Public Health England

ABS ASSOCIATION OF BREAST SURGERY

# NHS breast screening programme and Association of Breast Surgery

## An audit of screen detected breast cancers for the year of screening April 2016 to March 2017

**Public Health England leads the NHS Screening Programmes**

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## About PHE Screening

Screening identifies apparently healthy people who may be at increased risk of a disease or condition, enabling earlier treatment or better informed decisions. National population screening programmes are implemented in the NHS on the advice of the UK National Screening Committee (UK NSC), which makes independent, evidence-based recommendations to ministers in the four UK countries. The Screening Quality Assurance Service ensures programmes are safe and effective by checking that national standards are met. PHE leads the NHS Screening Programmes and hosts the UK NSC secretariat.

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# Foreword

This publication presents results of the National Health Service Breast Screening Programme audit of results and outcomes for April 2016 to March 2017 inclusive. This annual audit is now in its 22nd year. Despite all the many different challenges facing the breast screening programme, the fact that it audits itself assiduously, painstakingly and with sincere intent to improve the welfare of the population marks it out as a world leader in healthcare. Very few, if any, national audits exist with similar levels of granular outcome data, especially when published annually.

This degree of continuous self-assessment would not be possible without the attentive and conscientious contributions of the screening offices throughout the nation. The Association of Breast Surgery and Public Health England would like to thank and to pay tribute to all our colleagues in all screening units for their contributions.

This year we continue on the theme of examining all screening related data but focussing on key performance indicators (KPIs) for the disciplines involved in screening; radiology, surgery and pathology. These are presented within this audit and ABS would value all constructive comments relating to these or future KPIs. As in recent times, the results are presented in succinct, bulleted format rather than the traditional full text prose seen in earlier years of the report. It is hoped that this makes the publication more digestible and allows busy readers to find information relevant to their needs with greater ease.

The stewardship of the annual audit report rests with the multidisciplinary Screening Audit Group each of whom donate an extraordinary amount of their time to its production. They are listed in subsequent pages and I would like to thank them wholeheartedly for their contributions. In addition, there should be a special thanks to Shan Cheung and Helen Price of PHE Screening for their unstinting professionalism in helping produce this audit report.

**Mr Ashu Gandhi**

**Chair, NHSBSP & ABS Breast Screening Audit Group**

# Acknowledgements

The 2016/17 UK NHS breast screening programme (UK NHSBSP) and Association of Breast Surgery (ABS) audit of screen-detected breast cancers was designed and directed by the NHSBSP and ABS Screening Audit Group:

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Mr Mark Sibbering, Member, Advisory Committee for Breast Cancer Screening
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- clinical and administrative staff working in the NHS breast screening programme
- English Screening Quality Assurance Service Professional and Clinical Advisors and their Celtic country equivalents for the relevant disciplines
- PHE Screening Quality Assurance Service staff working in breast screening and their Celtic country equivalents
- PHE Chief Knowledge Officer Directorate staff in the West Midlands who extracted previous cancer data from the Cancer Analysis System
- NHSBSP National Office for financial support for the organisation and execution of the 2016/17 audit of screen detected breast cancer
- Lucy Davies, Association of Breast Surgery Manager, for providing organisational support to the Audit Group

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# Executive summary

## Cancer detection

Between 1 April 2016 and 31 March 2017, 2,387,040 women were screened by the UK NHSBSP in England, Northern Ireland and Wales. This is a slight decrease from the previous year as data from Scotland continues to be unavailable as the programme there migrates from one IT system to another. It is hoped that imminent iterations of the screening audit will be able to include Scottish data.

The cancer detection rate seems to have plateaued in the last decade and this year's figure of just over 8 women being diagnosed with cancer for every 1000 screened is broadly in line with the figure for the past 15 years. Of these women given a malignant diagnosis, 4 of every 5 were diagnosed with invasive lesions and 1 of 5 with preinvasive/microinvasive lesions.

Just over half of all diagnosed invasive cancers were less than 15mm in size. The cancer detection rate for these small invasive cancers (3.5 per 1,000 women screened) has also remained consistent over the past 15 years.

In England and Northern Ireland, 1,398 (7%) women diagnosed with breast cancer through screening had a previous breast cancer history recorded. Approximately two thirds of these women had a previous diagnosis of invasive cancer and the remainder non-invasive cancer.

## Randomised age extension trial

This trial, which applies to 67 screening units in England only, is evaluating breast screening for women in the 47 to 49 and 71 to 73 years age groups. Over the 6 years of the trial the proportion of women diagnosed with cancer within the trial has risen, particularly within the younger of the 2 age groups:

- 47–49 years: 2.8% to 5.3%
- 71–73 years: 4.1% to 6.5%

## Non-operative diagnosis

Non-operative diagnosis, for example, diagnosis by needle biopsy in an outpatient setting prior to therapeutic surgery, is the desired method of diagnosis and management for all breast cancers. It permits treatment discussions with the patient advised by the recommendation of a multidisciplinary team.

Pleasingly, almost all units exceeded both the minimum and target standards for invasive cancers with 99% of women receiving a non-operative diagnosis.

Non-operative diagnosis for non-invasive cancers continues to present challenges. Nationally, 92% of women received their diagnosis non-operatively which exceeds the target standard for non-invasive malignancy. However, 11 screening services did not meet the minimum standard of 85% (3 units fewer than 2015/16) and it this should be a source of reflection for these units.

### Number of assessment clinic visits

Screening units should strive, wherever possible, to keep the number of visits to the assessment clinic to a minimum as it is widely recognised that these visits can themselves provoke anxiety and concern amongst women. Audit data shows that only one assessment clinic visit to establish a definitive diagnosis in 9 of every 10 women with a screen detected malignancy.

### Tumour characteristics

There were 3,802 non-invasive cancers (DCIS & LCIS) and 14,740 invasive breast cancers diagnosed excluding previous cancer cases. Out of 3,688 DCIS cases that underwent surgical treatment, 36% of tumours were less than 15mm in diameter, 17% were larger than 40mm and a total of 62% were high nuclear grade.

Of 14,376 women who were diagnosed with invasive cancer and who underwent surgical treatment, 53% had an invasive tumour smaller than 15mm and 2% had a tumour larger than 50mm. Grade 1 tumours were noted in 25% and grade 3 tumours in 20% of women. The oestrogen receptor (ER) status was known for almost 100% of women with invasive cancer and the vast majority of these (91%) were ER positive. Similarly, HER2 receptor status was known for 99% of cases and in 10% of women were positive.

### Surgical treatment

In total, 23% of women with DCIS underwent mastectomy. It would be clinically reasonable to consider sentinel node biopsy on this group of patients and 91% underwent this procedure.

A slightly lower figure for mastectomy, 17%, was seen in women with invasive disease. If we examine those women with invasive tumours below 15mm in size, 1 in 10 had mastectomy. The commonest reasons for this would be concomitant non-invasive disease extending beyond a size suitable for breast conservation or patient preference. Importantly, lymph node status was known in 99% of women and 20% were found to be lymph node positive.

Proportionately, almost twice as many women undergoing mastectomy for non-invasive cancers underwent immediate breast reconstruction compared with those with invasive disease; 50% v 27% respectively.

## Neo-adjuvant therapy

A total of 1,128 women with invasive breast cancer received neo-adjuvant therapy of whom 57% received neo-adjuvant chemotherapy and the remainder neo-adjuvant endocrine therapy.

## Surgical caseload

During 2016/17, 623 consultant breast surgeons treated women with breast cancer from the NHS BSP. Of these 149 (24%) treated fewer than 10 screen detected cases during this audit year. These surgeons should ensure that over a 3 year audit cycle, they treat a total of 30 screen detected breast cancer patients.

## Repeat operations

The incidence of repeat operations (defined as more than one operation needed to complete the primary cancer surgery) is 18% overall. It is much higher, 42%, in those 465 women who did not have a non-operative diagnosis. Women with a diagnosis of pre-invasive cancer had a higher incidence of repeat surgery (21%) than those with a diagnosis of invasive cancer (17%).

## The axilla

The practice of pre-operative ultrasound assessment of the axilla is now firmly established with 99% of women with a non-operative diagnosis of invasive cancer undergoing this investigation and 97% of those found to have an ultrasonagraphically abnormal node proceeding to needle biopsy. The positive predictive value of an abnormal axillary ultrasound scan was 47% and the negative predictive value 84%.

## Adjuvant therapy

Due to changes in the audit process in England the quality of the adjuvant therapy data available for the audit period remains disappointing. As a result the report can only reliably look at radiotherapy after breast conserving surgery for invasive disease.

For the 2015/16 timeframe (the adjuvant therapy audit trails the diagnosis and treatment audit by one year) only 40% of patient started their radiotherapy treatment within 60 days of final surgery. This remains a source of concern that requires investigation.

## Survival

5 year survival figures for women diagnosed with cancer in the NHS BSP during 2011/12 are presented. These show an adjusted 5 year survival for all invasive cancers of 98.7%. The 5 year survival is highest amongst smaller tumours (<15mm), grade 1 tumours and node negative tumours.

# Introduction

## Aims and objectives

The 2016/17 UK NHS Breast Screening Programme (NHSBSP) and Association of Breast Surgery (ABS) Audit of screen-detected breast cancer was undertaken to examine UK NHSBSP clinical practice in the period 1 April 2016 to 31 March 2017 and adjuvant therapy undertaken in the period 1 April 2015 to 31 March 2016. The audit is designed to assess clinical performance by comparison of data with as many as possible of the clinical quality assurance (QA) standards recommended by the UK NHS Breast Screening Programme. These include the standards set in the following publications:

- quality assurance guidelines for surgeons in breast cancer screening NHSBSP Publication No. 20, 4th edition, March 2009
- guidelines for quality assurance visits
- NHSBSP Publication No. 40, Revised, October 2000

## Organisation of the audit

The format of the audit was designed by the NHSBSP & ABS Screening Audit Group. The organisation of data collection, data evaluation and publication are described in Appendix 1.

## Use of the audit data

The annual NHSBSP & ABS Breast Screening Audit data should be used to celebrate high-quality services not just to focus on those not meeting screening QA standards. Achievement of standards and delivery of high quality services should also be recorded and recognised as a tribute to dedicated professionals working within breast services.

### Actions following receipt of the audit

At national level

The NHSBSP & ABS Breast Screening Audit data should be considered formally at meetings of the Clinical Professional Groups for Surgery, Radiology and Pathology. This will provide opportunities to recognise areas of good practice and identify areas where breast screening performance could improve. Resultant recommendations for future modification of the audit including any suggested changes to key performance indicators should be communicated to the Audit Group by the relevant disciplinary representatives.

At local/sub regional/regional/Celtic country level

The annual NHSBSP & ABS Breast Screening Audit data should be discussed locally at a meeting of the lead breast surgeons as a minimum. SQAS staff and the relevant QA PCAs should take steps to acknowledge high quality performance of individual screening services in a variety of settings, such as programme boards. When appropriate SQAS should identify recommendations for action if it is confirmed that performance does not meet national screening QA standards and/or key performance indicators (KPIs). Recommendations for action could include training, improvements in the management and/or organisation of services and visits to high performing screening services from whom good practice could be learned.

## Your comments

The NHSBSP & ABS Breast Screening Audit has developed over the years, with improvements in design and organisation resulting in improved data quality and increasingly useful results. We wish to continue this development process and your comments and suggestions are welcome.

If you have comments or suggestions about the 2016/17 audit report or the development of future NHSBSP & ABS Breast Screening Audits please contact:

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# Provision of data for the 2016/17 audit

The map below shows the areas covered by the 8 English QA sub regions and the breast screening information centres in Wales, Scotland and Northern Ireland. There are now 4 QA regions in England, combining the sub regions outside of London:

- London
- Midlands and East (East Midlands, West Midlands and East of England)
- North (North West and North East Yorkshire & Humber)
- South (South West and South East)

# Screening service participating in the 2016/17 audit

| Screening Units Participating in the NHSBSP & ABS Audit | | | | | | |
|---|---|---|---|---|---|---|
| Subregion or Celtic Country | Unit code | Unit Name | Women Screened | Total Cancers | Invasive Cancers | Non/Micro-invasive Cancers |
| East Midlands | CDN | Chesterfield/North Derby | 17434 | 158 | 133 | 25 |
| | CDS | Derby | 25284 | 217 | 161 | 56 |
| | CLE | Leicester | 41201 | 335 | 269 | 65 |
| | CLI | Lincolnshire | 29211 | 243 | 200 | 43 |
| | CNN | North Nottingham | 10938 | 73 | 57 | 16 |
| | CNO | Nottingham | 29970 | 236 | 197 | 39 |
| | KKE | Kettering | 15793 | 116 | 98 | 18 |
| | KMK | Milton Keynes | 11101 | 90 | 73 | 17 |
| | KNN | Northampton | 16430 | 151 | 123 | 28 |
| East of England | DCB | Cambridge & Huntingdon | 18448 | 149 | 126 | 23 |
| | DGY | Great Yarmouth & Waveney | 12681 | 78 | 68 | 10 |
| | DKL | King's Lynn | 6848 | 78 | 55 | 23 |
| | DNF | Norfolk & Norwich | 25584 | 201 | 172 | 28 |
| | DPT | Peterborough | 11554 | 86 | 63 | 23 |
| | DSU | East Suffolk | 18460 | 141 | 120 | 21 |
| | DSW | West Suffolk | 13054 | 117 | 94 | 23 |
| | ELD | Beds & Herts | 63327 | 491 | 389 | 102 |
| | FCO | Chelmsford & Colchester | 33941 | 240 | 194 | 46 |
| | FEP | West Essex (Epping) | 12286 | 102 | 82 | 20 |
| | FSO | South Essex | 25903 | 199 | 173 | 26 |
| London | EBA | North London | 63580 | 493 | 375 | 118 |
| | ECX | West London | 50201 | 382 | 294 | 88 |
| | FBH | Outer North East London | 29361 | 207 | 158 | 49 |
| | FLO | Central and East London | 33030 | 278 | 210 | 68 |
| | GCA | South East London | 55444 | 424 | 336 | 88 |
| | HWA | South West London | 48836 | 438 | 315 | 123 |
| North East, Yorkshire & Humber | AGA | Gateshead | 36025 | 252 | 214 | 38 |
| | ANE | Newcastle | 40198 | 341 | 270 | 71 |
| | ANT | North Tees | 39900 | 333 | 258 | 75 |
| | AWC | North Cumbria | 15065 | 112 | 79 | 33 |
| | BHL | Humberside | 46212 | 341 | 290 | 50 |
| | BHU | Pennine | 39409 | 334 | 265 | 69 |
| | BLE | Leeds Wakefield | 42973 | 386 | 296 | 90 |
| | BYO | North Yorkshire | 35230 | 311 | 245 | 66 |
| | CBA | Barnsley | 12324 | 80 | 66 | 14 |
| | CDO | Doncaster/Bassetlaw | 17110 | 140 | 120 | 20 |
| | CRO | Rotherham | 11527 | 109 | 101 | 8 |
| | CSH | Sheffield | 20354 | 187 | 157 | 30 |
| North West | NCH | Chester | 8465 | 91 | 76 | 15 |
| | NCR | Crewe | 13524 | 81 | 64 | 17 |
| | NLI | Liverpool | 35732 | 268 | 210 | 57 |
| | NMA | East Cheshire & Stockport | 21560 | 193 | 158 | 35 |
| | NWA | Warrington, Halton, St Helens & Knowsley | 24730 | 231 | 168 | 63 |
| | NWI | Wirral | 15546 | 154 | 125 | 29 |
| | PBO | Bolton | 28105 | 260 | 200 | 60 |
| | PLE | East Lancashire | 20905 | 192 | 158 | 34 |
| | PLN | North Lancashire & South Cumbria | 36616 | 335 | 269 | 66 |
| | PMA | Manchester | 53767 | 441 | 375 | 66 |
| | PWI | South Lancashire | 28874 | 220 | 174 | 46 |

| Screening Units Participating in the NHSBSP & ABS Audit | | | | | | |
|---|---|---|---|---|---|---|
| Subregion or Celtic Country | Unit code | Unit Name | Women Screened | Total Cancers | Invasive Cancers | Non/Micro-invasive Cancers |
| South East | KHW | Aylesbury & Wycombe | 22940 | 203 | 144 | 59 |
| | KOX | Oxfordshire | 26856 | 203 | 153 | 50 |
| | KRG | West Berkshire | 19392 | 146 | 116 | 29 |
| | KWI | East Berkshire | 18464 | 169 | 129 | 40 |
| | GBR | Brighton | 32331 | 261 | 203 | 58 |
| | GCT1 | Canterbury | 32280 | 309 | 255 | 54 |
| | GCT2 | Maidstone | 22431 | 204 | 165 | 39 |
| | GCT3 | Medway | 26526 | 215 | 179 | 36 |
| | HGU | Guildford | 54413 | 563 | 410 | 153 |
| | HWO | Worthing | 32648 | 262 | 213 | 49 |
| South West | JBA | North & Mid Hants | 22531 | 196 | 146 | 50 |
| | JDO | Dorset | 37952 | 345 | 264 | 81 |
| | JIW | Isle of Wight | 8999 | 75 | 60 | 15 |
| | JPO | Portsmouth | 21786 | 207 | 155 | 52 |
| | JSO | Southampton & Salisbury | 26357 | 273 | 227 | 46 |
| | JSW | Wiltshire | 25913 | 214 | 176 | 37 |
| | LAV | Avon | 44715 | 386 | 303 | 83 |
| | LCO | Cornwall | 19935 | 166 | 129 | 37 |
| | LED | North & East Devon | 26048 | 207 | 151 | 56 |
| | LGL | Gloucestershire | 27152 | 252 | 203 | 49 |
| | LPL | West Devon | 21418 | 185 | 138 | 47 |
| | LSO | Somerset | 23215 | 204 | 175 | 29 |
| | LTB | South Devon | 13507 | 109 | 86 | 23 |
| West Midlands | MAS | South Staffordshire | 24791 | 214 | 175 | 39 |
| | MBS | South Birmingham | 41422 | 345 | 267 | 78 |
| | MBD | City, Sandwell & Walsall | 15008 | 123 | 98 | 25 |
| | MCO | Warwickshire, Solihull & Coventry | 45232 | 396 | 312 | 84 |
| | MDU | Dudley & Wolverhampton | 21195 | 189 | 144 | 45 |
| | MHW | Hereford & Worcester | 35901 | 301 | 256 | 45 |
| | MSH | Shropshire | 20961 | 175 | 146 | 29 |
| | MST | North Staffordshire | 21188 | 186 | 134 | 52 |
| Northern Ireland | ZNE | Eastern | 26603 | 188 | 149 | 38 |
| | ZNI | Northern | 15889 | 107 | 81 | 25 |
| | ZNS | Southern | 12737 | 85 | 75 | 10 |
| | ZNW | Western | 11892 | 86 | 68 | 18 |
| Wales | WNM | North Wales | 30306 | 280 | 246 | 34 |
| | WSE | South Wales | 60263 | 570 | 431 | 139 |
| | WSW | West Wales | 31792 | 335 | 245 | 90 |

# Key performance indicators

Benchmarking individual breast screening services against key performance indicators (KPIs) continues to be a useful method of assessing the quality of service offered to women in the breast screening programme. The discipline specific KPIs are considered and chosen by the multidisciplinary Screening Audit Group based on consideration of the key moments of a woman's journey through the breast screening process. KPIs may vary annually or the Screening Audit Group may wish to return to previously examined topics to ensure year on year improvement in quality. The KPIs for the 2016/17 audit are presented below.

## Highlighting of outlier performance

Statistical methods allow for identification of services with outlier performance which are unlikely to occur by chance alone. There is a balance to be drawn between setting the confidence limits too narrowly, resulting in a higher chance of incorrectly identifying as outliers those whose performance is no worse than average; and setting the limits too widely, with the risk that sub-standard performance may be missed.

Identification of a service as an 'outlier' is not in itself evidence of poor practice, rather a reason to investigate the possible reasons for outlier performance in more detail. Any such investigation should be undertaken in a supportive and collaborative manner, so that best practice is ensured, and be fully documented. Issues of data quality are frequently the cause of outlying event rates.

Throughout the text where services have not achieved or are outliers for a quality assurance (QA) standard or key performance indicator this is highlighted in text boxes.

# 2017 key performance indicators

Radiology

R1 Proportion of B3 diagnosed lesions that go on to have surgery.

R2 Referral to assessment at prevalent round (age 50-52): target >=10% referred.

Pathology

P1 Invasive cancers with positive ER status: 1-year and 3- year 99.7% high and low outlier services for positive invasive cancer ER status.

P2 Invasive cancers with positive lymph node status: 1-year and 3-year 99.7% high and low outlier services for lymph node positivity, excluding OSNA centres.

P3 Invasive cancer grade: 1-year and 3-year 99.7% high and low outlier services for invasive cancer grade status.

Surgery

S1 Reconstruction for non-invasive cancers: 5-year low outlier units with immediate reconstruction following mastectomy for non-invasive cancer cases.

S2 Surgical examination of axillary lymph nodes: 3-year high outlier units with more than 5 nodes obtained from node negative invasive cancers (excluding cases with neo-adjuvant therapy).

S3 Re-excision for non-invasive cancers: 3-year high outliers for women who did not have re-excision when margins are < 1mm for cases of BCS for non-invasive cancer cases.

Oncology

O1 Radiotherapy after breast conserving surgery: 1-year high outlier services for invasive cancers treated with breast conserving surgery with no adjuvant radiotherapy or unknown adjuvant radiotherapy.

# Radiology

| | |
|---|---|
| **Radiology KPI R1** | **Proportion of B3 diagnosed lesions which have open surgical biopsies.** |

Of the 8,857 women diagnosed with B3 in England, 51% (4,473 women) were managed with vacuum alone and 41% (3,625) had surgery (Figure1).

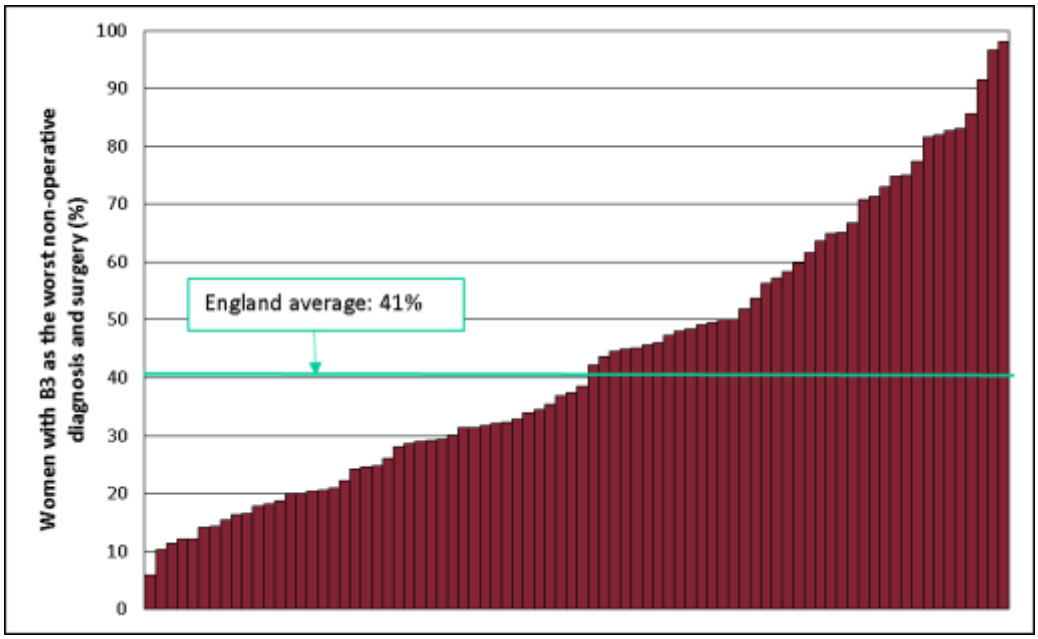


**Figure 1: Percentage of women with B3 as their worst non-operative diagnosis who went on to have surgery.**

Of the 3,062 women with atypia, 52% (1,594) had a vacuum biopsy alone and 41% (1,262) had surgery. The latter includes women who may also have had a second line vacuum biopsy.

Of the 2,798 women without atypia, 55% (1,535) had a vacuum biopsy alone and 35% (993) had surgery. The latter includes women who may also have had a second line vacuum biopsy.

In the cohort where the atypia status was unknown (n=2,997), 45% (1,344) had a vacuum biopsy alone and 46% (1,375) had surgery. The latter includes women who may also have had a second line vacuum biopsy.

This is a new KPI introduced this year and the data has to be interpreted with caution:

- the assessment guidance document was published November 2016 and therefore not all units will have implemented the new guidance regarding management of B3 lesions in this audit year (16/17)
- the terms vacuum assisted excision (VAE) and vacuum assisted biopsy (VAB) have been used interchangeably and changes have been made to NBSS to ensure more accurate recording regarding VAB and VAE

For these reasons, outliers have not been calculated for this year's audit. Individual units are asked to review their policy regarding management of B3 lesions and aim to ensure that the number of B3 lesions proceeding to surgery is minimised. Going forward, once documentation of B3 coding and biopsy type is standardised, we will produce upgrade rates for the different atypia groups.

**Radiology KPI R2**

**Referral to assessment at prevalent round (age 50-52):**
Target: less than or equal to10% referred to assessment clinic, achievable: less than or equal to 7%.

In England and Wales, 492,228 women who were aged 50 to 52 were screened for the first time through NHSBSP in the 3-year period 2014 to 2017. Of these, 7.9% were recalled for assessment. Of the 83 units providing the data, 7 units have less than 500 women screened in this cohort over the 3 year period. This is due to differences in the age cohort of women in the prevalent screen at these services. These units have been excluded from the following analyses. Regarding the recall rate, 26 of 76 services met the achievable target of less than or equal to 7% in 2014 to 2017; 12 services did not meet the acceptable target and had a recall rate more than 10%.

**Proportion of women that had a referral to assessment**

| Sub region | Unit | % |
|---|---|---|
| London | HWA | 10.3 |
| North West | NWI | 14.6 |
| North West | PBO | 10.1 |
| North West | PWI | 11.3 |
| South East | HGU | 10.8 |
| South West | JDO | 10.2 |
| South West | LAV | 11.2 |
| South West | LPL | 12.0 |
| West Midlands | MDU | 10.3 |
| West Midlands | MST | 12.0 |
| Wales | WNM | 10.2 |
| Wales | WSE | 10.2 |
| **England and Wales average** | | **7.9** |

To examine the relationship between recall to assessment rates and positive predictive value (PPV) of assessment, the proportion of women recalled for assessment and diagnosed with cancer (including those with open biopsy) was explored for women aged 50 to 52 at prevalent round (Figure 2). 9 out of the 10 England units with high recall to assessment rate have a PPV for assessment lower than average; whereas all the 26 services who met the achievable target have PPV higher than average. There is a trend that units with a higher recall to assessment rate have a lower positive predictive value (PPV) for assessment. Therefore, the higher recall rate is not associated with a higher cancer detection rate. Units are advised to audit their recalls and see if measures can be put in place to reduce the number of benign lesions being recalled back for assessment.

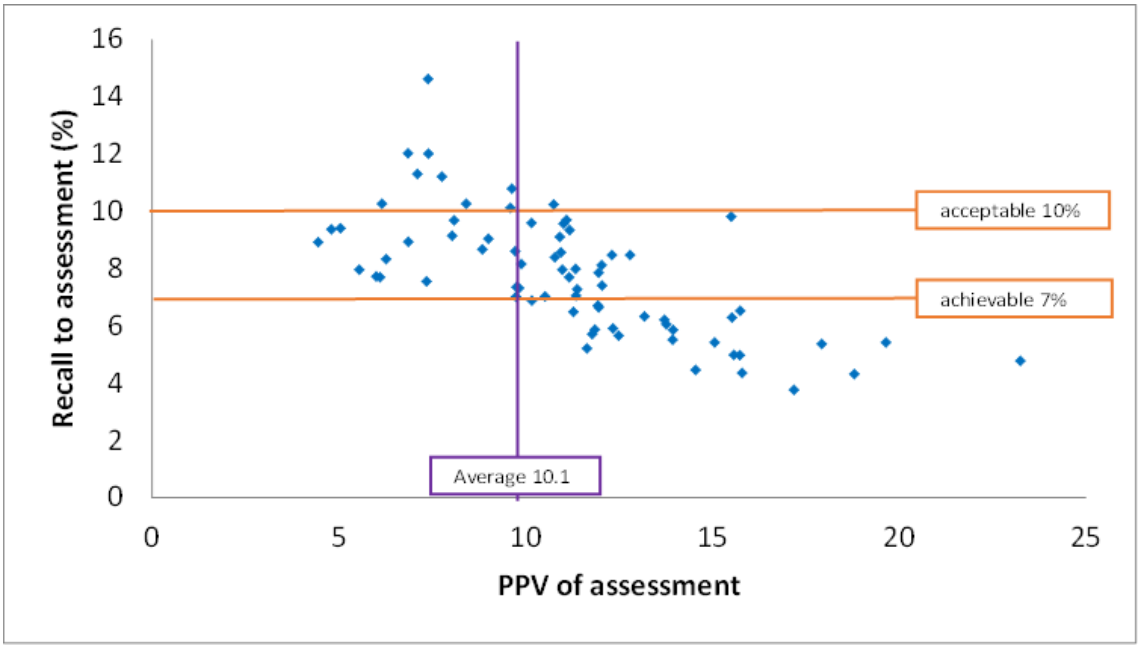


**Figure 2: Recall to assessment rate vs PPV of assessment (prevalent round age 50 to 52), using England data from the audit year 2014 to 2017.**

## Pathology

| | |
|---|---|
| **Pathology KPI P1** | **Invasive cancers with positive ER status.<br>One-year and 3-year 99.7% high and low outlier services for positive invasive cancer ER status.** |

The ER status of breast cancers plays an important role in treatment planning and use of endocrine treatment. When this same KPI was examined 5 years ago (2011/12 audit cycle) there were 11 high outliers and 11 low outliers.

In this year's audit, there were no outliers for this KPI.

**Proportion of invasive cancers with positive ER status**

| Sub-region | Unit | 2016/17 | | 3-year 2014/15-2016/17 |
|---|---|---|---|---|
| | | No. | % | % |
| | **No outliers** | | | |
| **UK Total** | | **13131** | **91.4** | **91.4** |

99.7% low outlier for positive ER status
95% low outlier for positive ER status

99.7% high outlier for positive ER status
95% high outlier for positive ER status

**Pathology KPI P2**

**Invasive cancers with positive lymph node status**
One-year and 3-year 99.7% high and low outlier services for lymph node positivity, excluding OSNA centres.

This KPI looks at differences between screening services in axillary lymph node positivity rates. Centres using One Step Nucleic acid Amplification (OSNA) technique, or similar, are excluded from this particular KPI as this method is recognised to produce higher lymph node positivity rates than standard histochemistry.

Of the 83 screening services in the UK, no service was a low outlier for this KPI.

**Proportion of invasive cancers with positive lymph node status**

| Sub-region | Unit | 2016/17 | | 3-year 2014/15-2016/17 |
|---|---|---|---|---|
| | | No. | % | % |
| | **No Outliers** | | | |
| **UK Total** | | **2636** | **22** | **20** |

99.7% low outlier for positive lymph node status
95% low outlier for positive lymph node status

**Pathology KPI P3**

**Invasive cancer grade**
One-year and 3-year 99.7% high and low outlier services for invasive cancer grade status.

Invasive cancer grade is a prognostic factor that plays an important role in pre- and post- operative treatment planning. Of the 83 screening services in the UK, 8 services were outliers for this KPI, which is less than the 19 outliers in the previous year's audit. 5 of these services were outliers in the previous year's audit. This data has been reviewed in September 2018.

We see that for Grade 1 tumours there were 4 low and 2 high outlier units. 5 years ago, in the 2011/12 audit, there were 14 low and 12 high outliers.

For Grade 2 tumours there were 2 low and 2 high outlying units, whereas 5 years ago there were 7 low and 7 high outliers.

For Grade 3 cancers, there were 1 low and 1 high outlier units. 5 years ago, there were 7 low and 11 high outlying units.

These figures suggest improving consistency across the screening service in tumour grade estimation.

**Proportion of invasive cancers by invasive grade**

| Sub-region | Unit | Grade 1 2016/17 % | Grade 1 3-year 2014-17 % | Grade 2 2016/17 % | Grade 2 3-year 2014-17 % | Grade 3 2016/17 % | Grade 3 3-year 2014-17 % |
|---|---|---|---|---|---|---|---|
| East of England | FSO | 36.8 | 27.8 | 38.0 | 44.1 | 25.2 | 28.1 |
| London | EBA | 26.5 | 26.2 | 60.9 | 59.6 | 12.3 | 12.7 |
| NEYH | ANE | 36.5 | 32.8 | 40.6 | 45.1 | 22.1 | 21.2 |
| NEYH | ANT | 16.1 | 18.5 | 62.3 | 63.1 | 21.6 | 18.4 |
| North West | PWI | 40.2 | 38.1 | 45.1 | 48.4 | 14.0 | 13.3 |
| South East | KWI | 12.7 | 16.6 | 64.4 | 61.2 | 21.2 | 20.9 |
| South West | LAV | 10.8 | 15.8 | 68.9 | 64.8 | 19.9 | 19.2 |
| Northern Ireland | ZNW | 7.6 | 11.5 | 50.0 | 54.7 | 42.4 | 33.3 |
| **UK Total** | | **25.0** | **25.2** | **54.7** | **54.8** | **19.7** | **19.5** |

99.7% low outlier for invasive grade
99.7% high outlier for invasive grade

# Surgery

**Surgery KPI S1**

**Reconstruction for non-invasive cancers**
Five-year low outlier units with immediate reconstruction following mastectomy for non-invasive cancer cases.

The decision on whether to proceed with immediate breast reconstruction following mastectomy for non-invasive cancers, eg ductal carcinoma in situ (DCIS) is multifactorial. Therefore, it is not appropriate to have a target figure for this KPI. However, it is reasonable to expect most screening units to fall between 3 standard deviations of the mean figure for the nation. Outlying units are not inevitably practicing suboptimal surgery but may wish to reflect on their practice to establish the reason for their numbers. Over the 5 year period of 2012 to 2017, 15 services were low outliers, 5 at the 99.7% confidence level. In 2016/17 there were 4 outliers for this KPI.

**Reconstruction rates following mastectomy for pure DCIS (5 years), units lower than the 95% lower control limit**

| Sub-region | Unit | 5 year 2012/13-2016/17 | | 2016/17 | |
|---|---|---|---|---|---|
| | | No. | % | No. | % |
| East Midlands | CNN | 6/27 | 22.2 | <5 | 50.0 |
| East Midlands | KKE | 16/46 | 34.8 | 3/7 | 42.9 |
| East of England | DCB | 7/23 | 30.4 | <5 | 33.3 |
| East of England | DSW | 7/24 | 29.2 | <5 | 0.0 |
| East of England | ELD | 32/86 | 37.2 | 9/16 | 56.3 |
| London | FBH | 18/50 | 36.0 | 9/16 | 56.3 |
| North West | PBO | 29/75 | 38.7 | 10/20 | 50.0 |
| Northern Ireland | ZNI | 3/18 | 16.7 | <5 | 50.0 |
| Northern Ireland | ZNS | 0/11 | 0.0 | 0/5 | 0.0 |
| South East | KOX | 19/53 | 35.8 | 5/10 | 50.0 |
| South East | KRG | 17/50 | 34.0 | 4/5 | 80.0 |
| South West | LPL | 8/36 | 22.2 | 1/6 | 16.7 |
| Wales | WNM | 13/43 | 30.2 | 2/12 | 16.7 |
| Wales | WSW | 30/113 | 26.5 | 14/39 | 35.9 |
| West Midlands | MSH | 17/50 | 34.7 | 2/6 | 40.0 |
| **UK total** | | **2250/4519** | **49.8** | **435/836** | **50.4** |

*Units where the denominator is less than 5 have been anonymised

99.7% low outlier for immediate reconstruction
95% low outlier for immediate reconstruction

**Surgery KPI S2**

**Surgical examination of axillary lymph nodes**
3-year 95% high outlier services with more than 5 nodes obtained from node negative invasive cancers (excluding cases with neo-adjuvant therapy).

Unnecessary removal of excessive axillary lymph nodes can cause potentially avoidable morbidity for patients.

In 2014 to 2017, there were 11 services who were 95% high outliers and 7 of them are higher than the 99.7% control limit. 8 of these services were outliers in the previous year's audit. These 11 services should examine their results and review areas for possible improvement. In 2016/17, 4 services were 95% high outliers for this KPI.

**Outlier units in KPI S2 and their proportion of node negative invasive cancers with more than 5 nodes obtained**

| Sub-region | Unit | 3-year 2014-17 | | 2016/17 | | Previous 2015/16 |
|---|---|---|---|---|---|---|
| | | No. | % | No. | % | % |
| East Midlands | CNN | 14/137 | 10.2 | 0/34 | 0.0 | 7.0 |
| East of England | DSW | 16/189 | 8.5 | 5/66 | 7.7 | 10.3 |
| East of England | ELD | 64/690 | 9.3 | 17/242 | 7.1 | 10.9 |
| East of England | FCO | 30/435 | 7.0 | 7/121 | 6.0 | 8.2 |
| London | ECX | 32/507 | 6.3 | 4/182 | 2.2 | 6.8 |
| NEYH | ANT | 44/551 | 8.0 | 10/187 | 5.5 | 8.9 |
| South East | GBR | 40/463 | 8.6 | 11/132 | 8.3 | 4.6 |
| South East | GCT3 | 31/350 | 8.9 | 4/120 | 3.3 | 14.4 |
| South East | KRG | 19/256 | 7.5 | 8/72 | 11.4 | 6.3 |
| South West | JIW | 11/115 | 9.6 | 3/40 | 7.7 | 10.4 |
| Wales | WNM | 37/585 | 6.3 | 13/175 | 7.4 | 6.2 |
| **UK total** | | **1279/32964** | **3.9** | **321/10823** | **3.0** | **3.7** |

99.7% high outlier for nodes obtained
95% high outlier for nodes obtained

**Surgery KPI S3**

**Re-excision for non-invasive cancers**
3-year 95% high outlier services for women who did not have re-excision when margins are < 1mm for cases of BCS for non-invasive cancer cases.

The UK guidance from the Association of Breast Surgery is that for non-invasive cancers a minimum 1mm margin clearance should be obtained. This applies to DCIS but not necessarily to all lobular carcinoma in situ (LCIS) cases.

Over the 3 year period of 2014 to 2017, 4 services were high outliers for this KPI.

**Women who did not have re-excision when margins are < 1mm for cases of BCS for pure DCIS, 3 year high outliers**

| Sub-region | Unit | 3-year 2014-17 | | 2016/17 | |
|---|---|---|---|---|---|
| | | No. | % | No. | % |
| London | EBA | 24/43 | 55.8 | 7/16 | 43.8 |
| South East | GBR | 7/15 | 46.7 | <5 | 25.0 |
| South East | HGU | 22/84 | 26.5 | 8/31 | 26.7 |
| South East | KWI | 15/32 | 46.9 | 4/13 | 30.8 |
| **UK total** | | **289/1782** | **16.2** | **104/596** | **17.5** |

*Units where the denominator is less than 5 have been anonymised

99.7% high outlier for re-excision
95% high outlier for re-excision

## Oncology

**Oncology KPI O1**

**Radiotherapy after breast conserving surgery**
One-year 95% high outlier services for invasive cancers treated with breast conserving surgery with no or unknown adjuvant radiotherapy

Adjuvant radiotherapy is accepted as an essential part of treatment for the majority of women with invasive breast cancers treated by breast conserving surgery. In the 87 screening services in the UK (excluding Scotland), 9 services were high outliers for this KPI.

**Proportion of invasive cancers treated with breast conserving surgery with no or unknown adjuvant radiotherapy**

| Sub region | Unit | 2015/16 | | 3-year 2012-16* | Previous 2013/14 |
|---|---|---|---|---|---|
| | | No. | % | % | % |
| London | EBA | 60 | 22.1 | 18.6 | 15.6 |
| London | ECX | 35 | 22.7 | 12.9 | 13.9 |
| London | HWA | 32 | 15.5 | 8.6 | 5.5 |
| North West | NWA | 23 | 20.7 | 8.3 | 4.0 |
| North West | PLN | 26 | 19.4 | 11.8 | 8.2 |
| South East | GBR | 40 | 24.4 | 14.6 | 11.1 |
| South East | HGU | 60 | 17.3 | 11.6 | 13.9 |
| South East | HWO | 36 | 19.1 | 13.2 | 16.5 |
| South East | KHW | 30 | 21.9 | 11.9 | 7.5 |
| South East | KOX | 28 | 24.6 | 11.1 | 7.0 |
| South West | JBA | 22 | 18.3 | 12.8 | 12.5 |
| South West | JSO | 26 | 15.1 | 9.9 | 7.7 |
| South West | JSW | 40 | 35.1 | 13.3 | 2.1 |
| West Midlands | MHW | 61 | 29.9 | 13.6 | 4.5 |
| **UK Total** | | **1107** | **9.6** | **6.2** | **4.9** |

* consists of 2012/13, 2013/14 and 2015/16 data

99.7% high outlier for no or unknown adjuvant therapy

95% high outlier for no or unknown adjuvant therapy

# Summary table of KPI outliers

| Sub region - Service | Radiology | | Pathology | | | | | | Surgery | | | Oncology | Total outlier topics |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | R1 | R2 | P1 | P2 | P3 | P3 - G1 | P3 - G2 | P3 - G3 | S1 | S2 | S3 | O1 | |
| East Midlands – CDN | | | | | | | | | | | | | 0 |
| East Midlands – CDS | | | | | | | | | | | | | 0 |
| East Midlands – CLE | | | | | | | | | | | | | 0 |
| East Midlands – CLI | | | | | | | | | | | | | 0 |
| East Midlands – CNN | | | | | | | | | Y | Y | | | 2 |
| East Midlands – CNO | | | | | | | | | | | | | 0 |
| East Midlands – KKE | | | | | | | | | Y | | | | 1 |
| East Midlands – KNN | | | | | | | | | | | | | 0 |
| East of England – DCB | | | | | | | | | Y | | | | 1 |
| East of England – DGY | | | | | | | | | | | | | 0 |
| East of England – DKL | | | | | | | | | | | | | 0 |
| East of England – DNF | | | | | | | | | | | | | 0 |
| East of England – DPT | | | | | | | | | | | | | 0 |
| East of England – DSU | | | | | | | | | | | | | 0 |
| East of England – DSW | | | | | | | | | Y | Y | | | 2 |
| East of England – ELD | | | | | | | | | Y | Y | | | 2 |
| East of England – FCO | | | | | | | | | | Y | | | 1 |
| East of England – FEP | | | | | | | | | | | | | 0 |
| East of England – FSO | | | | | Y | | Y | | | | | | 1 |
| London – EBA | | | | | Y | | | Y | | | Y | Y | 3 |
| London – ECX | | | | | | | | | | Y | | Y | 2 |
| London – FBH | | | | | | | | | Y | | | | 1 |
| London – FLO | | | | | | | | | | | | | 0 |
| London – GCA | | | | | | | | | | | | | 0 |
| London – HWA | | Y | | | | | | | | | | Y | 2 |
| NEYH – AGA | | | | | | | | | | | | | 0 |
| NEYH – ANE | | | | | Y | Y | Y | | | | | | 1 |
| NEYH – ANT | | | | | Y | Y | | | | Y | | | 2 |
| NEYH – AWC | | | | | | | | | | | | | 0 |
| NEYH – BHL | | | | | Y | | | Y | | | | | 1 |
| NEYH – BHU | | | | | | | | | | | | | 0 |
| NEYH – BLE | | | | | | | | | | | | | 0 |
| NEYH – BYO | | | | | | | | | | | | | 0 |
| NEYH – CBA | | | | | | | | | | | | | 0 |
| NEYH – CDO | | | | | | | | | | | | | 0 |
| NEYH – CRO | | | | | | | | | | | | | 0 |
| NEYH – CSH | | | | | | | | | | | | | 0 |
| North West – NCH | | | | | | | | | | | | | 0 |
| North West – NCR | | | | | | | | | | | | | 0 |
| North West – NLI | | | | | | | | | | | | | 0 |
| North West – NMA | | | | | | | | | | | | | 0 |
| North West – NWA | | | | | | | | | | | | Y | 1 |
| North West – NWI | | Y | | | | | | | | | | | 1 |
| North West – PBO | | Y | | | | | | | Y | | | | 2 |
| North West – PLE | | | | | Y | | | Y | | | | | 1 |
| North West – PLN | | | | | | | | | | | | Y | 1 |
| North West – PMA | | | | | | | | | | | | | 0 |
| North West – PWI | | Y | | | Y | Y | | | | | | | 2 |

| Sub region - Service | Radiology | | Pathology | | | | | | Surgery | | | Oncology | Total outlier topics |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | R1 | R2 | P1 | P2 | P3 | P3 - G1 | P3 - G2 | P3 - G3 | S1 | S2 | S3 | O1 | |
| South West – JBA | | | | | | | | | | | | Y | 1 |
| South West – JIW | | | | | | | | | | Y | | | 1 |
| South West – JPO | | | | | | | | | | | | | 0 |
| South West – JSO | | | | | | | | | | | | Y | 1 |
| South East – KHW | | | | | | | | | | | | Y | 1 |
| East Midlands – KMK | | | | | | | | | | | | | 0 |
| South East – KOX | | | | | | | | | Y | | | Y | 2 |
| South East – KRG | | | | | | | | | Y | Y | | | 2 |
| South East – KWI | | | | | Y | Y | | | | | Y | | 2 |
| South East – GBR | | | | | Y | | | Y | | Y | Y | Y | 4 |
| South East - GCT1 | | | | | | | | | | | | | 0 |
| South East - GCT2 | | | | | | | | | | | | | 0 |
| South East - GCT3 | | | | | | | | | | Y | | | 1 |
| South East - HGU | | Y | | | | | | | | | Y | Y | 3 |
| South East - HWO | | | | | | | | | | | | Y | 1 |
| South West - JDO | | Y | | | | | | | | | | | 1 |
| South West - JSW | | | | | | | | | | | | Y | 1 |
| South West - LAV | | Y | | | Y | Y | Y | | | | | | 2 |
| South West - LCO | | | | | | | | | | | | | 0 |
| South West - LED | | | | | | | | | | | | | 0 |
| South West - LGL | | | | | | | | | | | | | 0 |
| South West - LPL | | Y | | | | | | | Y | | | | 2 |
| South West - LSO | | | | | | | | | | | | | 0 |
| South West - LTB | | | | | | | | | | | | | 0 |
| West Midlands - MAS | | | | | | | | | | | | | 0 |
| West Midlands - MBS | | | | | | | | | | | | | 0 |
| West Midlands - MBD | | | | | | | | | | | | | 0 |
| West Midlands - MCO | | | | | | | | | | | | | 0 |
| West Midlands - MDU | | Y | | | | | | | | | | | 1 |
| West Midlands - MHW | | | | | | | | | | | | Y | 1 |
| West Midlands - MSH | | | | | | | | | Y | | | | 1 |
| West Midlands - MST | | Y | | | | | | | | | | | 1 |
| Northern Ireland - ZNE1 | | | | | Y | | | Y | | | | | 1 |
| Northern Ireland - ZNI1 | | | | | | | | | Y | | | | 1 |
| Northern Ireland - ZNS1 | | | | | | | | | Y | | | | 1 |
| Northern Ireland - ZNW1 | | | | | Y | Y | | Y | | | | | 1 |
| Wales - WNM | | Y | | | | | | | Y | Y | | | 3 |
| Wales - WSE | | Y | | | | | | | | | | | 1 |
| Wales - WSW | | | | | | | | | Y | | | | 1 |
| **United Kingdom** | **0** | **12** | **0** | **1** | **12** | **6** | **3** | **6** | **15** | **11** | **4** | **14** | **69** |

# Audit results

## Cancer detection

2,387,040 women were screened by the NHSBSP.

Data is included for 87 screening services across England, Wales and Northern Ireland (no data was received for the Scottish services due to an IT system migration).

| 22-year comparison: Number of cancers detected | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Year of data collection | Number of invasive cancers | Number of <15mm cancers | Number of non/ micro-invasive cancers | Total cancers | Number of women screened | Cancer detection rates per 1,000 women screened | | | |
| | | | | | | Invasive | Invasive (<15mm) | Non/ micro-invasive | Total |
| 1995/96 | 5,496 | - | 1,332 | 6,857 | - | - | - | - | - |
| 1996/97 | 5,860 | - | 1,468 | 7,410 | 1,340,175 | 4.4 | - | 1.1 | 5.5 |
| 1997/98 | 6,427 | - | 1,726 | 8,215 | 1,419,287 | 4.5 | - | 1.2 | 5.8 |
| 1998/99* | 6,337 | - | 1,634 | 8,028 | 1,308,751 | 4.7 | - | 1.2 | 6.1 |
| 1999/00 | 7,675 | - | 2,076 | 9,797 | 1,550,285 | 5.0 | - | 1.3 | 6.3 |
| 2000/01 | 7,945 | 4,190 | 2,080 | 10,079 | 1,535,019 | 5.2 | 2.7 | 1.4 | 6.6 |
| 2001/02 | 7,911 | 4,244 | 2,218 | 10,191 | 1,507,987 | 5.2 | 2.8 | 1.5 | 6.8 |
| 2002/03 | 8,931 | 4,971 | 2,416 | 11,593 | 1,579,165 | 5.7 | 3.1 | 1.5 | 7.3 |
| 2003/04 | 10,400 | 5,488 | 2,868 | 13,290 | 1,685,661 | 6.2 | 3.3 | 1.7 | 7.9 |
| 2004/05 | 11,063 | 5,869 | 2,953 | 14,040 | 1,748,997 | 6.3 | 3.4 | 1.7 | 8.0 |
| 2005/06 | 12,600 | 6,673 | 3,317 | 15,944 | 1,942,449 | 6.5 | 3.4 | 1.7 | 8.2 |
| 2006/07 | 12,491 | 6,577 | 3,337 | 15,856 | 1,955,825 | 6.4 | 3.4 | 1.7 | 8.1 |
| 2007/08 | 13,305 | 7,005 | 3,466 | 16,792 | 2,042,497 | 6.5 | 3.4 | 1.7 | 8.2 |
| 2008/09 | 13,532 | 7,028 | 3,491 | 17,045 | 2,116,588 | 6.4 | 3.3 | 1.6 | 8.1 |
| 2009/10 | 13,672 | 7,169 | 3,333 | 17,013 | 2,133,189 | 6.4 | 3.4 | 1.6 | 8.0 |
| 2010/11 | 14,219 | 7,314 | 3,612 | 17,838 | 2,221,938 | 6.4 | 3.3 | 1.6 | 8.0 |
| 2011/12 | 14,911 | 7,764 | 3,810 | 18,745 | 2,261,942 | 6.6 | 3.4 | 1.7 | 8.3 |
| 2012/13 | 15,287 | 7,876 | 4,024 | 19,339 | 2,303,332 | 6.6 | 3.4 | 1.7 | 8.4 |
| 2013/14 | 16,768 | 8,626 | 4,421 | 21,195 | 2,447,675 | 6.9 | 3.5 | 1.8 | 8.7 |
| 2014/15* | 16,231 | 8,435 | 4,378 | 20,613 | 2,414,795 | 6.7 | 3.5 | 1.8 | 8.5 |
| 2015/16* | 17,081 | 8,916 | 4,382 | 21,466 | 2,503,938 | 6.9 | 3.6 | 1.8 | 8.7 |
| 2016/17* | 15,880 | 8,288 | 4,161 | 20,049 | 2,387,040 | 6.7 | 3.5 | 1.7 | 8.4 |

* Data from Scotland are absent in 1998/99 and 2016/17. West of Scotland screening service data are absent in 2014/15. East of Scotland screening service data are absent in 2015/16.

**Table 1: Annual number and rates of cancers detected from the inception of the ABS audit**

20,049 new cancers were detected in women of all ages:

- this includes women with a previous breast cancer diagnosis
- 15,880 (79.2%) invasive
- 4,027 (20.1%) non-invasive
- 134 (0.7%) micro-invasive
- 8 cancers - invasive status unknown

UK Cancer detection rates (excluding Scotland):

- all cancers: 8.4 per 1,000 women screened
- small invasive cancers: 3.5 per 1,000 women screened
    - (<15mm in diameter)

**4 screening services had cancer detection rates below 3.0 per 1,000 women screened for small invasive cancers (<15mm) each year throughout the period 2014–17; these same 4 units are also significant low outliers in 2016/17. Each of these 4 services screened more than 15,000 women in 2016/17.**

## Randomised controlled age extension trial in the NHSBSP

This trial is evaluating breast screening for women aged 47 to 49, and 71 to 73 years in England. As of 31 March 2017, 67 of 80 screening services in England are participating in the trial. The proportion of cancers diagnosed in the age groups increased as follows from 2010/11 to 2016/17:

- 47–49 years: 2.8% to 5.3%
- 71–73 years: 4.1% to 6.5%

The Age Extension trial is ongoing and results that would inform decision making regarding routine implementation of breast screening in these age groups are not expected until the 2020s. There is currently no equivalent trial in Northern Ireland and Wales.

## Previous breast cancer history

Women diagnosed with screen detected breast cancer in England and Northern Ireland were checked to see if they had a previous breast cancer diagnosis.

1,398 (7%) women had at least one previous breast cancer recorded:

- 61% had previous invasive/micro-invasive breast cancer
- 41% had previous non-invasive breast cancer

- the proportion of women with a previous breast cancer increased with age, the proportion for women aged >64 years being 10%
- as Wales did not provide previous cancer data, women with previous breast cancer could not be excluded from their analysis

Women with a previous breast cancer history are included in the numbers for the cancer detection, diagnostic open biopsies and surgical caseload sections of the report [pages 30, 35, 45]. However, they have been excluded from some analyses where previous surgery and/or treatment may confound this year's audit figures.

# Diagnosis

## Non-operative diagnosis

The data below **exclude** women with a previous diagnosis of breast cancer.

| | |
|---|---|
| **Quality Objective** | **To minimise unnecessary surgery (ie to reduce diagnostic open surgical biopsies that prove to be malignant)** |
| **Minimum Standard** | **90% of all invasive cancers should have a non-operative pathological diagnosis**<br>**85% of all non-invasive cancers should have a non-operative pathological diagnosis** |
| **Target Standard** | **95% of all invasive cancers should have a non-operative pathological diagnosis**<br>**90% of all non-invasive cancers should have a non-operative pathological diagnosis** |

(Quality Assurance Guidelines for Surgeons in Breast Cancer Screening, NHSBSP Publication No 20, 4th Edition, March 2009)

Of 18,651 cancers detected in women of all ages (excluding previous cancers):

- 98% had a confirmed non-operative diagnosis by needle biopsy
- 2% did not have a non-operative diagnosis (n=465)
- 12 cases had C5 cytology only to achieve a non-operative diagnosis

14,740 were invasive cancers:

- 99% had a confirmed non-operative diagnosis by needle biopsy
- all services met the 90% minimum standard
- all but one service met the 95% target standard

3,688 were non-invasive cancers (excluding 223 cases of Lobular Carcinoma in Situ (LCIS)):

- 92% had a confirmed non-operative diagnosis by needle biopsy
- 11 services did not meet the 85% minimum standard
- 20 services did not meet the 90% target standard

Core biopsy and surgical outcome:

- in 2016/17, 82 (0.4%) cancers had a malignant but B5c categorisation at core biopsy, (ie the invasive status was either not assessable or unknown)

- 498 (12%) of 3,990 cases diagnosed as non-invasive (B5a) on diagnostic core biopsy were upgraded from non-invasive to invasive cancer at surgery

- 138 (1%) of 12,969 cancers diagnosed as B5b (invasive) on non-operative diagnostic biopsy (excluding cases which had neo-adjuvant therapy) were found to have non-invasive or micro-invasive cancer with no associated invasive disease following surgery. The likely causes of this are either that the invasive focus was removed by the core biopsy or incorrect interpretation of the core biopsy as showing invasive disease. These cases require additional audit by the units involved

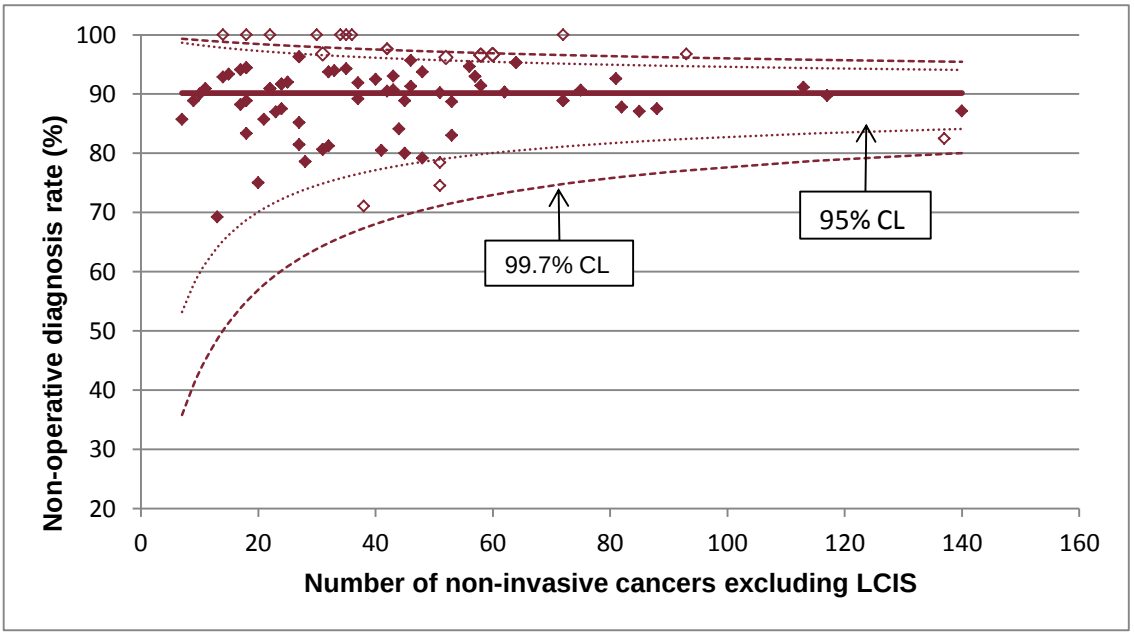


**Figure 3: Screening service variation in non-operative diagnosis rate of non-invasive cancers (excluding LCIS) (2016/17)**

For the 3-year period 2014 to 2017, 17 services had a non-operative diagnosis rate for non-invasive cancers below 85%.

## Number of assessment clinic visits

It is possible that the drive to improve non-operative diagnosis performance could inadvertently result in increased anxiety, with women having to return to assessment clinic for repeated diagnostic tests before receiving a definitive diagnosis:

- of the 18,651 women diagnosed with screen detected breast cancer in the UK (excluding Scotland), 16,967 (91%) had one assessment clinic visit to obtain the first malignant diagnosis on the breast
- 617 (4%) of women with invasive cancer and 570 (4%) of women with non-invasive had more than one visit to obtain a malignant diagnosis

In 2016/17, there were 266 (6%) invasive cancers and 165 (8%) non-invasive cancers where a malignant needle biopsy result (either B5 core biopsy or C5 cytology) was obtained at the first visit, but where a repeat needle biopsy was undertaken at a subsequent visit usually to aid surgical planning.

## Diagnostic open biopsies

The data below **include** women with a previous diagnosis of breast cancer.

| | |
|---|---|
| **Quality Objective** | **To minimise benign diagnostic open surgical biopsies** |
| **Maximum Standard** | **<15 per 10,000 prevalent screen (1.5 per 1,000)**<br>**<10 per 10,000 incident screen (1.0 per 1,000)** |
| **Target Standard** | **<10 per 10,000 prevalent screen (1.0 per 1,000)**<br>**<7.5 per 10,000 incident screen (0.75 per 1,000)** |

(Quality Assurance Guidelines for Surgeons in Breast Cancer Screening, NHSBSP Publication No 20, 4th Edition, March 2009)

In 2016/17, 1,549 diagnostic open biopsies were performed. Of these:

- 69% were benign
- 31% were malignant

### Benign open biopsies (n=1,063)

The overall benign biopsy rate has fallen from 1.5 per 1,000 women screened in 1996/97 to 0.4 per 1,000 screened in the current year. This reflects the improvement in non-operative diagnosis. The exact benign biopsy rates for this year's audit are:

- 1.17 per 1,000 for prevalent (first) screens
- 0.32 per 1,000 for incident (subsequent) screens

For prevalent (first) screens, 46 services achieved the target standard of 1.0 per 1,000 women, but 21 services performed more biopsies than the maximum standard of 1.5 per 1,000 women (Figure 4).

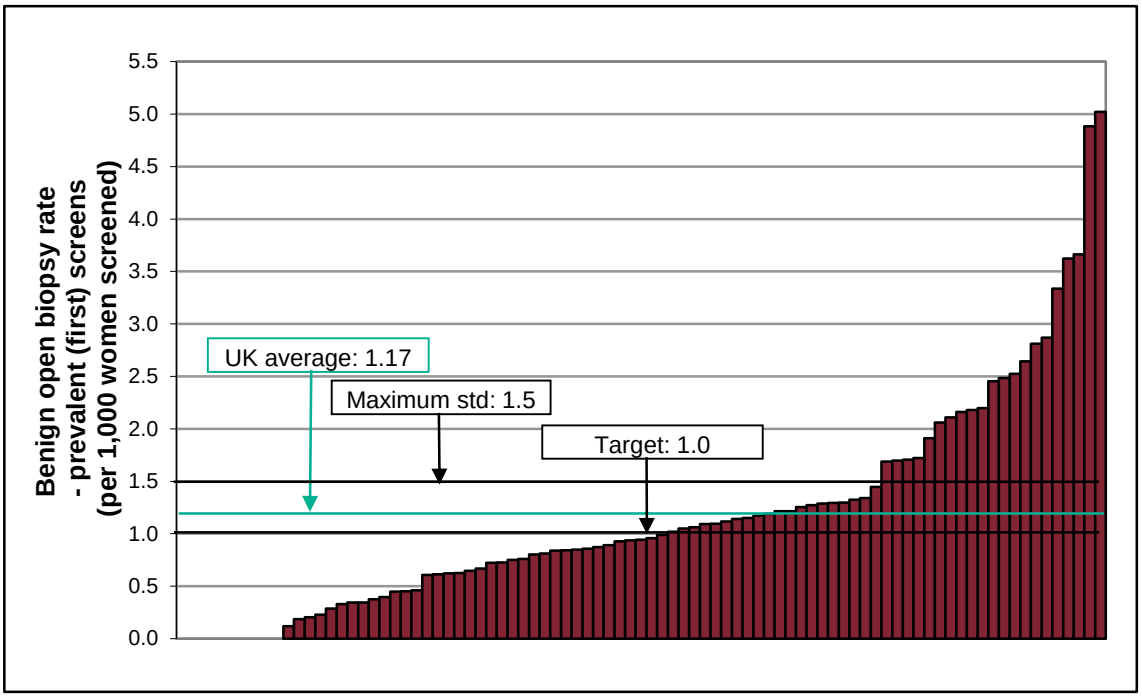


**Figure 4: Variation between screening services in benign diagnostic open biopsy rates for prevalent (first) screens expressed as the number of diagnostic open biopsies undertaken per 1,000 women screened (2016/17)**

For incident (subsequent screens after the first one) screens, 76 services achieved the target standard of 0.75 per 1,000 women, and 2 service performed more biopsies than the maximum standard of 1.0 per 1,000 women.

## Malignant open biopsies (n=486)

The overall malignant open biopsy rate has fallen from 2.04 per 1,000 women screened in 1996/97 to 0.20 per 1,000 in the current year. Of the cases undergoing a malignant open biopsy.

96 were invasive cancers:

- 37 had a suspicious needle biopsy result (either B4 core biopsy or C4 cytology). Of these, one case had a C4 cytology result only
- 46 had an equivocal needle biopsy result (either B3 core biopsy or C3 cytology). Of these, one had a C3 cytology result only
- 7 cases were B2/C2, 2 were B1/C1, 4 had no non-operative diagnosis results

388 were non-invasive/micro-invasive:

- 89 had a suspicious (B4/C4) needle biopsy result
- 280 had an equivocal (B3/C3) needle biopsy result
- 10 cases were B2/C2, 6 were B1/C1 and 3 had no non-operative diagnosis

Of 326 cancers which had B3/C3 non-operative results, 74 (23%) had only LCIS in the surgical specimen, and in 2 cases the invasive status was unknown.

# Tumour characteristics

The data below **exclude** women with a previous diagnosis of breast cancer.

## Non-invasive cancers (n=3,802)

- 3,688 (97%) were Ductal Carcinoma in Situ (DCIS)
- 114 (3%) were Lobular Carcinoma in Situ (LCIS) only at surgery

## Ductal Carcinoma in Situ (n=3,688)

- 3,571 (97%) underwent surgical treatment

Size:

- of these, 94% had complete information on size
- 36% were less than 15mm in diameter
- 17% were larger than 40mm
- for 9 cases the size was not assessable
- in 195 cases (5%) no evidence of DCIS was found in the surgical specimen. In these cases the DCIS was presumably removed on the diagnostic needle biopsy
- each of these cases must be reviewed by the screening services involved

Grade:

- of those undergoing surgery, 99% had complete information on grade
- 62% were high nuclear grade
- 28% were intermediate nuclear grade
- 10% were low nuclear grade

**In 2016/17, 10 services had significantly higher and 9 services had significantly lower proportions of high nuclear grade DCIS than the national average of 59% (95% confidence intervals).**

Nodal status:

Axillary staging surgery is not routinely recommended for patients having treatment for DCIS alone. It may be considered in patients at high risk of occult invasive disease, for example, cases with micro-invasion on core biopsy or mass lesion on radiology.

913 (26%) of the 3,571 surgically treated cases of DCIS had known nodal status:

- 91% (781/859) of women with DCIS treated with mastectomy had known nodal status
- 5% (132/2,712) of women with DCIS treated with breast conserving surgery had known nodal status
- 14 had positive nodal status recorded (12 mastectomy, 2 breast conserving surgery)

**In 2016/17, nodal status was known for more than 10% of DCIS treated by breast conserving surgery in 19 services and for more than 20% in 5 services. Nodal status was known for 100% of cases of DCIS treated by mastectomy in 42 services and for less than 60% in 3 services.**

The proportion of DCIS with ER status varied widely between services from 0 to 100%. 83% of DCIS cases with known ER status were ER positive. Progesterone receptor (PR) status was known for 17% of cases.

## Lobular Carcinoma in Situ (n=114) only at surgery

- 73 (64%) had a B3 non-operative diagnosis
- 31 (27%) had a B5a non-operative diagnosis
- 110 (96%) were treated with breast conserving surgery
- 4 were treated with mastectomy (3 B5a and 1 B4 on core biopsy)
- 11 cases had 2 or more operations to the breast
- 3 cases had axillary operations (2 B5a and 1 B4 on core biopsy)

## Invasive cancer (n=14,740)

- 14,376 invasive cancers (98%) were surgically treated

Size:

- 7,621 (53%) had an invasive tumour diameter < 15mm
- 303 cases (2%) had an invasive tumour diameter > 50mm
- whole tumour size was not provided for 526 (4%) cancers

Grade:

- 25% grade 1
- 55% grade 2
- 20% grade 3

- grade was not assessable for 56 (0.4%) cancers and unknown for 25 (0.2%) cancers

**There were 12 services which were 99.7% high or low outliers for invasive cancer grade for the 2016/17 audit and also over the period 2014 to 2017 (Pathology KPI P3- page 22).**

Nodal status:

- 14,224 (99%) had known nodal status (152 cases unknown)
- overall, including all screening services, 20% were node positive (n=2,806)
- the rates of node positivity varied from 9% to 32% in individual services
- 1,690 (12%) had one positive node at the first axillary operation:
  - 625 (37%) contained micrometastasis
  - 1049 (62%) contained macrometastasis

**Excluding services using molecular assays (eg OSNA) for sentinel node assessment, there was one service which was a low outlier (99.7% C.I.) for positive nodal status for 2016/17 and 2014 to 2017 (Pathology KPI P2- page 22)**

It is known from previous audit that, for nodal status, a number of high outlier services are served by hospitals using molecular methods for nodal assessment, with higher rates of positive nodes containing micrometastases.

## Nottingham Prognostic Index

The Nottingham Prognostic Index (NPI) may be used to estimate the prognosis of surgically treated invasive breast cancers. For surgically treated invasive cancers (with no known neoadjuvant therapy) the NPI could be calculated for 13,128 (97%). Of these:

- 21% were in the excellent prognostic group (EPG)
- 39% in the good prognostic group (GPG)
- 35% in the moderate prognostic group (MPG)
- 5% in the poor prognostic group (PPG)

**The NPI was unknown for 349 cases. Seven screening services had over 5% of cases with unknown Nottingham Prognostic Index.**
**During 2016/17, one service was a 95% high outlier for poor prognosis (PPG) cancer, 6 services were 95% low outliers for excellent/good prognosis (EPG/GPG) cancers.**

## Receptor status

- of the 14,740 invasive cancers, ER status was unknown for 53 (0.4%)
- of the 14,687 invasive cancers with known ER status, 91% were ER positive

**In 2016/17, no screening services were high outliers for numbers of ER-positive invasive cancers diagnosed (99.7% Confidence interval) (Pathology KPI P1- page 19).**

- progesterone receptor PR status was known for 8,865 (60%) of invasive cancers:
  - 76% were positive

- of the 1,261 invasive cancers with negative ER status:
  - 83% had known PR status
  - 3% were PR positive

- HER2 status data were available for 99% (14,559 cases) of invasive cancers
- 33 services had complete HER2 status for all their invasive cancers
- of the invasive cancers with known HER2 status, 10% were positive, 88% were negative and 2% were borderline on immunohistochemistry. Borderline cases will usually undergo fluorescence in situ hybridization (FISH) testing

# Surgical treatment

The data below **exclude** women with a previous diagnosis of breast cancer.

## Type of surgery

- 3,802 non-invasive cancers (including LCIS):
  - 2,822 (74%) treated with breast conserving surgery
  - 863 (23%) treated with mastectomy
  - 115 had no surgery recorded within the audit period and 2 had unknown operation type

- 14,740 invasive breast cancers:
  - 11,817 (80%) of patients had breast conserving surgery (22 had axillary surgery only)
  - 2,556 (17%) had mastectomy
  - 364 (2%) had no surgery recorded within the audit period
    - 63% of these women had neo-adjuvant therapy
  - 3 had unknown operation type

- small (<15mm invasive size) invasive cancers (n= 7,621)
  - 11% had mastectomy

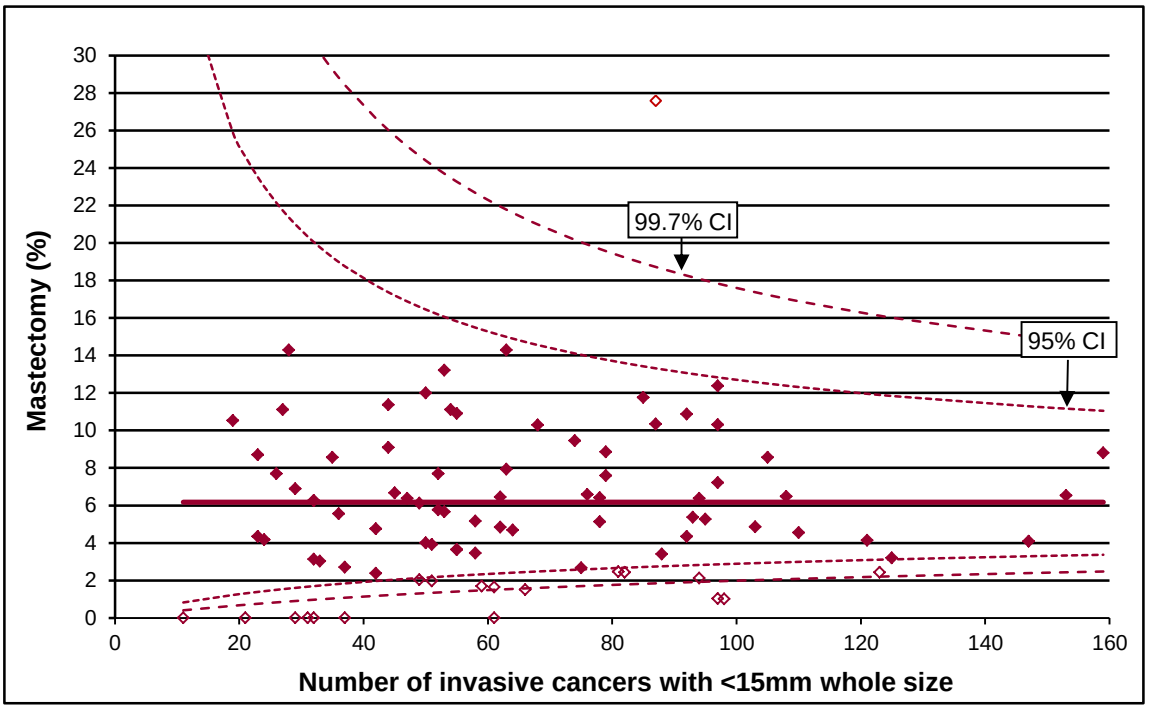


**Figure 5: Screening service variation in proportion of mastectomies for whole tumour size <15mm (2016/17)**

- whole tumour size refers to size of invasive component plus size of surrounding non-invasive component:
  - 6% of cancers with whole tumour size <15mm were treated with mastectomy (Figure 5)
  - 77% of small invasive (<15mm) cancers, but with whole tumour diameter >50mm due to surrounding non-invasive disease, were treated with mastectomy
  - the presence of non-invasive disease which extends beyond the invasive lesion appears to account for a proportion of the mastectomies performed on small invasive cancers.

**From 2014–17, 5 services had significantly higher mastectomy rates for small <15mm whole size cancers and 12 had significantly lower rates at 95% confidence level.**

## Immediate breast reconstruction

- immediate reconstruction was recorded for 33% of cases undergoing mastectomy
- immediate reconstruction rates after mastectomy were almost twice as high for micro/non-invasive cancers (50%) compared to invasive cancers (27%)
- for the most recent 3 years, the national picture on the percentage of cases having an immediate reconstruction has been stable

**IMMEDIATE RECONSTRUCTION RATES FOR BREAST CANCER PATIENTS TREATED BY MASTECTOMY**

| Invasive status | 2011/12 | 2012/13 | 2013/14 | 2014/15 | 2015/16 | 2016/17 |
|---|---|---|---|---|---|---|
| Invasive | 23% | 24% | 24% | 27% | 27% | 27% |
| Non/micro-invasive | 42% | 44% | 47% | 54% | 52% | 50% |
| **Overall** | **27%** | **29%** | **30%** | **34%** | **33%** | **33%** |

**Table 2. Rate of mastectomies with immediate reconstruction by invasive status**

- for invasive cancers, breast service immediate reconstruction rates varied from 0 to 75% (Figure 6)
- for non/micro-invasive cancers, breast service immediate reconstruction rates varied 0 to 100%

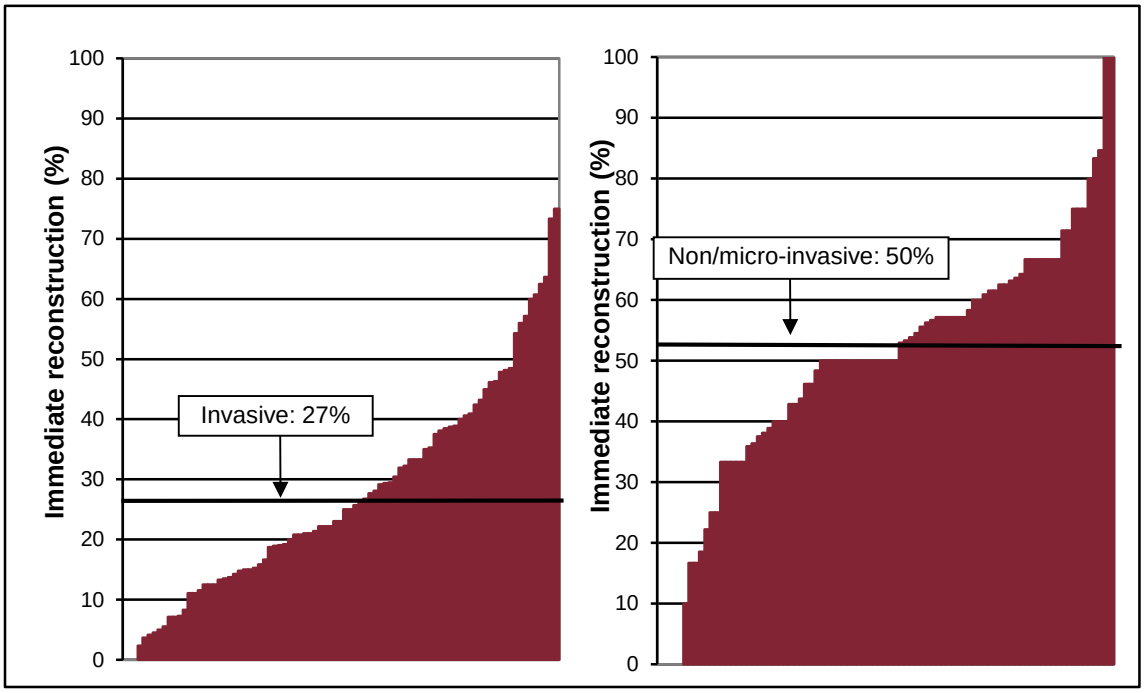


**Figure 6: Variation between screening services in immediate reconstruction rates for invasive (left) and non/micro-invasive cancers (right) (2016/17)**

## Neo-adjuvant therapy

- 1,146 women received neo-adjuvant therapy:
  - 1,128 (98%) had invasive breast cancer
  - 16 (1%) had non-invasive breast cancer (all of whom had neo-adjuvant endocrine therapy)

- 63% of the 364 women with invasive breast cancer who did not have surgery up to the end of the follow up period had neo-adjuvant therapy recorded (Appendix 1)

- Neo-adjuvant endocrine therapy was used in 526 (3%) of 20,049 women:
  - 149 (28%) of these 526 women had no surgery in the audit period
  - 96% had cancers that were ER and/or PR positive
  - 4 cancers were recorded to be ER and PR negative
  - 508 was prescribed for women with invasive cancers; 16 was for non-invasive cancers

- there were 528 women older than 75 years diagnosed with breast cancer by the screening programme during 2016/17:
  - 39 of these 528 women had neo-adjuvant endocrine treatment
    - of these 39 women, 14 had surgery within the follow-up period

- Neo-adjuvant chemotherapy is recorded for 648 (4%) of 14,740 invasive cancers
  - in this group, there were 242 cases that were 20mm or less on ultrasound, 17 cases

which were grade 1 and 344 cases did not have a B5 or C5 lymph node biopsy result. Neo adjuvant chemotherapy is not usually expected in good prognosis cases. It is expected to be mainly used in node positive, higher grade, ER negative and HER2 positive cases. However, in some patients with lower risk disease, the MDT may consider neo-adjuvant chemotherapy to be suitable

- 67 women with invasive cancer were recorded as having received neo-adjuvant trastuzumab
  - of these, 9 women (13%) had no neo-adjuvant chemotherapy recorded

# Surgical caseload

| | |
|---|---|
| **Quality Objective** | **To ensure specialist surgical care** |
| **Outcome Measure** | **Breast cancer surgery should be performed only by surgeons with a specialist interest in breast disease (defined as at least 30 surgically treated cancer cases per annum [screening and symptomatic]). Each surgeon involved in the NHSBSP should maintain a surgical caseload of at least 10 screen-detected cancers per year averaged over a three-year period** |

(Quality Assurance Guidelines for Surgeons in Breast Cancer Screening, NHSBSP Publication No 20, 4th Edition, March 2009)

- in 2016/17, 623 consultant breast surgeons treated women diagnosed in the NHSBSP:
  - 80% of women were treated by a surgeon with a screening caseload of more than 30 cases
  - amongst women who had their first screening appointment in the screening round 2016/17, there were149 surgeons who treated fewer than 10 patients with screen detected breast cancer (Table 49 of Appendix 2)

- from April 2014 to March 2017, 816 surgeons treated women diagnosed in the NHSBSP:
  - 300 surgeons (37%) had an annual average caseload of fewer than 10 cases
  - the highest proportions of surgeons with a screening caseload of fewer than 10 screening cases per year were in London (53%) East of England (43%)and Scotland (40%)

# Repeat operations

| | |
|---|---|
| **Quality objective** | **To minimise the number of therapeutic operations in women undergoing conservation surgery for an invasive cancer** |
| **Minimum standard** | **> 95% of patients should have 3 or fewer operations** |
| **Target standard** | **100% of patients should have 3 or fewer operations** |

(Quality Assurance Guidelines for Surgeons in Breast Cancer Screening, NHSBSP Publication No 20, 4th Edition, March 2009)

- 3,320 (18%) surgically treated breast cancers had 2 or more operations

- of 465 surgically treated breast cancers that were diagnosed by open surgical biopsy (ie **without** a non-operative diagnosis):
  - 195 (42%) had more than one operation; this includes further breast or axillary surgery
  - 79% of invasive cancers and 33% of non/micro-invasive cancers without a non-operative diagnosis had a repeat operation
  - repeat operations for cancers without a non-operative diagnosis formed only 6% of all repeat operations

- of 17,703 surgically treated breast cancers **with** a non-operative diagnosis:
  - 3,125 (18%) had more than one operation; this includes further breast or axillary surgery
  - 17% of invasive cancers and 21% of non/micro-invasive cancers had more than one operation
  - 33 cases (0.2% of surgically treated cancers with a non-operative diagnosis) initially treated by breast conserving surgery had more than 3 therapeutic operations

- 498 invasive cancers had a B5a (non-invasive) core biopsy result:
  - the repeat operation rate was 58%
  - 232 (47%) had the first axillary operation performed at the repeat operation

- of the 12,083 women who had breast conserving surgery as the first operation for an invasive cancer:
  - the repeat operation rate was 17% (any type of operations)
  - the breast repeat operation rate was 13% (n=1,630)
  - 12,065 (99.9%) had 3 or fewer breast operations

**In 2016/17, all screening services have achieved the >95% minimum standard for 3 or fewer operations, and 72 screening services achieved the 100% target.**

- of 9,210 surgically treated invasive cancers without non-invasive component (whole tumour size = invasive size), excluding neo-adjuvant treatment cases
  - 8,075 had breast conserving surgery as the first operation; of which 748 (9%) required a repeat operation to the breast

- of 3,004 non-invasive cancers initially treated by breast conserving surgery, 755 (25%) required a repeat breast operation to obtain clear margins

- of 2,633 women who had non-invasive cancers with a non-operative diagnosis and initially treated by breast conserving surgery:
  - 596 had margin distance less than 1mm or a reached margin with unknown distance; Of these 104 had no re-excision

**In 2014 to 2017, 4 screening services are 95% high outliers for not having re-excision in non-invasive cancers with a non-operative diagnosis initially treated by breast conserving surgery. Of these, 2 of them are also 99.7% high outliers. (Surgery KPI S3 - page 26)**

# Axilla

## Non-operative assessment

| | |
|---|---|
| **Quality objective** | **To increase the non-operative diagnosis of axillary node metastases** |
| **Target standard** | **All patients diagnosed with invasive breast cancer undergoing surgical treatment should have a pre-operative axillary ultrasound scan, and if appropriate fine needle aspiration (FNA) or core biopsy should be carried out** |

(Quality Assurance Guidelines for Surgeons in Breast Cancer Screening, NHSBSP Publication No 20, 4th Edition, March 2009)

A total of 14,076 cancers in the UK (excluding Scotland) had a non-operative diagnosis of invasive cancer on core biopsy (B5b):

- 13,960 (99%) had an axillary ultrasound recorded:
  - 11,720 (84%) had a normal ultrasound result
  - 2,240 (16%) had an abnormal ultrasound result
    - 2,164 (97%) cases with an abnormal axillary ultrasound had a biopsy of an axillary node

- 978 (7%) women with a non-operative diagnosis of the invasive cancer in the breast also had a non-operative confirmation of axillary lymph node metastasis

- of the 2,806 invasive cancers with proven axillary metastasis, 28% (784) had non-operative confirmation of axillary lymph node metastasis

- 1,834 invasive cancers cases had an abnormal axillary ultrasound (excluding neo-adjuvant therapy cases):
  - 1,780 had axillary surgery and 864 had one or more positive node obtained, giving a positive predictive value (probability of being node positive) of an abnormal ultrasound of 47%. At service level positive predictive value ranged from 13% to 92%

- 11,600 invasive cancers cases had a normal axillary ultrasound (excluding neo-adjuvant therapy cases):
  - 11,406 had axillary surgery and 9,776 had only negative nodes obtained, giving a negative predictive value (probability of being node negative) of a normal ultrasound of 84%. At service level negative predictive value ranged from 73% to 94%

## Axillary surgery

| | |
|---|---|
| **Quality Objective** | **To ensure adequate staging of the axilla in patients with invasive breast cancer** |
| **Minimum Standard** | **>90% of women treated for early invasive cancers should have an axillary staging procedure carried out if metastatic nodal metastasis is not confirmed non-operatively** |
| **Target Standard** | **100% of women treated for early invasive cancers should have an axillary staging procedure carried out if metastatic nodal metastasis is not confirmed non-operatively** |

(Quality Assurance Guidelines for Surgeons in Breast Cancer Screening, NHSBSP Publication No 20, 4th Edition, March 2009)

- in 2016/17 in the UK (excluding Scotland), of the 14,376 surgically treated invasive cancers:
  - 14,240 (99%) had an axillary operation
  - 14,224 (99%) had known nodal status

  - 152 cases had unknown nodal status
  - 19 cases had an axillary operation but the nodal status is unknown
    - 17 cases: no nodes harvested; 2 cases: Unknown number
  - 71 cases had < 4 nodes obtained from sampling or clearance without sentinel lymph node biopsy (SLNB)

- of the 14,224 invasive cancers with known nodal status:
  - 2,806 (20%) were node positive
  - 608 (4%) were known to only have micro-metastases

| | |
|---|---|
| **Quality Objective** | **To minimise morbidity from axillary surgery to obtain staging information** |
| **Outcome Measure** | **Sentinel node biopsy using the combined blue dye/radioisotope technique is a recommended axillary staging procedure for the majority of patients with early invasive breast cancer** |

(Quality Assurance Guidelines for Surgeons in Breast Cancer Screening, NHSBSP Publication No 20, 4th Edition, March 2009)

- 13,012 (91%) of surgically treated invasive cancers had sentinel lymph node biopsy (SLNB):
  - median number of nodes taken was 2
  - 1,928 (15%) were node positive
  - 85% used isotope and blue dye
  - 9% used isotope only
  - 6% used blue dye only

- 1,228 (9%) of surgically treated invasive cancers had sampling or clearance without SLNB:
  - 876 (71%) were node positive

- of the 14,224 invasive cancers with known nodal status:
  - 13,531 (95%) had 1 axillary operation
    - 167 had a SLNB and sampling at the same operation
    - 172 had a SLNB and clearance at the same operation
  - of the 240 cases which had sampling without SLNB, median: 5 nodes taken
  - of the 980 cases which had clearance without SLNB, median:15 nodes taken

  - 690 (5%) had 2 or more axillary operations
    - 97% had positive nodes at the first axillary operation

- of the 14,740 invasive cancers:
  - 24 cases had no nodes harvested at the first axillary operation
    - 7 had a repeat axillary operation

- of the 13,477 surgically treated invasive cancers without neo-adjuvant therapy:
  - 10,823 were node negative; 321 (3%) had more than 5 nodes examined

**In 2014/17 period, 11 services were 95% high outliers in having more than 5 nodes examined from node negative invasive cancers. Of these, 4 are also 99.7% high outliers. (Surgery KPI S2 – page 25)**

- of the 101 surgically treated **micro-invasive cancers**:
  - 58 (57%) had known nodal status
    - 94% treated with mastectomy had known nodal status
    - 38% treated with breast conserving surgery had known nodal status

- of the 3,687 surgically treated **non-invasive cancers** (LCIS cases excluded):
  - 916 (25%) had known nodal status
    - 91% treated with mastectomy had known nodal status
    - 5% treated with breast conserving surgery had known nodal status
    - 14 had positive nodal status recorded
  - 892 (24%) had sentinel lymph node biopsy:
    - 89% of those treated with a mastectomy had SLNB
  - 13 cases had mastectomy and axillary clearance

- of the 2,822 non-invasive cancers treated with breast conserving surgery:
  - 129 (5%) had axillary operations

# Adjuvant Therapy

The adjuvant audit data for 2015/16 are obtained from the Cancer Analysis System (CAS) held by Public Health England (PHE). The sources for CAS include basic cancer registration data, the radiotherapy dataset (RTDS) and the national chemotherapy database (SACT) and the Cancer Outcomes and Services Dataset (COSD). Whereas, the adjuvant audit data was obtained manually for Northern Ireland and Wales. Scotland did not provide any adjuvant audit data.

There were issues with the older 'manual' method of data collection. Scotland did not provide data for the adjuvant audit and some UK regions struggled to provide reasonably complete data which, in some circumstances, was supplemented with cancer registry data or data from other sources. Manual data entry performed by staff in screening services was a significant and often unwelcome burden fully dependent on motivated individuals who took on this responsibility. In addition, the distinction between an adjuvant treatment definitely not given (no) and the uncertainty as to whether an adjuvant treatment was given or not (unknown) was perhaps not made sufficiently prominent in previous years.

For England, data completeness is approximately 24-38% for systemic therapy in invasive cancers and 84-97% for radiotherapy after breast conserving surgery (BCS) in invasive cancers. Therefore, the only area where data completeness is perhaps sufficient to conduct meaningful audit is radiotherapy after BCS for invasive disease. Only Wales and Northern Ireland have very low data incompleteness.

The tables in Appendix 3 provide data for adjuvant therapies but the audit along with the associated outlier management is confined solely to the use of radiotherapy after breast conserving surgery.

As in previous years, the audit reports the number of patients who had a prior diagnosis of any cancer. This is around 12% of the total. Around a half of this group had a prior breast cancer and clearly previous surgical and adjuvant therapy will affect adjuvant therapy decisions for the screen-detected index breast cancer. There is a decreased use of adjuvant radiotherapy in this group.

Time to radiotherapy is variable and it is clear that some services continue to struggle to provide timely adjuvant radiotherapy. Of the 10,646 invasive cancer who had radiotherapy after an operation (excluding cases with chemotherapy):

- 40% of patients started their radiotherapy treatment within 60 days of final surgery; ranging from 6% in a service with 155 cases to 95% in a service with 86 cases

- only 3 services had at least 80% of their patients starting their radiotherapy treatment within 60 days of final surgery
- 72% started their radiotherapy treatment within 90 days of final surgery; ranging from 39% in a service with 102 cases to more than 90% in 2 services

9 services are higher than 99.7% control limits and another 5 are higher 95% control limits for no or unknown radiotherapy after BCS for invasive disease (Oncology KPI O1 – page 27). These services need to review their data handling to identify whether the apparent low use of radiotherapy is a data problem or a governance concern. Most of these services have previously recorded lower than expected radiotherapy use.

# Survival

Of the 18,772 women with breast cancer submitted to the survival audit for the period 1 April 2011 to 31 March 2012, 18,280 (97%) were eligible for inclusion in the analyses. Wales did not provide data for the survival audit this year.

Of the 14,615 women with invasive breast cancer (followed-up to 31 March 2017):

- deaths were recorded for 940 (6%)
  - 42% were due to breast cancer
  - 19% due to another type of cancer
  - 32% to non-cancer related causes
  - 7% had an unknown cause

- the UK 5-year relative survival is 98.7% for invasive cancers

The 5 year relative survival rates were strongly influenced by:

- size - 101% survival for tumours less than 15mm to 89% for tumours larger than 50m
- grade - 101% for grade 1, 100% for grade 2 and 94% for grade 3 tumours
- nodal status - 96% for node positive cases, 99% for node negative cases

# Appendix 1: Organisation of the audit

The format of the audit was designed by the UK NHSBSP & ABS Screening Audit Group.

Organisation of data collection

The audit includes:

- the main audit: women that were offered a screening appointment in the period 1 April 2016 to 31 March 2017, followed up until November 2017
- the adjuvant therapy audit: women that were offered a screening appointment in the period 1 April 2015 to 31 March 2016, followed up until March 2017
- the survival audit: women screened during the period 1 April 2011 to 31 March 2012, followed up until March 2017

The responsibility for English regional and Celtic country data collection for the main audit was devolved to breast screening services in England and screening information centres in the Celtic countries. Data for the adjuvant and survival audit are obtained from the Cancer Analysis System within Public Health England (PHE). The format of the audits was designed by the UK NHSBSP & ABS Screening Audit Group and was subject to comment from surgery, radiology and pathology Professional and Clinical Advisors (PCAs) and Senior QA advisors in order to ensure that, as far as possible, ambiguities were eliminated. Guidance notes and data collection forms can be requested from: phe.nhsbspabs@nhs.net.

Data analyses were carried out by audit staff within SQAS. Control charts with Wilson-score control limits are used in this audit report to demonstrate the differences in proportions between screening units. For the survival audit, cumulative relative survival probabilities for women in the general UK population were calculated using the Ederer II method with probability of life tables supplied by the Government's Actuary Department.

Unit level data

Data for 87 screening units were included in the 2016/17 NHSBSP & ABS Breast Screening Audit. No data were received from Scotland.

Responsibility for data collection

In England, breast screening services extracted the NHSBSP & ABS audit data from the National Breast Screening System (NBSS) and uploaded it on to the Breast Screening Information System (BSIS). Data quality was ensured by completing data validation checks within BSIS. In the Celtic countries, information centre staff were responsible for

ensuring that data were collected from their breast screening units and submitted to the West Midlands SQAS for collation.

All data, excluding that from Celtic countries, were then downloaded from BSIS by the West Midlands SQAS Office for collation and assessment. Further checks and data evaluation were undertaken prior to analysis.

## Publication of audit data

The NHSBSP & ABS 2016/17 Breast Screening Audit is published in electronic format (pdf) only. Once published, the booklet will be available to download from the Association of Breast Surgery website: www.associationofbreastsurgery.org.uk.

## Referencing this document

This document should be cited in the following way: ‘An audit of screen-detected breast cancers for the year of screening April 2016 to March 2017’, NHSBSP & ABS, June 2018.

# Appendix 2: Main audit data tables (1 - 88)

**Data from the 2016/2017 audit of screen-detected breast cancers in women all ages for the period 1 April to 31 March 2017**

**Table 1: Number and invasive status of screen-detected breast cancers and total women screened**

| Sub-region | Invasive | | Invasive (<15mm) | | Micro-invasive | | Non-invasive | | Status unknown | | Total | | Total women screened | Micro/ Non-invasive cancer rate | Invasive cancer rate | Invasive <15mm rate |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | | | | |
| East Midlands | 1311 | 81 | 735 | 45 | 6 | 0 | 301 | 19 | 1 | 0 | 1619 | 100 | 197362 | 1.6 | 6.6 | 3.7 |
| East of England | 1536 | 82 | 805 | 43 | 16 | 1 | 329 | 17 | 1 | 0 | 1882 | 100 | 242086 | 1.4 | 6.3 | 3.3 |
| London | 1688 | 76 | 790 | 36 | 6 | 0 | 528 | 24 | 0 | 0 | 2222 | 100 | 280452 | 1.9 | 6.0 | 2.8 |
| N East, Yorks & Humber | 2361 | 81 | 1306 | 45 | 20 | 1 | 544 | 19 | 1 | 0 | 2926 | 100 | 356327 | 1.6 | 6.6 | 3.7 |
| North West | 1977 | 80 | 1017 | 41 | 14 | 1 | 474 | 19 | 1 | 0 | 2466 | 100 | 287824 | 1.7 | 6.9 | 3.5 |
| South East | 1967 | 78 | 1059 | 42 | 27 | 1 | 540 | 21 | 1 | 0 | 2535 | 100 | 288281 | 2.0 | 6.8 | 3.7 |
| South West | 2213 | 79 | 1153 | 41 | 27 | 1 | 578 | 21 | 1 | 0 | 2819 | 100 | 319528 | 1.9 | 6.9 | 3.6 |
| West Midlands | 1532 | 79 | 764 | 40 | 12 | 1 | 385 | 20 | 0 | 0 | 1929 | 100 | 225698 | 1.8 | 6.8 | 3.4 |
| Northern Ireland | 373 | 80 | 206 | 44 | 2 | 0 | 89 | 19 | 2 | 0 | 466 | 100 | 67121 | 1.4 | 5.6 | 3.1 |
| Wales | 922 | 78 | 453 | 38 | 4 | 0 | 259 | 22 | 0 | 0 | 1185 | 100 | 122361 | 2.1 | 7.5 | 3.7 |
| **United Kingdom** | **15880** | **79** | **8288** | **41** | **134** | **1** | **4027** | **20** | **8** | **0** | **20049** | **100** | **2387040** | **1.7** | **6.7** | **3.5** |

**Table 2: Breast cancer cases by age at first offered screening appointment**

| Sub-region | <50 | | 50-64 | | 65-70 | | 71-75 | | 76+ | | Total | >70 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % | No. | % | No. | % | | No. | % |
| East Midlands | 115 | 7 | 849 | 52 | 447 | 28 | 152 | 9 | 56 | 3 | 1619 | 208 | 13 |
| East of England | 97 | 5 | 980 | 52 | 569 | 30 | 146 | 8 | 90 | 5 | 1882 | 236 | 13 |
| London | 173 | 8 | 1328 | 60 | 536 | 24 | 135 | 6 | 50 | 2 | 2222 | 185 | 8 |
| N East, Yorks & Humber | 165 | 6 | 1574 | 54 | 873 | 30 | 238 | 8 | 76 | 3 | 2926 | 314 | 11 |
| North West | 142 | 6 | 1359 | 55 | 720 | 29 | 192 | 8 | 53 | 2 | 2466 | 245 | 10 |
| South East | 157 | 6 | 1390 | 55 | 698 | 28 | 201 | 8 | 89 | 4 | 2535 | 290 | 11 |
| South West | 158 | 6 | 1462 | 52 | 842 | 30 | 257 | 9 | 100 | 4 | 2819 | 357 | 13 |
| West Midlands | 128 | 7 | 1054 | 55 | 546 | 28 | 158 | 8 | 43 | 2 | 1929 | 201 | 10 |
| Northern Ireland | 7 | 2 | 316 | 68 | 124 | 27 | 14 | 3 | 5 | 1 | 466 | 19 | 4 |
| Wales | 13 | 1 | 709 | 60 | 335 | 28 | 83 | 7 | 45 | 4 | 1185 | 128 | 11 |
| **United Kingdom** | **1155** | **6** | **11021** | **55** | **5690** | **28** | **1576** | **8** | **607** | **3** | **20049** | **2183** | **11** |

**Table 3: Number of cases with previous cancers**

| Sub-region | Total cases | Total pt matched | % matched | Had previous cancers | | No previous cancers | |
|---|---|---|---|---|---|---|---|
| | | | | No. | % | No. | % |
| East Midlands | 1619 | 1618 | 100 | 208 | 13 | 1410 | 87 |
| East of England | 1882 | 1881 | 100 | 239 | 13 | 1642 | 87 |
| London | 2222 | 2209 | 99 | 247 | 11 | 1962 | 89 |
| NEYH | 2926 | 2926 | 100 | 497 | 17 | 2429 | 83 |
| North West | 2466 | 2465 | 100 | 320 | 13 | 2145 | 87 |
| South East | 2535 | 2530 | 100 | 411 | 16 | 2119 | 84 |
| South West | 2819 | 2818 | 100 | 406 | 14 | 2412 | 86 |
| West Midlands | 1929 | 1929 | 100 | 320 | 17 | 1609 | 83 |
| **England** | **18398** | **18376** | **100** | **2648** | **14** | **15728** | **86** |
| Northern Ireland | 466 | 429 | 92 | 81 | 19 | 348 | 81 |

* Wales did not supply previous cancer data in 2016/17. All Wales cases are included in the analysis.

| Table 4: Type of previous cancers | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Invasive/micro-invasive | | | | | Non-invasive | |
| Sub-region | Total matched | Total previous cancers | Breast | Gynae-cological | Bowel | Haema-tological | Other | Breast | Other |
| East Midlands | 1618 | 208 | 66 | 23 | 15 | 7 | 16 | 49 | 40 |
| East of England | 1881 | 239 | 85 | 18 | 9 | 10 | 16 | 62 | 57 |
| London | 2209 | 247 | 87 | 18 | 10 | 10 | 25 | 60 | 57 |
| NEYH | 2926 | 497 | 160 | 47 | 25 | 15 | 50 | 96 | 141 |
| North West | 2465 | 320 | 111 | 29 | 15 | 10 | 49 | 47 | 82 |
| South East | 2530 | 411 | 137 | 26 | 22 | 18 | 47 | 107 | 85 |
| South West | 2818 | 406 | 107 | 40 | 23 | 18 | 51 | 97 | 107 |
| West Midlands | 1929 | 320 | 98 | 32 | 11 | 13 | 33 | 50 | 120 |
| **England** | **18376** | **2648** | **851** | **233** | **130** | **101** | **287** | **568** | **689** |
| **% of previous cancers** | **-** | **100** | **32** | **9** | **5** | **4** | **11** | **21** | **26** |
| **% of matched** | **100** | **14** | **5** | **1** | **1** | **1** | **2** | **3** | **4** |
| Northern Ireland | 429 | 81 | 7 | 6 | 1 | 1 | 4 | 2 | 64 |

* Wales did not supply previous cancer data in 16/17. All Wales cases are included in the analysis.

| Table 5: Non-operative diagnosis rate | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | C5 only | | C5 & B5 | | B5 only | | Positive axillary biopsy only | | Non-operative diagnosis | | No non-operative diagnosis | |
| Sub-region | Total cancers | No | % | No | % | No | % | No | % | No | % | No | % |
| East Midlands | 1505 | 0 | 0 | 4 | 0 | 1470 | 98 | 2 | 0 | 1476 | 98 | 29 | 2 |
| East of England | 1736 | 0 | 0 | 3 | 0 | 1696 | 98 | 2 | 0 | 1701 | 98 | 35 | 2 |
| London | 2078 | 0 | 0 | 7 | 0 | 2014 | 97 | 4 | 0 | 2025 | 97 | 53 | 3 |
| N East, Yorks & Humber | 2672 | 0 | 0 | 10 | 0 | 2615 | 98 | 5 | 0 | 2630 | 98 | 42 | 2 |
| North West | 2311 | 3 | 0 | 15 | 1 | 2254 | 98 | 4 | 0 | 2276 | 98 | 35 | 2 |
| South East | 2298 | 0 | 0 | 2 | 0 | 2212 | 96 | 5 | 0 | 2219 | 97 | 79 | 3 |
| South West | 2619 | 5 | 0 | 4 | 0 | 2503 | 96 | 3 | 0 | 2515 | 96 | 104 | 4 |
| West Midlands | 1789 | 0 | 0 | 1 | 0 | 1755 | 98 | 1 | 0 | 1757 | 98 | 32 | 2 |
| Northern Ireland | 458 | 4 | 1 | 202 | 44 | 242 | 53 | 0 | 0 | 448 | 98 | 10 | 2 |
| Wales | 1185 | 0 | 0 | 0 | 0 | 1139 | 96 | 0 | 0 | 1139 | 96 | 46 | 4 |
| **United Kingdom** | **18651** | **12** | **0** | **248** | **1** | **17900** | **96** | **26** | **0** | **18186** | **98** | **465** | **2** |

| Table 6: Non-operative diagnosis rate (invasive cancers) | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | C5 only | | C5 & B5 | | B5 only | | Positive axillary biopsy only | | Non-operative diagnosis | | No non-operative diagnosis | |
| Sub-region | Total cancers | No | % | No | % | No | % | No | % | No | % | No | % |
| East Midlands | 1223 | 0 | 0 | 4 | 0 | 1213 | 99 | 2 | 0 | 1219 | 100 | 4 | 0 |
| East of England | 1414 | 0 | 0 | 3 | 0 | 1400 | 99 | 2 | 0 | 1405 | 99 | 9 | 1 |
| London | 1571 | 0 | 0 | 6 | 0 | 1552 | 99 | 4 | 0 | 1562 | 99 | 9 | 1 |
| N East, Yorks & Humber | 2157 | 0 | 0 | 9 | 0 | 2133 | 99 | 5 | 0 | 2147 | 100 | 10 | 0 |
| North West | 1843 | 2 | 0 | 14 | 1 | 1812 | 98 | 4 | 0 | 1832 | 99 | 11 | 1 |
| South East | 1779 | 0 | 0 | 1 | 0 | 1763 | 99 | 5 | 0 | 1769 | 99 | 10 | 1 |
| South West | 2052 | 3 | 0 | 4 | 0 | 2027 | 99 | 3 | 0 | 2037 | 99 | 15 | 1 |
| West Midlands | 1413 | 0 | 0 | 1 | 0 | 1406 | 100 | 1 | 0 | 1408 | 100 | 5 | 0 |
| Northern Ireland | 366 | 1 | 0 | 202 | 55 | 161 | 44 | 0 | 0 | 364 | 99 | 2 | 1 |
| Wales | 922 | 0 | 0 | 0 | 0 | 911 | 99 | 0 | 0 | 911 | 99 | 11 | 1 |
| **United Kingdom** | **14740** | **6** | **0** | **244** | **2** | **14378** | **98** | **26** | **0** | **14654** | **99** | **86** | **1** |

| Table 7: Non-operative diagnosis rate (non-invasive cancers) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total cancers | C5 only | | C5 & B5 | | B5 only | | Non-operative diagnosis | | No non-operative diagnosis | |
| Sub-region | | No. | % | No. | % | No. | % | No. | % | No. | % |
| East Midlands | 276 | 0 | 0 | 0 | 0 | 252 | 91 | 252 | 91 | 24 | 9 |
| East of England | 309 | 0 | 0 | 0 | 0 | 283 | 92 | 283 | 92 | 26 | 8 |
| London | 504 | 0 | 0 | 1 | 0 | 459 | 91 | 460 | 91 | 44 | 9 |
| N East, Yorks & Humber | 500 | 0 | 0 | 1 | 0 | 467 | 93 | 468 | 94 | 32 | 6 |
| North West | 453 | 0 | 0 | 1 | 0 | 428 | 94 | 429 | 95 | 24 | 5 |
| South East | 501 | 0 | 0 | 1 | 0 | 433 | 86 | 434 | 87 | 67 | 13 |
| South West | 546 | 1 | 0 | 0 | 0 | 456 | 84 | 457 | 84 | 89 | 16 |
| West Midlands | 366 | 0 | 0 | 0 | 0 | 340 | 93 | 340 | 93 | 26 | 7 |
| Northern Ireland | 88 | 2 | 2 | 0 | 0 | 79 | 90 | 81 | 92 | 7 | 8 |
| Wales | 259 | 0 | 0 | 0 | 0 | 224 | 86 | 224 | 86 | 35 | 14 |
| **United Kingdom** | **3802** | **3** | **0** | **4** | **0** | **3421** | **90** | **3428** | **90** | **374** | **10** |

| Table 8: Invasive status of the diagnostic core biopsy | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Total Cancers with B5 | B5a (Non-invasive) | | B5b (Invasive) | | B5c (Micro-invasive, Not Assessable or Unknown) | |
| Sub-region | | No. | % | No. | % | No. | % |
| East Midlands | 1474 | 293 | 20 | 1165 | 79 | 16 | 1 |
| East of England | 1699 | 337 | 20 | 1351 | 80 | 11 | 1 |
| London | 2021 | 526 | 26 | 1492 | 74 | 3 | 0 |
| N East, Yorks & Humber | 2625 | 539 | 21 | 2074 | 79 | 12 | 0 |
| North West | 2269 | 510 | 22 | 1754 | 77 | 5 | 0 |
| South East | 2214 | 496 | 22 | 1712 | 77 | 6 | 0 |
| South West | 2507 | 538 | 21 | 1955 | 78 | 14 | 1 |
| West Midlands | 1756 | 385 | 22 | 1360 | 77 | 11 | 1 |
| Northern Ireland | 444 | 96 | 22 | 346 | 78 | 2 | 0 |
| Wales | 1139 | 270 | 24 | 867 | 76 | 2 | 0 |
| **United Kingdom** | **18148** | **3990** | **22** | **14076** | **78** | **82** | **0** |

| Table 9: B5a (Non-invasive) core biopsy: histological status of surgical specimen | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Invasive | | Micro-invasive | | Non-invasive | | No residual tumour | | Unknown | | Total with surgery | |
| Sub-region | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % |
| East Midlands | 41 | 14 | 4 | 1 | 231 | 81 | 8 | 3 | 2 | 1 | 286 | 100 |
| East of England | 44 | 13 | 12 | 4 | 263 | 79 | 12 | 4 | 0 | 0 | 331 | 100 |
| London | 65 | 13 | 3 | 1 | 376 | 77 | 45 | 9 | 0 | 0 | 489 | 100 |
| N East, Yorks & Humber | 61 | 12 | 14 | 3 | 416 | 79 | 35 | 7 | 0 | 0 | 526 | 100 |
| North West | 70 | 14 | 13 | 3 | 386 | 78 | 27 | 5 | 0 | 0 | 496 | 100 |
| South East | 48 | 10 | 16 | 3 | 399 | 83 | 17 | 4 | 0 | 0 | 480 | 100 |
| South West | 68 | 13 | 19 | 4 | 408 | 78 | 29 | 6 | 0 | 0 | 524 | 100 |
| West Midlands | 41 | 11 | 9 | 2 | 312 | 83 | 16 | 4 | 0 | 0 | 378 | 100 |
| Northern Ireland | 17 | 18 | 2 | 2 | 75 | 78 | 0 | 0 | 2 | 2 | 96 | 100 |
| Wales | 43 | 16 | 4 | 1 | 213 | 80 | 7 | 3 | 0 | 0 | 267 | 100 |
| **United Kingdom** | **498** | **13** | **96** | **2** | **3079** | **79** | **196** | **5** | **4** | **0** | **3873** | **100** |

* No residual cases have non-invasive disease reported in the non-operative core biopsy, but no malignant disease found in the surgical specimen.

| Table 10: B5b (Invasive) core biopsy: histological status of surgical specimen | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Invasive | | Micro-invasive | | Non-invasive | | No residual tumour | | Unknown | | Total with surgery | |
| **Sub-region** | **No.** | **%** | **No.** | **%** | **No.** | **%** | **No.** | **%** | **No.** | **%** | **No.** | **%** |
| East Midlands | 1124 | 99 | 0 | 0 | 6 | 1 | 7 | 1 | 3 | 0 | 1140 | 100 |
| East of England | 1273 | 97 | 2 | 0 | 18 | 1 | 17 | 1 | 2 | 0 | 1312 | 100 |
| London | 1349 | 96 | 0 | 0 | 18 | 1 | 35 | 2 | 1 | 0 | 1403 | 100 |
| N East, Yorks & Humber | 1990 | 98 | 3 | 0 | 21 | 1 | 23 | 1 | 0 | 0 | 2037 | 100 |
| North West | 1665 | 97 | 2 | 0 | 15 | 1 | 31 | 2 | 0 | 0 | 1713 | 100 |
| South East | 1623 | 97 | 1 | 0 | 29 | 2 | 17 | 1 | 1 | 0 | 1671 | 100 |
| South West | 1862 | 97 | 4 | 0 | 26 | 1 | 16 | 1 | 3 | 0 | 1911 | 100 |
| West Midlands | 1291 | 97 | 4 | 0 | 22 | 2 | 19 | 1 | 0 | 0 | 1336 | 100 |
| Northern Ireland | 338 | 98 | 0 | 0 | 3 | 1 | 3 | 1 | 0 | 0 | 344 | 100 |
| Wales | 837 | 99 | 1 | 0 | 6 | 1 | 4 | 0 | 0 | 0 | 848 | 100 |
| **United Kingdom** | **13352** | **97** | **17** | **0** | **164** | **1** | **172** | **1** | **10** | **0** | **13715** | **100** |

* No residual cases have invasive disease reported in the non-operative core biopsy, but no malignant disease found in the surgical specimen.

| Table 11: Number of assessment visits for each patient | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | | 1 | | 2 | | 3+ | | Unknown | | Total | | Repeat (2+) visit | |
| **Sub-region** | **No** | **%** | **No** | **%** | **No** | **%** | **No** | **%** | **No** | **%** | **No** | **%** | **No** | **%** |
| East Midlands | 0 | 0 | 1262 | 84 | 216 | 14 | 27 | 2 | 0 | 0 | 1505 | 100 | 243 | 16 |
| East of England | 0 | 0 | 1563 | 90 | 163 | 9 | 10 | 1 | 0 | 0 | 1736 | 100 | 173 | 10 |
| London | 0 | 0 | 1738 | 84 | 311 | 15 | 29 | 1 | 0 | 0 | 2078 | 100 | 340 | 16 |
| N East, Yorks & Humber | 0 | 0 | 2316 | 87 | 327 | 12 | 29 | 1 | 0 | 0 | 2672 | 100 | 356 | 13 |
| North West | 0 | 0 | 1955 | 85 | 318 | 14 | 38 | 2 | 0 | 0 | 2311 | 100 | 356 | 15 |
| South East | 0 | 0 | 1999 | 87 | 275 | 12 | 24 | 1 | 0 | 0 | 2298 | 100 | 299 | 13 |
| South West | 0 | 0 | 2169 | 83 | 409 | 16 | 41 | 2 | 0 | 0 | 2619 | 100 | 450 | 17 |
| West Midlands | 0 | 0 | 1493 | 83 | 266 | 15 | 30 | 2 | 0 | 0 | 1789 | 100 | 296 | 17 |
| Northern Ireland | 0 | 0 | 418 | 91 | 36 | 8 | 4 | 1 | 0 | 0 | 458 | 100 | 40 | 9 |
| Wales | 0 | 0 | 1094 | 92 | 86 | 7 | 5 | 0 | 0 | 0 | 1185 | 100 | 91 | 8 |
| **United Kingdom** | **0** | **0** | **16007** | **86** | **2407** | **13** | **237** | **1** | **0** | **0** | **18651** | **100** | **2644** | **14** |

| Table 12: The assessment visit with the earliest core/cytology result | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | | 2 | | 3+ | | Total | | First core/cyt at 2+ visit | |
| **Sub-region** | **No** | **%** | **No** | **%** | **No** | **%** | **No** | **%** | **No** | **%** |
| East Midlands | 1451 | 97 | 52 | 3 | 0 | 0 | 1503 | 100 | 52 | 3 |
| East of England | 1690 | 97 | 43 | 2 | 1 | 0 | 1734 | 100 | 44 | 3 |
| London | 1993 | 96 | 79 | 4 | 1 | 0 | 2073 | 100 | 80 | 4 |
| N East, Yorks & Humber | 2615 | 98 | 52 | 2 | 1 | 0 | 2668 | 100 | 53 | 2 |
| North West | 2221 | 96 | 82 | 4 | 4 | 0 | 2307 | 100 | 86 | 4 |
| South East | 2215 | 97 | 77 | 3 | 1 | 0 | 2293 | 100 | 78 | 3 |
| South West | 2482 | 95 | 130 | 5 | 3 | 0 | 2615 | 100 | 133 | 5 |
| West Midlands | 1733 | 97 | 53 | 3 | 1 | 0 | 1787 | 100 | 54 | 3 |
| Northern Ireland | 451 | 99 | 6 | 1 | 0 | 0 | 457 | 100 | 6 | 1 |
| Wales | 1171 | 99 | 14 | 1 | 0 | 0 | 1185 | 100 | 14 | 1 |
| **United Kingdom** | **18022** | **97** | **588** | **3** | **12** | **0** | **18622** | **100** | **600** | **3** |

| Table 13: Number of visits with a core biopsy/cytology result for cases with a non-operative diagnosis | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Invasive | | | | | Non-Invasive | | | | | Overall | | | | |
| | 1 | | 2+ | | | 1 | | 2+ | | | 1 | | 2+ | | |
| Sub-region | No | % | No | % | Total | No | % | No | % | Total | No | % | No | % | Total |
| East Midlands | 1140 | 94 | 77 | 6 | 1217 | 205 | 81 | 47 | 19 | 252 | 1350 | 92 | 124 | 8 | 1474 |
| East of England | 1367 | 97 | 36 | 3 | 1403 | 245 | 87 | 38 | 13 | 283 | 1624 | 96 | 75 | 4 | 1699 |
| London | 1492 | 96 | 66 | 4 | 1558 | 382 | 83 | 78 | 17 | 460 | 1877 | 93 | 144 | 7 | 2021 |
| N East, Yorks & Humber | 2068 | 97 | 74 | 3 | 2142 | 393 | 84 | 75 | 16 | 468 | 2475 | 94 | 150 | 6 | 2625 |
| North West | 1737 | 95 | 91 | 5 | 1828 | 357 | 83 | 72 | 17 | 429 | 2107 | 93 | 165 | 7 | 2272 |
| South East | 1700 | 96 | 64 | 4 | 1764 | 384 | 88 | 50 | 12 | 434 | 2100 | 95 | 114 | 5 | 2214 |
| South West | 1953 | 96 | 81 | 4 | 2034 | 386 | 84 | 71 | 16 | 457 | 2359 | 94 | 153 | 6 | 2512 |
| West Midlands | 1349 | 96 | 58 | 4 | 1407 | 292 | 86 | 48 | 14 | 340 | 1649 | 94 | 107 | 6 | 1756 |
| Northern Ireland | 350 | 96 | 14 | 4 | 364 | 71 | 88 | 10 | 12 | 81 | 424 | 95 | 24 | 5 | 448 |
| Wales | 875 | 96 | 36 | 4 | 911 | 199 | 89 | 25 | 11 | 224 | 1078 | 95 | 61 | 5 | 1139 |
| **United Kingdom** | **14031** | **96** | **597** | **4** | **14628** | **2914** | **85** | **514** | **15** | **3428** | **17043** | **94** | **1117** | **6** | **18160** |

| Table 14: Worst core/cytology biopsy results of the first non-operative needle biopsy visit for non-invasive cancers with a non-operative diagnosis | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | C5, B5 or both | | C4, B4 or both | | C3, B3 or both | | C2, B2 or both | | C1, B1 or both | | |
| Sub-region | No | % | No | % | No | % | No | % | No | % | Total |
| East Midlands | 223 | 88 | 7 | 3 | 11 | 4 | 8 | 3 | 3 | 1 | 252 |
| East of England | 258 | 91 | 9 | 3 | 7 | 2 | 3 | 1 | 6 | 2 | 283 |
| London | 402 | 87 | 8 | 2 | 38 | 8 | 8 | 2 | 4 | 1 | 460 |
| N East, Yorks & Humber | 414 | 88 | 9 | 2 | 29 | 6 | 8 | 2 | 8 | 2 | 468 |
| North West | 385 | 90 | 11 | 3 | 23 | 5 | 4 | 1 | 6 | 1 | 429 |
| South East | 402 | 93 | 8 | 2 | 16 | 4 | 3 | 1 | 5 | 1 | 434 |
| South West | 407 | 89 | 16 | 4 | 19 | 4 | 4 | 1 | 11 | 2 | 457 |
| West Midlands | 315 | 93 | 6 | 2 | 14 | 4 | 2 | 1 | 3 | 1 | 340 |
| Northern Ireland | 76 | 94 | 0 | 0 | 2 | 2 | 3 | 4 | 0 | 0 | 81 |
| Wales | 213 | 95 | 2 | 1 | 5 | 2 | 1 | 0 | 3 | 1 | 224 |
| **United Kingdom** | **3095** | **90** | **76** | **2** | **164** | **5** | **44** | **1** | **49** | **1** | **3428** |

| Table 15: Any further visits after core/cytology biopsy result | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Invasive | | | | | Non-Invasive | | | | | Overall | | | | |
| | Further visit | | No further visit | | | Further visit | | No further visit | | | Further visit | | No further visit | | |
| Sub-region | No | % | No | % | Total | No | % | No | % | Total | No | % | No | % | Total |
| East Midlands | 50 | 4 | 1171 | 96 | 1221 | 11 | 4 | 265 | 96 | 276 | 61 | 4 | 1442 | 96 | 1503 |
| East of England | 36 | 3 | 1376 | 97 | 1412 | 12 | 4 | 297 | 96 | 309 | 48 | 3 | 1686 | 97 | 1734 |
| London | 89 | 6 | 1478 | 94 | 1567 | 31 | 6 | 472 | 94 | 503 | 121 | 6 | 1952 | 94 | 2073 |
| N East, Yorks & Humber | 115 | 5 | 2038 | 95 | 2153 | 29 | 6 | 471 | 94 | 500 | 144 | 5 | 2524 | 95 | 2668 |
| North West | 88 | 5 | 1751 | 95 | 1839 | 20 | 4 | 433 | 96 | 453 | 108 | 5 | 2199 | 95 | 2307 |
| South East | 75 | 4 | 1700 | 96 | 1775 | 23 | 5 | 477 | 95 | 500 | 99 | 4 | 2194 | 96 | 2293 |
| South West | 110 | 5 | 1938 | 95 | 2048 | 29 | 5 | 517 | 95 | 546 | 140 | 5 | 2475 | 95 | 2615 |
| West Midlands | 107 | 8 | 1304 | 92 | 1411 | 23 | 6 | 343 | 94 | 366 | 132 | 7 | 1655 | 93 | 1787 |
| Northern Ireland | 5 | 1 | 360 | 99 | 365 | 3 | 3 | 85 | 97 | 88 | 8 | 2 | 449 | 98 | 457 |
| Wales | 8 | 1 | 914 | 99 | 922 | 2 | 1 | 257 | 99 | 259 | 10 | 1 | 1175 | 99 | 1185 |
| **United Kingdom** | **683** | **5** | **14030** | **95** | **14713** | **183** | **5** | **3617** | **95** | **3800** | **871** | **5** | **17751** | **95** | **18622** |

| Table 16: Status of diagnostic open biopsies | | | |
|---|---|---|---|
| | Benign biopsy rate | | Malignant biopsy rate |
| Sub-region | Prevalent | Incident | |
| East Midlands | 0.84 | 0.19 | 0.14 |
| East of England | 0.91 | 0.18 | 0.14 |
| London | 1.24 | 0.31 | 0.19 |
| N East, Yorks & Humber | 0.71 | 0.18 | 0.12 |
| North West | 0.76 | 0.28 | 0.12 |
| South East | 1.73 | 0.49 | 0.26 |
| South West | 0.89 | 0.25 | 0.32 |
| West Midlands | 0.76 | 0.28 | 0.14 |
| Northern Ireland | 1.04 | 0.50 | 0.15 |
| Wales | 2.21 | 0.48 | 0.38 |
| **United Kingdom** | **1.17** | **0.32** | **0.19** |

| Table 17: Invasive status of malignant diagnostic open biopsies | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Total malignant open biopsies | Invasive | | Micro-invasive | | Non-invasive | | Status unknown | |
| Sub-region | | No. | % | No. | % | No. | % | No. | % |
| East Midlands | 29 | 4 | 14 | 1 | 3 | 24 | 83 | 0 | 0 |
| East of England | 35 | 9 | 26 | 0 | 0 | 26 | 74 | 0 | 0 |
| London | 53 | 9 | 17 | 0 | 0 | 44 | 83 | 0 | 0 |
| N East, Yorks & Humber | 42 | 10 | 24 | 0 | 0 | 32 | 76 | 0 | 0 |
| North West | 35 | 11 | 31 | 0 | 0 | 24 | 69 | 0 | 0 |
| South East | 79 | 10 | 13 | 1 | 1 | 67 | 85 | 1 | 1 |
| South West | 104 | 15 | 14 | 0 | 0 | 89 | 86 | 0 | 0 |
| West Midlands | 32 | 5 | 16 | 1 | 3 | 26 | 81 | 0 | 0 |
| Northern Ireland | 10 | 2 | 20 | 0 | 0 | 7 | 70 | 1 | 10 |
| Wales | 46 | 11 | 24 | 0 | 0 | 35 | 76 | 0 | 0 |
| **United Kingdom** | **465** | **86** | **18** | **3** | **1** | **374** | **80** | **2** | **0** |

| Table 18: Non-operative history for invasive cancers with malignant open biopsy | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Total malignant open biopsies | No non-operative procedures | | Cytology only | | Core biopsy only | | Both cytology and core biopsy | |
| Sub-region | | No. | % | No. | % | No. | % | No. | % |
| East Midlands | 4 | 0 | 0 | 0 | 0 | 4 | 100 | 0 | 0 |
| East of England | 9 | 0 | 0 | 0 | 0 | 9 | 100 | 0 | 0 |
| London | 9 | 0 | 0 | 0 | 0 | 9 | 100 | 0 | 0 |
| N East, Yorks & Humber | 10 | 0 | 0 | 0 | 0 | 10 | 100 | 0 | 0 |
| North West | 11 | 1 | 9 | 1 | 9 | 9 | 82 | 0 | 0 |
| South East | 10 | 0 | 0 | 0 | 0 | 9 | 90 | 1 | 10 |
| South West | 15 | 1 | 7 | 0 | 0 | 14 | 93 | 0 | 0 |
| West Midlands | 5 | 1 | 20 | 0 | 0 | 4 | 80 | 0 | 0 |
| Northern Ireland | 2 | 1 | 50 | 0 | 0 | 0 | 0 | 1 | 50 |
| Wales | 11 | 0 | 0 | 0 | 0 | 11 | 100 | 0 | 0 |
| **United Kingdom** | **86** | **4** | **5** | **1** | **1** | **79** | **92** | **2** | **2** |

| Table 19: Non-operative history for micro/non-invasive cancers with malignant open biopsy | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Total malignant open biopsies | No non-operative procedures | | Cytology only | | Core biopsy only | | Both cytology and core biopsy | |
| Sub-region | | No. | % | No. | % | No. | % | No. | % |
| East Midlands | 25 | 0 | 0 | 0 | 0 | 25 | 100 | 0 | 0 |
| East of England | 26 | 0 | 0 | 0 | 0 | 26 | 100 | 0 | 0 |
| London | 44 | 1 | 2 | 0 | 0 | 43 | 98 | 0 | 0 |
| N East, Yorks & Humber | 32 | 0 | 0 | 0 | 0 | 31 | 97 | 1 | 3 |
| North West | 24 | 0 | 0 | 0 | 0 | 24 | 100 | 0 | 0 |
| South East | 68 | 1 | 1 | 1 | 1 | 64 | 94 | 2 | 3 |
| South West | 89 | 0 | 0 | 0 | 0 | 88 | 99 | 1 | 1 |
| West Midlands | 27 | 0 | 0 | 0 | 0 | 27 | 100 | 0 | 0 |
| Northern Ireland | 7 | 0 | 0 | 0 | 0 | 5 | 71 | 2 | 29 |
| Wales | 35 | 0 | 0 | 0 | 0 | 34 | 97 | 1 | 3 |
| **United Kingdom** | **377** | **2** | **1** | **1** | **0** | **367** | **97** | **7** | **2** |

| Table 20: Highest cytology and core biopsy result prior to malignant diagnostic open biopsies (invasive cancers) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total malignant open biopsies | No non-operative procedures | | C4, B4 or both | | C3, B3 or both | | C2, B2 or both | | C1, B1 or both | |
| Sub-region | | No. | % | No. | % | No. | % | No. | % | No. | % |
| East Midlands | 4 | 0 | 0 | 3 | 75 | 0 | 0 | 1 | 25 | 0 | 0 |
| East of England | 9 | 0 | 0 | 5 | 56 | 4 | 44 | 0 | 0 | 0 | 0 |
| London | 9 | 0 | 0 | 3 | 33 | 4 | 44 | 2 | 22 | 0 | 0 |
| N East, Yorks & Humber | 10 | 0 | 0 | 5 | 50 | 4 | 40 | 0 | 0 | 1 | 10 |
| North West | 11 | 1 | 9 | 3 | 27 | 7 | 64 | 0 | 0 | 0 | 0 |
| South East | 10 | 0 | 0 | 2 | 20 | 8 | 80 | 0 | 0 | 0 | 0 |
| South West | 15 | 1 | 7 | 7 | 47 | 6 | 40 | 1 | 7 | 0 | 0 |
| West Midlands | 5 | 1 | 20 | 1 | 20 | 3 | 60 | 0 | 0 | 0 | 0 |
| Northern Ireland | 2 | 1 | 50 | 0 | 0 | 1 | 50 | 0 | 0 | 0 | 0 |
| Wales | 11 | 0 | 0 | 2 | 18 | 6 | 55 | 2 | 18 | 1 | 9 |
| **United Kingdom** | **86** | **4** | **5** | **31** | **36** | **43** | **50** | **6** | **7** | **2** | **2** |

| Table 21: Highest cytology and core biopsy result prior to malignant diagnostic open biopsies (micro/non-invasive cancers) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total malignant open biopsies | No non-operative procedures | | C4, B4 or both | | C3, B3 or both | | C2, B2 or both | | C1, B1 or both | |
| Sub-region | | No. | % | No. | % | No. | % | No. | % | No. | % |
| East Midlands | 25 | 0 | 0 | 6 | 24 | 19 | 76 | 0 | 0 | 0 | 0 |
| East of England | 26 | 0 | 0 | 3 | 12 | 20 | 77 | 3 | 12 | 0 | 0 |
| London | 44 | 1 | 2 | 3 | 7 | 39 | 89 | 1 | 2 | 0 | 0 |
| N East, Yorks & Humber | 32 | 0 | 0 | 13 | 41 | 17 | 53 | 2 | 6 | 0 | 0 |
| North West | 24 | 0 | 0 | 8 | 33 | 15 | 63 | 1 | 4 | 0 | 0 |
| South East | 68 | 1 | 1 | 9 | 13 | 56 | 82 | 0 | 0 | 2 | 3 |
| South West | 89 | 0 | 0 | 29 | 33 | 58 | 65 | 1 | 1 | 1 | 1 |
| West Midlands | 27 | 0 | 0 | 9 | 33 | 16 | 59 | 0 | 0 | 2 | 7 |
| Northern Ireland | 7 | 0 | 0 | 1 | 14 | 6 | 86 | 0 | 0 | 0 | 0 |
| Wales | 35 | 0 | 0 | 6 | 17 | 27 | 77 | 1 | 3 | 1 | 3 |
| **United Kingdom** | **377** | **2** | **1** | **87** | **23** | **273** | **72** | **9** | **2** | **6** | **2** |

| Table 22: Data completeness for surgically treated non-invasive cancers | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Unknown cytonuclear grade | | Unknown size | | Unknown cytonuclear grade and/or size | | Total with surgery |
| Sub-region | No. | % | No. | % | No. | % | No. |
| East Midlands | 2 | 1 | 10 | 4 | 12 | 4 | 269 |
| East of England | 2 | 1 | 12 | 4 | 13 | 4 | 303 |
| London | 10 | 2 | 49 | 10 | 53 | 11 | 469 |
| N East, Yorks & Humber | 2 | 0 | 37 | 8 | 37 | 8 | 487 |
| North West | 2 | 0 | 26 | 6 | 26 | 6 | 439 |
| South East | 3 | 1 | 20 | 4 | 21 | 4 | 485 |
| South West | 1 | 0 | 25 | 5 | 26 | 5 | 532 |
| West Midlands | 0 | 0 | 18 | 5 | 18 | 5 | 359 |
| Northern Ireland | 0 | 0 | 2 | 2 | 2 | 2 | 88 |
| Wales | 0 | 0 | 9 | 4 | 9 | 4 | 256 |
| **United Kingdom** | **22** | **0.6** | **208** | **6** | **217** | **6** | **3687** |

| Table 23: Size of surgically treated non-invasive cancers | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | <15mm | | 15-≤40mm | | >40 mm | | Size not assessable | | Size unknown | | Total non-invasive with surgery | |
| Sub-region | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % |
| East Midlands | 92 | 34 | 111 | 41 | 50 | 19 | 6 | 2 | 10 | 4 | 269 | 100 |
| East of England | 104 | 34 | 119 | 39 | 51 | 17 | 17 | 6 | 12 | 4 | 303 | 100 |
| London | 141 | 30 | 175 | 37 | 91 | 19 | 13 | 3 | 49 | 10 | 469 | 100 |
| N East, Yorks & Humber | 155 | 32 | 207 | 43 | 81 | 17 | 7 | 1 | 37 | 8 | 487 | 100 |
| North West | 146 | 33 | 179 | 41 | 78 | 18 | 10 | 2 | 26 | 6 | 439 | 100 |
| South East | 173 | 36 | 184 | 38 | 78 | 16 | 30 | 6 | 20 | 4 | 485 | 100 |
| South West | 203 | 38 | 207 | 39 | 69 | 13 | 28 | 5 | 25 | 5 | 532 | 100 |
| West Midlands | 133 | 37 | 138 | 38 | 64 | 18 | 6 | 2 | 18 | 5 | 359 | 100 |
| Northern Ireland | 37 | 42 | 36 | 41 | 9 | 10 | 4 | 5 | 2 | 2 | 88 | 100 |
| Wales | 87 | 34 | 109 | 43 | 49 | 19 | 2 | 1 | 9 | 4 | 256 | 100 |
| **United Kingdom** | **1271** | **34** | **1465** | **40** | **620** | **17** | **123** | **3** | **208** | **6** | **3687** | **100** |

| Table 24: Cytonuclear grade of surgically treated non-invasive cancers | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | High | | Intermediate | | Low | | Not assessable | | Unknown | | Total non-invasive with surgery | |
| Sub-region | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % |
| East Midlands | 159 | 59 | 74 | 28 | 28 | 10 | 6 | 2 | 2 | 1 | 269 | 100 |
| East of England | 198 | 65 | 67 | 22 | 19 | 6 | 17 | 6 | 2 | 1 | 303 | 100 |
| London | 253 | 54 | 135 | 29 | 58 | 12 | 13 | 3 | 10 | 2 | 469 | 100 |
| N East, Yorks & Humber | 307 | 63 | 136 | 28 | 34 | 7 | 8 | 2 | 2 | 0 | 487 | 100 |
| North West | 258 | 59 | 127 | 29 | 41 | 9 | 11 | 3 | 2 | 0 | 439 | 100 |
| South East | 279 | 58 | 124 | 26 | 48 | 10 | 31 | 6 | 3 | 1 | 485 | 100 |
| South West | 312 | 59 | 143 | 27 | 48 | 9 | 28 | 5 | 1 | 0 | 532 | 100 |
| West Midlands | 239 | 67 | 89 | 25 | 24 | 7 | 7 | 2 | 0 | 0 | 359 | 100 |
| Northern Ireland | 51 | 58 | 21 | 24 | 12 | 14 | 4 | 5 | 0 | 0 | 88 | 100 |
| Wales | 145 | 57 | 70 | 27 | 39 | 15 | 2 | 1 | 0 | 0 | 256 | 100 |
| **United Kingdom** | **2201** | **60** | **986** | **27** | **351** | **10** | **127** | **3** | **22** | **1** | **3687** | **100** |

| Table 25: Invasive size of surgically treated invasive breast cancers | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | <10mm | | 10-<15mm | | 15-≤20mm | | >20-≤35mm | | >35-≤50mm | | >50mm | | Unknown | | Total | |
| **Sub-region** | **No.** | **%** | **No.** | **%** | **No.** | **%** | **No.** | **%** | **No.** | **%** | **No.** | **%** | **No.** | **%** | **No.** | **%** |
| East Midlands | 349 | 29 | 324 | 27 | 264 | 22 | 193 | 16 | 34 | 3 | 25 | 2 | 9 | 1 | 1198 | 100 |
| East of England | 360 | 26 | 370 | 27 | 330 | 24 | 222 | 16 | 47 | 3 | 24 | 2 | 22 | 2 | 1375 | 100 |
| London | 368 | 25 | 353 | 24 | 302 | 20 | 297 | 20 | 73 | 5 | 49 | 3 | 43 | 3 | 1485 | 100 |
| N East, Yorks & Humber | 615 | 29 | 577 | 27 | 462 | 22 | 348 | 16 | 51 | 2 | 29 | 1 | 38 | 2 | 2120 | 100 |
| North West | 452 | 25 | 496 | 28 | 399 | 22 | 313 | 17 | 69 | 4 | 36 | 2 | 36 | 2 | 1801 | 100 |
| South East | 460 | 26 | 484 | 28 | 350 | 20 | 296 | 17 | 65 | 4 | 47 | 3 | 35 | 2 | 1737 | 100 |
| South West | 512 | 26 | 538 | 27 | 472 | 24 | 370 | 18 | 45 | 2 | 39 | 2 | 29 | 1 | 2005 | 100 |
| West Midlands | 338 | 24 | 368 | 27 | 314 | 23 | 260 | 19 | 50 | 4 | 27 | 2 | 31 | 2 | 1388 | 100 |
| Northern Ireland | 88 | 24 | 116 | 32 | 66 | 18 | 70 | 19 | 12 | 3 | 6 | 2 | 6 | 2 | 364 | 100 |
| Wales | 237 | 26 | 216 | 24 | 229 | 25 | 153 | 17 | 34 | 4 | 21 | 2 | 13 | 1 | 903 | 100 |
| **United Kingdom** | **3779** | **26** | **3842** | **27** | **3188** | **22** | **2522** | **18** | **480** | **3** | **303** | **2** | **262** | **2** | **14376** | **100** |

| Table 26: Whole size of surgically treated invasive breast cancers | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | <10mm | | 10-<15mm | | 15-≤20mm | | >20-≤35mm | | >35-≤50mm | | >50mm | | Unknown | | Total | |
| **Sub-region** | **No.** | **%** | **No.** | **%** | **No.** | **%** | **No.** | **%** | **No.** | **%** | **No.** | **%** | **No.** | **%** | **No.** | **%** |
| East Midlands | 209 | 17 | 274 | 23 | 287 | 24 | 272 | 23 | 76 | 6 | 46 | 4 | 34 | 3 | 1198 | 100 |
| East of England | 227 | 17 | 327 | 24 | 344 | 25 | 300 | 22 | 78 | 6 | 45 | 3 | 54 | 4 | 1375 | 100 |
| London | 218 | 15 | 298 | 20 | 302 | 20 | 352 | 24 | 117 | 8 | 113 | 8 | 85 | 6 | 1485 | 100 |
| N East, Yorks & Humber | 399 | 19 | 502 | 24 | 508 | 24 | 461 | 22 | 108 | 5 | 73 | 3 | 69 | 3 | 2120 | 100 |
| North West | 290 | 16 | 422 | 23 | 427 | 24 | 388 | 22 | 115 | 6 | 87 | 5 | 72 | 4 | 1801 | 100 |
| South East | 295 | 17 | 426 | 25 | 364 | 21 | 382 | 22 | 108 | 6 | 84 | 5 | 78 | 4 | 1737 | 100 |
| South West | 316 | 16 | 457 | 23 | 484 | 24 | 496 | 25 | 111 | 6 | 82 | 4 | 59 | 3 | 2005 | 100 |
| West Midlands | 221 | 16 | 318 | 23 | 348 | 25 | 300 | 22 | 87 | 6 | 57 | 4 | 57 | 4 | 1388 | 100 |
| Northern Ireland | 56 | 15 | 102 | 28 | 80 | 22 | 82 | 23 | 22 | 6 | 19 | 5 | 3 | 1 | 364 | 100 |
| Wales | 143 | 16 | 184 | 20 | 214 | 24 | 217 | 24 | 80 | 9 | 50 | 6 | 15 | 2 | 903 | 100 |
| **United Kingdom** | **2374** | **17** | **3310** | **23** | **3358** | **23** | **3250** | **23** | **902** | **6** | **656** | **5** | **526** | **4** | **14376** | **100** |

| Table 27: Grade of surgically treated invasive cancers | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Grade 1 | | Grade 2 | | Grade 3 | | Not assessable | | Unknown | | Total | |
| **Sub-region** | **No.** | **%** | **No.** | **%** | **No.** | **%** | **No.** | **%** | **No.** | **%** | **No.** | **%** |
| East Midlands | 306 | 26 | 663 | 55 | 227 | 19 | 2 | 0 | 0 | 0 | 1198 | 100 |
| East of England | 345 | 25 | 721 | 52 | 297 | 22 | 10 | 1 | 2 | 0 | 1375 | 100 |
| London | 394 | 27 | 827 | 56 | 258 | 17 | 3 | 0 | 3 | 0 | 1485 | 100 |
| N East, Yorks & Humber | 545 | 26 | 1157 | 55 | 409 | 19 | 6 | 0 | 3 | 0 | 2120 | 100 |
| North West | 474 | 26 | 945 | 52 | 375 | 21 | 5 | 0 | 2 | 0 | 1801 | 100 |
| South East | 423 | 24 | 978 | 56 | 321 | 18 | 12 | 1 | 3 | 0 | 1737 | 100 |
| South West | 451 | 22 | 1167 | 58 | 370 | 18 | 11 | 1 | 6 | 0 | 2005 | 100 |
| West Midlands | 327 | 24 | 744 | 54 | 307 | 22 | 5 | 0 | 5 | 0 | 1388 | 100 |
| Northern Ireland | 78 | 21 | 187 | 51 | 99 | 27 | 0 | 0 | 0 | 0 | 364 | 100 |
| Wales | 254 | 28 | 476 | 53 | 170 | 19 | 2 | 0 | 1 | 0 | 903 | 100 |
| **United Kingdom** | **3597** | **25** | **7865** | **55** | **2833** | **20** | **56** | **0** | **25** | **0** | **14376** | **100** |

| Table 28: Data completeness for surgically treated invasive cancers (excluding cases with neo-adjuvant therapy) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Unknown invasive size | | Unknown nodal status | | Unknown grade | | Unknown NPI* | | Total invasive |
| Sub-region | No. | % | No. | % | No. | % | No. | % | |
| East Midlands | 7 | 0.6 | 5 | 0.4 | 0 | 0.0 | 12 | 1.1 | 1136 |
| East of England | 16 | 1.3 | 6 | 0.5 | 1 | 0.1 | 28 | 2.2 | 1255 |
| London | 28 | 2.1 | 25 | 1.8 | 2 | 0.1 | 49 | 3.6 | 1353 |
| N East, Yorks & Humber | 26 | 1.3 | 18 | 0.9 | 2 | 0.1 | 47 | 2.3 | 2034 |
| North West | 23 | 1.4 | 12 | 0.7 | 1 | 0.1 | 36 | 2.1 | 1675 |
| South East | 27 | 1.7 | 20 | 1.2 | 2 | 0.1 | 54 | 3.3 | 1629 |
| South West | 20 | 1.1 | 19 | 1.0 | 3 | 0.2 | 45 | 2.4 | 1867 |
| West Midlands | 23 | 1.8 | 8 | 0.6 | 5 | 0.4 | 32 | 2.5 | 1291 |
| Northern Ireland | 5 | 1.4 | 8 | 2.2 | 0 | 0.0 | 13 | 3.6 | 357 |
| Wales | 12 | 1.4 | 19 | 2.2 | 1 | 0.1 | 33 | 3.8 | 880 |
| **United Kingdom** | **187** | **1.4** | **140** | **1.0** | **17** | **0.1** | **349** | **2.6** | **13477** |

* NPI is unknown if size, grade or nodal status are unknown or grade if not assessable

| Table 29: NPI Group of surgically treated invasive cancers (with known NPI excluding cases with neo-adjuvant therapy) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | EPG | | GPG | | MPG1 | | MPG2 | | PPG | | Total with known NPI | |
| Sub-region | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % |
| East Midlands | 248 | 22 | 446 | 40 | 279 | 25 | 105 | 9 | 46 | 4 | 1124 | 100 |
| East of England | 261 | 21 | 491 | 40 | 292 | 24 | 125 | 10 | 58 | 5 | 1227 | 100 |
| London | 293 | 22 | 483 | 37 | 321 | 25 | 144 | 11 | 63 | 5 | 1304 | 100 |
| N East, Yorks & Humber | 435 | 22 | 813 | 41 | 445 | 22 | 194 | 10 | 100 | 5 | 1987 | 100 |
| North West | 362 | 22 | 628 | 38 | 405 | 25 | 177 | 11 | 67 | 4 | 1639 | 100 |
| South East | 328 | 21 | 634 | 40 | 382 | 24 | 153 | 10 | 78 | 5 | 1575 | 100 |
| South West | 361 | 20 | 744 | 41 | 456 | 25 | 183 | 10 | 78 | 4 | 1822 | 100 |
| West Midlands | 268 | 21 | 482 | 38 | 306 | 24 | 136 | 11 | 67 | 5 | 1259 | 100 |
| Northern Ireland | 56 | 16 | 134 | 39 | 99 | 29 | 29 | 8 | 26 | 8 | 344 | 100 |
| Wales | 193 | 23 | 289 | 34 | 236 | 28 | 82 | 10 | 47 | 6 | 847 | 100 |
| **United Kingdom** | **2805** | **21** | **5144** | **39** | **3221** | **25** | **1328** | **10** | **630** | **5** | **13128** | **100** |

| Table 30: ER status (invasive cancers) | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Positive | | Negative | | Not done or Unknown | | Total |
| Sub-region | No. | % | No. | % | No. | % | |
| East Midlands | 1109 | 91 | 111 | 9 | 3 | 0 | 1223 |
| East of England | 1285 | 91 | 126 | 9 | 3 | 0 | 1414 |
| London | 1411 | 90 | 140 | 9 | 20 | 1 | 1571 |
| N East, Yorks & Humber | 1938 | 90 | 216 | 10 | 3 | 0 | 2157 |
| North West | 1663 | 90 | 178 | 10 | 2 | 0 | 1843 |
| South East | 1640 | 92 | 124 | 7 | 15 | 1 | 1779 |
| South West | 1907 | 93 | 142 | 7 | 3 | 0 | 2052 |
| West Midlands | 1300 | 92 | 109 | 8 | 4 | 0 | 1413 |
| Northern Ireland | 333 | 91 | 33 | 9 | 0 | 0 | 366 |
| Wales | 840 | 91 | 82 | 9 | 0 | 0 | 922 |
| **United Kingdom** | **13426** | **91** | **1261** | **9** | **53** | **0.4** | **14740** |

| Table 31: PgR status (invasive) | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Positive | | Negative | | Not done or Unknown | | Total |
| Sub-region | No. | % | No. | % | No. | % | |
| East Midlands | 445 | 36 | 143 | 12 | 635 | 52 | 1223 |
| East of England | 657 | 46 | 209 | 15 | 548 | 39 | 1414 |
| London | 878 | 56 | 247 | 16 | 446 | 28 | 1571 |
| N East, Yorks & Humber | 408 | 19 | 246 | 11 | 1503 | 70 | 2157 |
| North West | 1138 | 62 | 363 | 20 | 342 | 19 | 1843 |
| South East | 1066 | 60 | 242 | 14 | 471 | 26 | 1779 |
| South West | 847 | 41 | 245 | 12 | 960 | 47 | 2052 |
| West Midlands | 694 | 49 | 205 | 15 | 514 | 36 | 1413 |
| Northern Ireland | 215 | 59 | 75 | 20 | 76 | 21 | 366 |
| Wales | 410 | 44 | 132 | 14 | 380 | 41 | 922 |
| **United Kingdom** | **6758** | **46** | **2107** | **14** | **5875** | **40** | **14740** |

| Table 32: PgR status of invasive cancers with negative ER status | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Positive | | Negative | | Not done or Unknown | | Total |
| Sub-region | No. | % | No. | % | No. | % | |
| East Midlands | 2 | 2 | 73 | 66 | 36 | 32 | 111 |
| East of England | 6 | 5 | 105 | 83 | 15 | 12 | 126 |
| London | 1 | 1 | 111 | 79 | 28 | 20 | 140 |
| N East, Yorks & Humber | 6 | 3 | 156 | 72 | 54 | 25 | 216 |
| North West | 7 | 4 | 152 | 85 | 19 | 11 | 178 |
| South East | 3 | 2 | 115 | 93 | 6 | 5 | 124 |
| South West | 5 | 4 | 101 | 71 | 36 | 25 | 142 |
| West Midlands | 3 | 3 | 97 | 89 | 9 | 8 | 109 |
| Northern Ireland | 2 | 6 | 28 | 85 | 3 | 9 | 33 |
| Wales | 3 | 4 | 68 | 83 | 11 | 13 | 82 |
| **United Kingdom** | **38** | **3** | **1006** | **80** | **217** | **17** | **1261** |

| Table 33: HER-2 status for invasive cancers | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Positive | | Negative | | Borderline | | Not done or Unknown | | Total |
| Sub-region | No. | % | No. | % | No. | % | No. | % | |
| East Midlands | 136 | 11 | 1032 | 84 | 45 | 4 | 10 | 1 | 1223 |
| East of England | 140 | 10 | 1223 | 86 | 6 | 0 | 45 | 3 | 1414 |
| London | 167 | 11 | 1330 | 85 | 44 | 3 | 30 | 2 | 1571 |
| N East, Yorks & Humber | 224 | 10 | 1904 | 88 | 12 | 1 | 17 | 1 | 2157 |
| North West | 180 | 10 | 1582 | 86 | 72 | 4 | 9 | 0 | 1843 |
| South East | 148 | 8 | 1580 | 89 | 16 | 1 | 35 | 2 | 1779 |
| South West | 227 | 11 | 1787 | 87 | 23 | 1 | 15 | 1 | 2052 |
| West Midlands | 165 | 12 | 1224 | 87 | 7 | 0 | 17 | 1 | 1413 |
| Northern Ireland | 29 | 8 | 331 | 90 | 6 | 2 | 0 | 0 | 366 |
| Wales | 100 | 11 | 812 | 88 | 7 | 1 | 3 | 0 | 922 |
| **United Kingdom** | **1516** | **10** | **12805** | **87** | **238** | **2** | **181** | **1** | **14740** |

| Table 34: Size, grade and nodal status for invasive cancers with HER2 testing not done or unknown | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Total HER2 unknown/not done | <10mm invasive size | | Grade 1 | | Negative nodal status | |
| Sub-region | | No | % | No | % | No | % |
| East Midlands | 10 | 5 | 50 | 4 | 40 | 7 | 70 |
| East of England | 45 | 11 | 24 | 22 | 49 | 31 | 69 |
| London | 30 | 8 | 27 | 5 | 17 | 9 | 30 |
| N East, Yorks & Humber | 17 | 7 | 41 | 4 | 24 | 10 | 59 |
| North West | 9 | 3 | 33 | 3 | 33 | 3 | 33 |
| South East | 35 | 12 | 34 | 5 | 14 | 16 | 46 |
| South West | 15 | 6 | 40 | 5 | 33 | 9 | 60 |
| West Midlands | 17 | 6 | 35 | 4 | 24 | 15 | 88 |
| Northern Ireland | 0 | 0 | - | 0 | - | 0 | - |
| Wales | 3 | 1 | 33 | 0 | 0 | 0 | 0 |
| **United Kingdom** | **181** | **59** | **33** | **52** | **29** | **100** | **55** |

| Table 35: ER status (micro/non-invasive cancers) | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Positive | | Negative | | Not done or Unknown | | Total |
| Sub-region | No. | % | No. | % | No. | % | |
| East Midlands | 15 | 5 | 5 | 2 | 261 | 93 | 281 |
| East of England | 39 | 12 | 11 | 3 | 271 | 84 | 321 |
| London | 160 | 32 | 25 | 5 | 322 | 64 | 507 |
| N East, Yorks & Humber | 82 | 16 | 16 | 3 | 416 | 81 | 514 |
| North West | 250 | 54 | 45 | 10 | 172 | 37 | 467 |
| South East | 114 | 22 | 31 | 6 | 373 | 72 | 518 |
| South West | 198 | 35 | 40 | 7 | 328 | 58 | 566 |
| West Midlands | 17 | 5 | 5 | 1 | 354 | 94 | 376 |
| Northern Ireland | 19 | 21 | 5 | 6 | 66 | 73 | 90 |
| Wales | 34 | 13 | 8 | 3 | 221 | 84 | 263 |
| **United Kingdom** | **928** | **24** | **191** | **5** | **2784** | **71** | **3903** |

| Table 36: Treatment for non-invasive breast cancers | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Conservation surgery | | Mastectomy | | No surgery | | Unknown | | Total | |
| Sub-region | No. | % | No. | % | No. | % | No. | % | No. | % |
| East Midlands | 195 | 71 | 74 | 27 | 7 | 3 | 0 | 0 | 276 | 100 |
| East of England | 229 | 74 | 74 | 24 | 6 | 2 | 0 | 0 | 309 | 100 |
| London | 367 | 73 | 100 | 20 | 35 | 7 | 2 | 0 | 504 | 100 |
| N East, Yorks & Humber | 377 | 75 | 110 | 22 | 13 | 3 | 0 | 0 | 500 | 100 |
| North West | 324 | 72 | 115 | 25 | 14 | 3 | 0 | 0 | 453 | 100 |
| South East | 379 | 76 | 106 | 21 | 16 | 3 | 0 | 0 | 501 | 100 |
| South West | 428 | 78 | 104 | 19 | 14 | 3 | 0 | 0 | 546 | 100 |
| West Midlands | 279 | 76 | 80 | 22 | 7 | 2 | 0 | 0 | 366 | 100 |
| Northern Ireland | 68 | 77 | 20 | 23 | 0 | 0 | 0 | 0 | 88 | 100 |
| Wales | 176 | 68 | 80 | 31 | 3 | 1 | 0 | 0 | 259 | 100 |
| **United Kingdom** | **2822** | **74** | **863** | **23** | **115** | **3** | **2** | **0** | **3802** | **100** |

| Table 37: Treatment for micro-invasive breast cancers | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Conservation surgery | | Mastectomy | | No surgery | | Unknown | | Total | |
| Sub-region | No. | % | No. | % | No. | % | No. | % | No. | % |
| East Midlands | 3 | 60 | 2 | 40 | 0 | 0 | 0 | 0 | 5 | 100 |
| East of England | 8 | 67 | 4 | 33 | 0 | 0 | 0 | 0 | 12 | 100 |
| London | 2 | 67 | 1 | 33 | 0 | 0 | 0 | 0 | 3 | 100 |
| N East, Yorks & Humber | 10 | 71 | 4 | 29 | 0 | 0 | 0 | 0 | 14 | 100 |
| North West | 8 | 57 | 6 | 43 | 0 | 0 | 0 | 0 | 14 | 100 |
| South East | 13 | 76 | 4 | 24 | 0 | 0 | 0 | 0 | 17 | 100 |
| South West | 11 | 55 | 9 | 45 | 0 | 0 | 0 | 0 | 20 | 100 |
| West Midlands | 7 | 70 | 3 | 30 | 0 | 0 | 0 | 0 | 10 | 100 |
| Northern Ireland | 1 | 50 | 1 | 50 | 0 | 0 | 0 | 0 | 2 | 100 |
| Wales | 3 | 75 | 1 | 25 | 0 | 0 | 0 | 0 | 4 | 100 |
| **United Kingdom** | **66** | **65** | **35** | **35** | **0** | **0** | **0** | **0** | **101** | **100** |

| Table 38: Treatment for non-invasive breast cancers size >40mm | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Conservation surgery | | Mastectomy | | Unknown | | Total | |
| **Sub-region** | **No.** | **%** | **No.** | **%** | **No.** | **%** | **No.** | **%** |
| East Midlands | 15 | 30 | 35 | 70 | 0 | 0 | 50 | 100 |
| East of England | 11 | 22 | 40 | 78 | 0 | 0 | 51 | 100 |
| London | 33 | 36 | 58 | 64 | 0 | 0 | 91 | 100 |
| N East, Yorks & Humber | 21 | 26 | 60 | 74 | 0 | 0 | 81 | 100 |
| North West | 18 | 23 | 60 | 77 | 0 | 0 | 78 | 100 |
| South East | 24 | 31 | 54 | 69 | 0 | 0 | 78 | 100 |
| South West | 24 | 35 | 45 | 65 | 0 | 0 | 69 | 100 |
| West Midlands | 16 | 25 | 48 | 75 | 0 | 0 | 64 | 100 |
| Northern Ireland | 1 | 11 | 8 | 89 | 0 | 0 | 9 | 100 |
| Wales | 12 | 24 | 37 | 76 | 0 | 0 | 49 | 100 |
| **United Kingdom** | **175** | **28** | **445** | **72** | **0** | **0** | **620** | **100** |

| Table 39: Treatment of high cytonuclear grade non-invasive cancers (>40mm) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Conservation surgery | | Mastectomy | | Unknown | | Total | |
| **Sub-region** | **No.** | **%** | **No.** | **%** | **No.** | **%** | **No.** | **%** |
| East Midlands | 9 | 24 | 28 | 76 | 0 | 0 | 37 | 100 |
| East of England | 7 | 17 | 35 | 83 | 0 | 0 | 42 | 100 |
| London | 23 | 33 | 47 | 67 | 0 | 0 | 70 | 100 |
| N East, Yorks & Humber | 18 | 25 | 54 | 75 | 0 | 0 | 72 | 100 |
| North West | 11 | 19 | 47 | 81 | 0 | 0 | 58 | 100 |
| South East | 17 | 27 | 45 | 73 | 0 | 0 | 62 | 100 |
| South West | 16 | 29 | 39 | 71 | 0 | 0 | 55 | 100 |
| West Midlands | 14 | 24 | 44 | 76 | 0 | 0 | 58 | 100 |
| Northern Ireland | 1 | 14 | 6 | 86 | 0 | 0 | 7 | 100 |
| Wales | 8 | 22 | 28 | 78 | 0 | 0 | 36 | 100 |
| **United Kingdom** | **124** | **25** | **373** | **75** | **0** | **0** | **497** | **100** |

| Table 40: Treatment for invasive breast cancers | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Conservation surgery | | Mastectomy | | No Surgery | | Unknown | | Total | |
| **Sub-region** | **No.** | **%** | **No.** | **%** | **No.** | **%** | **No.** | **%** | **No.** | **%** |
| East Midlands | 966 | 79 | 232 | 19 | 25 | 2 | 0 | 0 | 1223 | 100 |
| East of England | 1142 | 81 | 233 | 16 | 39 | 3 | 0 | 0 | 1414 | 100 |
| London | 1186 | 75 | 296 | 19 | 86 | 5 | 3 | 0 | 1571 | 100 |
| N East, Yorks & Humber | 1793 | 83 | 327 | 15 | 37 | 2 | 0 | 0 | 2157 | 100 |
| North West | 1464 | 79 | 337 | 18 | 42 | 2 | 0 | 0 | 1843 | 100 |
| South East | 1460 | 82 | 277 | 16 | 42 | 2 | 0 | 0 | 1779 | 100 |
| South West | 1684 | 82 | 321 | 16 | 47 | 2 | 0 | 0 | 2052 | 100 |
| West Midlands | 1134 | 80 | 254 | 18 | 25 | 2 | 0 | 0 | 1413 | 100 |
| Northern Ireland | 305 | 83 | 59 | 16 | 2 | 1 | 0 | 0 | 366 | 100 |
| Wales | 683 | 74 | 220 | 24 | 19 | 2 | 0 | 0 | 922 | 100 |
| **United Kingdom** | **11817** | **80** | **2556** | **17** | **364** | **2** | **3** | **0** | **14740** | **100** |

| Table 41: Mastectomy rate with invasive tumour size | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | <15mm | | 15-≤20mm | | >20-≤35mm | | >35-≤50mm | | >50mm | |
| **Sub-region** | **No.** | **%** | **No.** | **%** | **No.** | **%** | **No.** | **%** | **No.** | **%** |
| East Midlands | 81 | 12 | 47 | 18 | 53 | 27 | 24 | 71 | 25 | 100 |
| East of England | 75 | 10 | 42 | 13 | 65 | 29 | 26 | 55 | 22 | 92 |
| London | 91 | 13 | 38 | 13 | 79 | 27 | 40 | 55 | 39 | 80 |
| N East, Yorks & Humber | 110 | 9 | 61 | 13 | 90 | 26 | 29 | 57 | 23 | 79 |
| North West | 101 | 11 | 59 | 15 | 92 | 29 | 42 | 61 | 32 | 89 |
| South East | 80 | 8 | 41 | 12 | 72 | 24 | 34 | 52 | 41 | 87 |
| South West | 117 | 11 | 65 | 14 | 79 | 21 | 21 | 47 | 30 | 77 |
| West Midlands | 81 | 11 | 39 | 12 | 69 | 27 | 32 | 64 | 23 | 85 |
| Northern Ireland | 15 | 7 | 15 | 23 | 18 | 26 | 5 | 42 | 6 | 100 |
| Wales | 82 | 18 | 55 | 24 | 47 | 31 | 15 | 44 | 19 | 90 |
| **United Kingdom** | **833** | **11** | **462** | **14** | **664** | **26** | **268** | **56** | **260** | **86** |

| Table 42: Mastectomy rate with whole tumour size | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | <15mm | | 15-≤20mm | | >20-≤35mm | | >35-≤50mm | | >50mm | |
| **Sub-region** | **No.** | **%** | **No.** | **%** | **No.** | **%** | **No.** | **%** | **No.** | **%** |
| East Midlands | 34 | 7 | 39 | 14 | 67 | 25 | 43 | 57 | 41 | 89 |
| East of England | 35 | 6 | 38 | 11 | 64 | 21 | 38 | 49 | 42 | 93 |
| London | 27 | 5 | 26 | 9 | 72 | 20 | 53 | 45 | 93 | 82 |
| N East, Yorks & Humber | 42 | 5 | 52 | 10 | 97 | 21 | 53 | 49 | 61 | 84 |
| North West | 34 | 5 | 48 | 11 | 94 | 24 | 66 | 57 | 73 | 84 |
| South East | 31 | 4 | 28 | 8 | 80 | 21 | 46 | 43 | 68 | 81 |
| South West | 61 | 8 | 47 | 10 | 91 | 18 | 47 | 42 | 58 | 71 |
| West Midlands | 38 | 7 | 38 | 11 | 62 | 21 | 48 | 55 | 48 | 84 |
| Northern Ireland | 9 | 6 | 15 | 19 | 16 | 20 | 6 | 27 | 13 | 68 |
| Wales | 40 | 12 | 38 | 18 | 60 | 28 | 34 | 43 | 42 | 84 |
| **United Kingdom** | **351** | **6** | **369** | **11** | **703** | **22** | **434** | **48** | **539** | **82** |

| Table 43: Mastectomy rate for <15mm invasive cancers by whole tumour size | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Whole Size <15mm | | Whole size 15-≤20mm | | Whole size >20-≤35mm | | Whole size >35-≤50mm | | Whole size >50mm | |
| **Sub-region** | **No.** | **%** | **No.** | **%** | **No.** | **%** | **No.** | **%** | **No.** | **%** |
| East Midlands | 34 | 7 | 6 | 8 | 17 | 25 | 12 | 46 | 12 | 75 |
| East of England | 35 | 6 | 6 | 8 | 12 | 19 | 11 | 69 | 8 | 80 |
| London | 27 | 5 | 8 | 11 | 16 | 22 | 12 | 57 | 27 | 90 |
| N East, Yorks & Humber | 42 | 5 | 20 | 14 | 15 | 17 | 16 | 53 | 15 | 75 |
| North West | 34 | 5 | 13 | 12 | 15 | 22 | 17 | 74 | 22 | 79 |
| South East | 31 | 4 | 6 | 7 | 17 | 22 | 8 | 33 | 15 | 75 |
| South West | 59 | 8 | 10 | 8 | 21 | 23 | 13 | 45 | 11 | 65 |
| West Midlands | 36 | 7 | 10 | 11 | 10 | 23 | 13 | 65 | 9 | 75 |
| Northern Ireland | 9 | 6 | 2 | 8 | 1 | 7 | 0 | 0 | 3 | 43 |
| Wales | 40 | 12 | 5 | 11 | 14 | 32 | 9 | 38 | 12 | 86 |
| **United Kingdom** | **347** | **6** | **86** | **10** | **138** | **22** | **111** | **51** | **134** | **77** |

| Table 44: Immediate reconstruction with mastectomy (all cancers) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Immediate reconstruction | | No immediate reconstruction | | Unknown | | Total mastectomies | |
| **Sub-region** | **No.** | **%** | **No.** | **%** | **No.** | **%** | **No.** | **%** |
| East Midlands | 99 | 32 | 209 | 68 | 0 | 0 | 308 | 100 |
| East of England | 109 | 35 | 202 | 65 | 0 | 0 | 311 | 100 |
| London | 126 | 32 | 271 | 68 | 0 | 0 | 397 | 100 |
| N East, Yorks & Humber | 162 | 37 | 279 | 63 | 0 | 0 | 441 | 100 |
| North West | 161 | 35 | 295 | 64 | 2 | 0 | 458 | 100 |
| South East | 142 | 37 | 243 | 63 | 2 | 1 | 387 | 100 |
| South West | 139 | 32 | 295 | 68 | 0 | 0 | 434 | 100 |
| West Midlands | 110 | 33 | 227 | 67 | 0 | 0 | 337 | 100 |
| Northern Ireland | 14 | 18 | 66 | 83 | 0 | 0 | 80 | 100 |
| Wales | 75 | 25 | 226 | 75 | 0 | 0 | 301 | 100 |
| **United Kingdom** | **1137** | **33** | **2313** | **67** | **4** | **0** | **3454** | **100** |

| Table 45: Any neo-adjuvant therapy | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Had treatment | | Did not have treatment | | Unknown | | Total |
| **Sub-region** | **No.** | **%** | **No.** | **%** | **No.** | **%** | |
| East Midlands | 78 | 5 | 1427 | 95 | 0 | 0 | 1505 |
| East of England | 151 | 9 | 1585 | 91 | 0 | 0 | 1736 |
| London | 192 | 9 | 1886 | 91 | 0 | 0 | 2078 |
| N East, Yorks & Humber | 109 | 4 | 2563 | 96 | 0 | 0 | 2672 |
| North West | 166 | 7 | 2145 | 93 | 0 | 0 | 2311 |
| South East | 121 | 5 | 2177 | 95 | 0 | 0 | 2298 |
| South West | 165 | 6 | 2454 | 94 | 0 | 0 | 2619 |
| West Midlands | 116 | 6 | 1673 | 94 | 0 | 0 | 1789 |
| Northern Ireland | 8 | 2 | 450 | 98 | 0 | 0 | 458 |
| Wales | 40 | 3 | 1145 | 97 | 0 | 0 | 1185 |
| **United Kingdom** | **1146** | **6** | **17505** | **94** | **0** | **0** | **18651** |

| Table 46: Neo-adjuvant endocrine therapy | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Had treatment | | Did not have treatment | | Unknown | | Total |
| **Sub-region** | **No.** | **%** | **No.** | **%** | **No.** | **%** | |
| East Midlands | 31 | 2 | 1474 | 98 | 0 | 0 | 1505 |
| East of England | 89 | 5 | 1647 | 95 | 0 | 0 | 1736 |
| London | 73 | 4 | 2005 | 96 | 0 | 0 | 2078 |
| N East, Yorks & Humber | 47 | 2 | 2625 | 98 | 0 | 0 | 2672 |
| North West | 90 | 4 | 2221 | 96 | 0 | 0 | 2311 |
| South East | 46 | 2 | 2252 | 98 | 0 | 0 | 2298 |
| South West | 64 | 2 | 2555 | 98 | 0 | 0 | 2619 |
| West Midlands | 52 | 3 | 1737 | 97 | 0 | 0 | 1789 |
| Northern Ireland | 6 | 1 | 452 | 99 | 0 | 0 | 458 |
| Wales | 28 | 2 | 1157 | 98 | 0 | 0 | 1185 |
| **United Kingdom** | **526** | **3** | **18125** | **97** | **0** | **0** | **18651** |

| Table 47: Neo-adjuvant chemotherapy for invasive cancers | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Had treatment | | Did not have treatment | | Unknown | | Total |
| Sub-region | No. | % | No. | % | No. | % | |
| East Midlands | 51 | 4 | 1172 | 96 | 0 | 0 | 1223 |
| East of England | 65 | 5 | 1349 | 95 | 0 | 0 | 1414 |
| London | 124 | 8 | 1447 | 92 | 0 | 0 | 1571 |
| N East, Yorks & Humber | 63 | 3 | 2094 | 97 | 0 | 0 | 2157 |
| North West | 79 | 4 | 1764 | 96 | 0 | 0 | 1843 |
| South East | 77 | 4 | 1702 | 96 | 0 | 0 | 1779 |
| South West | 104 | 5 | 1948 | 95 | 0 | 0 | 2052 |
| West Midlands | 70 | 5 | 1343 | 95 | 0 | 0 | 1413 |
| Northern Ireland | 3 | 1 | 363 | 99 | 0 | 0 | 366 |
| Wales | 12 | 1 | 910 | 99 | 0 | 0 | 922 |
| **United Kingdom** | **648** | **4** | **14092** | **96** | **0** | **0** | **14740** |

| Table 48: Neo-adjuvant Traztuzumab | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Had treatment | | Did not have treatment | | Unknown | | Total |
| Sub-region | No. | % | No. | % | No. | % | |
| East Midlands | 1 | 0 | 1504 | 100 | 0 | 0 | 1505 |
| East of England | 6 | 0 | 1730 | 100 | 0 | 0 | 1736 |
| London | 2 | 0 | 2076 | 100 | 0 | 0 | 2078 |
| N East, Yorks & Humber | 15 | 1 | 2657 | 99 | 0 | 0 | 2672 |
| North West | 12 | 1 | 2299 | 99 | 0 | 0 | 2311 |
| South East | 7 | 0 | 2291 | 100 | 0 | 0 | 2298 |
| South West | 12 | 0 | 2607 | 100 | 0 | 0 | 2619 |
| West Midlands | 10 | 1 | 1779 | 99 | 0 | 0 | 1789 |
| Northern Ireland | 0 | 0 | 458 | 100 | 0 | 0 | 458 |
| Wales | 2 | 0 | 1183 | 100 | 0 | 0 | 1185 |
| **United Kingdom** | **67** | **0** | **18584** | **100** | **0** | **0** | **18651** |

| Table 49: Annual screening surgical caseload per surgeon (2016/17) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total | <10 cases | | 10-29 cases | | 30-49 cases | | 50-79 cases | | 80-99 cases | | 100+ cases | | |
| Sub-region | surgeons | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | Median |
| East Midlands | 48 | 8 | 17 | 7 | 15 | 23 | 48 | 10 | 21 | 0 | 0 | 0 | 0 | 35 |
| East of England | 65 | 19 | 29 | 15 | 23 | 19 | 29 | 11 | 17 | 1 | 2 | 0 | 0 | 28 |
| London | 91 | 37 | 41 | 27 | 30 | 13 | 14 | 8 | 9 | 3 | 3 | 3 | 3 | 14 |
| N East, Yorks & Humber | 82 | 18 | 22 | 19 | 23 | 27 | 33 | 13 | 16 | 5 | 6 | 0 | 0 | 34 |
| North West | 81 | 21 | 26 | 19 | 23 | 27 | 33 | 11 | 14 | 3 | 4 | 0 | 0 | 30 |
| South East | 73 | 16 | 22 | 16 | 22 | 30 | 41 | 6 | 8 | 3 | 4 | 2 | 3 | 32 |
| South West | 76 | 7 | 9 | 24 | 32 | 27 | 36 | 16 | 21 | 2 | 3 | 0 | 0 | 34 |
| West Midlands | 65 | 17 | 26 | 17 | 26 | 19 | 29 | 11 | 17 | 1 | 2 | 0 | 0 | 29 |
| Northern Ireland | 18 | 1 | 6 | 11 | 61 | 5 | 28 | 1 | 6 | 0 | 0 | 0 | 0 | 23 |
| Wales | 24 | 5 | 21 | 2 | 8 | 4 | 17 | 10 | 42 | 3 | 13 | 0 | 0 | 57 |
| **United Kingdom** | **623** | **149** | **24** | **157** | **25** | **194** | **31** | **97** | **16** | **21** | **3** | **5** | **1** | **30** |

* The surgeons in each sub-region are credited with their total UK screening caseload.

| Table 50: Proportion of women referred to consultant surgeons according to annual caseload of surgeon (2016/17) | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total (referred) | <10 cases | | 10-29 cases | | 30-49 cases | | 50-79 cases | | 80-99 cases | | 100+ cases | |
| Sub-region | | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % |
| East Midlands | 1586 | 22 | 1 | 193 | 12 | 794 | 50 | 577 | 36 | 0 | 0 | 0 | 0 |
| East of England | 1833 | 75 | 4 | 296 | 16 | 827 | 45 | 543 | 30 | 92 | 5 | 0 | 0 |
| London | 2098 | 142 | 7 | 578 | 28 | 491 | 23 | 398 | 19 | 253 | 12 | 236 | 11 |
| N East, Yorks & Humber | 2875 | 61 | 2 | 458 | 16 | 1091 | 38 | 803 | 28 | 462 | 16 | 0 | 0 |
| North West | 2419 | 58 | 2 | 392 | 16 | 1034 | 43 | 690 | 29 | 245 | 10 | 0 | 0 |
| South East | 2474 | 84 | 3 | 385 | 16 | 1180 | 48 | 346 | 14 | 264 | 11 | 215 | 9 |
| South West | 2764 | 22 | 1 | 548 | 20 | 998 | 36 | 1014 | 37 | 182 | 7 | 0 | 0 |
| West Midlands | 1901 | 78 | 4 | 350 | 18 | 736 | 39 | 655 | 34 | 82 | 4 | 0 | 0 |
| Northern Ireland | 466 | 8 | 2 | 207 | 44 | 181 | 39 | 70 | 15 | 0 | 0 | 0 | 0 |
| Wales | 1185 | 12 | 1 | 49 | 4 | 171 | 14 | 685 | 58 | 268 | 23 | 0 | 0 |
| **United Kingdom** | **19601** | **562** | **3** | **3456** | **18** | **7503** | **38** | **5781** | **29** | **1848** | **9** | **451** | **2** |

| Table 51: Annual screening surgical caseload per surgeon (2014/15-2016/17) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total | <10 cases | | 10-29 cases | | 30-49 cases | | 50-79 cases | | 80-99 cases | | 100+ cases | | 3 years |
| Sub-region | surgeons | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | median |
| East Midlands | 64 | 21 | 33 | 16 | 25 | 17 | 27 | 10 | 16 | 0 | 0 | 0 | 0 | 81.5 |
| East of England | 79 | 34 | 43 | 12 | 15 | 25 | 32 | 7 | 9 | 1 | 1 | 0 | 0 | 66.0 |
| London | 120 | 63 | 53 | 28 | 23 | 17 | 14 | 11 | 9 | 1 | 1 | 0 | 0 | 26.0 |
| N East, Yorks & Humber | 95 | 30 | 32 | 21 | 22 | 26 | 27 | 14 | 15 | 3 | 3 | 1 | 1 | 78.0 |
| North West | 90 | 30 | 33 | 23 | 26 | 28 | 31 | 7 | 8 | 2 | 2 | 0 | 0 | 77.0 |
| South East | 84 | 25 | 30 | 19 | 23 | 28 | 33 | 8 | 10 | 2 | 2 | 2 | 2 | 84.5 |
| South West | 94 | 23 | 24 | 25 | 27 | 24 | 26 | 19 | 20 | 3 | 3 | 0 | 0 | 84.5 |
| West Midlands | 82 | 31 | 38 | 22 | 27 | 20 | 24 | 8 | 10 | 1 | 1 | 0 | 0 | 56.0 |
| Northern Ireland | 20 | 4 | 20 | 8 | 40 | 6 | 30 | 2 | 10 | 0 | 0 | 0 | 0 | 68.0 |
| Scotland* | 58 | 23 | 40 | 19 | 33 | 10 | 17 | 5 | 9 | 1 | 2 | 0 | 0 | 30.5* |
| Wales | 30 | 11 | 37 | 3 | 10 | 4 | 13 | 8 | 27 | 4 | 13 | 0 | 0 | 127.5 |
| **United Kingdom** | **816** | **300** | **37** | **200** | **25** | **201** | **25** | **95** | **12** | **17** | **2** | **3** | **0** | **65.5** |

*No data were submitted from Scotland for 16/17 audit. Median of Scottish cases is calculated using caseload from the 14/15 and 15/16 audit.

| Table 52: Proportion of women referred to consultant surgeons according to annual caseload of surgeon (2014/15-2016/17) | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total (referred) | <10 cases | | 10-29 cases | | 30-49 cases | | 50-79 cases | | 80-99 cases | | 100+ cases | |
| Sub-region | | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % |
| East Midlands | 4982 | 178 | 4 | 1044 | 21 | 1957 | 39 | 1803 | 36 | 0 | 0 | 0 | 0 |
| East of England | 5677 | 293 | 5 | 986 | 17 | 2922 | 51 | 1215 | 21 | 261 | 5 | 0 | 0 |
| London | 6213 | 653 | 11 | 2073 | 33 | 1409 | 23 | 1809 | 29 | 269 | 4 | 0 | 0 |
| N East, Yorks & Humber | 8297 | 332 | 4 | 1402 | 17 | 2950 | 36 | 2533 | 31 | 780 | 9 | 300 | 4 |
| North West | 6941 | 322 | 5 | 1442 | 21 | 3259 | 47 | 1410 | 20 | 508 | 7 | 0 | 0 |
| South East | 7613 | 364 | 5 | 1429 | 19 | 3257 | 43 | 1320 | 17 | 519 | 7 | 724 | 10 |
| South West | 8555 | 182 | 2 | 1630 | 19 | 2647 | 31 | 3322 | 39 | 774 | 9 | 0 | 0 |
| West Midlands | 5718 | 369 | 6 | 1289 | 23 | 2342 | 41 | 1432 | 25 | 286 | 5 | 0 | 0 |
| Northern Ireland | 1398 | 26 | 2 | 433 | 31 | 639 | 46 | 300 | 21 | 0 | 0 | 0 | 0 |
| Scotland* | 2410 | 139 | 6 | 755 | 31 | 742 | 31 | 602 | 25 | 172 | 7 | 0 | 0 |
| Wales | 3559 | 79 | 2 | 190 | 5 | 649 | 18 | 1566 | 44 | 1075 | 30 | 0 | 0 |
| **United Kingdom** | **61363** | **3076** | **5** | **13183** | **21** | **22726** | **37** | **16882** | **28** | **4472** | **7** | **1024** | **2** |

*No data were submitted from Scotland for 16/17 audit.

| Table 53: Repeat operations of surgically treated invasive and non/micro-invasive cancers | | | | | | |
|---|---|---|---|---|---|---|
| | Invasive | | | Non/micro-invasive | | |
| **Sub-region** | **Total** | **No.** | **%** | **Total** | **No.** | **%** |
| East Midlands | 1198 | 169 | 14 | 274 | 53 | 19 |
| East of England | 1375 | 289 | 21 | 315 | 69 | 22 |
| London | 1485 | 253 | 17 | 472 | 103 | 22 |
| N East, Yorks & Humber | 2120 | 297 | 14 | 501 | 109 | 22 |
| North West | 1801 | 295 | 16 | 453 | 88 | 19 |
| South East | 1737 | 318 | 18 | 502 | 128 | 25 |
| South West | 2005 | 335 | 17 | 552 | 135 | 24 |
| West Midlands | 1388 | 273 | 20 | 369 | 88 | 24 |
| Northern Ireland | 364 | 57 | 16 | 90 | 14 | 16 |
| Wales | 903 | 174 | 19 | 260 | 71 | 27 |
| **United Kingdom** | **14376** | **2460** | **17** | **3788** | **858** | **23** |

| Table 54: Repeat operations of surgically treated invasive and non/micro-invasive cancers without a non-op diagnosis | | | | | | |
|---|---|---|---|---|---|---|
| | Invasive | | | Non/micro-invasive | | |
| **Sub-region** | **Total** | **Re-op** | **%** | **Total** | **Re-op** | **%** |
| East Midlands | 4 | 4 | 100 | 25 | 11 | 44 |
| East of England | 9 | 8 | 89 | 26 | 3 | 12 |
| London | 9 | 5 | 56 | 44 | 10 | 23 |
| N East, Yorks & Humber | 10 | 8 | 80 | 32 | 13 | 41 |
| North West | 11 | 8 | 73 | 24 | 10 | 42 |
| South East | 10 | 9 | 90 | 68 | 17 | 25 |
| South West | 15 | 12 | 80 | 89 | 30 | 34 |
| West Midlands | 5 | 4 | 80 | 27 | 12 | 44 |
| Northern Ireland | 2 | 1 | 50 | 7 | 1 | 14 |
| Wales | 11 | 9 | 82 | 35 | 18 | 51 |
| **United Kingdom** | **86** | **68** | **79** | **377** | **125** | **33** |

| Table 55: Number of therapeutic operations (invasive cancers) with initial BCS and a non-operative diagnosis | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | | 2 | | 3 | | 4+ | | Unknown | | Total cancers | | Repeat 2+ ops | |
| **Sub-region** | **No** | **%** | **No** | **%** | **No** | **%** | **No** | **%** | **No** | **%** | **No** | **%** | **No** | **%** |
| East Midlands | 833 | 85 | 130 | 13 | 11 | 1 | 1 | 0 | 0 | 0 | 975 | 100 | 142 | 15 |
| East of England | 935 | 81 | 212 | 18 | 12 | 1 | 1 | 0 | 0 | 0 | 1160 | 100 | 225 | 19 |
| London | 998 | 84 | 170 | 14 | 14 | 1 | 1 | 0 | 0 | 0 | 1183 | 100 | 185 | 16 |
| N East, Yorks & Humber | 1583 | 87 | 217 | 12 | 21 | 1 | 3 | 0 | 0 | 0 | 1824 | 100 | 241 | 13 |
| North West | 1246 | 84 | 225 | 15 | 20 | 1 | 1 | 0 | 0 | 0 | 1492 | 100 | 246 | 16 |
| South East | 1216 | 82 | 249 | 17 | 24 | 2 | 3 | 0 | 0 | 0 | 1492 | 100 | 276 | 18 |
| South West | 1407 | 83 | 259 | 15 | 31 | 2 | 6 | 0 | 0 | 0 | 1703 | 100 | 296 | 17 |
| West Midlands | 928 | 80 | 209 | 18 | 21 | 2 | 1 | 0 | 0 | 0 | 1159 | 100 | 231 | 20 |
| Northern Ireland | 261 | 83 | 50 | 16 | 3 | 1 | 0 | 0 | 0 | 0 | 314 | 100 | 53 | 17 |
| Wales | 549 | 79 | 139 | 20 | 6 | 1 | 1 | 0 | 0 | 0 | 695 | 100 | 146 | 21 |
| **United Kingdom** | **9956** | **83** | **1860** | **16** | **163** | **1** | **18** | **0** | **0** | **0** | **11997** | **100** | **2041** | **17** |

| Table 56: Number of therapeutic operations (non/micro-invasive cancers) with initial BCS and a non-operative diagnosis | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | | 2 | | 3 | | 4+ | | Unknown | | Total cancers | | Repeat 2+ ops | |
| **Sub-region** | **No** | **%** | **No** | **%** | **No** | **%** | **No** | **%** | **No** | **%** | **No** | **%** | **No** | **%** |
| East Midlands | 151 | 79 | 30 | 16 | 8 | 4 | 1 | 1 | 0 | 0 | 190 | 100 | 39 | 21 |
| East of England | 175 | 75 | 50 | 21 | 7 | 3 | 2 | 1 | 0 | 0 | 234 | 100 | 59 | 25 |
| London | 263 | 77 | 71 | 21 | 7 | 2 | 2 | 1 | 0 | 0 | 343 | 100 | 80 | 23 |
| N East, Yorks & Humber | 297 | 79 | 72 | 19 | 6 | 2 | 0 | 0 | 0 | 0 | 375 | 100 | 78 | 21 |
| North West | 260 | 78 | 64 | 19 | 10 | 3 | 1 | 0 | 0 | 0 | 335 | 100 | 75 | 22 |
| South East | 253 | 71 | 73 | 21 | 20 | 6 | 8 | 2 | 0 | 0 | 354 | 100 | 101 | 29 |
| South West | 272 | 73 | 84 | 23 | 16 | 4 | 1 | 0 | 0 | 0 | 373 | 100 | 101 | 27 |
| West Midlands | 215 | 78 | 47 | 17 | 14 | 5 | 0 | 0 | 0 | 0 | 276 | 100 | 61 | 22 |
| Northern Ireland | 54 | 82 | 11 | 17 | 1 | 2 | 0 | 0 | 0 | 0 | 66 | 100 | 12 | 18 |
| Wales | 107 | 69 | 43 | 28 | 6 | 4 | 0 | 0 | 0 | 0 | 156 | 100 | 49 | 31 |
| **United Kingdom** | **2047** | **76** | **545** | **20** | **95** | **4** | **15** | **1** | **0** | **0** | **2702** | **100** | **655** | **24** |

| Table 57: Number of therapeutic operations for invasive cancers with B5b (invasive) core biopsy result | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | | 2 | | 3+ | | Unknown | | Total | | Repeat (2+) rate | |
| **Sub-region** | **No.** | **%** | **No.** | **%** | **No.** | **%** | **No.** | **%** | **No.** | **%** | **No.** | **%** |
| East Midlands | 1007 | 88 | 122 | 11 | 11 | 1 | 0 | 0 | 1140 | 100 | 133 | 12 |
| East of England | 1064 | 81 | 237 | 18 | 11 | 1 | 0 | 0 | 1312 | 100 | 248 | 19 |
| London | 1187 | 84 | 203 | 14 | 13 | 1 | 3 | 0 | 1406 | 100 | 216 | 15 |
| N East, Yorks & Humber | 1785 | 88 | 233 | 11 | 19 | 1 | 0 | 0 | 2037 | 100 | 252 | 12 |
| North West | 1472 | 86 | 223 | 13 | 18 | 1 | 0 | 0 | 1713 | 100 | 241 | 14 |
| South East | 1391 | 83 | 256 | 15 | 24 | 1 | 0 | 0 | 1671 | 100 | 280 | 17 |
| South West | 1634 | 86 | 244 | 13 | 33 | 2 | 0 | 0 | 1911 | 100 | 277 | 14 |
| West Midlands | 1090 | 82 | 224 | 17 | 22 | 2 | 0 | 0 | 1336 | 100 | 246 | 18 |
| Northern Ireland | 298 | 87 | 43 | 13 | 3 | 1 | 0 | 0 | 344 | 100 | 46 | 13 |
| Wales | 710 | 84 | 132 | 16 | 6 | 1 | 0 | 0 | 848 | 100 | 138 | 16 |
| **United Kingdom** | **11638** | **85** | **1917** | **14** | **160** | **1** | **3** | **0** | **13718** | **100** | **2077** | **15** |

| Table 58: Number of therapeutic operations for invasive cancers with B5a (non-invasive) core biopsy result | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | | 2 | | 3+ | | Unknown | | Total | | Repeat (2+) rate | |
| **Sub-region** | **No.** | **%** | **No.** | **%** | **No.** | **%** | **No.** | **%** | **No.** | **%** | **No.** | **%** |
| East Midlands | 15 | 37 | 26 | 63 | 0 | 0 | 0 | 0 | 41 | 100 | 26 | 63 |
| East of England | 13 | 30 | 29 | 66 | 2 | 5 | 0 | 0 | 44 | 100 | 31 | 70 |
| London | 34 | 52 | 29 | 45 | 2 | 3 | 0 | 0 | 65 | 100 | 31 | 48 |
| N East, Yorks & Humber | 27 | 44 | 29 | 48 | 5 | 8 | 0 | 0 | 61 | 100 | 34 | 56 |
| North West | 27 | 39 | 40 | 57 | 3 | 4 | 0 | 0 | 70 | 100 | 43 | 61 |
| South East | 21 | 44 | 24 | 50 | 3 | 6 | 0 | 0 | 48 | 100 | 27 | 56 |
| South West | 25 | 37 | 37 | 54 | 6 | 9 | 0 | 0 | 68 | 100 | 43 | 63 |
| West Midlands | 20 | 49 | 21 | 51 | 0 | 0 | 0 | 0 | 41 | 100 | 21 | 51 |
| Northern Ireland | 8 | 47 | 9 | 53 | 0 | 0 | 0 | 0 | 17 | 100 | 9 | 53 |
| Wales | 17 | 40 | 25 | 58 | 1 | 2 | 0 | 0 | 43 | 100 | 26 | 60 |
| **United Kingdom** | **207** | **42** | **269** | **54** | **22** | **4** | **0** | **0** | **498** | **100** | **291** | **58** |

| Table 59: Number of therapeutic operations for non-invasive or micro-invasive cancers with B5a (non-invasive) core biopsy result | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | | 2 | | 3+ | | Unknown | | Total | | Repeat (2+) rate | |
| **Sub-region** | **No.** | **%** | **No.** | **%** | **No.** | **%** | **No.** | **%** | **No.** | **%** | **No.** | **%** |
| East Midlands | 203 | 83 | 33 | 13 | 9 | 4 | 0 | 0 | 245 | 100 | 42 | 17 |
| East of England | 221 | 77 | 57 | 20 | 9 | 3 | 0 | 0 | 287 | 100 | 66 | 23 |
| London | 331 | 78 | 84 | 20 | 9 | 2 | 2 | 0 | 426 | 100 | 93 | 22 |
| N East, Yorks & Humber | 369 | 79 | 90 | 19 | 6 | 1 | 0 | 0 | 465 | 100 | 96 | 21 |
| North West | 349 | 82 | 66 | 15 | 11 | 3 | 0 | 0 | 426 | 100 | 77 | 18 |
| South East | 322 | 75 | 82 | 19 | 28 | 6 | 0 | 0 | 432 | 100 | 110 | 25 |
| South West | 354 | 78 | 87 | 19 | 15 | 3 | 0 | 0 | 456 | 100 | 102 | 22 |
| West Midlands | 262 | 78 | 61 | 18 | 14 | 4 | 0 | 0 | 337 | 100 | 75 | 22 |
| Northern Ireland | 67 | 85 | 11 | 14 | 1 | 1 | 0 | 0 | 79 | 100 | 12 | 15 |
| Wales | 172 | 77 | 47 | 21 | 5 | 2 | 0 | 0 | 224 | 100 | 52 | 23 |
| **United Kingdom** | **2650** | **78** | **618** | **18** | **107** | **3** | **2** | **0** | **3377** | **100** | **725** | **21** |

| Table 60: Repeat BCS (all cancers) with initial BCS and a non-operative diagnosis | | | |
|---|---|---|---|
| Sub-region | All cancers with initial BCS (with non-op diagnosis) | Repeat BCS | |
| | | No | % |
| East Midlands | 1165 | 109 | 9 |
| East of England | 1395 | 162 | 12 |
| London | 1526 | 183 | 12 |
| N East, Yorks & Humber | 2199 | 199 | 9 |
| North West | 1828 | 187 | 10 |
| South East | 1846 | 246 | 13 |
| South West | 2076 | 291 | 14 |
| West Midlands | 1435 | 206 | 14 |
| Northern Ireland | 380 | 36 | 9 |
| Wales | 851 | 122 | 14 |
| **United Kingdom** | **14701** | **1741** | **12** |

| Table 61: Converted to mastectomy (all cancers) with initial BCS and a non-operative diagnosis | | | |
|---|---|---|---|
| Sub-region | All cancers with initial BCS (with non-op diagnosis) | Converted to Mx | |
| | | No | % |
| East Midlands | 1165 | 36 | 3 |
| East of England | 1395 | 58 | 4 |
| London | 1526 | 38 | 2 |
| N East, Yorks & Humber | 2199 | 61 | 3 |
| North West | 1828 | 69 | 4 |
| South East | 1846 | 80 | 4 |
| South West | 2076 | 60 | 3 |
| West Midlands | 1435 | 44 | 3 |
| Northern Ireland | 380 | 14 | 4 |
| Wales | 851 | 34 | 4 |
| **United Kingdom** | **14701** | **494** | **3** |

| Table 62: Data completeness of margin information | | | | |
|---|---|---|---|---|
| Sub-region | Total cases with surgery to the breast | Complete margin data | % complete margin data | Not complete margin data |
| East Midlands | 1451 | 1321 | 91 | 130 |
| East of England | 1657 | 1589 | 96 | 68 |
| London | 1866 | 1803 | 97 | 63 |
| N East, Yorks & Humber | 2561 | 2527 | 99 | 34 |
| North West | 2193 | 2140 | 98 | 53 |
| South East | 2202 | 2080 | 94 | 122 |
| South West | 2509 | 2443 | 97 | 66 |
| West Midlands | 1722 | 1691 | 98 | 31 |
| Northern Ireland | 449 | 440 | 98 | 9 |
| Wales | 1151 | 1024 | 89 | 127 |
| **United Kingdom** | **17761** | **17057** | **96** | **704** |

| Table 63: Margin information of final operations for cases treated by BCS | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Total cases with | Margin clear | | Margin not clear | | Margin unknown | |
| Sub-region | surgery | No. | % | No. | % | No. | % |
| East Midlands | 1146 | 1141 | 100 | 3 | 0 | 2 | 0 |
| East of England | 1350 | 1326 | 98 | 23 | 2 | 1 | 0 |
| London | 1481 | 1476 | 100 | 5 | 0 | 0 | 0 |
| N East, Yorks & Humber | 2125 | 2097 | 99 | 24 | 1 | 4 | 0 |
| North West | 1745 | 1713 | 98 | 31 | 2 | 1 | 0 |
| South East | 1818 | 1788 | 98 | 29 | 2 | 1 | 0 |
| South West | 2081 | 2042 | 98 | 32 | 2 | 7 | 0 |
| West Midlands | 1392 | 1373 | 99 | 19 | 1 | 0 | 0 |
| Northern Ireland | 369 | 361 | 98 | 8 | 2 | 0 | 0 |
| Wales | 852 | 840 | 99 | 12 | 1 | 0 | 0 |
| **United Kingdom** | **14359** | **14157** | **99** | **186** | **1** | **16** | **0** |

| Table 64: Margin information of final operations for cases treated by mastectomy | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Total cases with | Margin clear | | Margin not clear | | Margin unknown | |
| Sub-region | surgery | No. | % | No. | % | No. | % |
| East Midlands | 305 | 289 | 95 | 10 | 3 | 6 | 2 |
| East of England | 307 | 290 | 94 | 9 | 3 | 8 | 3 |
| London | 385 | 373 | 97 | 9 | 2 | 3 | 1 |
| N East, Yorks & Humber | 436 | 421 | 97 | 9 | 2 | 6 | 1 |
| North West | 448 | 429 | 96 | 15 | 3 | 4 | 1 |
| South East | 384 | 366 | 95 | 13 | 3 | 5 | 1 |
| South West | 428 | 408 | 95 | 18 | 4 | 2 | 0 |
| West Midlands | 330 | 322 | 98 | 7 | 2 | 1 | 0 |
| Northern Ireland | 80 | 79 | 99 | 1 | 1 | 0 | 0 |
| Wales | 299 | 289 | 97 | 8 | 3 | 2 | 1 |
| **United Kingdom** | **3402** | **3266** | **96** | **99** | **3** | **37** | **1** |

| Table 65: Axillary ultrasound record for invasive cancers | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Had axillary ultrasound | | Did not have axillary ultrasound | | Unknown | | Total |
| Sub-region | No. | % | No. | % | No. | % | |
| East Midlands | 1220 | 100 | 3 | 0 | 0 | 0 | 1223 |
| East of England | 1374 | 97 | 34 | 2 | 6 | 0 | 1414 |
| London | 1555 | 99 | 12 | 1 | 4 | 0 | 1571 |
| N East, Yorks & Humber | 2131 | 99 | 26 | 1 | 0 | 0 | 2157 |
| North West | 1827 | 99 | 16 | 1 | 0 | 0 | 1843 |
| South East | 1777 | 100 | 2 | 0 | 0 | 0 | 1779 |
| South West | 2031 | 99 | 21 | 1 | 0 | 0 | 2052 |
| West Midlands | 1406 | 100 | 7 | 0 | 0 | 0 | 1413 |
| Northern Ireland | 361 | 99 | 5 | 1 | 0 | 0 | 366 |
| Wales | 868 | 94 | 54 | 6 | 0 | 0 | 922 |
| **United Kingdom** | **14550** | **99** | **180** | **1** | **10** | **0** | **14740** |

| Table 66: Axillary ultrasound result for invasive cancers | | | | | |
|---|---|---|---|---|---|
| | Normal | | Abnormal | | Total |
| Sub-region | No. | % | No. | % | |
| East Midlands | 1019 | 84 | 201 | 16 | 1220 |
| East of England | 1166 | 85 | 208 | 15 | 1374 |
| London | 1267 | 81 | 288 | 19 | 1555 |
| N East, Yorks & Humber | 1713 | 80 | 418 | 20 | 2131 |
| North West | 1548 | 85 | 279 | 15 | 1827 |
| South East | 1586 | 89 | 191 | 11 | 1777 |
| South West | 1752 | 86 | 279 | 14 | 2031 |
| West Midlands | 1197 | 85 | 209 | 15 | 1406 |
| Northern Ireland | 278 | 77 | 83 | 23 | 361 |
| Wales | 710 | 82 | 158 | 18 | 868 |
| **United Kingdom** | **12236** | **84** | **2314** | **16** | **14550** |

| Table 67: Axillary biopsy for invasive cancers with an abnormal axillary ultrasound result | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Had axillary biopsy | | Did not have axillary biopsy | | Unknown | | Total |
| Sub-region | No. | % | No. | % | No. | % | |
| East Midlands | 195 | 97 | 6 | 3 | 0 | 0 | 201 |
| East of England | 203 | 98 | 5 | 2 | 0 | 0 | 208 |
| London | 275 | 95 | 13 | 5 | 0 | 0 | 288 |
| N East, Yorks & Humber | 408 | 98 | 10 | 2 | 0 | 0 | 418 |
| North West | 271 | 97 | 8 | 3 | 0 | 0 | 279 |
| South East | 175 | 92 | 16 | 8 | 0 | 0 | 191 |
| South West | 275 | 99 | 4 | 1 | 0 | 0 | 279 |
| West Midlands | 204 | 98 | 5 | 2 | 0 | 0 | 209 |
| Northern Ireland | 71 | 86 | 12 | 14 | 0 | 0 | 83 |
| Wales | 156 | 99 | 2 | 1 | 0 | 0 | 158 |
| **United Kingdom** | **2233** | **96** | **81** | **4** | **0** | **0** | **2314** |

| Table 68: Worst axillary biopsy result for invasive cancer cases with an abnormal axillary ultrasound result | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | C1/B1 | | C2/B2 | | C3/B3 | | C4/B4 | | C5/B5 | | Total |
| Sub-region | No. | % | No. | % | No. | % | No. | % | No. | % | |
| East Midlands | 14 | 7 | 80 | 41 | 0 | 0 | 0 | 0 | 101 | 52 | 195 |
| East of England | 15 | 7 | 93 | 46 | 1 | 0 | 1 | 0 | 93 | 46 | 203 |
| London | 12 | 4 | 129 | 47 | 4 | 1 | 4 | 1 | 126 | 46 | 275 |
| N East, Yorks & Humber | 22 | 5 | 206 | 50 | 4 | 1 | 7 | 2 | 169 | 41 | 408 |
| North West | 12 | 4 | 138 | 51 | 1 | 0 | 5 | 2 | 115 | 42 | 271 |
| South East | 16 | 9 | 64 | 37 | 0 | 0 | 2 | 1 | 93 | 53 | 175 |
| South West | 39 | 14 | 111 | 40 | 0 | 0 | 3 | 1 | 122 | 44 | 275 |
| West Midlands | 16 | 8 | 93 | 46 | 3 | 1 | 0 | 0 | 92 | 45 | 204 |
| Northern Ireland | 4 | 6 | 45 | 63 | 1 | 1 | 2 | 3 | 19 | 27 | 71 |
| Wales | 7 | 4 | 82 | 53 | 3 | 2 | 0 | 0 | 64 | 41 | 156 |
| **United Kingdom** | **157** | **7** | **1041** | **47** | **17** | **1** | **24** | **1** | **994** | **45** | **2233** |

| Table 69: Worst axillary biopsy result for invasive cancer cases with a normal axillary ultrasound result | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Sub-region** | **C1/B1** | | **C2/B2** | | **C3/B3** | | **C4/B4** | | **C5/B5** | | **Total** |
| | **No.** | **%** | **No.** | **%** | **No.** | **%** | **No.** | **%** | **No.** | **%** | |
| East Midlands | 2 | 50 | 1 | 25 | 0 | 0 | 0 | 0 | 1 | 25 | 4 |
| East of England | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| London | 0 | 0 | 6 | 86 | 0 | 0 | 0 | 0 | 1 | 14 | 7 |
| N East, Yorks & Humber | 1 | 13 | 6 | 75 | 0 | 0 | 1 | 13 | 0 | 0 | 8 |
| North West | 0 | 0 | 1 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| South East | 0 | 0 | 3 | 50 | 1 | 17 | 0 | 0 | 2 | 33 | 6 |
| South West | 3 | 30 | 3 | 30 | 1 | 10 | 0 | 0 | 3 | 30 | 10 |
| West Midlands | 0 | 0 | 1 | 33 | 0 | 0 | 0 | 0 | 2 | 67 | 3 |
| Northern Ireland | 2 | 11 | 12 | 63 | 0 | 0 | 1 | 5 | 4 | 21 | 19 |
| Wales | 0 | 0 | 2 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| **United Kingdom** | **8** | **13** | **35** | **58** | **2** | **3** | **2** | **3** | **13** | **22** | **60** |

| Table 70: Positive predictive value of the axillary biopsy results for invasive cancers with an abnormal or normal axillary ultrasound result | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Sub-region** | **C1/B1** | | **C2/B2** | | **C3/B3** | | **C4/B4** | | **C5/B5** | |
| | **No.** | **%** | **No.** | **%** | **No.** | **%** | **No.** | **%** | **No.** | **%** |
| East Midlands | 4 | 31 | 6 | 8 | 0 | - | 0 | - | 66 | 97 |
| East of England | 2 | 18 | 16 | 21 | 0 | 0 | 0 | - | 50 | 96 |
| London | 4 | 44 | 24 | 21 | 1 | 33 | 3 | 75 | 58 | 97 |
| N East, Yorks & Humber | 7 | 37 | 34 | 17 | 1 | 50 | 5 | 71 | 127 | 99 |
| North West | 1 | 10 | 21 | 17 | 0 | 0 | 4 | 100 | 72 | 96 |
| South East | 5 | 36 | 10 | 18 | 1 | 100 | 2 | 100 | 44 | 94 |
| South West | 11 | 31 | 24 | 24 | 0 | 0 | 2 | 100 | 61 | 91 |
| West Midlands | 5 | 31 | 11 | 13 | 0 | 0 | 0 | - | 57 | 100 |
| Northern Ireland | 2 | 40 | 11 | 20 | 0 | 0 | 1 | 50 | 16 | 76 |
| Wales | 3 | 50 | 15 | 19 | 1 | 50 | 0 | - | 55 | 98 |
| **United Kingdom** | **44** | **32** | **172** | **18** | **4** | **29** | **17** | **81** | **606** | **96** |

*Excluded cases with neo-adjuvant therapy.

| Table 71: Positive predictivity for invasive cancers with positive nodal status* | | | |
|---|---|---|---|
| **Sub-region** | **Total with positive nodal status** | **Had positive pre-op ax assessment** | |
| | | **No** | **%** |
| East Midlands | 214 | 66 | 31 |
| East of England | 225 | 51 | 23 |
| London | 250 | 58 | 23 |
| N East, Yorks & Humber | 379 | 127 | 34 |
| North West | 308 | 72 | 23 |
| South East | 301 | 44 | 15 |
| South West | 350 | 61 | 17 |
| West Midlands | 228 | 57 | 25 |
| Northern Ireland | 64 | 16 | 25 |
| Wales | 195 | 55 | 28 |
| **United Kingdom** | **2319** | **607** | **26** |

*Excluded cases with neo-adjuvant therapy.

| Table 72: Nodal positivity for invasive cancers without neo-adjuvant therapy and without/with unknown pre-op axillary assessment | | | |
|---|---|---|---|
| Sub-region | Total without/unknown pre-op ax | Positive nodal status | |
| | | No | % |
| East Midlands | 978 | 138 | 14 |
| East of England | 1108 | 156 | 14 |
| London | 1141 | 160 | 14 |
| N East, Yorks & Humber | 1657 | 205 | 12 |
| North West | 1450 | 210 | 14 |
| South East | 1493 | 239 | 16 |
| South West | 1646 | 252 | 15 |
| West Midlands | 1122 | 155 | 14 |
| Northern Ireland | 264 | 34 | 13 |
| Wales | 721 | 121 | 17 |
| **United Kingdom** | **11580** | **1670** | **14** |

*Excluded cases with neo-adjuvant therapy.

| Table 73: Axillary biopsy results for invasive cancers with positive nodal status | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sub-region | C1/B1 | | C2/B2 | | C3/B3 | | C4/B4 | | C5/B5 | | Invasive cases with positive nodal status |
| | No. | % | No. | % | No. | % | No. | % | No. | % | |
| East Midlands | 4 | 2 | 6 | 3 | 0 | 0 | 0 | 0 | 66 | 31 | 214 |
| East of England | 2 | 1 | 16 | 7 | 0 | 0 | 0 | 0 | 51 | 23 | 225 |
| London | 4 | 2 | 24 | 10 | 1 | 0 | 3 | 1 | 58 | 23 | 250 |
| N East, Yorks & Humber | 7 | 2 | 34 | 9 | 1 | 0 | 5 | 1 | 127 | 34 | 379 |
| North West | 1 | 0 | 21 | 7 | 0 | 0 | 4 | 1 | 72 | 23 | 308 |
| South East | 5 | 2 | 10 | 3 | 1 | 0 | 2 | 1 | 44 | 15 | 301 |
| South West | 11 | 3 | 24 | 7 | 0 | 0 | 2 | 1 | 61 | 17 | 350 |
| West Midlands | 5 | 2 | 11 | 5 | 0 | 0 | 0 | 0 | 57 | 25 | 228 |
| Northern Ireland | 2 | 3 | 11 | 17 | 0 | 0 | 1 | 2 | 16 | 25 | 64 |
| Wales | 3 | 2 | 15 | 8 | 1 | 1 | 0 | 0 | 55 | 28 | 195 |
| **United Kingdom** | **44** | **2** | **172** | **7** | **4** | **0** | **17** | **1** | **607** | **24** | **2514** |

| Table 74: Availability of lymph node status for surgically treated invasive cancers | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Sub-region | Total invasive cancers with surgery | Nodal status known | | Nodes obtained but status unknown | | No nodes obtained | | Unknown if nodes obtained | |
| | | No. | % | No. | % | No. | % | No. | % |
| East Midlands | 1198 | 1192 | 99 | 0 | 0 | 6 | 1 | 0 | 0 |
| East of England | 1375 | 1368 | 99 | 0 | 0 | 7 | 1 | 0 | 0 |
| London | 1485 | 1455 | 98 | 1 | 0 | 25 | 2 | 4 | 0 |
| N East, Yorks & Humber | 2120 | 2102 | 99 | 0 | 0 | 18 | 1 | 0 | 0 |
| North West | 1801 | 1788 | 99 | 0 | 0 | 12 | 1 | 1 | 0 |
| South East | 1737 | 1714 | 99 | 0 | 0 | 23 | 1 | 0 | 0 |
| South West | 2005 | 1985 | 99 | 0 | 0 | 20 | 1 | 0 | 0 |
| West Midlands | 1388 | 1380 | 99 | 0 | 0 | 8 | 1 | 0 | 0 |
| Northern Ireland | 364 | 356 | 98 | 0 | 0 | 8 | 2 | 0 | 0 |
| Wales | 903 | 884 | 98 | 0 | 0 | 19 | 2 | 0 | 0 |
| **United Kingdom** | **14376** | **14224** | **99** | **1** | **0** | **146** | **1** | **5** | **0.0** |

| Table 75: Sentinel lymph node procedure for invasive cancers with axillary surgery | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | With SLNB | | Without SLNB | | Unknown nodal procedure type | | Total | |
| Sub-region | No. | % | No. | % | No. | % | No. | % |
| East Midlands | 1065 | 89 | 127 | 11 | 0 | 0 | 1192 | 100 |
| East of England | 1254 | 92 | 114 | 8 | 0 | 0 | 1368 | 100 |
| London | 1341 | 92 | 115 | 8 | 0 | 0 | 1456 | 100 |
| N East, Yorks & Humber | 1902 | 90 | 202 | 10 | 0 | 0 | 2104 | 100 |
| North West | 1648 | 92 | 143 | 8 | 0 | 0 | 1791 | 100 |
| South East | 1578 | 92 | 140 | 8 | 0 | 0 | 1718 | 100 |
| South West | 1833 | 92 | 155 | 8 | 0 | 0 | 1988 | 100 |
| West Midlands | 1272 | 92 | 109 | 8 | 0 | 0 | 1381 | 100 |
| Northern Ireland | 321 | 90 | 35 | 10 | 0 | 0 | 356 | 100 |
| Wales | 796 | 90 | 90 | 10 | 0 | 0 | 886 | 100 |
| **United Kingdom** | **13010** | **91** | **1230** | **9** | **0** | **0** | **14240** | **100** |

| Table 76: Nodal status of invasive cancers with known status | | | | | |
|---|---|---|---|---|---|
| | Total known nodal status | Positive | | Negative | |
| Sub-region | | No. | % | No. | % |
| East Midlands | 1192 | 237 | 20 | 955 | 80 |
| East of England | 1368 | 264 | 19 | 1104 | 81 |
| London | 1455 | 293 | 20 | 1162 | 80 |
| N East, Yorks & Humber | 2102 | 404 | 19 | 1698 | 81 |
| North West | 1788 | 348 | 19 | 1440 | 81 |
| South East | 1714 | 340 | 20 | 1374 | 80 |
| South West | 1985 | 401 | 20 | 1584 | 80 |
| West Midlands | 1380 | 250 | 18 | 1130 | 82 |
| Northern Ireland | 356 | 65 | 18 | 291 | 82 |
| Wales | 884 | 204 | 23 | 680 | 77 |
| **United Kingdom** | **14224** | **2806** | **20** | **11418** | **80** |

| Table 77: Number of nodes taken for invasive cases without SLNB/ with unknown nodal procedure type | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Total with axillary surgery | 0 node obtained | | 1,2,3 nodes obtained | | ≥4nodes obtained | | Unknown | |
| Sub-region | | No. | % | No. | % | No. | % | No. | % |
| East Midlands | 127 | 0 | 0 | 3 | 2 | 124 | 98 | 0 | 0 |
| East of England | 114 | 0 | 0 | 8 | 7 | 106 | 93 | 0 | 0 |
| London | 115 | 0 | 0 | 5 | 4 | 110 | 96 | 0 | 0 |
| N East, Yorks & Humber | 202 | 1 | 0 | 14 | 7 | 187 | 93 | 0 | 0 |
| North West | 143 | 0 | 0 | 5 | 3 | 137 | 96 | 1 | 1 |
| South East | 140 | 3 | 2 | 5 | 4 | 132 | 94 | 0 | 0 |
| South West | 155 | 1 | 1 | 11 | 7 | 143 | 92 | 0 | 0 |
| West Midlands | 109 | 1 | 1 | 8 | 7 | 100 | 92 | 0 | 0 |
| Northern Ireland | 35 | 0 | 0 | 5 | 14 | 30 | 86 | 0 | 0 |
| Wales | 90 | 1 | 1 | 5 | 6 | 84 | 93 | 0 | 0 |
| **United Kingdom** | **1230** | **7** | **1** | **69** | **6** | **1153** | **94** | **1** | **0** |

| Table 78: Nodal status of invasive cancers with/without SLNB | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | With SLNB | | | | Without SLNB | | | |
| | Positive | | Negative | | Positive | | Negative | |
| Sub-region | No. | % | No. | % | No. | % | No. | % |
| East Midlands | 150 | 14 | 915 | 86 | 87 | 69 | 40 | 31 |
| East of England | 187 | 15 | 1067 | 85 | 77 | 68 | 37 | 32 |
| London | 203 | 15 | 1135 | 85 | 90 | 78 | 27 | 23 |
| N East, Yorks & Humber | 256 | 13 | 1645 | 86 | 148 | 73 | 53 | 26 |
| North West | 242 | 15 | 1404 | 85 | 106 | 74 | 36 | 25 |
| South East | 250 | 16 | 1327 | 84 | 90 | 64 | 47 | 34 |
| South West | 284 | 15 | 1547 | 84 | 117 | 75 | 37 | 24 |
| West Midlands | 178 | 14 | 1094 | 86 | 72 | 66 | 36 | 33 |
| Northern Ireland | 45 | 14 | 276 | 86 | 20 | 57 | 15 | 43 |
| Wales | 133 | 17 | 662 | 83 | 71 | 79 | 18 | 20 |
| **United Kingdom** | **1928** | **15** | **11072** | **85** | **878** | **71** | **346** | **28** |

| Table 79: Number of nodes obtained for invasive cancers with positive nodal status determined from SLNB | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1-<4 nodes obtained | | | | | 4+ nodes obtained | | | | |
| | 1 Ax op | | 2+ Ax ops | | Total | 1 Ax op | | 2+ Ax ops | | Total |
| Sub-region | No. | % | No. | % | | No. | % | No. | % | |
| East Midlands | 78 | 99 | 1 | 1 | 79 | 33 | 46 | 38 | 54 | 71 |
| East of England | 54 | 100 | 0 | 0 | 54 | 32 | 24 | 101 | 76 | 133 |
| London | 93 | 100 | 0 | 0 | 93 | 36 | 33 | 74 | 67 | 110 |
| N East, Yorks & Humber | 113 | 100 | 0 | 0 | 113 | 60 | 42 | 83 | 58 | 143 |
| North West | 125 | 100 | 0 | 0 | 125 | 35 | 30 | 82 | 70 | 117 |
| South East | 110 | 100 | 0 | 0 | 110 | 63 | 45 | 77 | 55 | 140 |
| South West | 135 | 99 | 1 | 1 | 136 | 92 | 62 | 56 | 38 | 148 |
| West Midlands | 75 | 100 | 0 | 0 | 75 | 29 | 28 | 74 | 72 | 103 |
| Northern Ireland | 14 | 100 | 0 | 0 | 14 | 10 | 32 | 21 | 68 | 31 |
| Wales | 62 | 100 | 0 | 0 | 62 | 19 | 27 | 52 | 73 | 71 |
| **United Kingdom** | **859** | **100** | **2** | **0** | **861** | **409** | **38** | **658** | **62** | **1067** |

| Table 80: Status of invasive cases with <4 nodes obtained | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total with nodes obtained | Nodal status determined on basis of <4 nodes | | Positive sentinel procedure(s) | | Positive (Other) | | Negative sentinel procedure(s) | | Negative (Other) | | Unknown status | |
| Sub-region | | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % |
| East Midlands | 1192 | 892 | 74.8 | 79 | 6.6 | 1 | 0.1 | 810 | 68 | 2 | 0.2 | 0 | 0 |
| East of England | 1368 | 939 | 68.6 | 54 | 3.9 | 0 | 0.0 | 877 | 64 | 8 | 0.6 | 0 | 0 |
| London | 1456 | 1098 | 75.4 | 93 | 6.4 | 2 | 0.1 | 997 | 68 | 5 | 0.3 | 1 | 0 |
| N East, Yorks & Humber | 2102 | 1540 | 73.3 | 113 | 5.4 | 3 | 0.1 | 1413 | 67 | 11 | 0.5 | 0 | 0 |
| North West | 1788 | 1360 | 76.1 | 125 | 7.0 | 0 | 0.0 | 1230 | 69 | 5 | 0.3 | 0 | 0 |
| South East | 1714 | 1271 | 74.2 | 110 | 6.4 | 0 | 0.0 | 1156 | 67 | 5 | 0.3 | 0 | 0 |
| South West | 1985 | 1532 | 77.2 | 136 | 6.9 | 2 | 0.1 | 1385 | 70 | 9 | 0.5 | 0 | 0 |
| West Midlands | 1380 | 1039 | 75.3 | 75 | 5.4 | 0 | 0.0 | 956 | 69 | 8 | 0.6 | 0 | 0 |
| Northern Ireland | 356 | 257 | 72.2 | 14 | 3.9 | 0 | 0.0 | 238 | 67 | 5 | 1.4 | 0 | 0 |
| Wales | 884 | 656 | 74.2 | 62 | 7.0 | 2 | 0.2 | 589 | 67 | 3 | 0.3 | 0 | 0 |
| **United Kingdom** | **14225** | **10584** | **74** | **861** | **6.1** | **10** | **0.1** | **9651** | **68** | **61** | **0.4** | **1** | **0** |

| Table 81: Availability of lymph node status for surgically treated non-invasive cancers | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Total non-invasive cancers | Nodal status known | | Nodes obtained but status unknown | | No nodes obtained | | Unknown if nodes obtained | |
| Sub-region | | No. | % | No. | % | No. | % | No. | % |
| East Midlands | 269 | 66 | 25 | 0 | 0 | 203 | 75 | 0 | 0 |
| East of England | 303 | 77 | 25 | 0 | 0 | 226 | 75 | 0 | 0 |
| London | 469 | 115 | 25 | 0 | 0 | 352 | 75 | 2 | 0 |
| N East, Yorks & Humber | 487 | 117 | 24 | 0 | 0 | 370 | 76 | 0 | 0 |
| North West | 439 | 120 | 27 | 0 | 0 | 319 | 73 | 0 | 0 |
| South East | 485 | 104 | 21 | 0 | 0 | 381 | 79 | 0 | 0 |
| South West | 532 | 120 | 23 | 0 | 0 | 412 | 77 | 0 | 0 |
| West Midlands | 359 | 90 | 25 | 0 | 0 | 269 | 75 | 0 | 0 |
| Northern Ireland | 88 | 24 | 27 | 0 | 0 | 64 | 73 | 0 | 0 |
| Wales | 256 | 83 | 32 | 0 | 0 | 173 | 68 | 0 | 0 |
| **United Kingdom** | **3687** | **916** | **25** | **0** | **0** | **2769** | **75** | **2** | **0** |

| Table 82: Treatment for non-invasive cancers with known nodal status | | | | | | |
|---|---|---|---|---|---|---|
| | Conservation with known nodal status | | Total Conservation | Mastectomy with known nodal status | | Total mastectomy |
| Sub-region | No. | % | | No. | % | |
| East Midlands | 8 | 4 | 195 | 58 | 78 | 74 |
| East of England | 18 | 8 | 229 | 59 | 80 | 74 |
| London | 23 | 6 | 367 | 92 | 92 | 100 |
| N East, Yorks & Humber | 13 | 3 | 377 | 104 | 95 | 110 |
| North West | 13 | 4 | 324 | 107 | 93 | 115 |
| South East | 11 | 3 | 379 | 93 | 88 | 106 |
| South West | 19 | 4 | 428 | 101 | 97 | 104 |
| West Midlands | 13 | 5 | 279 | 77 | 96 | 80 |
| Northern Ireland | 5 | 7 | 68 | 19 | 95 | 20 |
| Wales | 9 | 5 | 176 | 74 | 93 | 80 |
| **United Kingdom** | **132** | **5** | **2822** | **784** | **91** | **863** |

| Table 83: Nodal status of non-invasive cancers | | | | | |
|---|---|---|---|---|---|
| | Total known nodal status | Positive | | Negative | |
| Sub-region | | No. | % | No. | % |
| East Midlands | 66 | 1 | 2 | 65 | 98 |
| East of England | 77 | 2 | 3 | 75 | 97 |
| London | 115 | 2 | 2 | 113 | 98 |
| N East, Yorks & Humber | 117 | 0 | 0 | 117 | 100 |
| North West | 120 | 1 | 1 | 119 | 99 |
| South East | 104 | 4 | 4 | 100 | 96 |
| South West | 120 | 3 | 3 | 117 | 98 |
| West Midlands | 90 | 1 | 1 | 89 | 99 |
| Northern Ireland | 24 | 0 | 0 | 24 | 100 |
| Wales | 83 | 0 | 0 | 83 | 100 |
| **United Kingdom** | **916** | **14** | **2** | **902** | **98** |

| Table 84: Sentinel lymph node procedure for non-invasive cancers with a mastectomy and known nodal status | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | With SLNB | | Without SLNB | | | | | | | | Total with mastectomy | Total known nodal status | % determined on basis of SLNB |
| | | | Ax sampling | | Ax clearance | | Unknown procedure | | No intended Ax procedure | | | | |
| Sub-region | No. | % | No. | % | No. | % | No. | % | No. | % | | | |
| East Midlands | 54 | 73 | 4 | 5 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 74 | 58 | 93 |
| East of England | 57 | 77 | 1 | 1 | 0 | 0.0 | 0 | 0.0 | 1 | 1.4 | 74 | 59 | 97 |
| London | 91 | 91 | 0 | 0 | 1 | 1.0 | 0 | 0.0 | 0 | 0.0 | 100 | 92 | 99 |
| N East, Yorks & Humber | 102 | 93 | 2 | 2 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 110 | 104 | 98 |
| North West | 104 | 90 | 2 | 2 | 1 | 0.9 | 0 | 0.0 | 0 | 0.0 | 115 | 107 | 97 |
| South East | 91 | 86 | 0 | 0 | 2 | 1.9 | 0 | 0.0 | 0 | 0.0 | 106 | 93 | 98 |
| South West | 99 | 95 | 1 | 1 | 0 | 0.0 | 0 | 0.0 | 1 | 1.0 | 104 | 101 | 98 |
| West Midlands | 77 | 96 | 0 | 0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 80 | 77 | 100 |
| Northern Ireland | 17 | 85 | 1 | 5 | 1 | 5.0 | 0 | 0.0 | 0 | 0.0 | 20 | 19 | 89 |
| Wales | 70 | 88 | 0 | 0 | 3 | 3.8 | 0 | 0.0 | 1 | 1.3 | 80 | 74 | 95 |
| **United Kingdom** | **762** | **88** | **11** | **1** | **8** | **0.9** | **0** | **0.0** | **3** | **0.3** | **863** | **784** | **97** |

| Table 85: Sentinel lymph node procedure for non-invasive cancers with BCS and known nodal status | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | With SLNB | | Without SLNB | | | | | | | | Total with BCS | Total known nodal status | % determined on basis of SLNB |
| | | | Ax sampling | | Ax clearance | | Unknown procedure | | No intended Ax procedure | | | | |
| Sub-region | No. | % | No. | % | No. | % | No. | % | No. | % | | | |
| East Midlands | 8 | 4 | 0 | 0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 195 | 8 | 100 |
| East of England | 16 | 7 | 0 | 0 | 0 | 0.0 | 0 | 0.0 | 2 | 0.9 | 229 | 18 | 89 |
| London | 23 | 6 | 0 | 0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 367 | 23 | 100 |
| N East, Yorks & Humber | 13 | 3 | 0 | 0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 377 | 13 | 100 |
| North West | 13 | 4 | 0 | 0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 324 | 13 | 100 |
| South East | 10 | 3 | 1 | 0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 379 | 11 | 91 |
| South West | 19 | 4 | 0 | 0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 428 | 19 | 100 |
| West Midlands | 13 | 5 | 0 | 0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 279 | 13 | 100 |
| Northern Ireland | 5 | 7 | 0 | 0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 68 | 5 | 100 |
| Wales | 7 | 4 | 0 | 0 | 0 | 0.0 | 0 | 0.0 | 2 | 1.1 | 176 | 9 | 78 |
| **United Kingdom** | **127** | **5** | **1** | **0** | **0** | **0.0** | **0** | **0.0** | **4** | **0.1** | **2822** | **132** | **96** |

| Table 86: Mean, median & maximum number of nodes obtained (non-invasive cancers) | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Total known nodal status | Conservation | | | Mastectomy | | |
| Sub-region | | Mean | Median | Maximum | Mean | Median | Maximum |
| East Midlands | 66 | 2 | 2 | 3 | 2 | 2 | 8 |
| East of England | 77 | 2 | 2 | 8 | 2 | 2 | 7 |
| London | 115 | 2 | 2 | 7 | 3 | 2 | 9 |
| N East, Yorks & Humber | 117 | 2 | 2 | 4 | 2 | 2 | 6 |
| North West | 120 | 2 | 2 | 4 | 2 | 2 | 9 |
| South East | 104 | 2 | 2 | 3 | 2 | 2 | 10 |
| South West | 120 | 2 | 2 | 3 | 3 | 2 | 7 |
| West Midlands | 90 | 2 | 2 | 4 | 2 | 2 | 18 |
| Northern Ireland | 24 | 2 | 2 | 3 | 2 | 2 | 6 |
| Wales | 83 | 2 | 2 | 4 | 2 | 2 | 11 |
| **United Kingdom** | **916** | **2** | **2** | **8** | **2** | **2** | **18** |

**Table 87: Proportion of invasive cancers with axillary surgery at the first and later operation (excluding no surgery/unknown surgery cases)**

| | B5b | | | | | | C5 only | | | | | | B5a | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total B5b | % had Ax | Ax in 1st op | | Ax in later op | | Total C5 | % had Ax | Ax in 1st op | | Ax in later op | | Total B5a | % had Ax | Ax in 1st op | | Ax in later op | |
| **Sub-region** | **No.** | **%** | **No.** | **%** | **No.** | **%** | **No.** | **%** | **No.** | **%** | **No.** | **%** | **No.** | **%** | **No.** | **%** | **No.** | **%** |
| East Midlands | 1140 | 99 | 1134 | 99 | 0 | 0 | 0 | - | 0 | - | 0 | - | 41 | 100 | 17 | 41 | 24 | 41 |
| East of England | 1312 | 100 | 1307 | 100 | 0 | 0 | 0 | - | 0 | - | 0 | - | 44 | 98 | 19 | 43 | 24 | 44 |
| London | 1403 | 99 | 1388 | 99 | 1 | 0 | 0 | - | 0 | - | 0 | - | 65 | 88 | 36 | 55 | 21 | 65 |
| N East, Yorks & Humber | 2037 | 100 | 2033 | 100 | 0 | 0 | 0 | - | 0 | - | 0 | - | 61 | 85 | 25 | 41 | 27 | 61 |
| North West | 1713 | 100 | 1709 | 100 | 0 | 0 | 2 | 100 | 2 | 100 | 0 | 0 | 70 | 93 | 29 | 41 | 36 | 70 |
| South East | 1671 | 99 | 1660 | 99 | 0 | 0 | 0 | - | 0 | - | 0 | - | 48 | 83 | 20 | 42 | 20 | 48 |
| South West | 1911 | 99 | 1901 | 99 | 0 | 0 | 3 | 100 | 3 | 100 | 0 | 0 | 68 | 94 | 32 | 47 | 32 | 68 |
| West Midlands | 1336 | 100 | 1329 | 99 | 2 | 0 | 0 | - | 0 | - | 0 | - | 41 | 98 | 24 | 59 | 16 | 41 |
| Northern Ireland | 344 | 99 | 338 | 98 | 1 | 0 | 1 | 100 | 1 | 100 | 0 | 0 | 17 | 88 | 6 | 35 | 9 | 53 |
| Wales | 848 | 99 | 837 | 99 | 0 | 0 | 0 | - | 0 | - | 0 | - | 43 | 91 | 16 | 37 | 23 | 53 |
| **United Kingdom** | **13715** | **99** | **13636** | **99** | **4** | **0** | **6** | **100** | **6** | **100** | **0** | **0** | **498** | **92** | **224** | **45** | **232** | **47** |

**Table 88: First axillary operation type for invasive cancers with positive nodal status and repeat axillary operations**

| | SLNB at 1st Ax op | | No SLNB at 1st Ax op | | Total node positive invasive | Total with repeat Ax op | % repeat Ax op after SLNB |
|---|---|---|---|---|---|---|---|
| **Sub-region** | **No** | **%** | **No** | **%** | | | |
| East Midlands | 38 | 16 | 1 | 0 | 237 | 39 | 97 |
| East of England | 101 | 38 | 4 | 2 | 264 | 105 | 96 |
| London | 74 | 25 | 1 | 0 | 293 | 75 | 99 |
| N East, Yorks & Humber | 82 | 20 | 4 | 1 | 404 | 86 | 95 |
| North West | 82 | 24 | 1 | 0 | 348 | 83 | 99 |
| South East | 77 | 23 | 1 | 0 | 340 | 78 | 99 |
| South West | 57 | 14 | 1 | 0 | 401 | 58 | 98 |
| West Midlands | 74 | 30 | 0 | 0 | 250 | 74 | 100 |
| Northern Ireland | 21 | 32 | 1 | 2 | 65 | 22 | 95 |
| Wales | 52 | 25 | 0 | 0 | 204 | 52 | 100 |
| **United Kingdom** | **658** | **23** | **14** | **0** | **2806** | **672** | **98** |

# Appendix 3: Adjuvant therapy data tables (89 – 114)

## Adjuvant therapy audit with tumour data from the 2015/2016 audit of screen-detected breast cancers

**Table 89: Number of cases with previous cancers**

| Sub-region | Total submitted cases | Total pt matched | % matched | Had previous cancers | | No previous cancers | |
|---|---|---|---|---|---|---|---|
| | | | | No. | % | No. | % |
| East Midlands | 1678 | 1677 | 100 | 185 | 11 | 1492 | 89 |
| East of England | 1803 | 1803 | 100 | 210 | 12 | 1593 | 88 |
| London | 2109 | 2092 | 99 | 202 | 10 | 1890 | 90 |
| N East, Yorks & Humber | 2783 | 2782 | 100 | 389 | 14 | 2393 | 86 |
| North West | 2209 | 2208 | 100 | 216 | 10 | 1992 | 90 |
| South East | 3441 | 3430 | 100 | 397 | 12 | 3033 | 88 |
| South West | 2167 | 2166 | 100 | 242 | 11 | 1924 | 89 |
| West Midlands | 1940 | 1938 | 100 | 251 | 13 | 1687 | 87 |
| Northern Ireland | 543 | 416 | 77 | 33 | 8 | 383 | 92 |
| Wales | 1078 | 1018 | 94 | 75 | 7 | 943 | 93 |
| **United Kingdom** | **20617** | **20238** | **98** | **2333** | **12** | **17905** | **88** |

**Table 90: Type of previous cancers**

| Sub-region | Total matched | Total previous cancers | Invasive/micro-invasive* | | | | | Non-invasive* | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Breast | Gynae-cological | Bowel | Haema-tological | Other | Breast | Other |
| East Midlands | 1677 | 185 | 65 | 20 | 17 | 7 | 24 | 16 | 43 |
| East of England | 1803 | 210 | 83 | 21 | 8 | 10 | 20 | 31 | 55 |
| London | 2092 | 202 | 75 | 21 | 12 | 12 | 27 | 22 | 43 |
| N East, Yorks & Humber | 2782 | 389 | 134 | 34 | 26 | 16 | 43 | 35 | 131 |
| North West | 2208 | 216 | 82 | 24 | 13 | 12 | 33 | 15 | 56 |
| South East | 3430 | 397 | 163 | 37 | 17 | 13 | 56 | 30 | 99 |
| South West | 2166 | 242 | 101 | 23 | 8 | 11 | 34 | 30 | 62 |
| West Midlands | 1938 | 251 | 98 | 43 | 15 | 7 | 25 | 13 | 69 |
| Northern Ireland | 416 | 33 | 16 | 6 | 4 | | 3 | 3 | 1 |
| WALES | 1018 | 75 | 61 | 18 | 10 | 6 | 22 | 19 | 51 |
| **United Kingdom** | **20238** | **2333** | **915** | **259** | **136** | **100** | **310** | **234** | **654** |
| **% of previous cancers** | **-** | **100** | **39** | **11** | **6** | **4** | **13** | **10** | **28** |
| **% of matched** | **100** | **12** | **5** | **1** | **1** | **0** | **2** | **1** | **3** |

* A patient can have more than one previous cancer.

**Table 91: Adjuvant treatment of cases with previous breast cancers**

| Sub-region | Women with previous breast cancers | Had RT | | Had CT | | Had ET | |
|---|---|---|---|---|---|---|---|
| | | No. | % | No. | % | No. | % |
| East Midlands | 82 | 31 | 38 | 29 | 35 | 27 | 33 |
| East of England | 118 | 50 | 42 | 24 | 20 | 42 | 36 |
| London | 94 | 27 | 29 | 17 | 18 | 23 | 24 |
| N East, Yorks & Humber | 166 | 75 | 45 | 55 | 33 | 98 | 59 |
| North West | 97 | 31 | 32 | 25 | 26 | 17 | 18 |
| South East | 157 | 55 | 35 | 28 | 18 | 36 | 23 |
| South West | 162 | 57 | 35 | 39 | 24 | 73 | 45 |
| West Midlands | 111 | 48 | 43 | 27 | 24 | 40 | 36 |
| Northern Ireland | 18 | 10 | 56 | 3 | 17 | 12 | 67 |
| Wales | 75 | 26 | 35 | 14 | 19 | 50 | 67 |
| **United Kingdom** | **1080** | **410** | **38** | **261** | **24** | **418** | **39** |

| Table 92: 2015/16 cases supplied to the NHSBSP adjuvant audit | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Sub-region | Total Cancers | No data supplied | | Excluded cases | | Total Eligible | | Complete data* | |
| | | No. | % | No. | % | No. | % | No. | % |
| East Midlands | 1768 | 0 | 0 | 82 | 5 | 1686 | 95 | 190 | 11 |
| East of England | 1904 | 0 | 0 | 118 | 6 | 1786 | 94 | 204 | 11 |
| London | 2109 | 0 | 0 | 94 | 4 | 2015 | 96 | 48 | 2 |
| N East, Yorks & Humber | 2783 | 0 | 0 | 166 | 6 | 2617 | 94 | 398 | 14 |
| North West | 2209 | 0 | 0 | 97 | 4 | 2112 | 96 | 90 | 4 |
| South East | 2587 | 0 | 0 | 157 | 6 | 2430 | 94 | 87 | 3 |
| South West | 3021 | 0 | 0 | 162 | 5 | 2859 | 95 | 173 | 6 |
| West Midlands | 1940 | 0 | 0 | 111 | 6 | 1829 | 94 | 88 | 5 |
| Northern Ireland | 543 | 49 | 9 | 18 | 3 | 476 | 88 | 463 | 85 |
| Wales | 1166 | 0 | 0 | 75 | 6 | 1091 | 94 | 1067 | 92 |
| **United Kingdom** | **20030** | **49** | **0** | **1080** | **5** | **18901** | **94** | **2808** | **14** |

* Cases which are eligible and with complete RT, CT and HT data.

| Table 93: Data completeness for adjuvant therapy | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Sub-region | Total Eligible | Complete RT | | Complete CT | | Complete ET | | Complete RT, CT & ET | |
| | | No. | % | No. | % | No. | % | No. | % |
| East Midlands | 1686 | 1262 | 75 | 469 | 28 | 594 | 35 | 190 | 11 |
| East of England | 1786 | 1371 | 77 | 445 | 25 | 831 | 47 | 204 | 11 |
| London | 2015 | 1332 | 66 | 419 | 21 | 373 | 19 | 48 | 2 |
| N East, Yorks & Humber | 2617 | 1950 | 75 | 796 | 30 | 1432 | 55 | 398 | 15 |
| North West | 2112 | 1412 | 67 | 442 | 21 | 652 | 31 | 90 | 4 |
| South East | 2430 | 1657 | 68 | 496 | 20 | 494 | 20 | 87 | 4 |
| South West | 2859 | 1995 | 70 | 568 | 20 | 1262 | 44 | 173 | 6 |
| West Midlands | 1829 | 1308 | 72 | 417 | 23 | 579 | 32 | 88 | 5 |
| Northern Ireland | 476 | 475 | 100 | 473 | 99 | 463 | 97 | 463 | 97 |
| Wales | 1091 | 1082 | 99 | 1078 | 99 | 1074 | 98 | 1067 | 98 |
| **United Kingdom** | **18901** | **13844** | **73** | **5603** | **30** | **7754** | **41** | **2808** | **15** |

| Table 94: Radiotherapy | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Invasive | | | | | | | Non-invasive | | | | | | |
| Sub-region | RT | | No RT | | Unknown RT | | Invasive total | RT | | No RT | | Unknown RT | | Non-invasive total |
| | No. | % | No. | % | No. | % | | No. | % | No. | % | No. | % | |
| East Midlands | 1084 | 80 | 0 | 0 | 266 | 20 | 1350 | 174 | 53 | 0 | 0 | 153 | 47 | 327 |
| East of England | 1194 | 82 | 0 | 0 | 258 | 18 | 1452 | 168 | 53 | 0 | 0 | 151 | 47 | 319 |
| London | 1116 | 74 | 0 | 0 | 396 | 26 | 1512 | 203 | 42 | 0 | 0 | 282 | 58 | 485 |
| N East, Yorks & Humber | 1689 | 81 | 0 | 0 | 394 | 19 | 2083 | 252 | 49 | 0 | 0 | 266 | 51 | 518 |
| North West | 1247 | 74 | 0 | 0 | 439 | 26 | 1686 | 153 | 38 | 0 | 0 | 251 | 62 | 404 |
| South East | 1478 | 77 | 0 | 0 | 439 | 23 | 1917 | 167 | 34 | 0 | 0 | 329 | 66 | 496 |
| South West | 1749 | 78 | 0 | 0 | 500 | 22 | 2249 | 233 | 39 | 0 | 0 | 357 | 61 | 590 |
| West Midlands | 1145 | 79 | 0 | 0 | 312 | 21 | 1457 | 159 | 44 | 0 | 0 | 204 | 56 | 363 |
| Northern Ireland | 334 | 87 | 50 | 13 | 1 | 0 | 385 | 44 | 50 | 44 | 50 | 0 | 0 | 88 |
| Wales | 686 | 78 | 191 | 22 | 7 | 1 | 884 | 92 | 46 | 108 | 53 | 2 | 1 | 202 |
| **United Kingdom** | **11722** | **78** | **241** | **2** | **3012** | **20** | **14975** | **1645** | **43** | **152** | **4** | **1995** | **53** | **3792** |

| Table 95: Radiotherapy | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Overall | | | | | | |
| | RT | | No RT | | Unknown RT | | Overall total |
| Sub-region | No. | % | No. | % | No. | % | |
| East Midlands | 1262 | 75 | 0 | 0 | 424 | 25 | 1686 |
| East of England | 1371 | 77 | 0 | 0 | 415 | 23 | 1786 |
| London | 1332 | 66 | 0 | 0 | 683 | 34 | 2015 |
| N East, Yorks & Humber | 1950 | 75 | 0 | 0 | 667 | 25 | 2617 |
| North West | 1412 | 67 | 0 | 0 | 700 | 33 | 2112 |
| South East | 1657 | 68 | 0 | 0 | 773 | 32 | 2430 |
| South West | 1995 | 70 | 0 | 0 | 864 | 30 | 2859 |
| West Midlands | 1308 | 72 | 0 | 0 | 521 | 28 | 1829 |
| Northern Ireland | 381 | 80 | 94 | 20 | 1 | 0 | 476 |
| Wales | 781 | 72 | 301 | 28 | 9 | 1 | 1091 |
| **United Kingdom** | **13449** | **71** | **395** | **2** | **5057** | **27** | **18901** |

| Table 96: Chemotherapy | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Invasive | | | | | | | Micro/non-invasive | | | | | | |
| | CT | | No CT | | Unknown CT | | Invasive total | CT | | No CT | | Unknown CT | | Micro/non-invasive total |
| Sub-region | No. | % | No. | % | No. | % | | No. | % | No. | % | No. | % | |
| East Midlands | 465 | 34 | 0 | 0 | 885 | 66 | 1350 | 4 | 1 | 0 | 0 | 332 | 99 | 336 |
| East of England | 441 | 30 | 0 | 0 | 1011 | 70 | 1452 | 4 | 1 | 0 | 0 | 329 | 99 | 333 |
| London | 415 | 27 | 0 | 0 | 1097 | 73 | 1512 | 4 | 1 | 0 | 0 | 499 | 99 | 503 |
| N East, Yorks & Humber | 787 | 38 | 0 | 0 | 1296 | 62 | 2083 | 9 | 2 | 0 | 0 | 524 | 98 | 533 |
| North West | 433 | 26 | 0 | 0 | 1253 | 74 | 1686 | 9 | 2 | 0 | 0 | 416 | 98 | 425 |
| South East | 490 | 26 | 0 | 0 | 1427 | 74 | 1917 | 6 | 1 | 0 | 0 | 507 | 99 | 513 |
| South West | 564 | 25 | 0 | 0 | 1685 | 75 | 2249 | 4 | 1 | 0 | 0 | 606 | 99 | 610 |
| West Midlands | 414 | 28 | 0 | 0 | 1043 | 72 | 1457 | 3 | 1 | 0 | 0 | 369 | 99 | 372 |
| Northern Ireland | 92 | 24 | 290 | 75 | 3 | 1 | 385 | 0 | 0 | 91 | 100 | 0 | 0 | 91 |
| Wales | 220 | 25 | 652 | 74 | 12 | 1 | 884 | 0 | 0 | 206 | 100 | 1 | 0 | 207 |
| **United Kingdom** | **4321** | **29** | **942** | **6** | **9712** | **65** | **14975** | **43** | **1** | **297** | **8** | **3583** | **91** | **3923** |

| Table 97: Chemotherapy | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Overall | | | | | | |
| | CT | | No CT | | Unknown CT | | Overall total |
| Sub-region | No. | % | No. | % | No. | % | |
| East Midlands | 469 | 28 | 0 | 0 | 1217 | 72 | 1686 |
| East of England | 445 | 25 | 0 | 0 | 1341 | 75 | 1786 |
| London | 419 | 21 | 0 | 0 | 1596 | 79 | 2015 |
| N East, Yorks & Humber | 796 | 30 | 0 | 0 | 1821 | 70 | 2617 |
| North West | 442 | 21 | 0 | 0 | 1670 | 79 | 2112 |
| South East | 496 | 20 | 0 | 0 | 1934 | 80 | 2430 |
| South West | 568 | 20 | 0 | 0 | 2291 | 80 | 2859 |
| West Midlands | 417 | 23 | 0 | 0 | 1412 | 77 | 1829 |
| Northern Ireland | 92 | 19 | 381 | 80 | 3 | 1 | 476 |
| Wales | 220 | 20 | 858 | 79 | 13 | 1 | 1091 |
| **United Kingdom** | **4364** | **23** | **1239** | **7** | **13298** | **70** | **18901** |

| Table 98: Endocrine Therapy | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Invasive | | | | | | | Micro/non-invasive | | | | | | |
| | ET | | No ET | | Unknown ET | | Invasive total | ET | | No ET | | Unknown ET | | Micro/non-invasive total |
| Sub-region | No. | % | No. | % | No. | % | | No. | % | No. | % | No. | % | |
| East Midlands | 594 | 44 | 0 | 0 | 756 | 56 | 1350 | 0 | 0 | 0 | 0 | 336 | 100 | 336 |
| East of England | 822 | 57 | 0 | 0 | 630 | 43 | 1452 | 9 | 3 | 0 | 0 | 324 | 97 | 333 |
| London | 355 | 23 | 0 | 0 | 1157 | 77 | 1512 | 18 | 4 | 0 | 0 | 485 | 96 | 503 |
| N East, Yorks & Humber | 1392 | 67 | 0 | 0 | 691 | 33 | 2083 | 40 | 8 | 0 | 0 | 493 | 92 | 533 |
| North West | 634 | 38 | 0 | 0 | 1052 | 62 | 1686 | 18 | 4 | 0 | 0 | 407 | 96 | 425 |
| South East | 479 | 25 | 0 | 0 | 1438 | 75 | 1917 | 15 | 3 | 0 | 0 | 498 | 97 | 513 |
| South West | 1239 | 55 | 0 | 0 | 1010 | 45 | 2249 | 23 | 4 | 0 | 0 | 587 | 96 | 610 |
| West Midlands | 579 | 40 | 0 | 0 | 878 | 60 | 1457 | 0 | 0 | 0 | 0 | 372 | 100 | 372 |
| Northern Ireland | 349 | 91 | 33 | 9 | 3 | 1 | 385 | 7 | 8 | 74 | 81 | 10 | 11 | 91 |
| Wales | 781 | 88 | 88 | 10 | 15 | 2 | 884 | 8 | 4 | 197 | 95 | 2 | 1 | 207 |
| **United Kingdom** | **7224** | **48** | **121** | **1** | **7630** | **51** | **14975** | **138** | **4** | **271** | **7** | **3514** | **90** | **3923** |

| Table 99: Endocrine Therapy | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Overall | | | | | | |
| | ET | | No ET | | Unknown ET | | Overall total |
| Sub-region | No. | % | No. | % | No. | % | |
| East Midlands | 594 | 35 | 0 | 0 | 1092 | 65 | 1686 |
| East of England | 831 | 47 | 0 | 0 | 955 | 53 | 1786 |
| London | 373 | 19 | 0 | 0 | 1642 | 81 | 2015 |
| N East, Yorks & Humber | 1432 | 55 | 0 | 0 | 1185 | 45 | 2617 |
| North West | 652 | 31 | 0 | 0 | 1460 | 69 | 2112 |
| South East | 494 | 20 | 0 | 0 | 1936 | 80 | 2430 |
| South West | 1262 | 44 | 0 | 0 | 1597 | 56 | 2859 |
| West Midlands | 579 | 32 | 0 | 0 | 1250 | 68 | 1829 |
| Northern Ireland | 356 | 75 | 107 | 22 | 13 | 3 | 476 |
| Wales | 789 | 72 | 285 | 26 | 17 | 2 | 1091 |
| **United Kingdom** | **7362** | **39** | **392** | **2** | **11147** | **59** | **18901** |

| Table 100: Time from final surgery to radiotherapy (excluding neo-adjuvant and intra-operative RT cases and cases with chemotherapy) – invasive | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ≤ 14 days | | ≤ 30 days | | ≤ 60 days | | ≤ 90 days | | ≤ 120 days | | ≤ 200 days | | Median | Total |
| Sub-region | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | | No. |
| East Midlands | 1 | 0 | 4 | 0 | 393 | 44 | 678 | 77 | 705 | 80 | 706 | 80 | 58 | 885 |
| East of England | 8 | 1 | 36 | 4 | 482 | 48 | 779 | 77 | 811 | 80 | 822 | 81 | 56 | 1009 |
| London | 0 | 0 | 4 | 0 | 493 | 45 | 735 | 67 | 778 | 71 | 786 | 72 | 55 | 1093 |
| N East, Yorks & Humber | 0 | 0 | 5 | 0 | 579 | 45 | 985 | 76 | 1036 | 80 | 1048 | 81 | 58 | 1296 |
| North West | 0 | 0 | 14 | 1 | 599 | 48 | 886 | 71 | 917 | 73 | 922 | 74 | 54 | 1253 |
| South East | 0 | 0 | 1 | 0 | 458 | 32 | 967 | 68 | 1029 | 72 | 1050 | 74 | 62 | 1426 |
| South West | 2 | 0 | 10 | 1 | 698 | 41 | 1237 | 73 | 1290 | 77 | 1298 | 77 | 58 | 1684 |
| West Midlands | 0 | 0 | 4 | 0 | 263 | 25 | 716 | 69 | 812 | 78 | 823 | 79 | 66 | 1043 |
| Northern Ireland | 0 | 0 | 7 | 2 | 146 | 50 | 231 | 79 | 247 | 84 | 249 | 85 | 56 | 293 |
| Wales | 0 | 0 | 0 | 0 | 164 | 25 | 420 | 63 | 461 | 69 | 464 | 70 | 64 | 664 |
| **United Kingdom** | **11** | **0** | **85** | **1** | **4275** | **40** | **7634** | **72** | **8086** | **76** | **8168** | **77** | **59** | **10646** |

| Table 101: Time from final surgery to radiotherapy (excluding neo-adjuvant and intra-operative RT cases and cases with chemotherapy) – non - invasive | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ≤ 14 days | | ≤ 30 days | | ≤ 60 days | | ≤ 90 days | | ≤ 120 days | | ≤ 200 days | | Median | Total |
| Sub-region | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | | No. |
| East Midlands | 0 | 0 | 1 | 0 | 92 | 28 | 169 | 52 | 173 | 54 | 173 | 54 | 59 | 323 |
| East of England | 4 | 1 | 11 | 3 | 94 | 30 | 158 | 50 | 164 | 52 | 165 | 52 | 57 | 315 |
| London | 0 | 0 | 2 | 0 | 124 | 26 | 178 | 37 | 190 | 40 | 194 | 40 | 54.5 | 480 |
| N East, Yorks & Humber | 0 | 0 | 2 | 0 | 154 | 30 | 229 | 45 | 241 | 47 | 248 | 49 | 57 | 510 |
| North West | 0 | 0 | 1 | 0 | 99 | 25 | 147 | 37 | 148 | 37 | 148 | 37 | 53 | 395 |
| South East | 0 | 0 | 1 | 0 | 68 | 14 | 150 | 31 | 161 | 33 | 162 | 33 | 63 | 490 |
| South West | 0 | 0 | 0 | 0 | 127 | 22 | 213 | 36 | 228 | 39 | 228 | 39 | 59 | 586 |
| West Midlands | 0 | 0 | 0 | 0 | 49 | 14 | 139 | 39 | 157 | 43 | 158 | 44 | 68 | 361 |
| Northern Ireland | 0 | 0 | 1 | 1 | 33 | 38 | 42 | 48 | 42 | 48 | 43 | 49 | 52.5 | 88 |
| Wales | 0 | 0 | 0 | 0 | 33 | 16 | 72 | 36 | 80 | 40 | 82 | 41 | 63 | 202 |
| **United Kingdom** | **4** | **0** | **19** | **1** | **873** | **23** | **1497** | **40** | **1584** | **42** | **1601** | **43** | **58** | **3750** |

| Table 102: Time from assessment to radiotherapy (excluding cases with chemotherapy) - invasive | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ≤ 14 days | | ≤ 30 days | | ≤ 60 days | | ≤ 90 days | | ≤ 120 days | | ≤ 200 days | | Median | Total |
| Sub-region | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | | No. |
| East Midlands | 0 | 0 | 0 | 0 | 10 | 1 | 346 | 39 | 614 | 69 | 692 | 78 | 91 | 885 |
| East of England | 0 | 0 | 1 | 0 | 39 | 4 | 364 | 36 | 664 | 66 | 810 | 80 | 94 | 1011 |
| London | 0 | 0 | 1 | 0 | 15 | 1 | 280 | 26 | 600 | 55 | 761 | 69 | 98 | 1097 |
| N East, Yorks & Humber | 0 | 0 | 0 | 0 | 17 | 1 | 435 | 34 | 877 | 68 | 1039 | 80 | 95 | 1296 |
| North West | 0 | 0 | 0 | 0 | 47 | 4 | 470 | 38 | 796 | 64 | 916 | 73 | 90 | 1253 |
| South East | 0 | 0 | 0 | 0 | 9 | 1 | 207 | 15 | 700 | 49 | 1027 | 72 | 111 | 1427 |
| South West | 0 | 0 | 1 | 0 | 13 | 1 | 437 | 26 | 1021 | 61 | 1273 | 76 | 99 | 1685 |
| West Midlands | 0 | 0 | 0 | 0 | 10 | 1 | 209 | 20 | 566 | 54 | 815 | 78 | 105 | 1043 |
| Northern Ireland | 0 | 0 | 0 | 0 | 29 | 10 | 140 | 48 | 197 | 67 | 248 | 85 | 85 | 293 |
| Wales | 0 | 0 | 0 | 0 | 5 | 1 | 146 | 22 | 349 | 53 | 460 | 69 | 101 | 664 |
| **United Kingdom** | **0** | **0** | **3** | **0** | **194** | **2** | **3034** | **28** | **6384** | **60** | **8041** | **75** | **98** | 10654 |

| Table 103: Time from assessment to radiotherapy – Non - invasive | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ≤ 14 days | | ≤ 30 days | | ≤ 60 days | | ≤ 90 days | | ≤ 120 days | | ≤ 200 days | | Median | Total |
| Sub-region | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | | No. |
| East Midlands | 0 | 0 | 0 | 0 | 1 | 0 | 61 | 19 | 139 | 43 | 171 | 53 | 99 | 323 |
| East of England | 0 | 0 | 0 | 0 | 9 | 3 | 67 | 21 | 135 | 43 | 165 | 52 | 94 | 315 |
| London | 0 | 0 | 0 | 0 | 2 | 0 | 59 | 12 | 147 | 31 | 196 | 41 | 104 | 481 |
| N East, Yorks & Humber | 0 | 0 | 0 | 0 | 2 | 0 | 92 | 18 | 182 | 36 | 242 | 47 | 99 | 510 |
| North West | 0 | 0 | 0 | 0 | 2 | 1 | 62 | 16 | 122 | 31 | 145 | 37 | 93 | 395 |
| South East | 0 | 0 | 0 | 0 | 2 | 0 | 19 | 4 | 85 | 17 | 158 | 32 | 119 | 490 |
| South West | 0 | 0 | 0 | 0 | 0 | 0 | 69 | 12 | 155 | 26 | 224 | 38 | 105 | 586 |
| West Midlands | 0 | 0 | 0 | 0 | 1 | 0 | 27 | 7 | 94 | 26 | 157 | 43 | 112 | 361 |
| Northern Ireland | 0 | 0 | 1 | 1 | 2 | 2 | 25 | 28 | 40 | 45 | 44 | 50 | 83 | 88 |
| Wales | 0 | 0 | 0 | 0 | 0 | 0 | 21 | 10 | 54 | 27 | 80 | 40 | 112 | 202 |
| **United Kingdom** | **0** | **0** | **1** | **0** | **21** | **1** | **502** | **13** | **1153** | **31** | **1582** | **42** | **104** | **3751** |

| Table 104: Median days from final surgery to radiotherapy for women with invasive breast cancer | | | |
|---|---|---|---|
| **Sub-region** | **Median** | **First quartile** | **Third quartile** |
| East Midlands | 58 | 50 | 69 |
| East of England | 56 | 47 | 68 |
| London | 55 | 48 | 67 |
| N East, Yorks & Humber | 58 | 49 | 69 |
| North West | 54 | 46 | 65 |
| South East | 62 | 54 | 76 |
| South West | 58 | 49 | 70 |
| West Midlands | 66 | 57 | 78 |
| Northern Ireland | 56 | 47 | 71 |
| Wales | 64 | 56 | 76 |
| **United Kingdom** | **59** | **50** | **70** |

| Table 105: Invasive cancer patients who had breast conserving surgery and received radiotherapy within 52 days of their final surgery | | | |
|---|---|---|---|
| | **Within 52 days** | | **Total invasive with BCS** |
| **Sub-region** | **No** | **%** | |
| East Midlands | 205 | 30 | 692 |
| East of England | 316 | 39 | 804 |
| London | 316 | 41 | 763 |
| N East, Yorks & Humber | 342 | 33 | 1025 |
| North West | 405 | 45 | 891 |
| South East | 231 | 23 | 1016 |
| South West | 420 | 34 | 1250 |
| West Midlands | 98 | 12 | 800 |
| Northern Ireland | 95 | 41 | 233 |
| Wales | 66 | 15 | 450 |
| **United Kingdom** | **2494** | **31** | **7924** |

| Table 106: Invasive status of cancers | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **Invasive** | | **Micro-invasive** | | **Non-invasive** | | **Unknown** | | **Total** | |
| **Sub-region** | **No.** | **%** | **No.** | **%** | **No.** | **%** | **No.** | **%** | **No.** | **%** |
| East Midlands | 1350 | 80 | 9 | 1 | 327 | 19 | 0 | 0 | 1686 | 100 |
| East of England | 1452 | 81 | 14 | 1 | 319 | 18 | 1 | 0 | 1786 | 100 |
| London | 1512 | 75 | 18 | 1 | 485 | 24 | 0 | 0 | 2015 | 100 |
| N East, Yorks & Humber | 2083 | 80 | 15 | 1 | 518 | 20 | 1 | 0 | 2617 | 100 |
| North West | 1686 | 80 | 21 | 1 | 404 | 19 | 1 | 0 | 2112 | 100 |
| South East | 1917 | 79 | 17 | 1 | 496 | 20 | 0 | 0 | 2430 | 100 |
| South West | 2249 | 79 | 20 | 1 | 590 | 21 | 0 | 0 | 2859 | 100 |
| West Midlands | 1457 | 80 | 9 | 0 | 363 | 20 | 0 | 0 | 1829 | 100 |
| Northern Ireland | 385 | 81 | 3 | 1 | 88 | 18 | 0 | 0 | 476 | 100 |
| Wales | 884 | 81 | 5 | 0 | 202 | 19 | 0 | 0 | 1091 | 100 |
| **United Kingdom** | **14975** | **79** | **131** | **1** | **3792** | **20** | **3** | **0** | **18901** | **100** |

| Table 107: Treatment of invasive cancers | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Conservation surgery | | Mastectomy | | No Surgery | | Unknown | | Total | |
| **Sub-region** | **No.** | **%** | **No.** | **%** | **No.** | **%** | **No.** | **%** | **No.** | **%** |
| East Midlands | 1058 | 78 | 268 | 20 | 24 | 2 | 0 | 0 | 1350 | 100 |
| East of England | 1165 | 80 | 260 | 18 | 27 | 2 | 0 | 0 | 1452 | 100 |
| London | 1169 | 77 | 270 | 18 | 73 | 5 | 0 | 0 | 1512 | 100 |
| N East, Yorks & Humber | 1652 | 79 | 393 | 19 | 38 | 2 | 0 | 0 | 2083 | 100 |
| North West | 1319 | 78 | 338 | 20 | 29 | 2 | 0 | 0 | 1686 | 100 |
| South East | 1571 | 82 | 315 | 16 | 31 | 2 | 0 | 0 | 1917 | 100 |
| South West | 1794 | 80 | 424 | 19 | 31 | 1 | 0 | 0 | 2249 | 100 |
| West Midlands | 1161 | 80 | 272 | 19 | 24 | 2 | 0 | 0 | 1457 | 100 |
| Northern Ireland | 310 | 81 | 67 | 17 | 8 | 2 | 0 | 0 | 385 | 100 |
| Wales | 661 | 75 | 203 | 23 | 20 | 2 | 0 | 0 | 884 | 100 |
| **United Kingdom** | **11860** | **79** | **2810** | **19** | **305** | **2** | **0** | **0** | **14975** | **100** |

| Table 108: Radiotherapy for invasive cancers treated by conservation surgery | | | | | | |
|---|---|---|---|---|---|---|
| | Radiotherapy | | No/unknown radiotherapy | | Total | |
| **Sub-region** | **No.** | **%** | **No.** | **%** | **No.** | **%** |
| East Midlands | 1003 | 95 | 55 | 5 | 1058 | 100 |
| East of England | 1106 | 95 | 59 | 5 | 1165 | 100 |
| London | 987 | 84 | 182 | 16 | 1169 | 100 |
| N East, Yorks & Humber | 1557 | 94 | 95 | 6 | 1652 | 100 |
| North West | 1141 | 87 | 178 | 13 | 1319 | 100 |
| South East | 1337 | 85 | 234 | 15 | 1571 | 100 |
| South West | 1606 | 90 | 188 | 10 | 1794 | 100 |
| West Midlands | 1045 | 90 | 116 | 10 | 1161 | 100 |
| Northern Ireland | 301 | 97 | 9 | 3 | 310 | 100 |
| Wales | 631 | 95 | 30 | 5 | 661 | 100 |
| **United Kingdom** | **10714** | **90** | **1146** | **10** | **11860** | **100** |

| Table 109: Radiotherapy for non-invasive cancers treated by conservation surgery | | | | | | |
|---|---|---|---|---|---|---|
| | Radiotherapy | | No/unknown radiotherapy | | Total | |
| **Sub-region** | **No.** | **%** | **No.** | **%** | **No.** | **%** |
| East Midlands | 173 | 75 | 57 | 25 | 230 | 100 |
| East of England | 167 | 70 | 72 | 30 | 239 | 100 |
| London | 197 | 56 | 153 | 44 | 350 | 100 |
| N East, Yorks & Humber | 250 | 65 | 135 | 35 | 385 | 100 |
| North West | 151 | 49 | 155 | 51 | 306 | 100 |
| South East | 162 | 44 | 210 | 56 | 372 | 100 |
| South West | 231 | 50 | 233 | 50 | 464 | 100 |
| West Midlands | 153 | 58 | 112 | 42 | 265 | 100 |
| Northern Ireland | 42 | 64 | 24 | 36 | 66 | 100 |
| Wales | 90 | 60 | 59 | 40 | 149 | 100 |
| **United Kingdom** | **1616** | **57** | **1210** | **43** | **2826** | **100** |

| Table 110: Cytonuclear grade of non-invasive cancers treated by conservation surgery with no/unknown radiotherapy | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | High | | Intermediate | | Low | | Not assessable | | Unknown | | Total | |
| **Sub-region** | **No.** | **%** | **No.** | **%** | **No.** | **%** | **No.** | **%** | **No.** | **%** | **No.** | **%** |
| East Midlands | 4 | 7 | 26 | 46 | 21 | 37 | 6 | 11 | 0 | 0 | 57 | 100 |
| East of England | 15 | 21 | 28 | 39 | 20 | 28 | 8 | 11 | 1 | 1 | 72 | 100 |
| London | 48 | 31 | 61 | 40 | 24 | 16 | 13 | 8 | 7 | 5 | 153 | 100 |
| N East, Yorks & Humber | 21 | 16 | 65 | 48 | 36 | 27 | 11 | 8 | 2 | 1 | 135 | 100 |
| North West | 34 | 22 | 88 | 57 | 26 | 17 | 4 | 3 | 3 | 2 | 155 | 100 |
| South East | 50 | 24 | 77 | 37 | 46 | 22 | 35 | 17 | 2 | 1 | 210 | 100 |
| South West | 76 | 33 | 95 | 41 | 34 | 15 | 27 | 12 | 1 | 0 | 233 | 100 |
| West Midlands | 26 | 23 | 52 | 46 | 23 | 21 | 10 | 9 | 1 | 1 | 112 | 100 |
| Northern Ireland | 2 | 8 | 10 | 42 | 6 | 25 | 6 | 25 | 0 | 0 | 24 | 100 |
| Wales | 9 | 15 | 30 | 51 | 19 | 32 | 1 | 2 | 0 | 0 | 59 | 100 |
| **United Kingdom** | **285** | **24** | **532** | **44** | **255** | **21** | **121** | **10** | **17** | **1** | **1210** | **100** |

| Table 111: Size of non-invasive cancers treated by conservation surgery with no/unknown radiotherapy | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | <15mm | | 15-≤40mm | | >40mm | | Not assessable | | Unknown | | Total | |
| **Sub-region** | **No.** | **%** | **No.** | **%** | **No.** | **%** | **No.** | **%** | **No.** | **%** | **No.** | **%** |
| East Midlands | 26 | 46 | 21 | 37 | 0 | 0 | 5 | 9 | 5 | 9 | 57 | 100 |
| East of England | 41 | 57 | 16 | 22 | 0 | 0 | 8 | 11 | 7 | 10 | 72 | 100 |
| London | 69 | 45 | 35 | 23 | 5 | 3 | 14 | 9 | 30 | 20 | 153 | 100 |
| N East, Yorks & Humber | 73 | 54 | 26 | 19 | 4 | 3 | 11 | 8 | 21 | 16 | 135 | 100 |
| North West | 95 | 61 | 35 | 23 | 3 | 2 | 4 | 3 | 18 | 12 | 155 | 100 |
| South East | 104 | 50 | 48 | 23 | 8 | 4 | 35 | 17 | 15 | 7 | 210 | 100 |
| South West | 122 | 52 | 66 | 28 | 6 | 3 | 26 | 11 | 13 | 6 | 233 | 100 |
| West Midlands | 60 | 54 | 25 | 22 | 3 | 3 | 10 | 9 | 14 | 13 | 112 | 100 |
| Northern Ireland | 13 | 54 | 1 | 4 | 0 | 0 | 6 | 25 | 4 | 17 | 24 | 100 |
| Wales | 43 | 73 | 9 | 15 | 2 | 3 | 1 | 2 | 4 | 7 | 59 | 100 |
| **United Kingdom** | **646** | **53** | **282** | **23** | **31** | **3** | **120** | **10** | **131** | **11** | **1210** | **100** |

| Table 112: ER status of all cases | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | ER Positive | | ER Negative | | Unknown | | Total | |
| **Sub-region** | **No.** | **%** | **No.** | **%** | **No.** | **%** | **No.** | **%** |
| East Midlands | 1288 | 76 | 136 | 8 | 262 | 16 | 1686 | 100 |
| East of England | 1365 | 76 | 135 | 8 | 286 | 16 | 1786 | 100 |
| London | 1523 | 76 | 173 | 9 | 319 | 16 | 2015 | 100 |
| N East, Yorks & Humber | 2051 | 78 | 221 | 8 | 345 | 13 | 2617 | 100 |
| North West | 1831 | 87 | 181 | 9 | 100 | 5 | 2112 | 100 |
| South East | 1901 | 78 | 166 | 7 | 363 | 15 | 2430 | 100 |
| South West | 2310 | 81 | 192 | 7 | 357 | 12 | 2859 | 100 |
| West Midlands | 1366 | 75 | 120 | 7 | 343 | 19 | 1829 | 100 |
| Northern Ireland | 367 | 77 | 37 | 8 | 72 | 15 | 476 | 100 |
| Wales | 818 | 75 | 88 | 8 | 185 | 17 | 1091 | 100 |
| **United Kingdom** | **14820** | **78** | **1449** | **8** | **2632** | **14** | **18901** | **100** |

| Table 113: Invasive status of ER positive cases | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Invasive | | Micro-invasive | | Non-invasive | | Unknown | | Total | |
| **Sub-region** | **No.** | **%** | **No.** | **%** | **No.** | **%** | **No.** | **%** | **No.** | **%** |
| East Midlands | 1232 | 96 | 1 | 0 | 55 | 4 | 0 | 0 | 1288 | 100 |
| East of England | 1321 | 97 | 2 | 0 | 41 | 3 | 1 | 0 | 1365 | 100 |
| London | 1359 | 89 | 10 | 1 | 154 | 10 | 0 | 0 | 1523 | 100 |
| N East, Yorks & Humber | 1887 | 92 | 2 | 0 | 162 | 8 | 0 | 0 | 2051 | 100 |
| North West | 1562 | 85 | 12 | 1 | 256 | 14 | 1 | 0 | 1831 | 100 |
| South East | 1768 | 93 | 14 | 1 | 119 | 6 | 0 | 0 | 1901 | 100 |
| South West | 2096 | 91 | 8 | 0 | 206 | 9 | 0 | 0 | 2310 | 100 |
| West Midlands | 1341 | 98 | 1 | 0 | 24 | 2 | 0 | 0 | 1366 | 100 |
| Northern Ireland | 346 | 94 | 2 | 1 | 19 | 5 | 0 | 0 | 367 | 100 |
| Wales | 802 | 98 | 1 | 0 | 15 | 2 | 0 | 0 | 818 | 100 |
| **United Kingdom** | **13714** | **93** | **53** | **0** | **1051** | **7** | **2** | **0** | **14820** | **100** |

| Table 114: Chemotherapy for node positive invasive cancers | | | | | | | |
|---|---|---|---|---|---|---|---|
| | CT | | No CT | | Unknown CT | | Total |
| **Sub-region** | **No.** | **%** | **No.** | **%** | **No.** | **%** | |
| East Midlands | 164 | 64 | 0 | 0 | 91 | 36 | 255 |
| East of England | 172 | 62 | 0 | 0 | 106 | 38 | 278 |
| London | 193 | 60 | 0 | 0 | 130 | 40 | 323 |
| N East, Yorks & Humber | 271 | 66 | 0 | 0 | 142 | 34 | 413 |
| North West | 173 | 52 | 0 | 0 | 157 | 48 | 330 |
| South East | 237 | 51 | 0 | 0 | 227 | 49 | 464 |
| South West | 272 | 58 | 0 | 0 | 195 | 42 | 467 |
| West Midlands | 177 | 67 | 0 | 0 | 88 | 33 | 265 |
| Northern Ireland | 52 | 63 | 30 | 37 | 0 | 0 | 82 |
| Wales | 94 | 56 | 71 | 43 | 2 | 1 | 167 |
| **United Kingdom** | **1805** | **59** | **101** | **3** | **1138** | **37** | **3044** |

# Appendix 4: Survival analysis data tables (115-123)

**Data obtained from the survival audit of screen-detected breast cancers for cancer patients screened between 1 April 2011 and 31 March 2012 - No data supplied from Wales**

**Table 115: Cause of death of eligible invasive cancers with death before 31/03/2017**

| | Breast cancer | | Other cancer | | Non-cancer | | Unknown | | Total deaths | | No. of eligible cases |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Sub-region** | **No.** | **%** | **No.** | **%** | **No.** | **%** | **No.** | **%** | **No.** | **%** | |
| East Midlands | 29 | 33 | 19 | 22 | 34 | 39 | 5 | 6 | 87 | 7 | 1208 |
| East of England | 42 | 47 | 16 | 18 | 31 | 35 | 0 | 0 | 89 | 7 | 1280 |
| London | 34 | 46 | 9 | 12 | 25 | 34 | 6 | 8 | 74 | 6 | 1314 |
| N East, Yorks & Humber | 60 | 46 | 19 | 15 | 47 | 36 | 5 | 4 | 131 | 7 | 1960 |
| North West | 39 | 35 | 20 | 18 | 44 | 40 | 8 | 7 | 111 | 7 | 1643 |
| South East | 50 | 54 | 19 | 20 | 18 | 19 | 6 | 6 | 93 | 6 | 1671 |
| South West | 49 | 43 | 18 | 16 | 44 | 38 | 4 | 3 | 115 | 6 | 1862 |
| West Midlands | 38 | 41 | 21 | 23 | 27 | 29 | 6 | 7 | 92 | 7 | 1337 |
| Northern Ireland | 6 | 30 | 3 | 15 | 2 | 10 | 9 | 45 | 20 | 6 | 340 |
| Scotland | 32 | 37 | 23 | 26 | 14 | 16 | 18 | 21 | 87 | 6 | 1393 |
| **United Kingdom** | **379** | **42** | **167** | **19** | **286** | **32** | **67** | **7** | **899** | **6** | **14008** |

**Table 116: Cause of death of eligible micro-invasive cancers with death before 31/03/2017**

| | Breast cancer | | Other cancer | | Non-cancer | | Unknown | | Total deaths | | No. of eligible cases |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Sub-region** | **No.** | **%** | **No.** | **%** | **No.** | **%** | **No.** | **%** | **No.** | **%** | |
| East Midlands | 0 | - | 0 | - | 0 | - | 0 | - | 0 | 0 | 10 |
| East of England | 0 | - | 0 | - | 0 | - | 0 | - | 0 | 0 | 26 |
| London | 0 | - | 0 | - | 0 | - | 0 | - | 0 | 0 | 12 |
| N East, Yorks & Humber | 0 | - | 0 | - | 0 | - | 0 | - | 0 | 0 | 19 |
| North West | 1 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 8 | 12 |
| South East | 0 | 0 | 0 | 0 | 1 | 100 | 0 | 0 | 1 | 7 | 15 |
| South West | 0 | 0 | 0 | 0 | 1 | 100 | 0 | 0 | 1 | 6 | 17 |
| West Midlands | 0 | - | 0 | - | 0 | - | 0 | - | 0 | 0 | 8 |
| Northern Ireland | 0 | - | 0 | - | 0 | - | 0 | - | 0 | 0 | 4 |
| Scotland | 0 | - | 0 | - | 0 | - | 0 | - | 0 | 0 | 6 |
| **United Kingdom** | **1** | **33** | **0** | **0** | **2** | **67** | **0** | **0** | **3** | **2** | **129** |

**Table 117: Cause of death of eligible non-invasive cancers with death before 31/03/2017**

| | Breast cancer | | Other cancer | | Non-cancer | | Unknown | | Total deaths | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Sub-region** | **No.** | **%** | **No.** | **%** | **No.** | **%** | **No.** | **%** | **No.** | **%** | **Total** |
| East Midlands | 2 | 22 | 3 | 33 | 3 | 33 | 1 | 11 | 9 | 4 | 225 |
| East of England | 4 | 36 | 2 | 18 | 4 | 36 | 1 | 9 | 11 | 3 | 318 |
| London | 2 | 14 | 8 | 57 | 3 | 21 | 1 | 7 | 14 | 4 | 345 |
| N East, Yorks & Humber | 4 | 27 | 6 | 40 | 3 | 20 | 2 | 13 | 15 | 3 | 457 |
| North West | 1 | 8 | 3 | 25 | 7 | 58 | 1 | 8 | 12 | 3 | 373 |
| South East | 2 | 15 | 3 | 23 | 4 | 31 | 4 | 31 | 13 | 3 | 413 |
| South West | 2 | 14 | 2 | 14 | 9 | 64 | 1 | 7 | 14 | 3 | 488 |
| West Midlands | 1 | 17 | 2 | 33 | 3 | 50 | 0 | 0 | 6 | 2 | 380 |
| Northern Ireland | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 100 | 1 | 1 | 81 |
| Scotland | 0 | 0 | 1 | 20 | 2 | 40 | 2 | 40 | 5 | 2 | 290 |
| **United Kingdom** | **18** | **18** | **30** | **30** | **38** | **38** | **14** | **14** | **100** | **3** | **3370** |

| Table 118: 5-year relative survival by region – primary invasive cancers only (95% confidence intervals in brackets) | | |
|---|---|---|
| **Sub-region** | **Un-adjusted** | **Adjusted** |
| East Midlands | 97.6 (96.0,99.0) | 97.5 (95.8,98.9) |
| East of England | 98.4 (96.8,99.7) | 98.2 (96.7,99.5) |
| London | 99.3 (97.9,100.4) | 99.1 (97.7,100.2) |
| N East, Yorks & Humber | 98.5 (97.3,99.5) | 98.4 (97.2,99.4) |
| North West | 98.1 (96.8,99.3) | 98.0 (96.6,99.1) |
| South East | 99.6 (98.3,100.6) | 99.4 (98.2,100.4) |
| South West | 98.9 (97.7,99.9) | 98.7 (97.5,99.7) |
| West Midlands | 98.2 (96.7,99.4) | 98.1 (96.6,99.3) |
| Northern Ireland | 98.8 (95.7,100.7) | 99.0 (95.9,101.0) |
| Scotland | 99.2 (97.8,100.4) | 100.4 (98.9,101.5) |
| **United Kingdom** | **98.7 (98.2,99.1)** | **98.7 (98.2,99.1)** |

| Table 119: 5-year relative survival by age for primary invasive cancers | | |
|---|---|---|
| **Age** | **Un-adjusted** | **Adjusted** |
| <50 | 99.5 (97.9,100.2) | 99.4 (97.9,100.2) |
| 50-52 | 98.4 (97.5,99.1) | 98.4 (97.5,99.1) |
| 53-55 | 98.4 (97.3,99.3) | 98.4 (97.3,99.3) |
| 56-58 | 97.7 (96.4,98.7) | 97.7 (96.4,98.7) |
| 59-61 | 98.0 (96.8,99.0) | 98.0 (96.8,99.0) |
| 62-64 | 98.3 (97.2,99.2) | 98.3 (97.2,99.2) |
| 65-67 | 98.1 (96.9,99.1) | 98.1 (96.8,99.1) |
| 68-70 | 97.8 (96.2,99.2) | 97.8 (96.2,99.2) |
| 71+ | 104.2 (102.0,106.0) | 104.2 (102.0,106.0) |
| **All invasive cancers** | **98.7 (98.2,99.1)** | **98.7 (98.2,99.1)** |

| Table 120: 5-year relative survival by invasive tumor size for primary invasive cancers | | |
|---|---|---|
| **Size** | **Un-adjusted** | **Adjusted** |
| <15mm | 100.9 (100.4,101.3) | 100.9 (100.4,101.3) |
| 15-≤20mm | 99.7 (98.8,100.4) | 99.6 (98.8,100.4) |
| >20-≤35mm | 95.8 (94.6,96.9) | 95.8 (94.6,96.9) |
| >35-≤50mm | 93.4 (90.2,96.0) | 93.4 (90.1,96.0) |
| >50mm | 88.8 (83.5,92.9) | 88.8 (83.5,92.8) |
| Unknown | 76.0 (70.6,80.8) | 76.0 (70.5,80.8) |
| **All invasive cancers** | **98.7 (98.2,99.1)** | **98.7 (98.2,99.1)** |

| Table 121: 5-year relative survival by invasive grade for primary invasive cancers | | |
|---|---|---|
| **Grade** | **Un-adjusted** | **Adjusted** |
| Grade 1 | 100.8 (100.1,101.4) | 100.8 (100.1,101.4) |
| Grade 2 | 99.8 (99.2,100.3) | 99.8 (99.2,100.3) |
| Grade 3 | 94.1 (92.9,95.2) | 94.1 (92.9,95.2) |
| Not assessable | 100.4 (89.5,103.4) | 100.4 (89.5,103.3) |
| Unknown | 66.5 (55.7,75.6) | 66.6 (55.8,75.8) |
| **All invasive cancers** | **98.7 (98.2,99.1)** | **98.7 (98.2,99.1)** |

| Table 122: 5-year relative survival by nodal status for primary invasive cancers | | |
|---|---|---|
| **Nodal status** | **Un-adjusted** | **Adjusted** |
| Positive | 95.8 (94.7,96.7) | 95.8 (94.7,96.7) |
| Negative | 99.4 (99.0,99.9) | 99.4 (99.0,99.9) |
| Unknown | 91.1 (40.3,102.2) | 91.2 (40.3,102.3) |
| **All invasive cancers** | **98.7 (98.2,99.1)** | **98.7 (98.2,99.1)** |

| Table 123: 5-year relative survival by NPI prognostic group for primary invasive cancers | | |
|---|---|---|
| **NPI group** | **Un-adjusted** | **Adjusted** |
| EPG | 101.3 (100.5,101.9) | 101.2 (100.5,101.9) |
| GPG | 101.2 (100.6,101.7) | 101.2 (100.6,101.7) |
| MPG1 | 99.1 (98.3,99.9) | 99.1 (98.3,99.9) |
| MPG2 | 95.1 (93.5,96.5) | 95.1 (93.5,96.5) |
| PPG | 87.9 (85.1,90.4) | 87.9 (85.0,90.3) |
| Unknown | 79.1 (74.2,83.3) | 79.1 (74.2,83.3) |
| **All invasive cancers** | **98.7 (98.2,99.1)** | **98.7 (98.2,99.1)** |