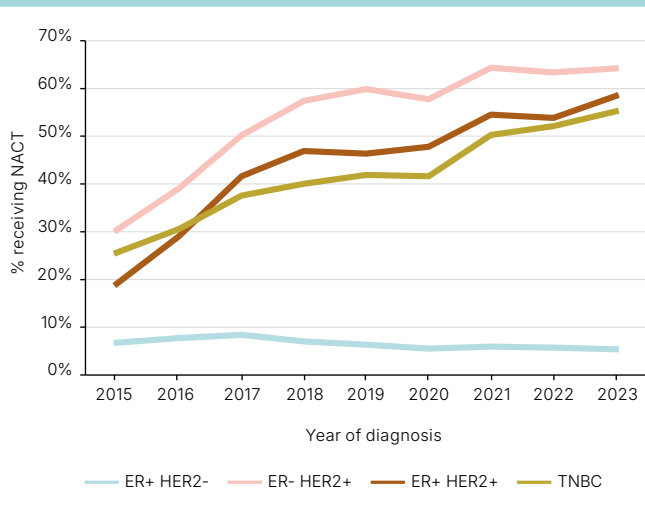
Key message

Utilisation of neoadjuvant chemotherapy (NACT) has increased rapidly over the past decade. Overall, 56% (England = 57%; Wales = 26%) of people with stage 2 to 3A triple-negative or HER2-positive breast cancer diagnosed between 2021 and 2023 received NACT. However, variation remains between NHS organisations (the interquartile range was 45.2% to 65.5%).

Although initially used to facilitate resection of inoperable disease, neoadjuvant chemotherapy has become increasingly integrated into the modern management of primary breast cancer, particularly for people with more aggressive disease phenotypes. Current [ABS guidance](#) recommends consideration of neoadjuvant chemotherapy for people with stage 2A to 3A breast cancer, particularly those with HER2-positive or triple-negative disease.

By linking national cancer datasets with detailed tumour characteristics, NAOpri is able to describe how NACT treatment patterns have changed nationally over the past decade (Figure 2). In line with national guidelines, these data show a substantial increase in NACT use for people with HER2-positive and triple-negative breast cancer but not for those with ER-positive HER2-negative. A small reduction was observed in 2020, coinciding with the COVID-19 pandemic.

Figure 2. Percentage of people receiving NACT. Restricted to people with stage 2-3A breast cancer diagnosed in England and Wales between 2015 and 2023 and undergoing surgery within 12 months of diagnosis. Stratified by molecular marker status.



Notes: ER = oestrogen receptor (+ = positive, - = negative), HER2 = human epidermal growth factor receptor 2 (+ = positive, - = negative), TNBC = triple negative breast cancer, NACT = neoadjuvant chemotherapy. People with stage 1 disease have been excluded as they are unlikely to be treated with NACT unless deemed high risk for recurrence. Stage 3B/3C have been excluded to align with grouping of early invasive disease. Men were excluded from this graph as NACT use was uncommon.

Despite the rapid overall increase in NACT use, organisation level variation was observed across England and Wales, which persisted after adjustment for differences in case mix. The NAO Pri NACT indicator is restricted to people with stage 2A to 3A HER2-positive or triple-negative breast cancer. For each organisation, it captures the percentage of people in this group who received NACT, and conversely those who did not.

Utilisation of neoadjuvant chemotherapy (NACT) has increased rapidly over the past decade. Overall, 56% (England = 57%; Wales = 26%) of people with stage 2 to 3A triple-negative or HER2-positive breast cancer diagnosed between 2021 and 2023 received NACT. Among those aged under 70 years, this increased to just under 70%. However, variation remains between NHS organisations.

Although no guideline defines an optimal proportion of people who should receive NACT, organisations with NACT rates below 30% for HER2 positive or triple negative cancers, are encouraged to review their practice and treatment pathways. For example, organisations may re-evaluate the multidisciplinary team's offer of neoadjuvant chemotherapy in light of current guidelines and ensure adequate and timely access to the resources needed to deliver and monitor NACT (e.g., CT/MRI scanning, tumour and node clipping, and oncology services).

4.4 Surgical care

Breast conserving surgery (BCS)

Key message

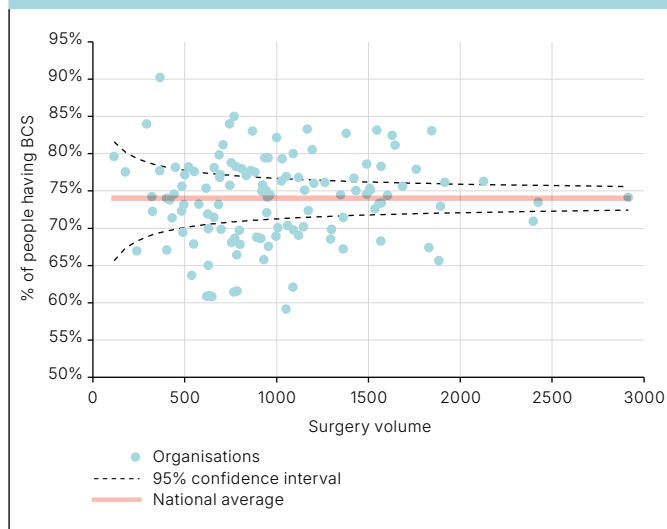
Overall, 74.0% (England = 74%; Wales = 71%) of women with early breast cancer (stage 0 to 3A), underwent breast-conserving surgery (BCS) as their first operation within 12 months of diagnosis. Adjusted BCS rates varied between NHS organisations, ranging from 59.2% to 90.2%.

Surgery is a cornerstone of treatment for people with early breast cancer. Evidence from large randomised trials^{6,7,8} suggests that BCS with radiotherapy is associated with equivalent survival outcomes compared with mastectomy. It also offers advantages in terms of lower complication burden, better cosmetic outcomes and improved postoperative psychosocial wellbeing.

In England and Wales, among women diagnosed with early breast cancer between 2021 and 2023 who underwent surgery within 12 months of diagnosis, 74.0% had breast-conserving surgery as their initial operation (England = 74%; Wales = 71%). Rates varied by organisation even after adjusting for case mix, ranging from 59.2% to 90.2% (Figure 3). As most men with breast cancer underwent mastectomy, they were not included in this indicator.

- 6 Fisher B, Anderson S, Bryant J, et al. Twenty-year follow-up of a randomized trial comparing total mastectomy, lumpectomy, and lumpectomy plus irradiation for invasive breast cancer. *N Engl J Med.* 2002;347:1233–1241.
- 7 Veronesi U, Cascinelli N, Mariani L, et al. Twenty-year follow-up of a randomized study comparing breast-conserving surgery with radical mastectomy for early breast cancer. *N Engl J Med.* 2002;347:1227–1232.
- 8 Litière S, Werutsky G, Fentiman IS, et al. Breast conserving therapy versus mastectomy for stage I–II breast cancer: 20 year follow-up of the EORTC 10801 phase 3 randomised trial. *Lancet Oncology.* 2012;13:412–419.

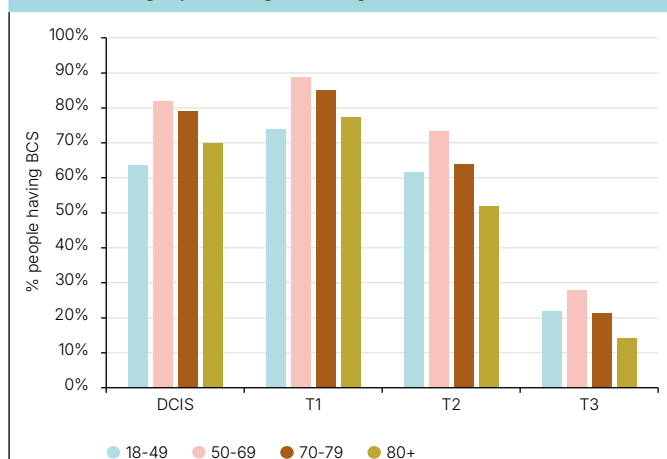
Figure 3. Funnel plot showing adjusted* Breast Conserving Surgery (BCS) rate by NHS organisation for England and Wales, 2021–2023



* Risk adjusted for age, frailty, co-morbidity, diagnosis year, DCIS and for invasive disease: grade, ER status, HER2 status, T stage, N stage, histology type. Note: For England, NHS organisations are allocated using the Cancer Waiting Times dataset where possible, based on the organisation that issued the decision to treat. Decision to treat also marks the start of the 31-day standard, within which people should receive their initial treatment. Further details are provided in the [methodology supplement](#).

BCS rates also varied by age (Figure 4). The highest rate was observed among women aged 50 to 69 years, of whom 80.3% underwent BCS. This decreased to 72.7% among those in their 70s and 59.2% among those aged 80 years or older. Women aged under 50 years also had a lower BCS rate, at 61.2%, which may reflect differences in tumour biology, genetic considerations, disease presentation (outside screening age-group) and patient preference. The rate of BCS was substantially lower among people with larger T3 tumours.

Figure 4. Breast Conserving Surgery (BCS) rate by tumour size (T category) and age for England and Wales, 2021–2023.



Notes: DCIS = ductal carcinoma in situ; T1, T2, T3 = tumour size categories (T stage),

Immediate breast reconstruction (IBR)

Key message

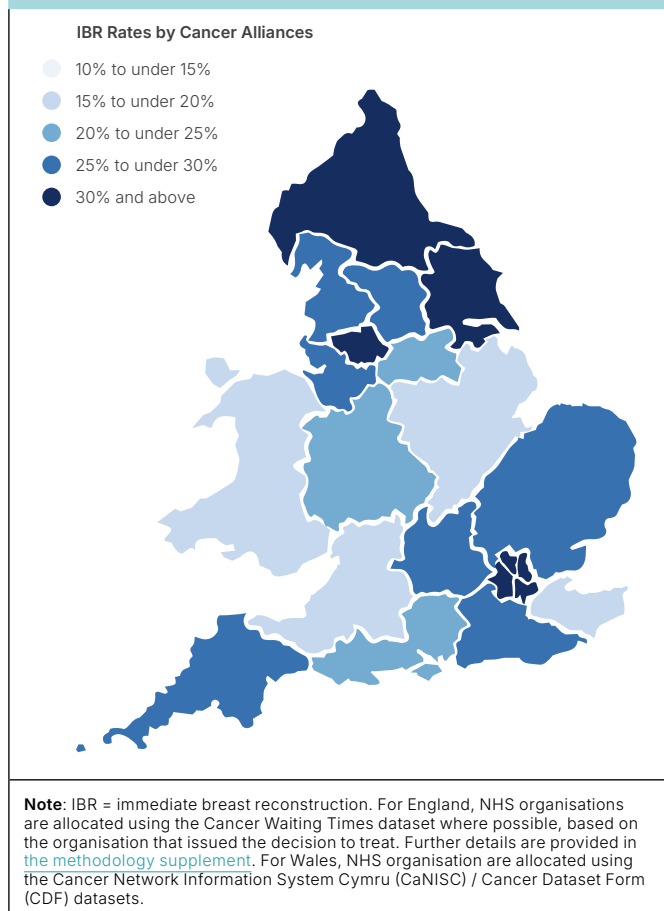
Across England and Wales, just over a quarter of women undergoing mastectomy had immediate breast reconstruction (England = 27%; Wales = 15%). Rates of immediate breast reconstruction have gradually recovered since the COVID-19 pandemic. Adjusted IBR rates between organisations varied from 5.9% to 46.7%.

Immediate breast reconstruction (IBR) refers to reconstruction of the breast at the same time as mastectomy. For women undergoing mastectomy, IBR is an important surgical option that is highly valued. It is considered oncologically safe for appropriately selected cases and provides potential psychological benefits. NICE guidance states that IBR should be discussed with, and offered to, all women undergoing mastectomy unless significant comorbidity precludes this. IBR has also been selected as a key metric for improvement by the Treatment Variation Working Group for Cancer Alliances in England.

The decision to undergo IBR is made jointly between the patient and clinical team, taking account of oncological factors, comorbidities, anticipated adjuvant treatment, available resources and patient preference. Delayed reconstruction may also be appropriate. Monitoring IBR rates provides an important window into access to reconstructive services, including regional service configuration, availability of specialist expertise and variation in local treatment pathways.

Among women diagnosed between 2021 and 2023 who underwent surgery within 12 months of diagnosis, 26.0% had mastectomy as their first operation (England = 27%; Wales = 15%). In this group, the overall IBR rate was 26.0%, compared with 23.4% reported last year for women diagnosed between 2020 and 2022. This suggests a recovery in reconstructive practice following the disruption caused by the COVID-19 pandemic. However, regional variation persisted even after risk adjustment, with rates ranging from 5.9% to 46.7% across organisations and from 15.2%–38.7% across Cancer Alliances (Figure 5).

Figure 5. Adjusted IBR rate by English Cancer Alliance and Wales for women with early invasive breast cancer diagnosed in England and Wales, 2021–2023.



NAoPri Quality Improvement Intervention: Immediate Breast Reconstruction

- Formally launched in September 2025, the NAOpri Quality Improvement intervention focuses on improving access to IBR, informed by the NAOpri IBR indicator.
- Targeted feedback is provided to Cancer Alliances and NHS providers through regional meetings, treatment variation working groups, national conferences and engagement events.
- The initiative aims to support local reflection and improvement by helping organisations understand their IBR rates, identify barriers to IBR, including service configuration, reconstructive capacity, referral pathways and shared decision-making processes.
- NAOpri complements more timely operational data sources, such as GIRFT and Model Hospital, by providing further clinical granularity through linked national cancer datasets. This includes tumour factors and treatment details, enabling adjustment for case mix and supporting a more nuanced interpretation of variation in IBR rates.

Re-operation after breast conserving surgery (BCS)

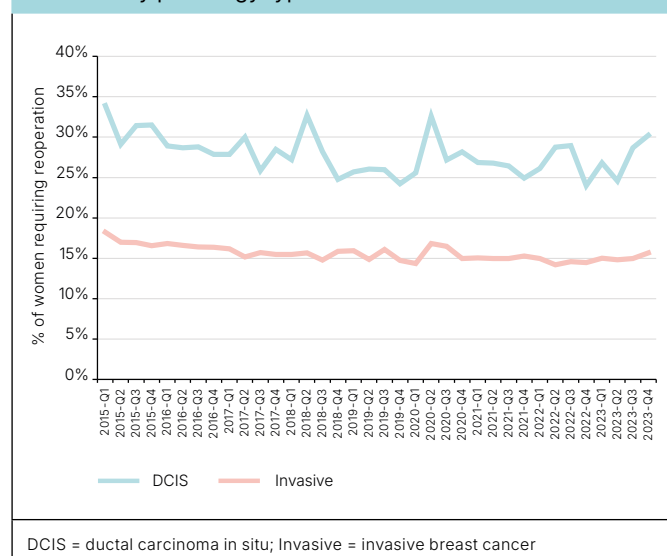
Key message

Almost 5,000 women annually in England and Wales required reoperation following breast-conserving surgery, equivalent to around 1 in 6 people. Reoperation rates varied substantially between units, ranging from approximately 1 in 12 in units with the lowest rates to almost 1 in 3 in those with the highest rates.

Achieving adequate surgical margins is important in BCS as residual tumour at the margin is associated with an increased risk of recurrence. In line with [NICE guidelines](#), when postoperative pathology identifies involved or close margins, patients may need additional surgery with re-excision or completion mastectomy. These reoperations can have a substantial impact on patients' recovery, experience of care and quality of life, while also placing additional demands on surgical services and healthcare resources.

Reoperation rates were on average, consistently higher among people with DCIS than those with invasive breast cancer (Figure 6). However, neither group showed any significant reduction over the past decade despite developments in surgical techniques, localisation methods, and imaging technologies. As most men with breast cancer underwent mastectomy, they were not included in this indicator.

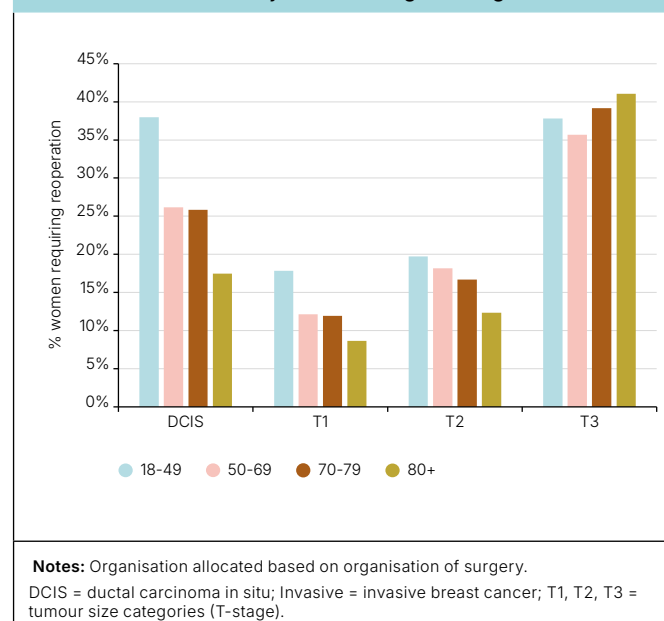
Figure 6. Quarterly reoperation rates among women who had Breast Conserving Surgery (BCS) in England and Wales, stratified by pathology type.



Focusing on women diagnosed between 2021 and 2023, substantial variation between organisations remains evident, with reoperation rates ranging from less than 10% in units with the lowest rates to over 30% in those with the highest rates. Overall, approximately 1 in 6 women required reoperation following BCS, representing almost 5,000 women in England and Wales undergoing further surgery each year. Even modest reductions in avoidable reoperations could therefore have meaningful benefits for both patients and services. Although there are no national guidelines defining an optimal reoperation rate following BCS, we propose aspirational targets of 10% for invasive cancer and 15% for DCIS to support local review of practice.

Reoperation rates also varied by tumour stage and age group (Figure 7). For invasive breast cancer, rates were lowest among people with T1 disease and increased with tumour size, with the highest rates of 37.1% observed among those with T3 disease. Among those with T3 disease requiring reoperation, 56.1% of women proceeded to completion mastectomy. These findings highlight the importance of careful preoperative assessment, active radiology-surgery interaction, good surgical technique, MDT discussion and shared decision-making for people with larger tumours.

Figure 7. Reoperation rates following Breast Conserving Surgery (BCS) of women diagnosed in England and Wales, 2021–2023. Stratified by Tumour stage and age.



However, it is worth noting that reoperation rates should be interpreted carefully and viewed in a wider context. For example, organisations should interpret their reoperation rates in line with BCS specimen weights and mastectomy rates. The aim should be to support appropriate surgical decision-making and margin management, rather than plan to minimise reoperation rates in isolation.

4.5 Adjuvant radiotherapy

Key message

Among women diagnosed with invasive breast cancer between 2021 and 2023 who underwent BCS, 83.7% received adjuvant radiotherapy, with rates varying across organisations from 33.6% to 94.2%. Among those who underwent mastectomy, 46.1% received adjuvant radiotherapy with rates varying across organisations from 12.2% to 66.6%. Radiotherapy use was lower among people aged over 70.

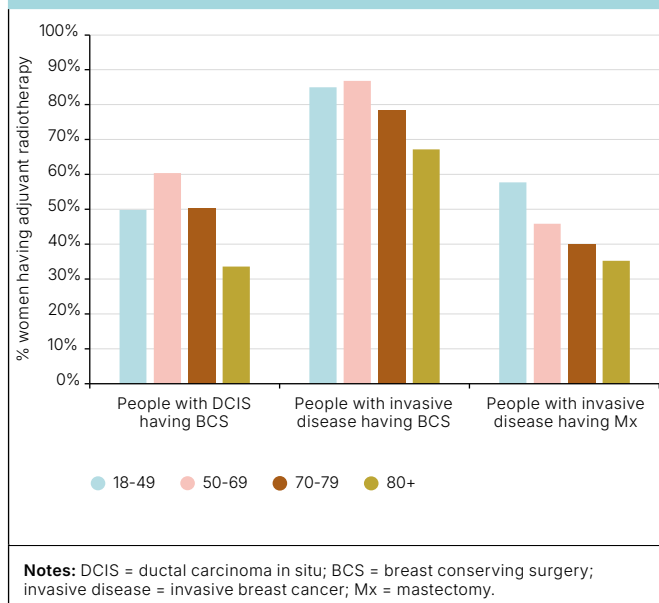
Radiotherapy is an important component of treatment for many people with early breast cancer and is used to reduce the risk of local recurrence and breast cancer mortality following surgery. Decisions about radiotherapy are made as part of multidisciplinary care, taking account of a variety of factors including tumour stage and biology, nodal status, margin status, patient fitness, previous treatment and patient preference.

Adjuvant radiotherapy following breast-conserving surgery has traditionally been a standard component of treatment for early invasive breast cancer, reducing the risk of recurrence in the conserved breast. However, practice continues to evolve, such as the increasing use of partial breast irradiation. Omission of radiotherapy may also be suitable for selected patients with a very low absolute risk of recurrence, such as those with low-risk features including T1N0 disease, ER-positive disease and people aged 65 years or older who are planned to receive adjuvant endocrine therapy. This is consistent with [NICE recommendations](#) and evidence from the [PRIME II trial](#).

Among women diagnosed between 2021 and 2023 who underwent BCS for invasive breast cancer, 83.7% received adjuvant radiotherapy within six months of surgery, or 12 months after surgery where adjuvant chemotherapy was also given (England = 86%; Wales = 47%). Use of radiotherapy decreased among older people (Figure 8). Significant variation was observed between organisations from 33.6% to 94.2%.

Following mastectomy, NICE guidance recommends offering post-mastectomy radiotherapy (PMRT) to people with node-positive disease or involved resection margins. It is not routinely recommended for people at low risk of recurrence. Among women diagnosed between 2021 and 2023 who underwent mastectomy for invasive breast cancer, 46.1% (England = 48%; Wales = 18%) received PMRT. Use of PMRT decreased with increasing age (Figure 8). Significant variation was again observed between organisations.

Figure 8. Percentage of women receiving adjuvant radiotherapy in England and Wales, 2021–2023. Stratified by age and type of first operation.



This indicator is restricted to invasive disease because radiotherapy use after BCS for DCIS varied considerably depending on grade and size. As an overview, radiotherapy use was lower among women with DCIS who had BCS, at around 57.2%, although a similar age-related pattern was observed (Figure 8). Men were also excluded from this indicator because most men underwent mastectomy rather than BCS. Among men who underwent mastectomy for invasive breast cancer, just over 40% received PMRT. Radiotherapy data for Wales should be interpreted with caution, as recorded treatment rates appear unexpectedly low and may reflect incomplete data capture. Further work is planned to investigate radiotherapy data completeness and ascertainment in Wales.

4.6 Outcomes

Survival

In England and Wales, 3-year all-cause survival and breast cancer-specific survival among people diagnosed with stage 1 to 3A invasive breast cancer between 2022 and 2023 were 92% and 98%, respectively.

The Audit has implemented a process to identify providers which are outliers for 3-year survival. More information about the outlier policy can be found [here](#). No NHS organisations have been identified as outliers (2 or 3 standard deviations from the mean) in this report.

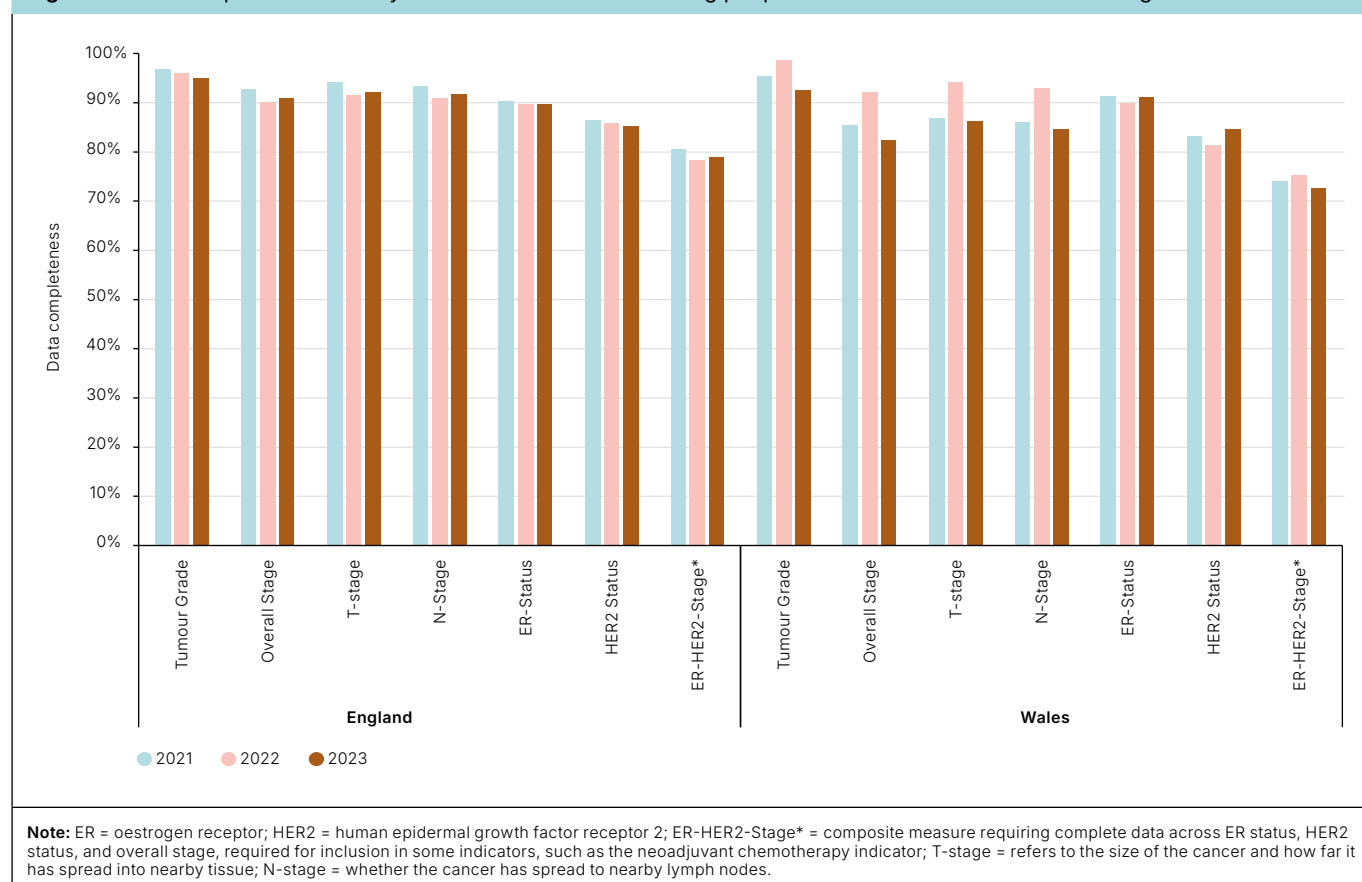
4.7 Data completeness

Key message

Data completeness was below the 90% target for several key items in many organisations, including tumour grade, stage, ER and HER2 receptor status, and clinical nurse specialist (CNS) involvement. NHS organisations should strengthen data submission to national cancer datasets to support accurate assessment of care quality and outcomes.

Treatment options for individuals with breast cancer are influenced by the characteristics of their tumour. The recording of this information in national cancer datasets is vital to understand patterns of care within the NHS and whether they are appropriate and is mandatory for all trusts. Figure 9 shows data completeness for selected clinical data items. In addition, there was substantial variation between NHS trusts in the completeness of some items, which can be explored on the [Data Dashboard](#).

Figure 9. Data completeness for key tumour characteristics among people with invasive breast cancer in England and Wales.



Additionally, all people diagnosed with breast cancer should have access to, and contact with, a clinical nurse specialist (CNS). Among people diagnosed between 2021 and 2023 with a recorded response

for this data item, 93.5% were reported as having seen a CNS. However, interpretation is limited by incomplete data return, with CNS data available for only 81% of people in both England and Wales.

5. Commentary

This third NAO Pri State of the Nation report summarises the patterns of care received by people diagnosed in breast cancer in England and Wales. Additional online materials are available to augment these results and it is essential that NHS trusts and Cancer Alliances in England and NHS hospitals and health boards in Wales use them to review their performance and, where necessary, initiate local quality improvement activities. We also recommend English breast units read about the revised NHS trust allocation algorithm, which aims to align organisational reporting more closely with the MDT responsible for treatment planning (see [methodology supplement](#)).

Since 2018, neoadjuvant chemotherapy has been recommended for people with stage 2A to 3A breast cancer, particularly those with HER2-positive or triple-negative disease. It is encouraging to see the increased use of NACT, with 56% of people with stage 2 to 3A triple-negative or HER2-positive breast cancer receiving NACT. However, variation in practice remains between NHS organisations, and we encourage breast units with NACT rates below 30% for these groups to review their decision making and treatment pathways.

Triple diagnostic assessment in a single visit is a key tenet of breast cancer service provision. TDA is associated with higher diagnostic accuracy and high levels of patient satisfaction. TDA was received by roughly 70% of newly diagnosed individuals, but rates varied substantially across NHS organisations. Breast units with low reported TDA rates should assess whether improvements can be made.

The indicators on breast-conserving surgery rates, immediate breast reconstruction rates, and reoperation rates also showed variation in practice between organisations. Some of these differences may reflect legitimate differences in patient preferences. However, the size of the variation suggests that differences in pathways, resource availability, and local decision-making are also contributing. Organisations should use these findings to review their own practice, particularly where rates are substantially higher or lower than the national average.

The report provides some additional detail on histological subtypes of breast cancer. Invasive lobular breast cancer can be associated with different patterns of surgical management and treatment decision-making compared to ductal types, and incorporating this histology into risk adjustment enables comparisons between organisations to better account for differences in patient case mix, and may support further investigation of pathology-specific recommendations in the future, such as the use of MRI in lobular breast cancer.

Data quality remains central to the interpretation and impact of the audit. Completeness was below the 90% target for several key data items in many organisations. High levels of completeness are important because the key data items are used for defining indicator denominators and support the risk-adjustment process, which facilitates fair comparisons between organisations. NAO Pri will continue to work with NDRS, NHS organisations, and other stakeholders to improve data completeness, refine data processing methods, and support more reliable national reporting.